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DMAIC is the foundation for Six Sigma methodology

M.A. Moslow & Brothers Sees 20%+ Increase In Production

M.A. Moslow & Brothers, Inc. is a manufacturer of hand-crafted wood products for the trophy and award recognition industry. The company uses North American hardwoods as the primary raw material for producing plaques, trophy bases, clocks and other custom items which are sold nationally to retail outlets. Subsequently, these trophy shops add the brass plates and engraving to personalize the awards that are routinely presented at award ceremonies and banquets.

Domestically, award and recognition products represent a multimillion dollar market; the industry is comprised of component manufacturers, equipment suppliers and retail outlets. Working together, the consumer goods produced can be seen in the plaques that line the walls of the U.S. Capital Building, the



George Wagner (left) and Paul Priester remove irregularities from boards.

trophy cases of the NCAA athletic centers and on bookshelves or fireplace mantles in many homes, institutions and commercial establishments.

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Understanding the Phases of Six Sigma - Part 2: Measure *by Steve Diloia*

This is the second article of a five part series designed to help answer the questions, "Why are we thinking of using Six Sigma? How or when should we use it? What will our ROI be when using it?" Part 1, published in the September/ October 2006 issue of the Affiliate News, discussed the "Define" phase of the DMAIC principle. (Previous issues of the Affiliates News can be found at www.insyte-consulting.com/news.aspx) DMAIC is the acronym created by taking the first letter of each phase in the process: Define, Measure, Analyze, Improve, and Control. DMAIC is the foundation for the Six Sigma methodology. This article will focus on the "Measure" phase.

Introduction

The "Measure" phase uses a series of tools to take snapshots of the current state of the process or system from the 50,000 ft. level down to the ground floor. This phase is critical for the project. It allows the establishment of baseline data to later evaluate impact of the project. This will also allow current targets for performance to be evaluated and revised as needed. Determination of process inputs and outputs are accomplished during this phase. Finally, measurement systems used by, or to monitor the process or system are validated.

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Look at China as an Opportunity

Although China threatens U.S. manufacturing, China provides an opportunity for both sales and sourcing.

At a recent seminar, Insyte Consulting presented the results of an in-depth analysis of seventy-five small and medium-sized U.S. manufacturers to define the attributes of high-growth companies. This analysis, which was conducted by the Manufacturing Extension Partnership and included three WNY companies, determined that there is a strong correlation between company growth and exporting. The strongest correlation (the greatest growth) was experienced by companies that have a disciplined approach to exporting, including a formal international strategy, a strong sales commitment, a strong financial commitment, active involvement by the CEO, and patience.

In international business, U.S. manufacturers are behind manufacturers from other countries because most foreign manufacturers have always traded internationally. Until recently, the large U.S. market provided enough growth opportunities to satisfy most U.S. manufacturers. Since there was no reason to trade internationally, they didn't. Today, most U.S. manufacturers need to play international trade "catch up," because they find their market share increasingly eroded by foreign competitors.

Many WNY companies are experiencing great success in international business, and others are working hard to position themselves for future success. If your company is trying to grow, international business provides a great opportunity. And the MEP analysis would suggest that you, the CEO, need to be directly engaged in your international business. With this in mind, Insyte Consulting, in partnership with the University at Buffalo and the World Trade Center Buffalo Niagara, is inviting local manufacturing

executives to participate in an international selling and sourcing program that includes travel to China. Participants include manufacturers that are already sourcing and selling in China as well as others that are evaluating their opportunities. The first-hand travel experience will be enriched by tours of Chinese manufacturers, networking with regional executives, and preparatory programs regarding selling and sourcing practices. See the program brochure in this newsletter for detailed information.

International business provides no "silver bullets" to save failing companies. To successfully sell internationally, companies need to have competitive costs, quality and service, and provide differentiated products for which customers are willing to pay a premium price. To successfully source internationally, companies need to determine what products/services are appropriate for outsourcing; the decision needs to include more than labor rates. Although labor rates generally favor China and other developing countries, companies need to integrate all costs and risks into their sourcing decisions. Today, too many companies are sourcing the wrong things for the wrong reasons.

International business provides growth opportunities and forces a company to refine its business practices, often helping good companies get even better.

Robert J. Martin

Funding Opportunities

There are still numerous funding opportunities to assist manufacturing and technology companies pursue initiatives that will support operational improvements and work force development. Several of the major programs currently available are:

Industrial Effectiveness Program

This is a participatory grant that has been offered through Empire State Development for over twenty years. The state will reimburse from 1/2-2/3 of out-of-pocket consulting costs companies incur to implement various initiatives that will enable these companies to become more globally competitive. Both the reimbursement rate and maximum reimbursement (\$25-50,000) are based on employment size. The process to obtain these funds requires a basic qualification and assessment of critical issues affecting company growth, profitability and competitiveness.

Environmental Investment Program (EIP)

This is a new program that is also offered through Empire State Development. The purpose is to help manufacturing firms reduce solid waste (i.e. due to scrap, rework, process waste) through the implementation of improvements through new product development and/ or lean manufacturing. This is also a participatory grant where the state will assume up to \$16,800 of the total cost including initial assessment and subsequent implementation.

DOL Training Grants

These have been very popular in recent years. The currently available grant is the 37L, which will reimburse companies for up to \$50,000 of training in a wide variety of areas. While the primary purpose is to provide the work force with transferable skills, these grants have simultaneously supported operational improve-

ment. The Dept. of Labor (DOL) grants have been used extensively for training in lean manufacturing, ISO quality systems, IT and sales/ marketing training. To apply for this grant, the company needs to complete an online application (www.workforcenewyork.org) and contact their local Workforce Investment Board.

NYS Tax Credits for High-Tech Companies

New York State offers tax credits to eligible high-tech firms to grow and prosper within the state. These credits can often be combined to provide significant savings and/ or refunds for both emerging and established high-tech firms. A pdf is available at www.nystar.state.ny.us/Assets/pdfs/taxincentives.pdf#search=%22NYSTAR%2Btax%20credits%22.

An Insyte Consulting representative can provide more detailed information regarding these and other available opportunities by calling 716.636.3626. ❖

Economic Indicators

International Measure	Previous Year	Last Month/Quarter	Current Month/Quarter
Trade Balance - Trade with World, seasonally adjusted, in millions of U.S. dollars	— 62,967 — 8/05	— 71,968.6 — 7/06	— 73,893 — 8/06
National Measures			
Gross Domestic Product - Current dollars and "real" Gross Domestic Product (seasonally adjusted annual rates) in billions of chained 2000 dollars	11,115.1 — 3rd qtr 2005	11,316.4 — 1st qtr 2006	11,388.1 — 2nd qtr 2006
Producer Price Index (PPI) - by stage of processing, seasonally adjusted, Durable Goods	136.9 — 8/05	136.8 — 7/06	135.4 — 8/06
Manufacturing Employment - all employees, thousands	14,187 — 9/05	14,229 (p) — 8/06	14,210 (p) — 9/06
Productivity - Manufacturing output per hour, at annual rate, % change qtr. ago	3.9% — 2nd qtr 2005	3.7% — 1st qtr 2006	2.6% — 2nd qtr 2006
Wages - Manufacturing average hourly earnings of production workers, seasonally adjusted	\$16.60 — 9/05	\$16.83 (p) — 8/06	\$16.82 (p) — 9/06
Manufacturing Sentiment - National Purchasing Managers Index (PMI)	58.1 — 10/05	54.5 — 8/06	52.9 — 9/06
Prime Rate - Bank prime loan rate	6.59 — 9/05	8.25 — 8/06	8.25 — 9/06
Local Manufacturing Measures			
Employment - Buffalo-Niagara Falls, NY Manufacturing employment in thousands, not seasonally adjusted	64.1 — 8/05	61.3 — 7/06	62.2 — 8/06
Manufacturing Sentiment - Buffalo Purchasing Managers Index	51.3 — 9/05	58.6 — 8/06	54.9 — 9/06

P: preliminary, Sources: U.S. Census Bureau, Bureau of Economic Analysis, Bureau of Labor Statistics, Institute for Supply Chain Management, Federal Reserve, New York State Department of Labor, National Association of Purchasing Management - Buffalo Inc.

Supply Chain Management - Strategic Sourcing

by John Rocco

Supply Chain Management is the design, operation, and improvement of the systems required to allow a business to effectively manage information, product, service and cash flow from their customers' customer to their suppliers' supplier. This is the first in a series of articles that will touch on some of the important features of an effective and efficient supply chain management process.

Is Sourcing Strategic?

As more and more companies go global, their supply chains begin to grow longer and more complex, resulting in additional links & stretching linkages (see fig 1). Having a long supply chain is typically not as cheap as a short one.

In this new global environment, sourcing can no longer be considered just a tactical option that may help a firm save a few dollars here and there. It affects so much of your business and your customer's business that sourcing has emerged as a strategic certainty, not as an operational decision. The sourcing movement will continue to progress onward, in spite of occasional missteps, and transform national economies in an age when opportunities

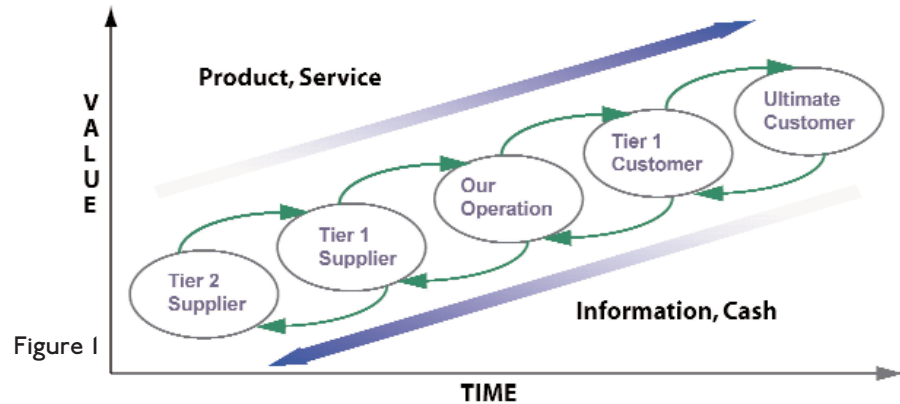


Figure 1

offered by low-cost countries, such as China, India or Mexico, thrive.

It has also become increasingly important that a firm defines a clear policy on what is strategic to their business as well as having crystalline policies on make versus buy (in-source versus out-source). At the heart of this discovery is a need to know your business' core competencies (what you can be the best in the world at) and equally important what are not your core competencies.

Make versus Buy

This takes us to the classic 'make vs. buy' question should you make something internally or buy it in the marketplace. This in itself is not a new issue,

and it's not one that will go away anytime soon. To take a passage from John Adams' *The Wealth of Nations*, (1776) "If a foreign country can supply us with a commodity cheaper than we ourselves can make it, better buy it of them with some part of the produce of our own industry, employed in a way in which we have some advantage...In every country, it always is and must be the interest of the great body of the people to buy whatever they want of those who sell it the cheapest." What has changed however, is that more companies are now engaged in more outsourcing than ever before—and they are doing it in new and innovative ways.

Sourcing Criteria

To support the make vs. buy (in-source vs. out-source) decision, several important variables must be evaluated. Does a decision to 'buy' (outsource) put you at a strategic vulnerability (proprietary technologies and techniques) or expose you to unacceptable risks (Intellectual property protection, etc.). If the answer to these questions is no, you may want to strongly consider 'buy' (out-source) as your sourcing decision.

Now the big question is 'where in the world to buy from'. For most domestic businesses, the choices range from local to national to off shore sourcing.

Factors for Source Selection

- communication and language barriers
- freight and duty
- geographic or logistical barriers
- transitory inventory
- environmental responsibility
- logistic relationship
- freight
- overhead in original location
- safety stock
- high duties - tariffs and import taxes
- expedited shipments
- warranty claims
- relationship management
- obsolete goods
- creating competitors
- currency and country risks
- engineer visits
- technical support, etc.

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New Hires & Certifications



Sharon Hilts (L) joins Insyte Consulting as a consultant with over 18 years of manufacturing experience in process engineering, materials management, quality, and safety. Ms. Hilts is a Certified Quality Engineer and has completed Six Sigma Green Belt training. Sharon holds an MBA, with concentrations in Manufacturing and Operations Management and Marketing, and a BS in Industrial Engineering from the University at Buffalo. **Andrea Schultz** (C) is our new accountant. Ms. Schultz has over six years of financial experience working in business environments and coordinates Insyte Consulting's financial operations. Ms. Schultz is a Certified Public Accountant and holds a BS in Business Administration from the University at Buffalo and Post Baccalaureate Accounting courses from the Oregon Institute of Technology. **John Rocco** (R), a manufacturing consultant with Insyte Consulting for the past two years, was recently recognized as an APICS Certified Supply Chain Professional (CSCP).

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Important factors that must be considered when deciding on source location include (but are not limited to): communication and language barriers, freight and duty, geographic or logistical barriers, transitory inventory, environmental responsibility, logistic relationship, freight, overhead in original location, safety stock, high duties; tariffs and import taxes, expedited shipments, warranty claims, relationship management, obsolete goods, creating competitors, currency and country risks, engineer visits, technical support, etc.

Summary

Today's successful supply chains need to be lean and nimble. To become inflexible and static is to risk being overtaken by competitors with more responsive and current systems. Ultimately there is no single "best" sourcing policy. Any policy that

seems suitable at a given time is likely to not be appropriate down the road. The ability to think through and continually revisit the make-buy process appears to be the most important skill.

Our Next Issue will focus on the development of strategic suppliers and managing supplier relationships.

Insyte Consulting can assist with your supply chain management decisions. Contact us at 716.636.3626 for more information.

John Rocco is a manufacturing consultant with Insyte Consulting. John is certified by APICS as a Supply Chain Professional (CSCP) and in Production & Inventory Management (CPIM). John is also certified in Logistics, Transportation & Management (NU-LTM). ❖

Suggested Reading

The World is Flat: A Brief History of the Twenty-first Century

by Thomas L. Friedman
Publisher: Farrar Straus Giroux;
Expanded and updated edition
(April 30, 2006)

New York Times, Pulitzer-Prize-winning columnist Thomas L. Friedman weaves together facts and ideas known to most business leaders to explain how information technology that enables us to communicate around the globe in "real time" is forever changing our world. For Americans at the top of the economic pyramid, this seems a threat. For developing and third world countries, this presents a great opportunity. Friedman suggests the flattening world is a revolution equivalent to the industrial revolution; it is disrupting our cultural as well as our business paradigms.

This book is guaranteed to stimulate strong emotions from readers. Whatever the emotions, hopefully it will help Americans to think more globally and stimulate their competitive spirit. ❖

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What is the current state of the process / system?

First, it is important to describe what the current state is. In other words, "What is currently going on?" To gain an understanding of the current state, a value stream map (VSM) is usually employed. VSM allows a high level look at the process as it relates to the organization as part of the system of inputs and outputs. VSM will identify those inputs that are critical and potential areas that need improvement.

This is also the time when a detailed process map, specific to the problem process, can be created. This is a step by step flow chart or outline of how the process is operated. The key is not just taking current work instructions and using them during this step. This can potentially lead to misunderstanding of the current state for a couple of reasons. 1) If the work instructions were created at an earlier time they may not be updated to the present way of performing the operations. 2) Operators performing the tasks could



have developed new techniques that are not reflected in the work instructions.

Finally, by focusing the view closer to ground level, a cause and effect analysis can be performed. By reviewing the VSM and process map, along with brainstorming with the team, those inputs that are thought to influence certain outputs or issues can be documented.

Do we have valid data?

The final stage of the "Measure" phase is to review the data that discussions are based on to ensure that it is appropriate and valid. The first part is to review that the metrics or data being monitored are appropriate for the process or issue under consideration. To assist, the question to ask can be, "Is the metric being used truly related to the process under consideration and does it allow understanding into the performance?"

The second part is verifying the validity of the measurement data. The easiest way to attack this is to perform a Gage R&R (Gage repeatability and reproducibility). This will show if the measurements sys-

tem can detect the variation in the process while being accurate.

Conclusion

The "Measure" phase, as simple as it sounds, can become a bottleneck to the project. It is very hard to plan improvements without understanding the current state. It also becomes very hard to identify potential issues, or even where to begin in solving the problem. While you may know where to focus, how to solve the issue, or prove that the problem was solved becomes nearly impossible without valid data. An experienced Six Sigma Black Belt from Insyte Consulting can facilitate a team through this phase with success. Contact us at 716.636.3626 for further information on how Insyte-Consulting can assist you in your Six Sigma implementation. Our next issue explains how the "Measure" phase assists in the "Analyze" phase of DMAIC.

Steven Diloia is a manufacturing consultant with Insyte Consulting. Steve was trained and certified through Motorola as a Six Sigma Black Belt and certified through SixSigma.US as a Master Black Belt. ❖

M.A. Moslow continued from page 1

Founded over 80 years ago, M.A. Moslow & Brothers' manufacturing operations are conducted within an older, one-story facility on a single shift basis in Buffalo, NY. The family-owned business employs 16 people, including 12 unionized production personnel (members of International Association of Machinists and Aerospace Workers-local #330).

Situation

In recent years both sales and profit margins had declined steadily and significantly. Not only did the company confront substantial domestic competition, but increasing imports, particularly from China, further eroded market share and minimized future growth potential.

Of particular concern was the lack of modern manufacturing and business processes utilized and how to implement the necessary changes within the office, production and other support areas.

While M.A. Moslow & Brothers had benefited from a very low

employee turnover rate, this also contributed to the company's reduced competitiveness. The average length of service for all 16 employees was nearly 25 years. Furthermore, the required skills and educational background of most workers were somewhat limited and stagnant because of this situation. The company also had virtually no information technology within the administrative areas, which seriously limited its ability to effectively conduct business, both internally and externally.

Management recognized an urgency to assess the situation and to quickly identify actions that would reverse this serious decline. The in-house analysis clearly pointed to the need for modernization of the manufacturing methods and business practices that were being used, some of which dated back several decades. To accomplish this, the company would need to introduce elements of technology, process improvement and work force development. With limited internal resources, M.A.

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Moslow & Brothers engaged Insyte Consulting for the purpose of introducing, implementing and sustaining the desired changes throughout the organization.

Solution

The first step was to automate the information flow among various front office activities,

including order entry, billing, general ledger, and customer/ relationship management. This included the installation of the appropriate internal network and infrastructure (e.g. file server, work stations, etc.) and the selected software to support this automation.

Simultaneously, e-mail accounts and internet access were established for all administrative personnel.

With the introduction of basic information technology into the business, an upgraded accounting package (Quick Books) was also implemented. The staff readily adapted to automation upon receiving adequate tutorial training from Insyte Consulting personnel.

Once improvements were realized within the administrative functions, attention was directed toward improving performance in the manufacturing area. It was believed that the company could differentiate itself from foreign competition by providing faster delivery times and customized service. Lean manufacturing was seen as a means of achieving this desired competitive advantage.

The first step was to introduce all employees to the principles of lean manufacturing through a full-day workshop which combined classroom lecture with a live simulation. Not only did this session provide basic knowledge in lean manufacturing methodology, but the participants were also able to relate to how these concepts could be applied in their specific work areas.

The next step was to complete a high-level value stream map of the entire organization. Subsequently, the value stream mapping exercise for both current and desired future states enabled the combined teams of M.A. Moslow & Brothers and Insyte Consulting to formulate a comprehensive implementation

plan utilizing the appropriate tools of lean manufacturing for each of the major product lines. Based on the results of the mapping process, cross-functional teams were established for work place organization (5S), setup reduction, cellular flow and pull systems (Kan Ban). After receiving basic training and orientation, the teams began introducing these concepts into key production areas.

The improvements realized

through the lean manufacturing initiative enabled the company to reduce lead times, improve customer response and uncover substantial hidden capacity, which could be utilized through an intensified marketing campaign designed to reverse the sales decline and expand the business base. New business growth was generated both through existing channels of distribution as well as a new emphasis on e-commerce that utilized the new information technology capabilities.

Of particular significance was the company's ability to sustain and leverage the improvements made. Lean office techniques were subsequently introduced to the administrative areas. Not only did this improve overall efficiency, but also improved communication between production and the support functions. Likewise, further actions were taken to expand the lean implementation within the plant and additional marketing programs were implemented to further accelerate new business growth. ❖

“Insyte Consulting has helped us understand current business processes and the benefit of implementing them at M.A. Moslow Brothers. As a result of these changes, I am able to spend more time on strategic issues and less time on routine operational issues.”

Dave Moslow, President

Firm Benefits

- 3 week reduction in production lead time
- 20%+ average increase in production
- 25% increase in sales per employee
- Quality issues have decreased



Scott Piotrowski stains plaque prior to finishing with lacquer top coat.

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Insyte Consulting assists WNY manufacturing and technology companies to overcome their strategic and tactical business challenges. Whether it's a short-term engagement or a long-term commitment, we create positive change.

Because our employees have hands-on experience, we can help our customers see the opportunities and threats that lie ahead. We're always ready to roll up our sleeves to help get results — results you can measure.

We also place a strong emphasis on teaching our customers proven methods for maintaining and replicating the success that has been achieved. Knowledge combined with common sense — that's how our experience improves your business.

Our experience improves your business



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