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On-Time Delivery Increases to Over 97% at PCB Machining

Situation - Internal Processes and Methods Need to Improve

PCB Machining experienced poor on-time delivery with its main customers. This level of performance resulted in the company being placed on limited status (i.e. ineligible for new business consideration) by one of its three key customers. Also, expectations of company management and customers were not being met. Company management recognized that improvement to both internal processes and methods was needed in order to resolve these problems.

Company Background

PCB Machining Solutions, Inc. (owned by PCB Group) is a manufacturer of precision parts for aerospace, automotive and various other industrial applications. The company, established in 1994, has been under its present ownership since 2004. Most of the company's products are sold to three local companies, all of whom are part of major national and international supply chains. High-profile companies such as Raytheon, Lockheed Martin, Boeing, Airbus and NASA produce



PCB Machine's Rob Muscoreil (Green Belt) prepares fixture prior to loading into horizontal mill.

products that include components manufactured by PCB Machining.

The company conducts manufacturing operations in Lackawanna, NY within a modern, single story facility of 20,000 square feet on a three shift basis and employs about 50 people. Although there is extensive competition for machined precision parts, the primary competition for PCB Machining is actually its major customers. Therefore, it is critically

PCB Machining continued on page 7

Texting is *NSFW* (Not Safe for Work)

by Sharon Hilts

Texting, laptops, video gaming with joysticks, Guitar Hero®, or the Nintendo Wii™ sounds like child's play. Harmless fun or is it? Teenagers today, and let's face it, many of us adults, are indulging in these activities for communication, information and just plain fun. But we're not just indulging a little, we're indulging a lot. Maybe you've

heard the recent news on teen texting. WIVB.com reported that a teenager from Texas sent over 8,000 text messages in one month. In fact, current research found it's not unusual for a teenager to average 2,000 texts a month (ref. KDAF-TV). All this repetitive motion has an impact on the body. In

Texting is NSFW continued on page 6



Diversify to Increase Revenue & Reduce Risk

by Benjamin Rand

Diversification is a hot topic these days, as the 200+ attendees of the recent Wind Component Manufacturing Symposium in Buffalo demonstrated. Diversification will help you simultaneously grow your revenues and reduce your risk from over reliance

on any single market or customer.

The companies that are hurting the most in the current downturn are those that failed to diversify. They relied too heavily on one market (e.g., automotive) or a few major customers (customer concentration) for the vast majority of their business. When that market or those customers went sour, the business suffered. Companies with a well diversified customer base serving multiple markets may still be struggling, but they will generally fare better and recover faster from an economic downturn.

The Risks

The real risks for undiversified companies are not a general economic downturn, but market- or customer-specific shocks. If you rely on one customer for a large portion of your sales, your business is at risk should that customer go bankrupt, switch suppliers, merge, drop the product line, sell-off the business, etc., no matter how well the overall economy is doing. The expert consensus is that more than 10-20% of sales from one customer, or 30% of sales from your top three customers, represents significant customer concentration risk.

A heavy reliance on a single market presents a different type of risk, but for similar reasons. Even if your customer base is well diversified within that market, your business will still suffer from market-specific downturns or disruptive changes that affect only that industry. For example, the mini-computer market was once huge and included iconic companies like Digital Equipment Corp. But the advent of a disruptive technology (the PC) changed the game and ultimately killed the whole industry.

It doesn't take a dramatic change like a bankruptcy or a disruptive technology to negatively impact your business. Lack of diversification can hurt your business in subtle ways. Lenders may be

reluctant to loan to you if you are not diversified (SBA loan applications ask if one customer represents more than 10% of your A/R). If you are trying to sell your business, buyers who don't shy away completely may discount their offer and/or structure the pay-out to offset your customer concentration risk.

The Alternatives

There are four fundamental options for growing your business as illustrated in the chart. The shaded options represent opportunities to diversify beyond your current market and customers.

		Products	
		Present	New
Markets	Present	Market Penetration	Product Development
	New	Market Development	Diversification

Ansoff, *Strategies for Diversification*, Harvard Business Review 1957

The key for any of these options is to do your homework. First, clearly identify your company's core competencies. What capabilities differentiate you from your current competition and cause customers to buy from you? These are the capabilities you will want to emphasize in your efforts to diversify. Second, research your target market to be sure you understand the critical success factors needed for that market. Current suppliers at the Wind Symposium emphasized the importance of supplier quality and reliability because of the extreme costs involved to fix or retrofit wind turbines.

Diversification requires focus and effort, but it will reward you with higher revenue and lower risk.





Ask the Business Doctor

Question: "Does lean apply in a job shop environment?"

Steve D., Cheektowaga

Answer: The quick answer is yes, of course it does.

Remember, the definition of lean is: "A systematic approach to identifying and eliminating waste."

The eight wastes that need to be eliminated have been identified as: overproduction, waiting, transportation, non-value-added processing, excess inventory, defects, excess motion and underutilized people. If you have a customer and a product you incur many of these wastes.

Historically lean has been associated with use in repetitive manufacturing. A job shop is typically a small custom

manufacturer with specialized manufacturing processes and skill sets working on multiple small quantity customer orders, handling high variety, low volume orders.

The defining difference in implementing lean between a repetitive manufacturer and a job shop is the type of analysis and tools that are used to identify and eliminate the waste that is occurring. The tools often deployed in make-to-order environments are quick setup, small lot production, pull, cross training, TPM, 5S and visual systems.

The application of lean is applicable in all manufacturers: process, repetitive, make-to-order, engineer-to-order and large, one of a kind processing – both on the shop floor and in the administrative areas. It is not even limited to manufacturing industries; it is being implemented in service, distribution, medical and government. Anywhere you want to improve the process to satisfy your customer, you can use lean initiatives; the key is to know which tool to use in which situation. ❖

Have a question for the Business Doctor? call Karen Delius at 716.636.3626 or Email kdelius@insyteconsulting.com

Jim Johnson, an Insyte consultant with over 25 years of diversified manufacturing experience, provided the answer to this month's question.

2009 ASQ "Lean Six Sigma" Conference

October 13 & 14
Millenium Airport Hotel

Keynote Speakers:

Hon. Christopher Collins,

Erie County Executive

Al Hammonds,

Deputy Erie County Executive

Bill Carey,

Erie County Director Six Sigma

Insyte's Sharon Hilts and Steve Diloia will present, "Using Lean Six Sigma for Environmental and Safety Improvements."



Hilts

Diloia

Quinn

Thomas Quinn and Steve Diloia will present, "Application of Office-Based Lean Six Sigma Tools."

Stop by the Insyte Consulting booth to learn how Insyte can help your business become more profitable.

For more information or to register for the conference visit:

<http://www.asqbuffalo.org>

National Grid Funding

A funding opportunity continues to be available for manufacturing companies (NAICS codes 31-33) that are located within the National Grid service area. Operational improvements (e.g. lean manufacturing and Six Sigma) can be reimbursed at a rate of 40% or \$15,000. Marketing projects (e.g. Eureka Winning Ways and other top line growth initiatives) can be reimbursed up to \$15,000 but at a 50% rate. For companies electing to do both types of projects, the maximum reimbursement increases to \$40,000 at a 60% rate.

Three local companies already approved for funding are:

- Ring Precision – \$39,975
- Precision Specialty Fabrications – \$23,730
- PlasticWeld Systems – \$5,000

Several other companies also have grant applications pending. Funding is limited. If you have interest in pursuing this National Grid opportunity, please contact John Murray 716.864.8675 or Bill Shepard 716.984.7949 at your earliest convenience. ❖

USA National Innovation Marketplace Connects Innovators and Companies



The U.S. Department of Commerce NIST MEP network, in collaboration with Eureka! Ranch International, recently launched the USA National Innovation Marketplace, an online tool to connect companies looking for new growth opportunities with innovators that seek partners to get their products and technologies to market. The USA National Innovation Marketplace, part of an international network of marketplaces, is designed to help accelerate communication, connection and alliances to enable smarter, faster and cheaper innovation.

The Marketplace allows manufacturers and other companies to find:

- Innovative products or technologies available for purchase or license
- New product distribution opportunities
- Contract manufacturing or R&D work
- Innovative companies seeking investment

Becoming a member is simple and free by logging on to

www.usainnovation.org. Users can search the Marketplace for innovative products and services or can publish requests that generate email notices when new matches enter the Marketplace. Opportunities are described in a printable, comprehensive Merwyn Business Simulation Report. This report describes the idea, its stage of development, intellectual property status, and quantifies its odds of success, sales forecasts and potential royalty rates. Communication through the Marketplace's confidential message system does not disclose personal information unless the user chooses to release it in the text of the message.

Innovators participate in the Marketplace by submitting detailed information and assumptions and the fee to generate a Merwyn Business Simulation Report. At the innovator's option, the report is then published to the Marketplace.

Insyte Consulting is a licensed provider of the Eureka! Winning Ways system for accelerating profitable growth. Contact us at 716.636.3626 for more information about the USA National Innovation Marketplace or Eureka! Winning Ways. ❖



\$eedNY Campaign Advocates for Funding for Startup Companies

Rochester-based Excell Partners Inc. has launched \$eedNY, a public awareness campaign focused on informing community stakeholders about the critical role that seed funding plays in establishing an entrepreneurial ecosystem that can transform New York into an innovation-based economy. The campaign kicked off with informational meetings in Rochester on July 7 and Buffalo on July 8. At these meetings, Judy Albers and Theresa Mazzullo of Excell Partners presented the findings from "Venture Capital and Seed Activity in NYS: Perception, Reality and Unrealized Potential", a study released by Excell Partners in February, 2009.

New York State is a Leader in R&D, but Lags in Seed and Venture Capital Funding

Statistics compiled by Excell Partners indicate that New York universities and academic research centers received \$4.5 billion in R&D spending in 2006, second only to California. In commitments to state-supported venture funds, however, New York ranked twenty-fifth, whereas California, Pennsylvania, Texas and Maryland all ranked in the top ten. In addition, New York companies received only 4% of the nation's total venture capital, while California companies received 48%. Although New York based venture capital firms invested \$2.8 billion in 2007, only \$250 million of this amount was invested in New York State companies.

Seed Funding Needed to Get Through the "Valley of Death"

The Excell Partners report also shows that less than 4% of New York VC invest-

ment was made in seed stage (pre-revenue) companies. This causes a capital gap known as the "Valley of Death," the period in a young company's life cycle when it is not advanced enough to attract venture capital but needs capital to complete prototypes, file patents, hire management and launch product sales. Private "angel" investors and New York's Small Business Technology Investment Fund fill some of this gap, but have limited resources. States such as Massachusetts, Pennsylvania, Texas and Maryland have developed and provide significant funding to state-supported seed funds that help companies to bridge the gap from seed to the stage when venture capitalists typically enter the market. For example, Pennsylvania's

Ben Franklin Technology Partners provides \$20 million annually in seed capital to bridge this gap.

\$eedNY's Proposal

\$eedNY proposes that New York State create a state-supported seed fund proportionate to the enormous level of academic R&D in the state. Excell Partners estimates that a company typically receives \$500,000 - \$750,000 to get through the seed stage. \$eedNY advocates that New York State provide enough seed funding to support approximately 50 companies per year.. \$eedNY plans to hold additional meetings in Syracuse, Albany and Long Island later this year. Additional information, including a copy of Excell Partners' report, is available at www.seedny.org. ❖

Seed Funding Facts

- California ranks #1 in the nation for university-based R&D, and receives 48% of the nation's venture capital
- New York ranks #2 in the nation for university-based R&D, but receives only 4% of the nation's venture capital
- 72% of capital invested by California VCs remains in-state.
- 9% of capital invested by New York VCs remains in-state
- New York VCs invested \$1.1 Billion in California startups in 2007
- California VCs invested \$166 million in New York startups in 2007

Visit www.seedny.org

Texting is *NSFW* continued from page 1

fact, the medical community is seeing the results frequently enough in teens that they've even named it, "Texting Teen Tendinitis."

So what?

Most local manufacturers probably don't employ a significant number of teenagers. However, within the next five

years, teenagers will be entering into the workforce with physical conditions that would have taken their predecessors years to acquire. So how can you separate the impact of repetitive motion from activities outside of work versus those resulting from job tasks? The answer is simple – you can't.

Aggressive proactive measures have to be taken to prevent injury to a more sensitized group. So pull out the big guns – use Six Sigma's DMAIC approach:

Define

Prevent repetitive motion disorders in employees.

Measure

This part gets tricky. You don't want to wait for an injury to occur and then measure it. In other words, don't use a lagging indicator. Identify a leading measure (something that can lead to a repetitive motion disorder). Try using a job hazard analysis to identify the number of repetitive tasks or motions that occur in a job. Or, count the number and duration of awkward postures that are required over the course of a workday. Employee surveys can also be used.

Analyze

Prioritize jobs in terms of likelihood of injury and evaluate options to reduce or eliminate the contributing factors. Consider workstation design, job rotation, adjustable chairs and tables, specialized tooling, rest breaks, and, always, education.

Improve

When implementing improvements, the formula to success (Amick, Brewer, Tullar, et al., 2009) (Bridegan, 2008) is to engulf efforts in an ergonomics program which:

- Is supported by company policy
- Makes sufficient resources and appropriate technology available
- Provides positive reinforcement

- Includes a wellness program
- Includes broad-based ergonomics training

Training is important to reducing repetitive motion disorders especially to combat contributors from outside of work. Make sure that training identifies hobbies and home activities that can lead to repetitive motion disorders.

Control

Use the measurements system initially established to track the effectiveness of the improvements that are put in place. Don't be afraid to modify the ergonomics program to continually increase its effectiveness.



Remember teenagers are not the only employees that are using today's new technologies. Other members of your workforce like cell phones and electronic games too. It will become increasingly important for organizations to have effective ergonomics programs.

J2LYK (just to let you know) if u (you) WAN2TLK (want to talk) about reducing repetitive motion disorders, you can contact me at 716.636.3626.

Sharon Hilts is an Insyte consultant. Her leadership focus on safety improvement has resulted in significantly fewer recordable incidents and corporate awards in OSHA's Safety and Health Achievement Recognition Program (SHARP). ❖

The Sierra Club suggests...

5 Ways to Go Green at Work – *Make it a Habit to...*

- 1 **Be Bright About Light** – Turn off the lights when you leave any room for 15 minutes or more, utilize natural light when you can, & buy Energy-Star-rated light bulbs and fixtures.
- 2 **Maximize Computer Efficiency** – Turn off your computer and the power strip it's plugged into when you leave for the day and, during the day, set your computer to go to sleep automatically when not in use.
- 3 **Print Smarter** – Print on both sides or use the back side of old documents for faxes, scrap paper, or drafts. Recycle toner and ink cartridges and buy chlorine-free paper with a higher percentage of post-consumer recycled content.
- 4 **Go Paperless When Possible** – Think before you print; could this be read or stored online? Also request to be removed from unwanted junk mailings.
- 5 **Ramp Up Your Recycling** – Recycle everything your company collects – just about every kind of paper, envelopes, junk mail, old cell phones, PDAs, computers, and pagars. ❖

PCB Machining Case Study



PCB Machining continued from page 1

important that PCB Machining continue to produce components with superior quality at a lower cost than its customers can produce internally.

Solution - Train Staff in Lean Six Sigma Methodology to Address Process Variation and Waste

After thoroughly scoping the situation, Insyte Consulting and company management believed that a Lean Six Sigma methodology would enable the company to better determine root causes and subsequently introduce the appropriate corrective actions to these problems. Six

Sigma addresses process variation and is very compatible with lean manufacturing activities that are intended to address process waste. Ten individuals from both management and production were trained and certified as Six Sigma Green Belts (7) and Black Belts (3) in order to facilitate the introduction of Lean Six Sigma into the organization. Insyte Consulting was selected over several other vendors to provide the training for this initiative due to its hands-on approach and offsite facility.

Lean Six Sigma training was provided in half-day, weekly classroom sessions. In addition to the formal training, each participant was required to successfully complete a project that applied the concepts presented during the training sessions. The participants, divided into teams of 2-3 individuals, addressed specific problem areas described below:

- **Green Belt:** three projects were initiated for the purpose of addressing issues prevalent on the shop floor—specifically the saber mill, the rotary cell and de-burring areas. In general the intent was to

find means to:

- reduce tooling time
- extend tooling life
- accelerate changeover times
- **Black Belt:** the three candidates worked together to determine opportunities to significantly improve on-time delivery and subsequently customer satisfaction.

“The Six Sigma training through Insyte Consulting provided a disciplined approach to problem solving that has carried through all of our business and manufacturing activities.”

Dave Roy, Quality Assurance Manager/ Black Belt

The four teams actively worked to evaluate the problems and develop solutions based on Lean Six Sigma principles and techniques presented in the formal training. Significant progress was made in resolving each of the

problems addressed with the direction and guidance of the Insyte Consulting instructor.

Results - 7 Green Belt & 3 Black Belt Certifications + \$1.2 Million Estimated Financial Impact

All ten individuals received their respective Green Belt or Black Belt certifications and PCB Machining received exceptional and immediate impact as a result of these four projects. On-time delivery increased from 77% to consistently above 97%, reducing the back log of past due orders by 95%. Overall total throughput increased by over 8%. The financial impact of these improvements is estimated at \$1.2 million, which translates to an average ROI of over 2500% per project. As a result of this initiative PCB Machining was removed from limited status by a key customer and is realizing numerous other new business opportunities. Overall the company now has stronger manufacturing teams with improved responsiveness and increased accountability at all levels of the organization. ❖

Firm Benefits

- Obtained 7 Green Belt & 3 Black Belt certifications
- On-time delivery increased to over 97%
- 95% decrease in backlog of past due orders
- 8% increase in total throughput
- \$1.2 million financial impact estimated—translates to an average ROI of over 2500% per project
- Removed from limited status by key customer
- Numerous new business opportunities realized



PCB Machine's Pete Boruszewski (Green Belt) produces part on Mazak lathe.



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Insyte Consulting is a Western New York
Technology Development Center, Inc. company.

This publication is funded in whole or in part by
NYSTAR. Any opinions, findings, conclusions or
recommendations expressed in this publication
are those of the author(s) and do not necessari-
ly reflect the views of NYSTAR.

Principles of Lean Manufacturing

Join Insyte Consulting for a fast-paced, information-packed session that will show you how to reduce costs, speed up delivery times and improve quality in your manufacturing operations.

Date: Wednesday, September 23, 2009

Time: 8:00 AM - 4:30 PM (coffee & networking 7:30 AM)

Site: LCo Building, 726 Exchange Street,
6th Floor, Barton Room, Buffalo NY 14210

Cost: \$75.00
(includes lunch & training materials)

For more information or to register visit
www.insyte-consulting.com or call 716.636.3626.

This interactive workshop introduces the basic concepts of lean manufacturing and demonstrates the tools and methodology necessary to implement "lean" on the shop floor by combining a comprehensive classroom presentation with hands-on simulation of a production facility. ❖

Need Content for your Company Newsletter or a Good Speaker for Your Next Meeting?

Many of the articles in the *Affiliates News* are available for reprint. In addition, Insyte can provide speakers, versed in a variety of topics, for your audience. Contact Karen Delius at 716.636.3626 ext. 301 for information. ❖

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