

Inside:

Page 2

■ President's Message

Page 3

■ QS 9000:1998 Certification to Expire

■ BDF Funding

■ Economic Indicators

Page 4

■ RFID: Lemons or Lemonade?

Page 5

■ SATOP - Technical Assistance from NASA

■ RoHS Deadline

■ Cornell Technical Resources

Page 6

■ Cellular Flow

Manufacturing Consolidation Benefits Curtis Niagara

Curtis Niagara, LLC (formerly known as Curtis Screw) is a manufacturer of screw machine products. The Buffalo, NY company's primary market is OEM sales to the automotive industry, including Tier I manufacturers. Because of its automotive emphasis, Curtis Niagara is registered under TS 16949 (the current ISO 9001 standard for automotive) and ISO 14001 (environmental). The company, founded in 1905, had grown to approximately \$75 million in annual sales. Local employment is about 320 workers, including its 250 unionized production workers split between the two manufacturing facilities. The original, headquarters facility (plant 1) was comprised of approximately 92,000 square feet on three different levels, which adversely affected both logistics and material flow. The company also owned a single-level facility (plant 2) of 150,000 square feet within an older industrial park complex. Although this site presented some improvements over the original site, there were still major issues in regard to production flow and logistical limitations, particularly for shipping and receiving activities. The company also had two modern, non-union facilities in North Carolina and Connecticut which employed 100 and 50 people respectively.

Situation

The company recognized the inefficiencies related to multiple production facilities. It believed that significant cost savings and productivity improvements could be realized through a consolidation of the two Buffalo operations into a single state-of-the-art facility.

Merely increasing productivity and reducing costs, however, were not the only considerations of the company's senior management. It was also important that the new facility offer

the opportunity to provide Curtis Niagara's customers with increased production capabilities as well as additional value-added products and services. The company is also committed, as seen by its ISO 14001 registration, to environmental factors, particularly recycling. Finally, there was also a strong desire to provide the workforce with a cleaner, safer and brighter working environment.

Solution

The company initially approached Insyte Consulting regarding an analysis of alternatives for the consolidation of manufacturing activities into a single site. The alternatives were seen as consolidation within one of the existing local facilities, acquisition of an existing building or new construction. A joint team of Curtis Niagara and Insyte Consulting personnel was organized to evaluate the alternatives, determine an optimal solution and to subsequently plan and execute the consolidation.

The subsequent project to complete the consolidation was broken down into three primary

Curtis Niagara continued on page 7



View of Curtis Niagara's new 150,000 square foot state-of-the-art facility.

Thoughts on Product Development

This issue of the *Affiliates News* has articles on a number of different topics. A group of these articles has a common theme: product development. I would like to share some thoughts on product development.

If you regularly read the *Affiliates News* or are one of the more than six hundred local companies that have worked with us, you probably understand our basic philosophy. We believe that both product differentiation and process excellence are needed to maintain the global competitiveness of U.S. manufacturing. The heart of product differentiation is product development: providing your customer with a product/service with greater value than your competition...as perceived by your customer.

Regrettably, most small and medium-sized manufacturers are not skilled in product development. They have neither reduced product development to a process nor embedded it into their culture. They typically treat product development as an engineering function or an after thought. There, however, is hope for these companies. A strong product development process is easily developed. Changing a company's culture to effectively implement the process is more difficult, because it requires cooperative input from many business functions: marketing, sales, engineering, procurement, manufacturing and finance. Successful implementation largely depends on strong leadership, focused teamwork and good performance measures.

Help with product development is available. Academics and government alike have recently identified innovation (in product development, process technology and business models) as the key to the future of U.S. manufacturing, and they are trying to help manufacturers become more innovative. Unfortunately their efforts are new and poorly coordinated, so manufacturers must sort through a smorgasbord of programs to find what they need. Insyte Consulting has evaluated the NASA and Cornell University programs mentioned in this issue of *Affiliates News* and recommend them. We also recommend the NYS Centers

for Advanced Technology located at the major NYS research universities including UB and Alfred University. They have a mandate to help NYS companies. Also, the Small Business Innovative Research (SBIR) program provides funding under a competitive process to pay for innovative commercial development. The staff at Insyte Consulting can help you understand and access these resources.

Technology innovations, when used creatively, can differentiate products/services. For example, look creatively at the article on RFID on page 4. RFID is more than an improvement to bar coding; it is a communication device. One creative company manufactures a product with a consumable component using RFID to prevent the substitution of "knock-offs" for the component. Perhaps RFID provides an innovative possibility for your company. Insyte Consulting believes that innovation and creativity are critical for successful product development.

Of course Insyte Consulting would enjoy helping you improve your product development process. Whether you use us or do it yourself, we encourage you to make product development a strategic priority, because differentiated products/services are a key to your future.

Robert J. Martin

QS 9000:1998 Certifications Expire 12-14-06

On December 14, 2006 all certifications that reference QS 9000:1998 (including TE 9000, the Tooling and Equipment Supplement to QS 9000) will officially expire.

Many QS 9000 certified companies will be required to update their management systems to ISO/TS 16949:2002. Minimally, ISO 9001:2000 will be required for most all suppliers to the automotive industry.

How will I know what standard I must be certified to?

Ask your customers. It's likely that if you are a manufacturer in the OEM car, truck, bus or motorcycle supply chain that you will be required to be certified to ISO/TS 16949:2002 (minimally ISO 9001:2000).

Will the expiration deadline be extended?

December 2006 is already an extension to the expiration of ISO 9001:1994 which occurred in December 2003. There will be no additional extensions. ❖

BDF Funding Available

BDF awardees John Lordi, Ph.D. (L) and James Garvey, Ph.D. (R), founders of Buffalo BioBlower Technologies LLC, (\$200,00 BDF investment) discuss their technology with Congresswoman Louise M. Slaughter (C) at 8-15-05 press conference.



The Western New York Business Development Fund (BDF) is a venture capital fund that invests in early stage WNY companies. It is a collaborative partnership consisting of the TDC Foundation, Empire State Development, the Erie County Industrial Development Agency and the University of Buffalo Foundation. BDF invests in two phases — Phase 1 amounts up to \$50,000 and Phase 2 amounts to \$150,000. Both Phase 1 and Phase 2 have matching requirements from the company founders or outside investors.

The BDF is actively soliciting business plans from new technology businesses in the Western New York area. For more information about funding from the BDF, contact Ed Hutton at Insyte Consulting, 716.864.1025. ❖

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	-54,324 - 9/04	-62,563 - 8/05	-69,719 - 9/05
National Measures			
Gross Domestic Product - Current dollars and "real" Gross Domestic Product (seasonally adjusted annual rates) in billions of chained 2000 dollars	10,808.9 - 3rd qtr 2004	11,089.2 - 2nd qtr 2005	11,206.1 - 3rd qtr 2005
Producer Price Index (PPI) - by stage of processing, seasonally adjusted, Durable Goods	137.0 - 5/05	137.4 - 9/05	136.2 - 10/05
Manufacturing Employment - all employees, thousands	14,337 - 11/04	14,259 (p) - 10/05	14,270 (p) - 11/05
Productivity - Manufacturing output per hour, at annual rate, % change qtr. ago	4.4% - 3rd qtr 2004	3.6% - 2nd qtr 2005	4.5% - 3rd qtr 2005
Wages - Manufacturing average hourly earnings of production workers, seasonally adjusted	\$16.29 - 11/04	\$16.71 (p) - 10/05	\$16.71 (p) - 11/05
Manufacturing Sentiment - National Purchasing Managers Index (PMI)	57.6 - 11/04	59.1 - 10/05	58.1 - 11/05
Prime Rate - Bank prime loan rate	4.93 - 11/04	6.75 - 10/05	7.00 - 11/05
Local Manufacturing Measures			
Employment - Buffalo-Niagara Falls, NY Manufacturing employment in thousands, not seasonally adjusted	66.4 - 10/04	66.0 - 9/05	66.4 - 10/05
Manufacturing Sentiment - Buffalo Purchasing Managers Index	61.9 - 12/04	51.3 - 9/05	55.9 - 11/05

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.

RFID: Lemons or Lemonade?

The following is a summary of an article written by Rick Korchak who works for NIST/MEP and is the Radio Frequency Identification (RFID) Practice Area Coordinator for the national system. This article is the first of a three part series on RFID technology, starting with a summary of what RFID is and who's using it. Future articles will provide basic information about the technology including how and when it will affect your business.

Next time you're in a supermarket or a department store, try to find an item that doesn't have a bar code printed on the label. Bar codes are everywhere — they've become an integral part of our lives and a good example of a relatively new technology that is so widely used that it's taken completely for granted.

Historically

Bar coding was first used in retail when a pack of Wrigley's Juicy Fruit chewing gum was flashed under a scanner on June 26, 1974. Before bar coding, every item was manually priced and the cashier had to enter the numbers on a cash register keyboard. Mistakes were frequent and a trip through the checkout line felt like it took an eternity.

Does this sound like any of your current business processes?

Bar coding changed all that, but not without controversy. It was a new technology, expensive to implement; both retailers and consumers didn't like or trust it. It took many years to become ubiquitous and very few thought it would amount to anything.

Fast Forward to 2005

Fast forward to 2005 and this tale is replaying itself with another technology from the same family tree. RFID, or Radio Frequency Identification, is rapidly becoming the buzzword of the 21st Century's

first decade. It will affect us all and seems destined to have benefits, and consequences, far beyond bar coding.

Several very large organizations, including Wal-Mart, Target, the Department of Defense and others have begun to implement RFID technology to identify and track items throughout their extended supply chain. They are starting to require the use of RFID technology by their suppliers, and these mandates will likely affect every organization, right down to the smallest manufacturer, distributor and retailer.

When Will This Happen?

Wal-Mart mandated its top 100 suppliers to be RFID compliant by the end of the first quarter of 2005, and they expect the rest of their suppliers to be using RFID within the next 2-3 years. The Department of Defense also expects all of their approximately 45,000 suppliers to become RFID compliant over the next several years as witnessed by their fiscal 2005 contracts with suppliers.

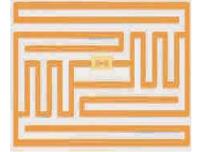
And it won't stop there — large original equipment manufacturers (OEM's) in the aerospace, automotive, food and other industries have also started implementing RFID technology. Within the next few years, RFID compliance will be expected by virtually every supplier in every industry sector.

So What Is RFID?

So what is RFID, what will it mean to your business and what should you do to prepare?

To paraphrase an old Chinese proverb, every journey begins with the first step. In this case, the first step is learning as much as possible about this technology and its implications. This knowledge will help you to develop a business strategy

EPC RFID tag used
for Wal-Mart



and, if necessary, an RFID implementation plan that will eventually — and hopefully — improve the bottom line. This series of articles won't make you an RFID expert, but they can help start you on the road to understanding RFID technology and the implications for your business.

The ultimate (and theoretical) goal is to reduce inventory to a point where a single item is delivered to the shelf just as the customer reaches for it. This means that the ability to track and control inventory is a key factor in reducing overhead, shipping expenses, stocking fees and "shrinkage" due to loss, theft or damage. The technology has not matured to the point where RFID is a cost effective means to manage inventory for smaller manufacturers and similar to bar coding, it will take several more years for this to happen. Most, if not all, suppliers utilizing RFID technology have done so at the request of customers such as Wal-Mart.

Bar coding's big disadvantage is that bar codes were designed to convey only a small amount of information and only when held directly under a scanner. RFID can generally be defined as a non-contact technology that can automatically capture data to remotely identify, track, and communicate item and product information. If you've ever used EZ Pass in a highway toll booth, you've already experienced one of the benefits of RFID.

What's Next?

The next article will explain some of the basics of RFID technology, such as the types of tags and readers used to track inventory along with the advantages and disadvantages of each. If you have any immediate questions regarding RFID technology, please contact John Murray or Tom Quinn at Insyte Consulting at 716.636.3626. ❖



NASA Program Helps Small Companies

NASA offers free technical assistance to small businesses and entrepreneurs through the Space Alliance Technology Outreach Program (SATOP). Under this program, companies are given 40 hours of consulting to help them solve a technical problem. The goals of the program include encouraging economic growth by helping small companies and hastening the transfer of knowledge and engineering expertise developed in the U.S. Space Industry. The program reported over \$107 million in economic impact in 2004.

SATOP is easy to use and the technical issue does not have to be related in any way to the space industry. Small businesses submit a simple, one-page Request for Assistance (RTA) form that explains the issue. The RTA is reviewed by the SATOP staff, then the form is sent to the program's network of Alliance Partners. Once an Alliance Partner accepts the request a SATOP Project Engineer acts as liaison between the company and the Alliance Partner. Most requests are resolved within 90 days.

Mechanical Assistance

InterScience, Inc., a contract R&D company in Troy, NY, use of SATOP resulted in an answer to their technical problem and in a working relationship with an Alliance Partner. InterScience is developing an imaging technology in the shape and size of a

softball that provides a hemispherical field of view. The prototype is capable of providing a 360 degree horizontal and more than 180 degree vertical panoramic field of view. Possible applications include commercial or military surveillance, perimeter detection and industrial or pipe inspection.

InterScience worked with Alliance Partner, Design by Analysis, Inc., to analyze the feasibility of the concept and obtain design recommendations that complied with their anticipated requirements for impact-resistance, shock absorbing and self-righting.

Fluid Dynamic Analysis

Another interesting example of a company utilizing SATOP to advance their product is a company that developed a free-floating, solar-powered fountain in the shape of a lily pad complete with frog. The company's first RTA resulted in the fluid dynamics analysis required to understand the limitations of the prototype. The company submitted a second RTA to get the specific design modifications needed to implement the recommendations. The result was an improved pump design so the fountain would produce a better stream height.

For more information about how your company can take advantage of SATOP, contact Ellen Reen at 716.636.3626, or email: ereen@insyte-consulting.com. ❖

7-01-06 Deadline for RoHS Directive

As of July 1, 2006, electrical and electronic equipment sold to European Union (EU) member nations will be subject to the Restriction of Hazardous Substances (RoHS) Directive. Aimed at protecting human health and the environment, the EU directive specifies restrictive levels for the following six substances — lead, cadmium, mercury, hexavalent chromium and the flame retardants, polybrominated biphenyls and polybrominated diphenyl ethers. Aerospace, military and medical devices, which are not intended for the consumer market, are exempt from RoHS.

The directive requires manufacturers to implement testing procedures for raw materials and finished products to ensure compliance. The final producer is the only one directly responsible for RoHS compliance. The rest of the supply chain has indirect responsibility through contracts. ❖



Access University Technical Resources

Insyte Consulting and Cornell University will host a session on:

Tips for Improving Your Product Development Process

and how your company can easily access university equipment and high-powered advice for solving quality, process and development problems.

Date: **Tuesday, February 21, 2006**

Time: **1:00 pm - 4:30 pm**

Site: **LCo Building, Barton Conference Room, 6th floor
726 Exchange Street, Buffalo NY**

Cost: **FREE**

To register contact Karen Delius at 716.636.3626 x301 or email: kdelius@insyte-consulting.com. ❖

Cellular Flow

The last issue of the Affiliates News explained how Quick Changeover/ Setup Reduction could help develop a production system that gets as close as possible to making only what the customer wants, when the customer wants it, throughout the production chain. We continue our "Tools of Lean" series with the concept of Cellular Flow.

Cellular manufacturing is an approach that helps build a variety of products with as little waste as possible. Equipment and workstations are arranged in a sequence that supports a smooth flow of materials and components through the process, with minimal transport or delay.

A cell consists of the people and the machines or workstations required for performing the steps in a process or process segment, with the machines arranged in the processing sequence.

Arranging people and equipment into cells helps companies achieve two important goals of lean manufacturing, one-piece flow and high-variety production.

- **One-Piece Flow:** One-piece flow is the state that exists when products move through a process one unit at a time, at a rate determined by the needs of the customer. The goals of one-piece flow are to make one part at a time all the time, without unplanned interruptions, and to achieve this without lengthy queue times.
- **High-Variety Production:** Given the fact that customers expect variety and customization, as well as specific quantities delivered at a specific time, it is necessary to remain flexible enough to serve their needs. Cellular manufacturing offers companies the flexibility to give customers the variety they want. It does this by grouping similar products into families that can be processed on the same equipment in the same sequence. It also encourages companies to shorten the time required for changeover between products. This eliminates a major reason for making prod-

ucts in large lots in that changeovers take too long to change the product type frequently.

Converting a factory to cellular manufacturing means eliminating waste from processes as well as from operations.

Cellular manufacturing can help make your company more competitive by cutting out costly transport and delay, shortening the production lead time, saving factory space that can be used for other value-adding purposes, and promoting continuous improvement by forcing the company to address problems that block low-inventory production.

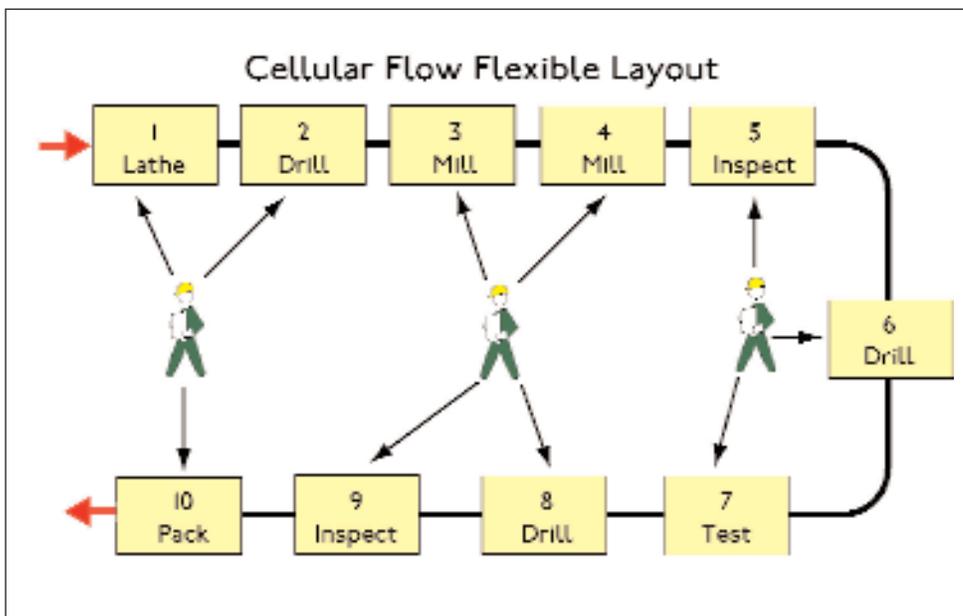
Cellular manufacturing helps employees by strengthening the company's competitiveness, which helps support job security. It also makes daily production work go smoother by removing the clutter of WIP inventory, reducing transport and handling, reducing the walking required, and addressing causes of defects and machine problems.

Common benefits associated with cellular manufacturing include:

- WIP reduction
- Space utilization
- Lead time reduction
- Productivity improvement
- Quality improvement
- Enhanced teamwork and communication
- Enhanced flexibility and visibility

Insyte Consulting Can Help

Insyte Consulting can assist you in implementing cellular flow manufacturing in your facility. Contact us at 716.636.3626 to create a strong, flexible manufacturing operation that is adaptable to your unique situation. ❖



Curtis Niagara continued from page 1

phases. The first phase was to determine the best alternative of the choices identified above. This was addressed by value stream mapping the flows of the major product families, which represented about 80% of company sales. This activity included an analysis of product mix, both current and future, which helped determine the requirements for the consolidated facility. The information was used to help generate a basic, block diagram of what a new facility should be. This analysis quickly showed that an expansion into plant two, while feasible, did not present the best long-term solution given projected business growth and overall company needs. A new facility, whether through acquisition or construction, was determined to be the preferred alternative. This initial phase also included the identification of key external parties, who would help facilitate the consolidation. These included economic development agencies, realtors, architects and various contractors. Through this activity a modern, single-level site of 150,000 square feet was found; this facility had formerly been the manufacturing plant for another automotive parts producer (non-competitor). This site also offered the additional benefits of being located in an empire zone.

The second phase expanded the detail of the initial block layout into the selected facility. This included verification of various factors pertaining to the physical building, projected volumes by line and equipment needs/utilization. This information provided the basis for the development and evaluation of several specific layout alternatives, which eventually resulted in the final layout. Phase two also included the construction and remodeling plan required to convert this facility to meet the company's current and future needs. The

initial construction activity was begun during the final part of this phase.

The third and final phase detailed all the elements of the plant set up, including the transfer of existing equipment as well as the acquisition and installation of new equipment into the remodeled site. The staged transfer of equipment began with plant 1 and transitioned into plant 2. Ancillary activities included the installation of improved material handling equipment, i.e. three new overhead cranes. In addition, the company installed a chip recycling system of over 1,600 lineal feet. This enabled them to eliminate manual handling of the chips, recycle the majority of their machining oil and dispose of 97% of the dry metal chips to a recycling center. This is particularly significant since well over 50% of raw material eventually becomes scrap.

The overall results have been dramatic in terms of

increased productivity, cost reduction, additional business opportunities, environmental improvements and employee satisfaction.

Productivity and throughput have increased based on significant improvement in machine utilization, upgrading of utilities and increased efficiencies of 12%. Material costs have been reduced due to enhanced inventory and storage practices (improved racking and supplier development). Material flow has improved through: elimination/reduction of handling and transportation, decreased congestion around docks and enhanced communication among associates. From a business development perspective, the new location facilitated landing a major project, a rack and pinion steering assembly for a key OEM automotive account.

Finally as part of the move into the new facility, the company initiated a work place organi-

"Insyte Consulting cost-effectively provided thorough, professional analysis and project support for this very ambitious undertaking. With their involvement we were able to meet our cost targets and time lines with minimal disruption to our business."

Paul Hojnacki, President

Firm Benefits

- 12% increase in productivity & throughput
- 26% reduction in cost of quality
- 97% of dry metal chips & majority of machining oil sent to recycling center
- Reduction in inventory costs
- Improvement in material flow
- Landed a major new project for key OEM automotive account



View of Curtis Niagara's new 150,000 square foot state-of-the-art facility.

zation (5S) initiative that has effectively maintained appearance, functionality and safety within the operation. These changes, combined with the above, have also contributed to a 26% reduction in cost of quality.



Affiliates News

Insyte Directory

726 Exchange Street, Suite 620
Buffalo, New York 14210
Phone: 716.636.3626
Email: info@insyte-consulting.com
Web: insyte-consulting.com

Karen A. Delius | Editor, Affiliates News

Robert J. Martin | President

For information contact

Erie County
John W. Murray
716.864.8675

Niagara County
David R. Hanitz
716.864.8818

Chautauqua, Cattaraugus, Allegany
John W. Murray
716.864.8675

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 necessarily
reflect the views of NYSTAR.

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



726 Exchange Street
Suite 620
Buffalo, New York 14210
web: insyte-consulting.com

Nonprofit Org.
U.S. Postage

PAID
Permit No. 1745
BUFFALO, N.Y.

a NIST | Network
MEP | Affiliate
&

