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## Supply Chain Management Benefits Unicell Body

Unicell Body Company, Inc. is a manufacturer of truck bodies that are sold into a wide variety of commercial markets including building contractors, delivery services, food manufacturing/distribution, rental companies, utilities and municipalities. The Canadian-based company was founded in Toronto, Canada in 1945. Unicell Body established its U.S. presence in 1977 in a 40,000 sq. ft. facility in Buffalo, NY, which currently employs 46 people, including 34 production personnel. The company sells primarily through Ford, GM and most recently Daimler-Chrysler dealers, but also realizes substantial volume through fleet sales and leasing companies. Its units are generally sold throughout the northeastern United States, as well as significant export sales into Quebec, Canada.

In recent years the company has maintained steady growth and has successfully competed against much larger national manufacturers including Supreme, Morgan, Bay Bridge and Utilimaster. This has been achieved by effectively marketing its patented design, which is a single-piece, fiberglass unit. In addition, Unicell Body has consistently introduced new products (particularly the fuel-efficient aerodynamic models) that meet ever-changing market conditions.

Unicell Body has also successfully met the demands of business growth and enhanced its competitive position through the implementation of lean manufacturing techniques, particularly workplace organization, cellular flow, line balancing and point of use storage. These lean elements have substantially reduced both waste of movement and WIP. These activities have also enabled the com-

pany to realize an increase in capacity from four to six units per shift as well as a 15% improvement in productivity. In terms of customer response, lead time was reduced from several weeks to several days. By freeing up additional capacity, Unicell Body has been able to shift its product mix toward custom products, which allow for higher margins than standard vans.

### Situation

Despite significant internal gains through the successful lean manufacturing implementation, Unicell Body's senior staff recognized several issues relative to the effective management of its supply chain. Of particular concern were the cost of several materials, specifically gel coat, resin and fiberglass which were the key components of the truck body. Escalating cost of these materials was attributed to rising oil prices driven by increased market demand and natural disasters, particularly hurricanes. In addition, the

Unicell continued on page 7



Unicell's Jose Arroyo applies gel coat to interior of truck body mold cavity prior to application of fiberglass.

## Business in a Space-Time Warp

It seems that the dimensions of business are radically changing. With a bit of humor, we can think of this as a space-time warp.

Distance is rapidly expanding in today's business world. Today's managers can no longer think of their business as the physical space within their company's walls or their markets as local. Today, international is the name of the game for companies of all sizes, and distances have become global. A generation ago, international usually meant selling. Today, international means selling, sourcing, partnering and siting, and their many possible combinations. Not only have the distances become global, but the complexity of business managed over those distances has increased.

Supply chains have also become longer. In the past we focused on our customers. We often took our suppliers for granted because we were their customer...they should worry about us! The supply chain has lengthened to include our customer's customer and our supplier's supplier. We now need to effectively manage the entire length of the expanded supply chain.

Conversely, distances inside our companies have become shorter. Assembly lines have curled back on themselves to form compact production cells. Inventory volumes have decreased and production paths have been shortened. We also need less space, because layers of management have been eliminated and productivity improvements have allowed us to produce more with less labor. It seems that today's managers control less space, but they are responsible for more geography.

Time is also shorter. Communication is instantaneous; cell phones and e-mail are both wonderful tools for increasing personal productivity and obtrusive pests.

Technology allows us to communicate and manage over global distances. Combining advances in communications with other technology, e.g. RFID, can provide instantaneous information regarding location, movement and just about any other parameter that you wish to measure.

Windows of time have also narrowed. In the past we worried about late deliveries. With JIT, we now worry about early deliveries too; our customers have also decreased their inventory volumes. Product life cycles have shortened and our product development processes have had to shorten to keep pace with them. With one piece flow, we have one piece lot sizes. How much shorter can things get?

The rate of change and complexity of business will continue to increase. We can long for the "good old days" or embrace the future. The rapidly changing dimensions of business may be an opportunity or a threat. Do you have a plan to ensure that these changes become opportunities?

*Robert J. Martin*

## Industrial Effectiveness Program (IEP) ~ A Resource for Transforming Your Entire Business

Shop floor productivity improvements are often the 'low-hanging fruit' for a company striving to improve — and many NYS grant programs are designed to help companies make those improvements. However, an oft-quoted saying is "that you cannot save your way to success." Increasing sales, new product development, improved competitive strategies, and more efficient office practices are typically as essential for long-term success as shop floor productivity improvements.

The New York State Department of Economic Development Industrial Effectiveness Program (IEP) is designed to enable companies to take a more comprehensive and integrated approach to funding improvements for long-term success. Companies are not limited to narrow application of grant funds. Instead a company can apply funds in different functional areas over as long

as a year to analyze, plan and implement improvements. Hundreds of Western New York manufacturing companies have taken advantage of IEP over the twenty years the program has been in effect.

Typically companies have utilized IEP funds for a major initiative like implementing a quality system, e.g. ISO 9000. In other instances they have chosen a variety of smaller initiatives (both production floor and non-factory floor related). Many times these smaller initiatives are implemented as ala carte point solutions with limited coordination to maximize impact. IEP, however, is an ideal tool for integrated transformation that brings long-lasting global competitiveness, growth and profitability through both product and process. Improvement activities can be assessed and improved in a coordinated manner to maximize long-term impact.

Because IEP requires a complete diagnos-

tic assessment of the business, the transformational needs can be clearly determined and prioritized. Based on the results of the assessment, a transformational plan can be formulated that addresses strategic opportunities from a holistic perspective. Subsequently, a comprehensive transformation can be pursued that is intertwined through the entire business. If implemented effectively, the end results will be business growth, improved profitability and, most importantly, a dramatic increase in the value of the business, typically based on free cash flow. These long-term benefits far exceed the company's cash contribution or the reimbursement provided by the state.

If you would like more information about using IEP to transform your business, please contact Insyte Consulting at 716.636.3626. ❖

### Economic Indicators

International Measure	Previous Year	Last Month/Quarter	Current Month/Quarter
<b>Trade Balance</b> - Trade with World, seasonally adjusted, in millions of U.S. dollars	-62,018 - 11/04	-71,910 - 10/05	-67,557 - 11/05
<b>National Measures</b>			
<b>Gross Domestic Product</b> - Current dollars and "real" Gross Domestic Product (seasonally adjusted annual rates) in billions of chained 2000 dollars	10,897.1 - 4th qtr 2004	11,202.3 - 3rd qtr 2005	11,233.5 - 4th qtr 2005
<b>Producer Price Index (PPI)</b> - by stage of processing, seasonally adjusted, Durable Goods	137.1 - 7/05	135.9 - 11/05	136.1 - 12/05
<b>Manufacturing Employment</b> - all employees, thousands	14,268 - 1/05	14,213 (p) - 12/05	14,220 (p) - 1/06
<b>Productivity</b> - Manufacturing output per hour, at annual rate, % change qtr. ago	5.4% - 4th qtr 2004	3.9% - 3rd qtr 2005	4.8% - 4th qtr 2005
<b>Wages</b> - Manufacturing average hourly earnings of production workers, seasonally adjusted	\$16.38 - 1/05	\$16.71 (p) - 12/05	\$16.74 (p) - 1/06
<b>Manufacturing Sentiment</b> - National Purchasing Managers Index (PMI)	55.6 - 2/05	55.6 - 12/05	54.8 - 1/06
<b>Prime Rate</b> - Bank prime loan rate	5.25 - 1/05	7.15 - 12/05	7.26 - 1/06
<b>Local Manufacturing Measures</b>			
<b>Employment</b> - Buffalo-Niagara Falls, NY Manufacturing employment in thousands, not seasonally adjusted	66.3 - 12/04	65.3 - 11/05	64.9 - 12/05
<b>Manufacturing Sentiment</b> - Buffalo Purchasing Managers Index	62.8 - 1/05	55.9 - 11/05	55.0 - 12/05

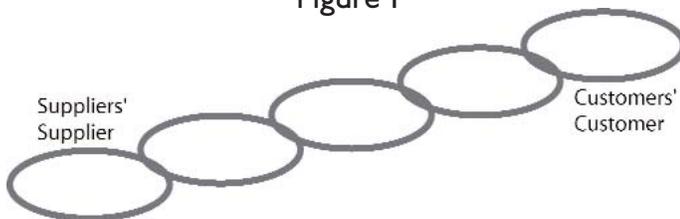
P: preliminary, Sources: U.S. Census Bureau, Bureau of Economic Analysis, Bureau of Labor Statistics, Institute for Supply Chain Management, Federal Reserve, New York State Department of Labor, National Association of Purchasing Management - Buffalo Inc.

## Supply Chain Management

### What is Supply Chain Management?

Supply Chain Management is a critical business management function that has a very large impact on any organization. To be successful, every business needs effective and direct linkages to their customer and their customers' customer to maximize value for them. They also need to effectively manage their distribution, operations and supply management to ensure they deliver that value on time, in the right quantity and with the highest level of quality and reliability at the lowest cost. The masters of this function we all know — Dell, Wal-Mart and Toyota! The result of the "maximize value" capability of these experts speaks for itself — value to customers that generates satisfied customers, growth in their market share and constant revenue growth. In addition, the results of their capability to effectively manage their distribution, operations and supply management maintains satisfied customers, profitability and the capability to fund continuous innovation and capital investment for more value.

Figure 1

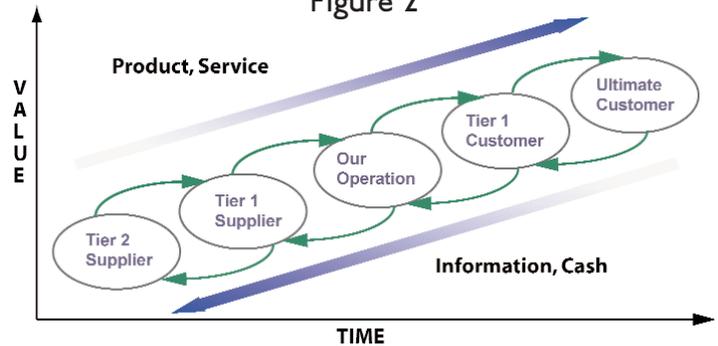


Supply Chain Management (SCM) is the design, operation, and improvement of the systems required to allow a business to effectively manage information, product, service and cash flow from their customers' customer to their suppliers' supplier (Figure 1). SCM systems are processes that are customer-focused, measured and monitored with standardized methods and tools utilized by capable people, capable material suppliers, capable equipment and facilities suppliers in an environment of excellence, teamwork and continuous improvement.

The first principle the best companies understand and utilize in their supply chain management function is the importance of strong chain links and linkages. Every part of the chain needs to be effective and operating with a high level of excellence to not cause problems for the rest of the chain. One weak link or linkage in the chain will cause a weak chain.

The second principle is recognizing the supply chain isn't just about suppliers; the chain is not complete until the customers' customer is considered because that is where the "value" is defined! That is where the requirements "information" starts

Figure 2

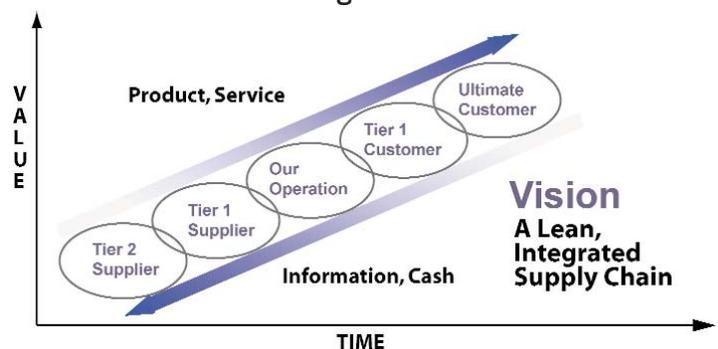


and eventually after the product and/or service is delivered the "cash" starts for those products and/or services. Figure 2 shows this chain. Typically, businesses focus on their operation and forget about everything going on outside their four walls. For a fabrication shop their customer might be a truck body builder, the customers' customer is the customer buying that truck and body. Their supplier would be a sheet metal distributor and the supplier's supplier, a steel mill. Supply chains will typically and naturally develop with information batched between chain links, products and services batched along the way and then cash follows the same process. These batched systems cause waste that adds cost, delays and quality problems with information, products, services and cash flow.

### Why learn and Apply Supply Chain Management?

The ideal supply chain (Vision) is an engineered flow of products and/or services supported by information, physical distribution and cash, with strong links and direct linkages with minimal waste and maximized value. Figure 3 shows the change from "batching" to direct linkages.

Figure 3



Supply Chain Management continued from page 4

The best companies in SCM achieve tremendous results in growth, innovation and profitability by engineering and managing their supply chains. Toyota's customer and market focus with strong linkages of demand information and execution to one plan throughout their supply chain has fueled tremendous growth around the world. People who have been suppliers in Toyota's supply chain have seen the power of direct linkages of information.

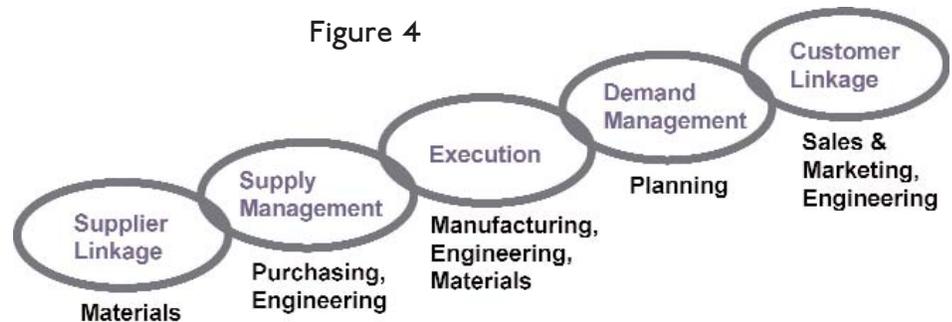
Dell has achieved almost negative inventory turns and even reconfigured their whole supply chain when the west coast dock strike occurred... the ultimate in supply chain management! Wal-Mart provides the best prices in markets all over the world with a supply chain driven from customers' purchases at the register with reorder and delivery monitored through RFID technology!

So can these examples help you? Yes! Examples in small to medium size operations include reducing inventory by 50%, reversing trends of material cost increases of 5% to specific projects and ideas to reduce the costs by 10%, material outage reduction of 50% and transportation cost reductions of 50%. Use these percentages to see how your business could improve profitability and cash flow. If your yearly material purchases are \$4 million you should be able to reduce your costs by \$400,000 which directly improves profitability. You would not only achieve results, your people would learn best practices and how to continue to apply them in your business!

## How do you learn and apply Supply Chain Management?

The key to learning and applying SCM in your business is undergoing a transformation with top-down leadership and involvement of your entire team. This transformation would help you achieve tremendous results in growth, innovation

Figure 4



and profitability by engineering and managing your supply chain.

Understanding and applying SCM is a cross-functional activity that needs cross-functional leadership, coordination and involvement. The best companies in SCM usually assign their best to supply chain management and ensure they have the authority to work across functional lines. They then involve people from each function by helping them understand the importance of SCM by educating them on their cost structure which is typically 70% material, transportation and distribution, 10-20% labor and 10-20% overhead.

The education continues with the model above (Figure 4) which defines the business processes and functions involved so each person can see their role in SCM.

SCM is a team sport. It is not just the responsibility of the materials department or purchasing. Engineering, sales, marketing and manufacturing have direct impact. IT, HR and finance have secondary impact through providing the right technology, people and funding support like e-Commerce, EDI, RFID, ERP and SCM skilled people.

## Where to go for help with Supply Chain Management?

There are plenty of books on SCM available to help you; but the most effective way to get started is to get help from an individual with experience implementing SCM best practices. Contact Insyte Consulting at 716.636.3626 to help you see the opportunities within your organization. ❖

## Philip Celotto Returns to Insyte



**Philip Celotto** rejoined Insyte Consulting in January. Phil has over 21 years of manufacturing and engineering experience working in the areas of product development, project management and production management. He has experience in operations, quality and manufacturing planning. Phil works with regional companies to implement lean manufacturing, improve productivity, develop and implement quality systems and develop strategic plans. Phil is a certified Professional Business Advisor through MEP University, a certified trainer in lean manufacturing initiatives and is certified as an ISO 9000 Lead Auditor. ❖

## RFID: Lemons or Lemonade? part 2

This is the second in a series of articles covering the implications of RFID technology on small-to-medium sized manufacturers. Please visit Insyte's website at [www.insyte-consulting.com](http://www.insyte-consulting.com) if you have not read the first RFID article.

A simple example which exemplifies the significant advantage of RFID over bar codes is the receipt of a pallet with a variety of consumer products all packaged in different cases. Using only bar codes, each box and every item in the boxes must be individually scanned where an RFID system could allow the entire pallet and all its contents to be read with one pass of a reader. Each item can be identified and entered into the store's inventory without human intervention as long as the pallet passes within the antenna's range. Additionally, current applications of RFID technology allow for the recording and transmission of other real-time inventory information such as the temperature, humidity, altitude and pressure.

RFID, as it currently exists, consists of three basic components: RFID tags; RFID readers (including the antenna array); and software. In the EZ-Pass example, the device on your windshield is the tag, toll booths contain the readers, and the generation of your monthly bill is managed by the software.

RFID tags are small devices that contain a processor and an antenna. The processor, or computer "chip", can be programmed with information about a product or with a number that corresponds to information that is stored in a database. The tags are placed on or in the item to be tracked, and the information they contain can be accessed with an RFID reader.

Active RFID Tags		Passive RFID Tags	
Advantages	Disadvantages	Advantages	Disadvantages
Longer distance read capability	Larger size	Smaller size	Short read ranges
Self-activated in by reader/ antenna	Limited battery life	Longer life expectancy	Requires higher-powered reader
Write/ re-write capability	Higher cost	Lower cost	Mostly read-only

There are three types of RFID tags: passive, active or semi-active. Passive tags are usually very small, have a limited amount of memory capacity and do not have a built-in power source. They are powered by the electromagnetic radiation from the RFID antenna. Passive tags can only be read from short distances of about one meter and have a very long life span. Passive tags are the most common form of RFID tag, and they are used in many different retail items. They are sometimes found on small items or within layers of cardboard in a carton. Passive tags currently cost between \$0.50 and \$1.50.

Active tags are powered by an internal battery and transmit data when triggered by a reader. They are usually larger in size than passive tags, and while active tags can be read from distances up to 10 or more meters, they are somewhat limited by the life span of the battery. An active tag is always powered up, ready to transmit. The EZ-Pass device on your windshield is an example of an active tag.

Semi-active tags are similar to their active counterpart, but the battery only powers up the tag when it receives a signal from the reader and antenna. A semi-active tag has a longer life expectancy than an active tag because its battery is not in continuous use.

RFID tags can hold much more information than a bar code. Also, the information written to a tag can be erased or modified and the tag can be used multiple times.

An RFID reader is a device that can translate the information on the RFID tag into a data collection system, a computer display or a database. The information is then usually sent to the company's information system, Enterprise Resource Planning (ERP) system or elsewhere via middleware, which is software that helps make the information usable for other applications.

Although most of the current discussion about RFID is focused on tags and readers, they're really only a small part of the overall RFID picture. Technology is a tool, and RFID hardware and software are no exception. When planning for an RFID system, most of the effort will be spent on considering how the RFID system will affect the many interdependent business processes within the company, and in developing an overall business strategy that will exploit RFID in the best interests of the organization.

The last article in this series will discuss where RFID technology is headed and how it will potentially affect your business in the coming years. ❖

Unicell continued from page 1

company was also experiencing cost and availability issues on other major components including wood, steel and roll up doors. Furthermore, materials management personnel in both Buffalo and Toronto were almost totally consumed with day to day issues that allowed minimal time to address these critical strategic issues. Insyte Consulting was subsequently engaged to support the development and implementation of an effective supply chain management (SCM) process with the objective of achieving a 10% material cost reduction.

## Solution

A joint project team was formed consisting of personnel from Unicell Body (both facilities) and Insyte Consulting. The Unicell Body participants were educated in the concepts of supply chain management, and subsequently assigned specific roles and responsibilities along with related accountability. The first improvement step was to analyze the current processes in order to identify the root causes of most day-to-day problems. The activities were then reorganized with the shop to provide more opportunities for the materials management staff to work on strategic issues. Controls were introduced over ordering, delivery and other short-term issues. This allowed for the development of a new materials plan intended for addressing longer-term issues. The new plan included best practices in supply management, execution of material usage and design, as well as improvement in customer and supplier communications. The plans and recommendations were coordinated between Buffalo and Toronto in order to realize cost reductions

for fifty key items based on economies of scale. Each of the above actionable items was reviewed during weekly meetings over a four week period. During this time Kaizen techniques were also introduced for the purpose of implementing changes and improving work place organization.

Several dramatic improvements were realized during the first phase of the SCM initiative. Within five months, material cost reductions of 5% were quickly realized with additional opportunities identified representing a further 5%. Expediting activities were reduced by 25%, which enabled the materials management staff to concentrate on material cost reduction and other strategic, progressive issues. These improvements were accomplished largely through the increased cooperation and teamwork between the two manufacturing facilities. Once the participants recognized the benefits of the changes, the inter-plant cooperation improved significantly.

Most importantly there is now good documentation and tracking systems in place for future SCM improvements. Anticipated plans include further material cost reductions, as well as addressing prioritized service issues with vendors, pursuing a second vendor for roll up doors and extending the SCM process through the company's distribution channels. Unicell Body recognizes the need for sustaining the improvements and fostering a spirit of continuous improvement over the long term. ❖

**“Insyte Consulting has given us an excellent start on better managing our supply chain. They have been particularly effective in the areas of fostering inter-plant cooperation, implementing a systematic materials cost reduction program and improving the personal effectiveness and morale of our key people in this area.”**

**Roger Martin, President**

## Firm Benefits

- 5% reduction in material costs so far
- 5% identified in further reductions
- 25% reduction in expediting activities
- Freed up time for management staff to concentrate on:
  - Material cost reduction
  - Strategic issues
- Documentation and tracking systems in place for future SCM improvement



Unicell's Javier Velez completes trim and detail work on truck body prior to assembly.

# Affiliates News

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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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