

# ROI Focus

THE DISTRIBUTION SOLUTIONS NEWSLETTER FROM TRIFACTOR

## President's Message "The next big thing"



Jack Phelan  
President

It's almost inevitable that when the economy slows, companies look for almost anything that will kick-start sales. It's often known as "the next big thing." Whatever our industry, we're quick to grab whatever looks as if it could get us moving.

While awareness is critical when it comes to recognizing trends and marketing conditions, it may not be enough to meet the challenges businesses face at this moment.

But waiting for "the next big thing" to come along

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## TriFactor seminar Warehouse Management and Control Systems

Whether you are planning to upgrade to a more robust warehouse system or automate your operation for the first time, this informative seminar will help you evaluate warehouse management systems.

The seminar will bring you up to speed on how to increase inventory accuracy, reduce stocking and picking errors, improve space utilization and increase productivity.

You will also learn about performance reporting, storage, order scheduling, along with receiving, storage, picking and shipping functionalities.

Seminar presenters will be Jerry List, Vice President of QC Software, Inc., who will discuss Warehouse Control Systems, and Kevin Tedford, Principal with KT Consulting, LLC, discussing Warehouse Management Systems.

### There will be two identical seminars:

**Tuesday, February 24**  
Radisson Hotel  
4700 Salisbury Road  
Jacksonville, FL

**Wednesday, February 25**  
TriFactor Learning Center  
2401 Drane Field Road  
Lakeland, FL

There is no charge for the seminar, but reservations are requested. Call 800-282-8468 or go to [trifactor.com/seminars](http://trifactor.com/seminars).

If there are others in your organization that could benefit from attending the seminar, please invite them to register.

Please see page 6  
for an article on  
whether a  
WMS/WCS is right  
for your company.

## Ten Ways to Improve Material Handling Efficiency



Greg Tuohy  
System Sales  
Engineer

If your distribution center is running at peak performance, congratulations. Keep up the good work. Chances are your company is enjoying the fruits of this success.

Throughput is flowing flawlessly and the competition is running for the hills. Times are good.

But if you think your distribution center can run more efficiently, that throughput can still be increased, costs could still be lower and manpower better utilized, then here are 10 ways to improve your warehouse efficiency:

**1. Gain an understanding of the current state of your distribution center.** Let's start with the basic premise, "You don't know where you are going until you know where you are." This means you must first measure and capture all data relevant to your company's operation. This would include labor expenses with overtime separated out, number of orders processed in a given

amount of time, number of lines pulled by each operator, number of forklifts in operation during that time and the expense of leasing or operating each one, overall utility costs to run the distribution center and total cost per square foot of operating space in your facility.

**2. Have a clearly developed Customer Service Policy.**

The most important question you should ask yourself is "What is my commitment to my customers?" The answer could be as simple as: One hundred percent of all customer orders received by 4:00 pm will be processed and shipped to the customer as a perfect order within 72 hours. In this case, a perfect order would be measured by its successful on-time delivery, with no damage and all documentation and labeling complete and accurate. Determine what is realistic and achievable for your organization and what will position you in front of your competitors. Develop your internal processes to achieve that high level of service.

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# How to Avoid the 12 Most Costly Conveyor Maintenance Mistakes



Thomas E. Betts  
Installation &  
Service Manager

Even though they depend on them, many companies don't give much thought to conveyor systems—until there's a breakdown. Then, a conveyor becomes a major issue—production stops, employees are idle, shipments are late, customers are upset and the company's credibility is undermined.

Taken for granted and often ignored, a conveyor system turns out to be a critical link in a company's distribution system. How many times have I heard someone say, "When can you get this thing fixed? We have orders piling up all over the place. The boss is on our backs."

It's always the seemingly small things—like a conveyor breakdown—that raise havoc, escalate costs and reduce profits. To describe it this way may seem overly dramatic until you've taken dozens of calls from desperate managers with a down production line.

Here are 12 of the most common material handling system maintenance mistakes and how to avoid them:

**1. Lack of regular inspections.** In most manufacturing operations, it's the production equipment that receives the attention, while it's the products that are important in a distribution center. A conveyor system, no matter how basic or complex, is almost an "invisible" link in the total process.

Everyone knows the value of changing home heating and conditioning system filters regularly to avoid accumulated dirt and dust reducing airflow and damaging the system. Yet, too many of us fail to take a few seconds to make a quick inspection.

It's the same with conveyor systems. For example, if you have a belt conveyor, check the floor area underneath the conveyor while it's operating for dust-like shavings. When you see them, it's a sign that the belt is out of alignment, isn't tracking properly and is wearing unnecessarily and will eventually be damaged. You can always be aware of squeaks. They aren't normal; they're signals that something needs attention.

Regular inspections also serve to help familiarize employees stationed at conveyors to better understand the equipment they are using and to take ownership of its care.

**2. Missing maintenance records.** While some drive a vehicle until it falls apart, most of us take regular maintenance seriously and the key is keeping a record. Jiffy Lube, for example, places a little sticker on the upper left hand corner of the windshield with the mileage due date for the oil change.

The concept makes sense for conveyor systems, too. A maintenance log kept on or near the system with information on what maintenance has been performed and the date, along with anything that should be watched.

This can be particularly useful in facilities where there are several shifts. It's also helpful if there is a change in personnel. Most importantly, it helps document the history of the equipment. If there is ever an issue with a manufacturer, for example, a maintenance record can support your case.

**3. Failing to take the temperature of motors and reducers.** While motors may not have a fever, they can overheat. A temperature spike indicates that something is causing an overload. In some cases, a conveyor is being used for materials for which it was not designed or an inappropriate conveyor has been pressed into service.

Having to replace a burned out motor during a production period means down time, particularly since most facilities don't have a backup supply.

**4. Not adhering to OSHA standards.** Many companies view a safe workplace as an expression of their values and a commitment to their employees and customers. It can also be a competitive advantage.

Yet, maintaining a high level of safety when it comes to equipment is not always easy. Because of the constant pressure in a production environment, it's easy to neglect equipment safety.

When reviewing facilities, it is easy to spot missing chain guards on conveyors, for example. The required pans underneath belt conveyors have either come off or been removed for one reason or another. More often than not, everyone

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## President's Message: "The next big thing" Continued from page 1

may blind us to the fact that it's right in front of us. For example, in the downturn following 9/11, the CIO of a large real estate investment organization developed technology that shortened the listing cycle and helped property turn over faster. "And that's your ROI right there," he noted.

"How can we become more efficient?" and "How can we position ourselves for the future?" are key questions we should be asking ourselves now. These are the so-called "lean" questions. We can scrutinize our operations to make sure every step in a particular process adds value. We can search for redundancy and eliminate it.

Unfortunately, warehouses and distribution centers are not immune to these issues. As long as the orders get out the door without too much disruption, it's easy to assume

that all is well. Yet, processes often develop over time with little or no attention given to measuring their efficiency.

At the same time, with product changes, rising labor costs and more demanding customer expectations, even a relatively new distribution center may have a negative impact on a company's bottom line. Without assessing the processes regularly, costs keep climbing unnecessarily.

Like so many other companies, Dell, Inc. has been making changes in response to current economic conditions. In discussing this situation, Michael Dell, the company's Chief Executive said recently, "These are challenging times but winning companies will take this opportunity to boost efficiency and emerge even stronger." It just goes to show that "the next big thing" is right in front of us.

**3. Measure and record how many times an item is touched from the time it is ordered until the time it leaves the building.** Look for ways to eliminate handling items twice, keeping in mind that every time an item is touched there is the opportunity for human error. For example: Instead of picking items into a tote first and then dumping them out on a table, only to be re-packed into a carton, why not pick items directly into the shipping box?

**4. Business can start picking up when companies start looking up.** Traditionally, companies tend to expand their operations laterally as they grow and the number of stock keeping units (SKUs) increases. It's easy to forget that your facility may have more available overhead space that can be utilized. By elevating some or most of the processing, packing or picking operations, use of free cubic overhead space may allow the distribution operation to extend the number of years within the existing facility. This bodes especially well from an economic standpoint for companies with favorable lease rates or those that own their building outright.

**5. Gather data on the SKUs you currently have in inventory frequently.** Slot your facility carefully to ensure that each SKU is mapped for the shape, weight and velocity of its particular use. Identify how fast the items move from a demand perspective, according to class and make sure the most active SKUs are assigned to locations closest to input/output points in order to maximize throughput efficiency.

Measure the dimensions and weights on all existing and in-bound SKUs. This can be accomplished accurately by using a CubiScan or other suitable measuring device. Knowing the volume of each SKU will allow you to slot efficiently, facilitate accurate check weighing, if appropriate, and accommodate current and future picking technologies.

The data also allows you to take advantage of the cubing features of most Warehouse Management Systems (WMS) in order to calculate the appropriate-sized carton to use for a respective order. The difference between using a larger and smaller carton when shipping an order may not seem like a high-priority decision. But a smaller carton costs less and reduces the dead space that usually requires fillers such as Styrofoam peanuts and plastic pouches.

**6. Consider or re-think your current picking technology.** Assuming you have measured accurately the number of lines being pulled by each operator, now may be the time to evaluate the feasibility of using a picking technology such as Radio Frequency (RF), Pick-To-Voice or Pick-To-Light, thus eliminating paper based picking which may not be cost-efficient for your shipping needs. Factors in making the proper picking technology decision should include density of SKU locations, required throughput, characteristics of the items you are picking, and any specialized procedures in place, such as serial number tracking.

**7. Select the picking method that is right for your company.** Evaluate the merits of piece picking, where a picker picks one order at a time by walking up and down each pick aisle until the entire order is complete. How cost-effective is this versus, say, batch picking (a picker picks all orders at the same time in the same pass), zone picking (pick area is broken up into individual pick zones, similar to an assembly line), or wave picking (all zones are picked at the same time, rather than having orders move from zone to zone)?

**8. Practice task interleaving.** This refers to the process and method of combining your active picking with the put away process. Warehouse Management Systems (WMS) utilize logic to direct lift truck operators to put-away a pallet while enroute to the next full pallet pick. For example, if a forklift operator receives instructions to put away a pallet, the WMS will initiate a pallet pick so the forklift operator does not come back without a load. Since the average forklift operates on a 33.5 lb. LP tank, that costs an average of \$25-\$30 to fill, with a

tank life of only about eight hours, you can see the cost-effectiveness of not coming back empty-handed.

**9. Keep system downtime to a minimum.** Conveyors, carousels, palletizers and other devices such as tapers, case erectors, and stretch wrappers require planned maintenance. Equipment should be inspected, maintenance records stored with easy access, and small problems corrected immediately.

Automated distribution centers should conduct planned maintenance at regular intervals, particularly belt tracking for conveyors, taking motor temperatures and lubricating as necessary. Spare parts, such as motors, belts, bearings and rollers, should always be on hand. The investment in a good maintenance plan will keep your orders moving and potential large investments in replacing equipment to a minimum.

**10. Examine your equipment's vulnerable points from a power management perspective.** Mother Nature is not always a friend to a distribution center. If lightning issues or erratic power outages are frequent in your area, protect your distribution center from potential power spikes by using surge protectors and conditioning your service from the local electric utility provider. Low cost surge protection helps prevent damage to your equipment, such as erasing the programming in your controls. Remember, one damaged power supply can shut down a sorter, resulting in hundreds of thousands of dollars in overtime and delayed transportation expenses.

These 10 ways to improve your material handling efficiency can help increase the amount of perfect orders being shipped, and in so doing ensure customer satisfaction and promote increased sales. And along the way you've successfully answered that all-important question, "What is my commitment to my customers?"



*Suspending your conveyor system from a ceiling can maximize floor space*



# FAQ Frequently Asked Questions

**Q. "What are some of the obvious indicators that we are a strong candidate for warehouse automation?"**

**A.** There are a number of clues that can lead to exploring the option of adding automation in your warehouse. Some of the more obvious indicators are cluttered or backed up receiving and put-away staging areas, increased customer complaints and returns due to improperly fulfilled orders, as well as increased overtime labor costs required to keep up with demand.

When touring warehouses and distribution centers, I make a point of visiting the receiving area. Typically, a receiving area that quickly and effectively processes inbound materials is an accurate representation of the overall efficiency of the entire facility.

A company with a system that can pull goods off the trailers and into a staging area, scan the individual units so that they are received into inventory and then convey the units into appropriate storage areas probably has significantly lower labor costs, more accurate inventories and higher distribution capacities than those that accomplish these tasks manually.

This is not to say that a manual receiving and put-away process is inappropriate in all situations. However, a good rule of thumb is to examine the staging area and if it takes more than eight hours to clear it, then a more automated process may be worth investigating.

Increased customer complaints and return shipments due to inaccurate original shipments are also indications that an automated process may be warranted.

Customers are unhappy when orders are incomplete or when they receive items they did not order. If either of these situations occurs frequently, then the likelihood of an inefficient inventory management, order picking and shipping system could be quite high.

Real-time inventory management that is integrated not only with the warehouse receiving functions but also with the picking and shipping functions, helps minimize incomplete orders by ensuring that the correct stock in all items is maintained based on historical and expected sales.

An automated picking process with pick verification, such as a pick-to-light or voice-pick solution, increases order accuracy, as well as inventory control.

Additionally, having a process on the shipping system for scanning items as they are conveyed or transported to the

shipping docks and confirming their routes, not only creates manifest documents needed for the shipping trucks, but also a final reconciliation of items picked from inventory with their appropriate orders.

Finally, the analysis of labor expenses, particularly overtime, is one of the most objective methods for determining if a warehouse or distribution center is a strong automation candidate.

In most cases, warehouse labor accounts for 50% of the total operational expenses and many times it can be as high as 70%.

This presents a relatively easy way to calculate return on investment and subsequent justification for capital equipment.

A simple warning sign that it's time to replace people with equipment is a sustained increase in overtime wages that's necessary to meet throughput demand. This signifies that the warehouse is operating at capacity with its current processes and that a change is needed to increase distribution capacity.

A counteraction to this is simply increasing the frontline labor force so that overtime is not needed. In some cases, this is a valid remedy. However, there comes a point in every operation when adding more workers actually disrupts efficiency due to added warehouse traffic, congestion and confusion.

**Q. "How do I go about justifying an automation project for my facility?"**

**A.** If applied correctly, automation can decrease operational expenses significantly, and thus strengthen a company's financial statements. Since about 50% of the operational expenses of a warehouse are absorbed by labor, this offers the most objective justification for automation.

TriFactor customers justify their capital expenses using a variety of methods. Some public companies have extremely stringent rules in which their Internal Rate of Return (IRR) is determined by calculating the present value of the expected future cash inflows and outflows as a result of implementing the project. For most companies, however, this method is either not applicable or too obscure to be useful.

Probably the most widely used method of justification will not be found in financial management textbooks. Nevertheless, it is more than adequate to do the job. By dividing the price of the automated system by the estimated amount of labor savings an automation project would bring over a 12-month period, a payback in years can be determined.



An automated system controls the path of the pallets

is busy and safety equipment is not reinstalled after being removed.

Injuries are costly in time lost, the need to replace an employee and Worker's Compensation cost. In many cases, investigation reveals that the cause of injuries is the direct result of missing safety equipment.

**5. Lack of adequate maintenance coverage.** To reduce overhead expenses fewer maintenance personnel are on the job. Then, when a maintenance person goes on vacation, there may be no coverage. All of this increases the odds for conveyor breakdowns.

A cost-effective solution is having an experienced and certified conveyor serviceperson make periodic inspections and be available when in-house coverage isn't available.

**6. Inadequate parts inventory.** As many learn, often too late, certain parts may not be readily available when there's a breakdown. While it's not appropriate to inventory every part, there are certain key components such as motors, couplings for line shafts, bearings and photo eyes that should be kept on hand.

You can survey your conveyor system and draw up a list of key components including part numbers.

**7. Not learning from repeated breakdowns.** An ongoing pattern of breakdowns is a message that something is wrong. But, again, production demands often require quick fixes to get the line moving.

Yet, having to replace a coupling on a line shaft conveyor, for example, should be an alert that there is a problem that needs to be investigated and resolved. Failing to do this only results in more downtime incidents, additional costs and employee frustration.

**8. "If it isn't broken, just let it go and don't worry about it."** We've all heard those words.

We spot a frayed belt or find the lacing coming apart, but don't do anything about it, even though we know these are red flags indicating that costly lost-time repairs will be needed—most likely at a critical moment.

It's common for a forklift to hit conveyor legs. Someone pushes them back in place, but the damage is done. The conveyor is out of alignment and begins to wear. It's another expensive repair bill in the making.

A photoelectric eye goes out and we grab one from another location to keep the line moving. And then there are air line leaks. And everyone wonders why the conveyor system is not accumulating properly. Nothing is done about it and everyone adjusts to a now inefficient and dysfunctional operation.

Waiting to make repairs until a conveyor system breaks down is a costly mistake.

**9. Failing to care for the controls.** As systems have become more technologically sophisticated, ignoring their maintenance can be disastrous. Here are two examples. First, switching scanners without recognizing that each one is programmed for a particular divert can create chaos, as we all know. Yet, it happens all the time.

Also, lightning strikes can knock out a control's programming, the result of not having a proper surge

protection. Again, more downtime and costly emergency repairs are needed to get up and running.

**10. Using a conveyor in ways it wasn't intended.** A need arises and a conveyor system is pressed into service without consideration of its capabilities. One of the most common examples is placing larger, heavier cartons on a narrow conveyor. When this happens, there is stress and wear on the entire conveyor, which will eventually result in a breakdown.

Then, there are those times when changes are made to an air line that affect the slug release and the entire system fails to function properly.

**11. Avoiding those difficult places.** Wherever there's equipment, there are difficult places to get to, sometimes up high, around in back and most of the time too little room to maneuver. These are the breeding ground for expensive repairs and operational issues. It's these places that are rarely (sometimes, if ever) lubricated. This is where you find loose chains and sprocket set screws, causing extra strain on the system and creating an emergency waiting to happen.

**12. Failing to train employees in the operation of conveyors.** One of the major causes of unnecessary maintenance costs is failing to train employees using the conveyors in their operation. They can become the eyes and ears for alerting their supervisors to potential problems. By knowing how conveyors operate, how to avoid their misuse and how to spot maintenance issues, employees become the first line of defense for minimizing problems and reducing costs.

While some may see it as "only a conveyor," others recognize it as a critical link in meeting deadlines, getting orders filled properly and accurately, and reducing overhead costs. Avoiding unnecessary mistakes with conveyors is simply good business.



# Is a Warehouse Management System/Warehouse Control System Right for Your Company?



John T. Phelan, Jr.,  
P.E., COO

Although there is some functionality overlap, the differences between Warehouse Management Systems (WMS) and Warehouse Control Systems (WCS) can be significant. But until they are fully comprehended, companies that rely on the day-to-day movement of product in and out of a distribution center or warehouse can find themselves at a distinct disadvantage.

"A lot of companies probably don't know the difference in a WMS and a WCS system," says

Jerry List, vice president of QC Software in Cincinnati, OH. "To put it simply, the WMS plans a weekly activity forecast, based on such factors as statistics, trends, and so forth. And a WCS acts like a floor supervisor, working in real time to get the job done by the most effective means.

"For instance," adds List, "a WMS can tell the system it's going to need five of SKU A and five of SKU B, hours in advance, but by the time it acts, other considerations may have come in to play and all of a sudden you have a logjam on a conveyor." A WCS can prevent that problem from happening by working in real time and adapting to the situation on the spot. "It can make a 'last-minute decision' based on current activity and operational status," says List.

Warehouse Management Systems began to flourish in the 1980s, with the introduction of mini-computers. According to Kevin Tedford of KT Consulting in Marion, OH, who has worked with warehouse management systems for the past 20 years, companies knew when the time was right to implement a WMS into their distribution center operation.

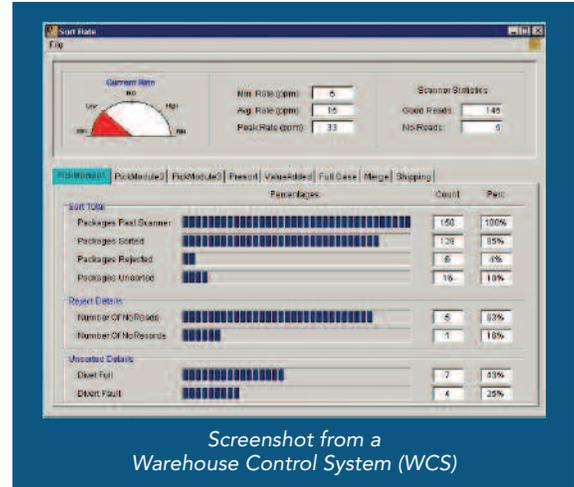
"Businesses saw the need for a warehouse management system when they started hitting certain 'pain points'," explains Tedford. "This usually happened when they saw the costs of delivery rising, labor costs on the increase and a need to control inventory and keep track of what their people were doing. It was the moment they first began to realize they had no control."

According to Tedford, what the warehouse management system did was return the control to the distribution center supervisor. "The greatest advantage was it brought back inventory control and accuracy," he says. "And brought it back to a super-high level, so much so that companies could now exceed their customers' highest expectations, performing tasks in hours that at one time may have taken days or even weeks."

With the turn of the century, and the increase in the need to move more products faster in a shorter amount of time, and do it with fewer workers, technology began to accelerate.

The simple act of walking up and down a warehouse aisle picking products from a paper order was replaced by high-tech pick-to-light and pick-to-voice technology. The pace quickened, the products increased, and so did the need for better order verification and order fulfillment.

According to Jerry List, "Suddenly, there was a 'better, faster, cheaper' mentality prevalent in the warehouse. And the old-school WMS mentality was being challenged. As warehouse management systems began to take on more responsibilities, a void was created which warehouse control



Screenshot from a  
Warehouse Control System (WCS)

systems nicely filled, especially as systems became faster and real time demands were established."

Explains Jerry Lovell, senior electrical project engineer for TriFactor, "Over the past 10 years, distribution centers saw an increased need for improved warehouse communications, from the WMS to the WCS to the conveyor to the customer."

Adds Lovell, "Companies are now able to see the status of their material handling system in real time, with all information up-to-date. Today they can make a hard decision right on the spot, where 10 years ago they more or less had to guess. They know right away if something is wrong and they can react with a faster response time. I once had a company executive tell me that having a WCS system in his warehouse lets him sleep at night."

Jerry List agrees. "A warehouse control system enables you to utilize new technology, which allows greater flexibility on the plant floor," he says. "It's an integrating tool that ties everything together. Think of equipment like conveyors and picking technology as building blocks. The WCS is the mortar between the blocks that holds everything together."

Adds List, "The perfect candidate for a WCS is the company that utilizes a lot of material handling devices and needs to put a lot of decision points in their system and be able to balance them all in an efficient manner."

List points out that another key advantage to the WCS is location. "Sometimes in the case of multiple warehouses, the warehouse management system is not physically located in the warehouse," he says. "But even if there's a network-wide problem, the warehouse control systems, being situated in the warehouse, can keep the operation up and running."

Not every operation needs or requires a warehouse control

system, particularly those that hand pick from paper and pallets, or have a minimal number of product lines and/or SKUs. But according to a white paper produced by List and QC Software, there are some very real telltale signs that there could be a WCS in your company's future:

- Your current system is inefficient and takes too long to get a product out the door.
- You're growing fast and can't handle the volume, especially during peak time.
- Your conveyor system has cartons everywhere, but going nowhere.
- You're creating back orders, even though the product is in stock.
- You're shipping products to the wrong place.
- It's getting too expensive to keep modifying your WMS system.

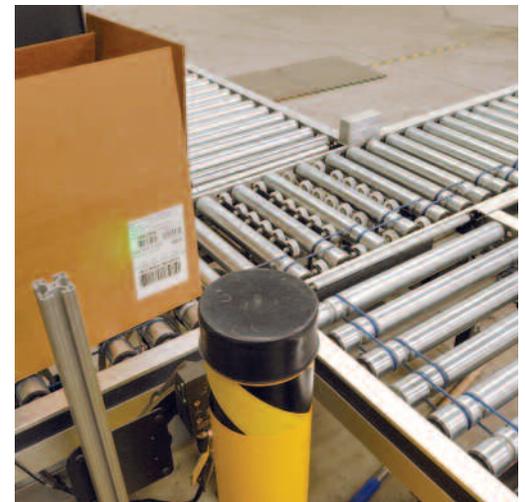
To put the difference between WMS and WCS in simple terms, WMS is a planning system, WCS is an execution system. The WMS collects a vast amount of information, such as inventory data, customer orders and historical data, and then processes it in a non-real time mode, mapping out a workload plan for what needs to be done on the warehouse floor on a day-to-day basis. But it's the warehouse control system that has final control over the large amount of information being placed by the WMS and reacts to "actual" events on the warehouse floor.

Think of it as a symphony orchestra. The WMS is the composer, creating a musical score that features reeds, woodwinds and strings, together making beautiful sounds. But anyone who has ever heard the dreadful noise an orchestra makes when it is tuning up, knows that it needs the conductor to pull it all together. In this case, that conductor is the warehouse control system, making sure the material handling "instruments" (conveyors, sorters, Pick-to-Light, etc.) perform in perfect harmony and efficiency.

According to Jerry List, a company may want to explore the possibility of adding a WCS if they have the following characteristics:

- More than \$50 million in sales.
- A warehouse larger than 100,000 square feet.
- A conveyor system with multiple sortation points.
- An average of four SKUs per order.
- Greater than 1,000 orders per day.

TriFactor's Jerry Lovell agrees. He feels warehouses must keep up with the technology being offered. "WMS and WCS is an important piece of the technology puzzle," says Lovell. "There's a consistency factor knowing that technology can perform the same tasks, over and over, eliminating the possibility of human error. Technology is reliability. WMS and WCS give you the peace of mind of knowing that your system is using proven technology. If your competition has it, and you don't, then you are at a definite competitive disadvantage."



After the box is scanned, the WCS will determine the path at the bi-directional transfer.

## Frequently Asked Questions Continued from page 4

For example, if you know that implementing a conveyor system project would reduce the labor expenses by five full-time equivalent (FTE) workers per shift and you operate two shifts a day, and the burden rate for an FTE is \$30,000, then the annual savings in labor expenses by implementing the project is \$300,000. Since most companies would accept a three-year payback or less and the price for the conveyor system is \$900,000 or less, then the project is typically justifiable.

Another way to apply this Return on Investment calculation is by analyzing the revenue gains that it provides. For example, if a conveyor system project increases the distribution capacity of a warehouse so that it can ship more products in a year and realize an additional \$300,000 in gross profits as a result, then the project could be easily justified when the price for the conveyor system is \$900,000 or less.

Perhaps the most significant method of justification is calculated by combining the expense savings and the added

capacity of the two examples into one calculation.

Oftentimes, automating material handling processes reduces warehouse labor expenses and, at the same time, increases throughput. Therefore, if a conveyor system can reduce labor expenses by \$300,000 and also allow the warehouse to ship more products in a year and realize an additional \$300,000 in gross profits, then a \$900,000 conveyor system would have an 18-month payback, an amount of time that is typically well within the justification parameters established by most companies.

Finally, although labor savings and increased throughput are two major considerations in calculating Return on Investment, there are still other considerations. These include shipment accuracy, inventory control, safety and ergonomics, as well as potential brick and mortar savings or an enhanced image in the marketplace.

*If you have questions, please email them to JJ Phelan at [jjphelan@trifactor.com](mailto:jjphelan@trifactor.com).*



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# ROI Focus

**THE DISTRIBUTION SOLUTIONS NEWSLETTER FROM TRIFACTOR**

## Demand for outsourcing engineering and maintenance services increases

In response to budget tightening requirements, more distribution center managers are looking to TriFactor for engineering services and planned maintenance.

With years of experience in serving as an outsourcing partner, TriFactor is experienced in working with customers in budget planning and management for these services.

Because of today's competitive conditions, outsourcing offers a number of attractive benefits:

- **Reduced operating costs.** Whether it's engineering services or a maintenance program, you only pay for what you use.
- **Broad range of competencies, knowledge and skills.** Because we work in many types of situations, we bring customers the ability to deal with issues faster and with a high level of expertise.
- **Introduction of new ideas.** As a material handling integrator with both in-house engineering and maintenance departments, we offer customers the opportunity to benefit from a broad range of ideas that can help improve their material handling operations.

If you want to explore outsourcing possibilities, we are prepared to answer your questions, review your operation and make appropriate recommendations. Please contact JJ Phelan, COO, at 1-800-282-8468.

## TriFactor's material handling system core capabilities

### Engineering

- Facility & Operations Design (New Building, Building Expansion, Re-engineering)
- Slotting Analysis
- Existing System Audits
- Needs Analysis
- Project Management

### Systems Support

- Installation (Mechanical, Electrical)
- UL 508A Industrial Control Panel Building Shop
- Start-up and Debug
- Planned Maintenance Agreements
- Emergency Service
- Operator and Maintenance Training
- Spare Parts

### Systems Integration

- Conveyors (Case/Carton, Pallet/Unit)
- Order Picking Technologies (Voice, Lights, Paper, RF)
- Sortation Systems (Shoe, Narrow Belt, Pop-Up Wheel, Pusher)
- Storage Solutions (Pick Module, Pallet Racking, Carousels, Shelving)
- Mezzanines

### Controls & Software

- Machine Control (PC, PLC, HMI)
- Process Routing (WMS, WCS)