



Is Your Warehouse Operating At Peak Efficiency?

10 Strategies for Optimizing Warehouse Efficiency

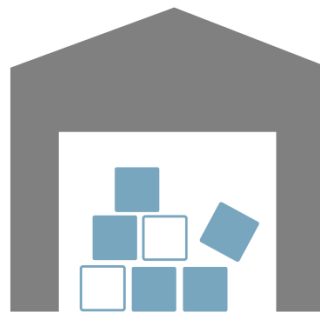
Today's organizations are under constant, and in many cases unprecedented pressure to optimize resources and assets, discover new efficiencies, reduce operating expenses, and find smarter ways to do more with less.

However, in their pursuit of this critical objective, many organizations fail to completely examine and fully exploit the untapped efficiencies that exist in their proverbial backyard; **that is, in their very own warehouse.** Indeed, a study at the Georgia Institute of Technology [[pdf](#)] found that less than 30 percent of U.S. warehouses were operating efficiently.

What makes this scenario even more alarming, is that warehouse efficiency is not a minor cost center. On the contrary, as noted by [Multichannel Merchant](#), shipping is the number one cost related to fulfilment, and inventory is the largest balance sheet asset in most multichannel businesses.

Furthermore, [Inbound Logistics](#) points out that warehouse efficiency is linked to worker engagement, productivity and safety, as well as customer satisfaction, retention and repeat business.

In light of the above, it is clear that optimizing warehouse efficiency is not just a best practice or important priority. On today's hyper-competitive and increasingly complex business landscape, it is a fundamental strategic imperative; one that does not just drive short-term organizational success, but helps assure long-term organizational survival.



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It is safe to assume that analyzing your warehouse processes, policies, protocols, workflows and technologies will doubtlessly reveal opportunities to increase efficiencies, improve performance and lower costs.

Yet, what may be preventing you from achieving this vital goal is, simply put: not knowing precisely what to target in your environment so that your efficiency-finding efforts are measurably rewarding, instead of confusing and exhaustive. After all, your goal here is not just to identify chronic problems; it is to **implement sustainable solutions**.

The good news is that you do not have to spend an excessive amount of time trying to map the way towards efficient, optimized warehouse operations. We have done the in-depth analysis and research for you, and are pleased to present 10 proven strategies to safely, systematically and successfully guide you forward.



Strategy #1: Use the Right Lot Mixing Rules

Mixing rules specify how items can – and just as importantly, cannot – be mixed. Ideally, you want to choose the right mix of rules that allow multiple items to be co-located in a manner that optimizes efficient storage, but without compromising each item's inventory properties (which while solving one problem, would create another and potentially even greater challenge).

Generally, it makes sense to allocate storage per the following three rule groups:

1. **Item Receipt:** these rules specify that all inventory in a location must derive from the same Item Receipt or Purchase Order number. These are the strictest type of lot mixing rules.
2. **Inventory Properties:** these rules specify that all inventory in a location must have the same attributes on their Purchase Order, such as production lot, revision date, packaging configuration, and so on. At the same time, different Purchase Order numbers may be mixed in a single location.
3. **SKU:** these rules specify that all inventory in a location must have the same SKU. However, it is also acceptable for any and all variations of Purchase Order Numbers and Inventory Properties to mix. These are the most flexible type of lot mixing rules.

3 Common Lot Mixing Rules



Strategy #2: Balance Mixing & Fulfilment Rules

Once you identify the right lot mixing rules (as per strategy #1), it is important to ensure that they balance with your allocation rules for fulfillment. This is because, while mixing rules and allocation rules are obviously not the same thing, they do constrain each other.

For example, if you have a strong FIFO rule (described below), picking in accordance with this rule necessitates knowing what locations contain which Purchase Orders (ordered by lot date). However, if your mixing rules do not specify separating inventory in this way, the data is essentially lost, and the strong FIFO rules cannot be accommodated.

While balancing mixing and fulfilment rules may sound complicated and risky, it is actually a fairly straightforward task. This is because most lot mixing and allocation or fulfillment rules are simply a matter of organizing activities according to available information.

Essentially, there are three basic allocation rules for fulfillment:

1. **Strong FIFO:** items must be fulfilled in a specific order, typically in order to maintain an audit trail so that items can be tracked down to the individual end-user.
2. **Weak FIFO:** maintains the same basic “First In, First Out” as Strong FIFO, but does not demand strict adherence according to Purchase Order and lot.
3. **Labor Optimized:** warehouse software defines the picking path with the greatest efficiency, which saves travel time (we explore more time-saving options with strategy #4, below).

Ultimately, choosing the right one for your warehouse operations is based what makes the most sense in terms of the trade-off between efficiency and control.



Strategy #3: Use Forward Staging (if Applicable)

When dealing with in-demand, high-velocity SKUs that are constantly moving – either ongoing or seasonally – there are limits to how many items can be staged efficiently. If this scenario applies to your warehouse operations, then forward staging could significantly improve efficiency.

Simply put, forward staging refers to having a specific volume of stock in a forward location within the warehouse where packing and shipping occurs (there are exceptions to this that we discuss further). Instead of repeatedly having to travel long distances, pickers can more efficiently access the SKUs they need to fulfil orders. This not only increases worker performance and the ROI of labor, but it reduces storage costs and improves customer satisfaction as orders are fulfilled faster, and the likelihood of running out of stock (per a low stock warning as noted momentarily) diminishes.

To help determine if forward staging makes sense in your environment, ask these five key questions:

- What moves fast and what moves slow?
- What items are typically sold together?
- Which items are seasonal, and when does their sales velocity pick up?
- Which items need strict lot control?
- Which items need to be first-in first-out (FIFO)?

If you conclude that forward staging is beneficial, then as introduced above it is advisable to have your warehouse management system (WMS) track stock and issue a “Low Stock Warning” when inventory reaches a preset minimum threshold, and it is necessary to replenish. This warning can be calibrated to find the most efficient intersection between the velocity of orders, and how long it takes to replenish them.

Also, keep in mind that you do not have to implement forward staging in the same warehouse, or necessarily deploy it at storage. If you have a larger off-site facility, then you can have a forward staging area close to shipping outlets. When this strategy is successfully coordinated, you can count on saving money and time, while increasing customer satisfaction.



Strategy #4: Organize Workstations

It may not seem like a game-changing move, but organizing workstations is one of those eye-opening “low touch, high impact” strategies that can measurably, and in some cases dramatically improve efficiency. This is because a surprising number of warehouses:

- Have improper workflows (e.g. the same area or dock serving both shipping and receiving).
- Fail to make adjustments to support complex manual picking operations.
- Do not use ergonomic workstations because they seem like optional “nice-to-haves,” when in fact they are necessary to help keep workers productive -- and minimize worker’s compensation claims.

To exploit this strategy, when placing or redeploying workstations, **start by asking questions** like:

- Do we have different buildings?
- Do we need climate control?
- How many areas do we need to define? (e.g. Inbound receiving, packing stations, cold room, shipping stations, outbound shipping, etc.)
- What type of picking methodology do we use? (e.g. flow rack, shelf, bulk, etc.)



Organizing workstations is a “low touch, high impact” strategy that can make a big difference in efficiency by simply placing workstations properly.

Then use your answers to identify intelligent, ergonomic layouts. As noted by [The Manufacturer](#): “Warehouse workers need to be constantly on top of a number of tasks at the same time. Since ‘time is money’ it is essential to work quickly and efficiently while seeing to safety at the same time.

Strategy #5: Standardize Processes

Standardizing processes can support lean practices, which significantly improve warehouse efficiency. We recommend focusing on the following key areas for maximum impact and results:

Transportation and Conveyance: Added costs and delays arise when workers or items need to move over longer distances than necessary. These can be minimized by optimizing warehouse layout (discussed above in Strategies #1 and #2, respectively).

Inventory: Inaccurate data regarding warehouse inventory leads to an array of inefficiencies; most notably backorders. Unfortunately, many managers are compelled to overcompensate, which leads to excess inventory that does not move, and takes up valuable warehouse space. Warehouse management software that integrates with key systems in real-time is the best and most efficient way to prevent these costly, frustrating scenarios from arising in the first place.

Time Loss: Inefficient processes and labor management leads to bottlenecks and delays; both of which drive excessive time loss. For example, workers may be forced to wait for shipping approvals, data updates, or stock replenishment. Time loss can be minimized by streamlining processes, and accessing real-time data to replenish stock in a timely manner.

Processing: Every step in the pick, pack, and ship process should add value. However, this does not happen (optimally or at all) when using oversized containers and excess packing materials, or when sending multiple shipments to the same location vs. a single large shipment. Over-processing can be minimized by using software that can quickly identify optimal packing arrangements and shipping options.

Defects: Billing mistakes, inventory discrepancies, and missing, damaged or incorrect products all lead to excess packing and shipping and extra accounting work. They can also strain customer relationships. These defects can be minimized by integrating and automating systems, and building in several fail-safe methods assure accuracy and quality.



Space: Less-than-optimal space usage is a major source of warehouse inefficiency. For example, goods may not be stored in an optimal arrangement, racking systems may not be aligned to anticipated products, pallets may not be stored efficiently, and so on. These issues can be minimized by reviewing areas where products are stored, and making sure that space is being used optimally. For example, as described in strategy #1 it may be advisable to revisit lot mixing rules. Or as described in strategy #3, it may be worthwhile to reconfigure forward staging layouts and workflows.

Asset Lifespan: Standardized processes can also reduce wear and tear on fixed assets (e.g. pallet jacks), which are more efficiently utilized when routing and activity are optimized through an inventory management system. Simply put, when everything is in the right spot from delivery to packing to shipping, you will make better use of equipment, which can save money and time.

Strategy #6: Reexamine Vendor Lead Time

Another significant – yet often overlooked – source of inefficiency is with respect to vendor lead time. To optimize this aspect, do not start by auditing or analyzing your vendors.

Instead, focus on knowing your actual stock levels. Without that knowledge, inventory will fluctuate between too much and too little, which in turn will trigger a range of inefficiencies and problems.

Once you have inventory data on-hand, you can move forward and explore what amount of lead time you need to order (or manufacture) each item. This will help you determine how far out you need to plan, and when you need to reorder.



Having accurate
inventory data
makes a critical
difference in
efficient vendor
lead time.

Strategy #7: Track & Measure Data

Knowing what to track and measure is central to your efficiency-improving efforts. Generally, you should be monitoring the following metrics for logistics success:

- Units Per Hour in each facility, to keep a tab on productivity.
- Units Per Order, to get a handle on volume.
- Lines Per Order. to track the maximum efficiency you can expect.
- Revenue Per Employee, to determine labor efficiency.
- Transportation Cost Per Package, to get the most efficiency in shipping possible.

Furthermore, as part of the same focus on tracking and measuring data, you should leverage Big Data Analytics to generate business and marketing intelligence. For example, analyzing shipping records (including destination, quantities and purchasing patterns) can help you answer questions like:

- What regions of the country are generating the most orders?
- What regions of the country are generating the least orders?
- Which items are going to which cities and regions?
- Which items are frequently purchased together?
- Is there a seasonality to any items?
- How many units are being spoiled during shipping in the summer months?
- How much are we paying for ground vs. air?
- Are any of our carriers making invoicing errors?
- Do we need to adjust inventory based on demand?
- Should we get rid of a product or line?
- Do we need to adjust our forward staging (see strategy #3) based on item velocity?

This is just a sample what you can and should be gleaning. Keep in mind that you do not need to generate this data – it is not like market research that exists outside of your operations. You are already producing it on a daily basis. You just need to capture, organize, analyze and report on it properly, so that you translate mountains of raw information into practical, accessible and actionable insight.



Strategy #8: Engage Workers

It is vital to proactively reach out and ensure that workers feel that they are part of the effort to improve efficiency. This not only boosts morale, but it generates faster and better results since, frankly, even the most effective and optimized strategy can be diminished – if not totally undermined – by lack of worker buy-in and participation.

Naturally, engaging employees is a strategy that must be customized based on details and variables that are unique to your organization. However, with this being said, [Reliable Plant](#) shares some solid, high-level advice on how to make this happen:

- Clearly communicate goals and expectations with respect to improving efficiency.
- Build trust by demonstrating a clear understanding of how workers are contributing to these goals and expectations.
- Ensure that the right people are in the right jobs.
- Pay attention to attitude and morale; both of which can improve or impede efficiency.
- Have regular meetings and encourage employees to share ideas and tips for driving efficiency.
- Provide ongoing training, coaching and skills development.
- Celebrate and share improvements, including small wins that demonstrate that things are headed in the right direction.



Strategy #9: Drive Continuous Improvement

While there are targets and milestones along the way, improving efficiency is more of a vision than an objective – because the only thing more energizing than current improvements, are the promise and potential of future gains.

To that end, use “[DMAIC](#)” to drive continuous efficiency improvements throughout warehouse operations and, indeed, the organization as a whole:

D: Define the problem, improvement activity, opportunity for improvement, the project goals, and customer (internal and external) requirements.

M: Measure process performance using quantitative methods.

A: Analyze the process to determine root causes of variation, poor performance (i.e. defects).

I: Improve process performance by addressing and eliminating the root causes.

C: Control the improved process, as well as future process performance.

Inherent to a successful DMAIC-based approach is having a plan to track ROI, and constantly measuring and testing to evaluate the impact on processing time, costs, customer satisfaction/NPS, and other key outcomes.

Strategy #10: Choose the Right Warehouse Management Software

Finally, you need an advanced, flexible, scalable and customizable warehouse management software (WMS) solution that drives all of these strategies, so that “doing more with less” is not just an aspirational vision: it is a measurable, bottom-line reality. And that is where the InfoPlus advantage makes all the difference.



The InfoPlus Advantage

InfoPlus' acclaimed WMS solution is used by organizations around the country to significantly and sustainably improve optimize warehouse operations. With a suite of powerful yet easy-to-use tools and functions, you can:

- **Designate lot control** via allocation and mixing rules for controlled inventory storage behaviors.
- **Control which inventory lot** you are allocating from, such as strict FIFO, weak FIFO, or labor optimized.
- **Control where you put away inventory**, and how you mix your inventory for peak efficiency and controls with mixing rules and item level storage plans.
- **Set up fixed zones**, aisles, bays, and levels based on your physical warehouse space in one or multiple locations.
- **Route warehouse employees** in the most optimal and efficient manner.
- **Use mobile devices on the floor** to look up orders, items and locations, scan work tickets and item barcodes, find orders, move inventory, and change status.
- **Create, edit, schedule and run fulfillment plans** that automatically handle pick-pack ship processes.
- **Set up unique receiving processes** to efficiently bring items into your warehouse at precisely the right locations, including forward staging.
- **Leverage automated replenishment processes** using pick face assignments to automatically determine the threshold of when to replenish.
- **Analyze current and anticipated inventory** to identify optimized layouts, including those due to predictable seasonal variations.
- **Cross-check package contents** to avoid delays, backlogs, bottlenecks, and improve customer experience.

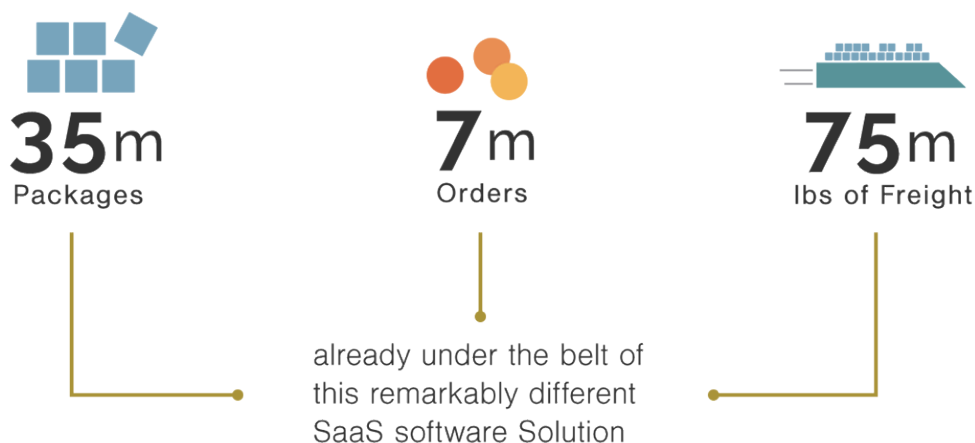


- **Scale and adjust** to changing business needs.
- **Integrate with accounting, shipping and order systems** to reduce errors and increase shipping process speed.
- **Optimize receiving** to create more efficiency in downstream operations.
- **Minimize headaches, hassles and “time sucks”** on a daily business – so your managers and leaders can focus on key business objectives.

Sign Up for a Free Trial

To learn more, [sign-up for your free InfoPlus trial now](#). It is the ideal way to explore whether our solution is the best fit for your warehouse optimization and improvement goals.

There is absolutely no obligation, and no credit card is required.





Infoplus solves real business challenges so companies can better manage their growth. Born from a love of technology and deep experience with the fulfillment world, Infoplus prides itself on software that is affordable, scalable, and secure.

For more information, visit <http://www.infopluscommerce.com/>