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Thought Leadership Series

Optimize Product Flow to Support your Distribution Operations



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As in life, one solution often does not solve all situations. This is the same in warehouse distribution, as fulfilling a heavy, prepackaged product should have a different fulfillment product flow than a small item in a bag. Understanding product mix, dynamic and static storage and the types of product flow will allow you to set up your operations for success and increase fulfillment speed and productivity.

What is product flow?

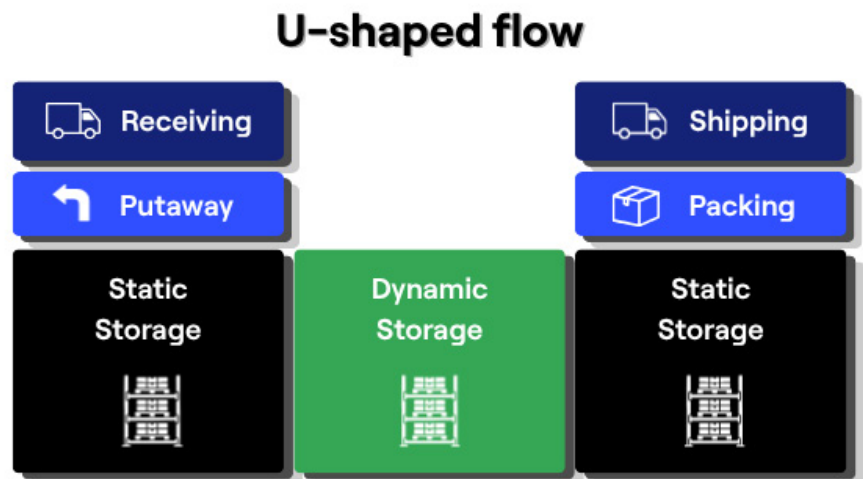
Product flow is the methodical movement of products through the different warehouse stages, including receiving, storage, picking, packing and shipping. It defines the path products take through a facility as they move from inbound to outbound.

The goal of product flow is to create an efficient path through the operation. When products have to travel unnecessary distances, cross paths with other workflows or move back and forth between areas, it can create congestion, bottlenecks and wasted time. A well-designed product flow helps keep products moving through the facility with fewer disruptions while making better use of available space and resources.

Product flow can take several forms depending on the configuration of the facility. Understanding how these layouts work can help distribution operations determine which approach best fits their facility.

U-shaped product flow

The U-shaped product flow layout is the most common in warehouses. The receiving and shipping areas are at the top of the U, side by side, to take advantage of loading and shipping resources that are close to each other. Putaway and packing make up the next level of the U, preparing products for storage and shipping. The last level is static and dynamic storage. The products with lower velocity or storage requirements are located in the static area, while high-velocity, seasonal and promotional items are stored in the dynamic storage area.

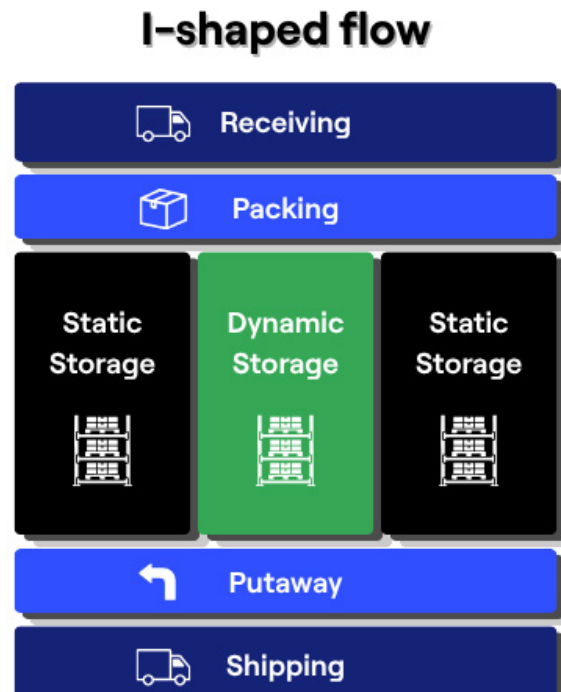


The product's journey in the warehouse represents a U as it begins at the top of the U on one side and then travels around to the other end, where it leaves the warehouse. The U-shape can be used to maximize capacity and streamline workflow, as well as enable cross-docking practices. However, there is the potential for high-traffic bottlenecks and narrow aisleways, which can limit flexibility.

Best for: Operations looking to maximize space and share receiving and shipping resources, particularly in facilities where cross-docking is important. The compact footprint can provide an efficient flow while keeping inbound and outbound operations close together.

I-shaped product flow

The I-shaped product flow layout is ideally used for larger warehouses. It has the I shape, as receiving and shipping are located on opposite sides of the building, with inbound trucks on one side and outbound trucks on the other. Staging areas for putaway and packing are located next to these areas, with static storage on the sides and dynamic storage in the middle of the storage area.

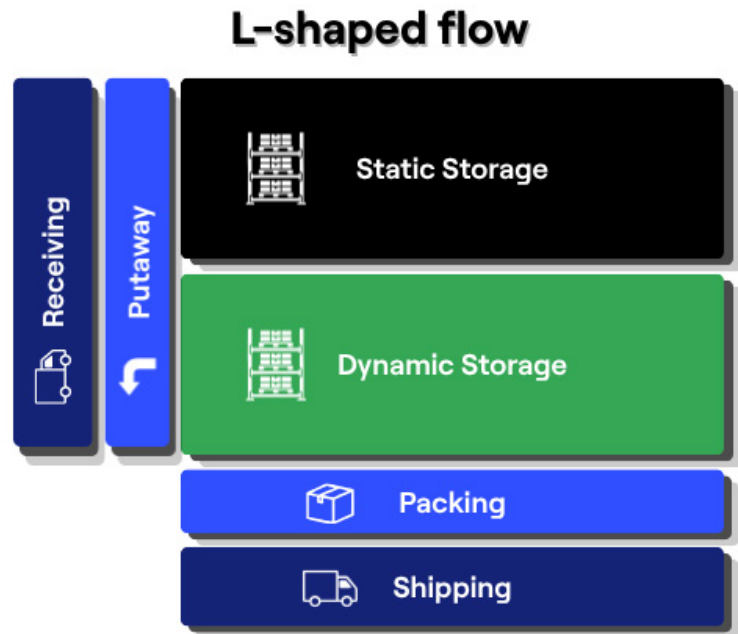


This linear layout allows for a clear flow of products from one end of the facility to the other, with no back-and-forth movement. It also allows for high-volume operations, which are scalable. On the downside, with receiving and shipping on opposite ends of the facility, there can be increased costs for equipment, infrastructure and staffing.

Best for: Large, high-volume operations that benefit from a clear, one-directional flow. Separating receiving and shipping at opposite ends of the facility can support high throughput while minimizing backtracking and cross-traffic.

L-shaped product flow

Much like the I-shaped product flow layout, the L-shaped product flow layout relies on linear travel through the warehouse. The L starts with receiving and putaway as the bottom of the L, with dynamic and static storage, packing and shipping stacked on the side.



The L-shaped layout can minimize congestion and increase workflow. It can also be adapted, providing flexibility to fit warehouse sizes and shapes. However, this product flow requires more space than the other options, which can lead to longer travel times, and adds complexity to an operation.

Best for: Facilities where building shape, dock locations or site constraints require receiving and shipping to be positioned on adjacent sides. The layout can provide greater separation between inbound and outbound activity while offering flexibility for different facility configurations.

Choosing the best product flow layout for your operations

Understanding optimal product flow, picking methodologies, and inbound and outbound strategies can drive operational design and assist in creating a data-driven automation plan. Below are a few of the aspects you need to consider:

Product mix

Not all products are the same, so neither should their product flow. For example, a hardware distribution operation should not treat a prepackaged chainsaw like a small bag of nuts and bolts. Prepackaged, ready-to-ship products can use cross-docking practices to ship right from the warehouse floor, while smaller products can be fulfilled in traditional methods. Clearly defining products and SKUs and their opportunities for optimization can drive product layout and flow.

Velocity and volume

How fast SKUs turn and at what speeds is key to understanding an operation's needs and productivity potential. Two key areas to consider are dynamic and static storage.

- **Dynamic storage:** Also known as slotting, dynamic storage is an easily accessible warehouse area where high-velocity products are stored and grouped with other products likely to be ordered together. For instance, if your electronics operation has a new phone available, you would "slot" accessories for the product together so they can be easily fulfilled and shipped. This storage area constantly shifts and changes due to seasonal and promotional cycles.
- **Static storage:** As the name indicates, this storage is for slower-moving items and products with characteristics that preclude them from being included in the dynamic area, such as weight and size.

Flexibility and scalability

While some product flow layouts will currently meet your operations' needs, will they be able to grow and scale? As product lines grow and SKU proliferation continues, distribution operations will need flexibility to adapt to their company's challenges, and outside forces can affect them.

Benefits to choosing the right product flow for your operations

Utilizing the right layout to optimize the flow and throughput of your distribution operations has many key benefits.

- 1) **Increased efficiency:** Streamlining processes and minimizing bottlenecks allows the operations to fulfill orders faster while maximizing inventory capacity.
- 2) **Lower operational costs:** A clear and efficient product flow will reduce labor dependency, increase accuracy rates and lower shipping costs.
- 3) **Optimized capacity:** By selecting the right product flow, you can configure your storage to accommodate growth and expansion activities.
- 4) **Higher productivity:** Using a slotting strategy in a dynamic storage area will allow your pickers to travel less while fulfilling more orders in a shift.
- 5) **Increased customer satisfaction:** Meeting customer demand with fast and accurate deliveries leads to a satisfying experience and greater customer loyalty and commitment.

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FORTNA CAN HELP

Rarely does one size fit all; however, when you partner with FORTNA and its team of experienced experts, you get a team well-versed in product flow, operational design and layout, as well as unique data-driven solutions that can not only solve your operational challenges but also meet your organizational goals.

Contact us today at www.FORTNA.com