THE HIDDEN COSTS OF PAPER PICKING

A Deeper Look into the Paper Picking Process
THE IMPORTANCE OF ORDER PICKING

Within the four walls of the warehouse, order picking usually gets the most attention. And it deserves the most attention, because 60% to 70% of labor costs in the warehouse are associated with the process of order fulfillment. The purpose of this paper is to take a deeper look at the process involved with paper picking and to shine a light on the hidden costs of paper picking.

REASONS FOR PICKING WITH PAPER

Typically, most businesses and therefore, most warehouse order picking operations start small. During this time it makes the most sense to pick one order at a time (discrete picking). The primary advantages for this picking method is that (a) it is easy to implement and (b) it works. It is also easy to use when your operation has a small SKU base. With paper based picking, efficiency is delegated into the hands of your order pickers. When first hired, they may or may not achieve fast order fulfillment response times. In time, however, since humans gain “tribal knowledge”, once they become familiar with the location of the SKUs, they spend less time hunting for pick locations and their pick rates improve. Then, as companies grow, as labor turns over, as the number of orders each day increase and the number of SKUs increase, the pick path grows, the time needed to walk between pick slots increases, productivity plummets and labor costs escalate.
TYPICAL PAPER PROCESS DEFINED

For illustration purposes, let's review the typical steps commonly associated with the discrete picking method. While the specific steps for each warehouse operation may differ slightly, this example will be used to demonstrate the hidden costs involved with the paper picking method. We are assuming: a) paper pick tickets, 2) one order picked per trip, and 3) orders are checked for accuracy when picking is completed. The need to check off items picked and/or initial each line item is incorporated in step #5.

THE REAL-WORLD IMPACT FROM 100 ORDERS

Quite often, the picker pushes a small cart along the pick path, using it as (a) a desk for picking materials (e.g. pencils, tape, etc.), as well as (b) a place to stage the picked inventory for the order in process. As businesses grow, the number of orders per day increase, the number of trips around the warehouse increase, and the pick path distance grows. For order fulfillment operations that pick one order at a time (by paper), the steps in the process are repeated again and again, once for each order. While this picking method is relatively common, the objective of this paper is to illustrate alternative methods that will show how to improve productivity.

To make our discussion relevant, let's first begin by illustrating what happens in the real world with paper pick tickets. The graphic below illustrates the repetition that occurs for 100 orders, for example, when picking by paper one order at a time.

*Note: To enhance picking productivity, more experienced pickers will attempt to pick more than one order at a time, picking up multiple pick tickets when they begin their task. Their instincts lead us directly into a discussion about “batch picking”.

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“BATCH PICKING” DEFINED

Most people have heard of “batch picking”, so it’s important in this discussion to differentiate between “multiple order picking” and “batch picking”. Both involve the process of combining a group of orders so they can be picked as a group; and both reduce walking distance by minimizing the number of trips through the warehouse. However, multiple order picking requires far more travel than batch picking. To illustrate this point, let’s create two graphs, the first illustrates multiple order picking and the second illustrates batch picking.

**Multiple Order Picking:** The graphic shows nine orders (shown on the graphic down the left side), four single line orders, three orders with two order lines, and two orders with four line items for a total of 18 line items. Let’s assign these nine orders to three picking carts. Then, let’s set up the pick slots (shown on the graphic down the right side) by color coding the items to be picked with the same colors as the colors used to define the pick slots.

The first item on the brownish colored cart is beige. Its pick slot, also beige, is the very first slot in the warehouse (see right side of graphic). In essence, when this item is picked, the order is complete and could be delivered to packing, ready for shipping. However, because the second order has an item colored violet, and because it’s located at the other end of the warehouse, delivery to packing cannot happen. The reason? Because the first order is captive to the cart, and the cart must travel the full distance of the warehouse to pick the final item for this grouping of orders. The culprit is the method used to assign orders.

The tribal instinct method of multiple order picking, when pickers attempt to “batch pick” by picking up more than one paper pick ticket, may feel like “batch picking”; but in reality, is “multiple order picking”. With analysis, may actually require almost as much time to pick orders as single order picking.

**Batch Picking:** Using the same nine orders and the same 18 items color coded in the same manner, instead of grouping three orders in a sequential manner, what if we were to enlist the assistance of a high speed computer and optimization software? We could create an algorithm that selects and assigns orders to each of our three carts based upon order commonality, those orders with the same items, or at least items located closely in the warehouse. (Note: The criteria used when selecting orders varies widely, so for illustrative purposes, this discussion will reference order commonality only.) The three orders, for example, with pick slots located closest will be assigned to each of the three carts. In dramatic fashion, the first cart is finished after traveling roughly 20% of the pick path; the second cart has to travel roughly half the warehouse pick path; and the third cart has to travel roughly a third of the warehouse pick path.

In summary, the differences between “multiple order picking” and “batch picking” have the potential to be substantial depending upon the number of SKUs in a warehouse and the number of orders being picked.

**BATCH PICKING 10 ORDERS**
Batch picking introduces the need to sort the product picked. Therefore, the assistance of a purpose-built software system is required for batch picking 100 orders with minimal walking and maximum productivity. It is simply unreasonably difficult to pick and sort effectively without a computer. Because FastFetch does what we’ve defined as being required, the following illustration uses FastFetch as one potential resource needed to achieve the objectives described below.

For our illustration, let’s create four batches of 25 orders each. With batch picking, instead of nine steps as was the case with paper picking one order at a time, we now have only four steps. And instead of repeating eight of the nine steps 100 times, we only repeat three of the four steps…\textit{and these three are repeated only four times}. The following graphic illustrates the impact.

\textbf{CASE STUDY: SALON SERVICE GROUP – SPRINGFIELD, MISSOURI}

Salon Service Group in Springfield, MO is a perfect example for all the principles defined herein. They picked orders with paper, pushing a small cart as described. When they moved into their new warehouse, they implemented FastFetch and incorporated the following principles:

- They reduced the number of trips through the warehouse by a factor of 15 by assigning 15 orders to a purpose-built cart,
- They moved much of the packing function to the pickers, having them pick directly into the shipping carton,
- They pre-cubed the box contents with the inventory that was to be picked into the appropriately sized boxes, and
- They used FastFetch to optimize their pick path by queuing orders and then selecting 15 with common SKU’s.

The result was picker productivity that improved three times, from 54 lines per hour to more than 155 lines per hour; and, the number of people packing dropped from 6 to 8 on a busy day to 2 to 3.

\textbf{CLOSING THOUGHTS}

Order picking is important. Whether yours is a “warehouse” that supports the assembly line, the work cell, or a distribution company, picking is your life-blood because there’s no business profit until an order is picked and shipped. And, because picking adds no value to the product being picked, the cost of picking is a critical one.

The question is, \textit{“Has your business grown sufficiently so that it’s time for you to reduce costs by considering batch picking?”}

If \textit{“yes”}, we’d consider it a privilege to assist you as you determine the optimum batch picking method.
THE NEXTGEN SOLUTION
NextGen DC Systems develops a “Return on Investment Business Case” by helping you with DC Operations, Fulfillment, Technology and Equipment that are integrated with your current business model. We come to you with a “clean sheet of paper” and explore what you have going on, what you want to change, and help you develop a strategy. NextGen is positioned to provide full DC Consulting Services, Design, Distribution and Warehouse Software, Integration Solutions, and Material Handling Equipment through a network of strategic alliances who truly fit the standards of our company.”

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