



Combating the high cost of high turnover in the warehouse

The challenge: the training productivity drain

In the warehouse, labor is the biggest operational cost. Profitability and customer service quality are directly tied to the productivity of the warehouse workforce. As a result, you need to continually find ways to increase productivity, despite the issues that plague virtually every warehouse:

- **High turnover.** About one third of warehouses report a 10% to 25% turnover in the permanent workforce, and nearly another third report turnover from 25% to as high as 100%.¹
- **A large temporary workforce.** Up to 19% of your workforce are temporary workers required during peak times.² Turnover in the temporary workforce is even higher than the permanent workforce: about 30% of warehouses report 10% to 50% turnover, while 22.5% report turnover between 50% and 100%.¹
- **An inexperienced labor pool.** To further complicate the situation, experienced workers are hard to find. A majority 61.2% of distribution centers report that over half of their new hires have no warehouse experience.³
- **The high cost of the productivity gap between skilled and unskilled labor.** Substantial training time is required to bring permanent and temporary workers up to speed. The majority of today's warehouses spend one to three months training new hires¹ to achieve the same productivity and accuracy metrics as skilled workers. As a result, some short-term temporary workers may not have the time to ever reach peak productivity.

Ramp time: the annual cost of high turnover

Just how much does ramp time cost a warehouse on an annual basis? Let's focus on pickers, a job that is not only key to order fulfillment, but also estimated to amount to 50% of all warehouse labor costs.⁴

The cost of training in a warehouse with a total of 100 pickers over two shifts that spends only four weeks bringing new workers up to full productivity is:

- \$64,000/yr for a 30% turnover in the workforce
- \$104,000/yr for a 50% turnover in the workforce

And those are annual expenses. In just five years, that ramp time alone can cost a warehouse over \$500,000.

Not only is training time an annual investment — it's a big investment to make for workers who may not stay long, especially in the case of short-term temporary workers.

What if there was a solution that could practically eliminate ramp time, reducing months of training to less than a day — regardless of order picking complexity?



The solution: Zebra FulfillmentEdge™

Introducing Zebra's powerful FulfillmentEdge, an innovative solution that allows even first-time inexperienced workers to reach the productivity and accuracy metrics of your most experienced workers in as little as a day. This new approach to warehouse tasks allows you to utilize all the information in all your backend systems — including your Warehouse Management System (WMS) — to create and deliver new highly-intuitive dynamic workflows that make the most out of every step every worker in your warehouse takes, starting on day one.

Now, instead of one worker completing one task in a specific function, such as a single picking order, that same worker can complete all possible tasks on a specific path — for example, completing multiple pick orders and partial picks for other orders, as well as replenishment.

In addition, you can reduce the one thing pickers spend half of their time doing⁴ — traveling through the warehouse. Instead of expecting workers to find the most efficient path to travel to the next task location, you can put step-by-step directions directly in their line of sight, with instant notification of a wrong turn. The result? Minimum travel time. And since the need to look at the screen on the mobile computer for step-by-step directions is eliminated, workers can keep their heads up and their eyes on task. The result? Increased worker safety and productivity.

Instead of visibility into only task start and end times, you now get a wealth of metrics on the various completed orders, including who executed the order, how long a work order took to complete, how long each task in a work order took to complete, whether the worker followed or deviated from the most efficient travel path and more — all the information you need to measure worker performance against defined metrics to identify:

- Which workers need improvement — and create achievable improvement plans
- Determine how and where you can improve your processes

And the beauty of FulfillmentEdge is it doesn't require any change to any of your current systems. FulfillmentEdge seamlessly integrates with all of your systems, automatically pulling and pushing information to and from your Warehouse Management System (WMS), Enterprise Resource Planning (ERP) systems, locationing systems and more — and delivering information-rich work orders via the very latest in mobile technologies, including head-mounted displays, wearable and other mobile computers, ring scanners and mobile printers.

Ramp time cost: a look at the basic math

The following calculations reveal the high cost of ramp up time for new hires. The calculations are based on a conservative ramp up time of four weeks, with two turnover scenarios: 30% and 50%.

Ramp time cost with 30% turnover

Total 100 pickers with 30% turnover:
50 pickers each on two shifts
 $\$13 \text{ hr} \times 40 = \520 week
 $4 \text{ weeks} \times \$520 = \$2,080 \text{ during training}$
30% turnover annually = 15 pickers per shift
 $15 \text{ pickers} \times \$2,080 = \$31,200 \text{ per shift}$
Annual minimal spent on training time
30 pickers over two shifts = \$62,400
Annual training expenditures:
\$624,000 over 10 years

Ramp time cost with 50% turnover

Total 100 pickers with 50% turnover:
50 pickers each on two shifts
 $\$13 \text{ hr} \times 40 = \520 week
 $4 \text{ weeks} \times \$520 = \$2,080 \text{ during training}$
50% turnover annually = 25 pickers per shift
 $25 \text{ pickers} \times \$2,080 = \$52,000 \text{ per shift}$
Annual minimal spent on training time
50 pickers over two shifts = \$104,000
Annual training expenditures:
\$1,040,000 over 10 years

The proof is in the pilots

Two recent pilots in the distribution centers of two giant retailers reveal the value of Zebra's FulfillmentEdge solution in picking. The pilots were conducted with actual customer warehouse pickers in customer warehouses, using real pick orders.

The before scenario

Pickers scanned the barcode on a paper pick order to begin picking. The pickers then determined the fastest path to each item. At the pick location, workers manually compared the SKU printed on the pick order to the SKU on the item or shelf to ensure pick accuracy. Each item was placed in the order bin. After the last item was picked, another scan of the barcode on the pick order signified completion and delivery of the bin to the quality assurance or packing station.

The after scenario

The beginning and ending of the old process was the same: pickers still scan the barcode on a paper pick order to begin and again when completed. But now, workers no longer need to determine which path to take to the next pick item. Instead the user received information on the next item in the order, with directions through the shortest possible path. The result? Improved productivity through less travel time. A scan of the barcode on the item, at the pick location and on the bin ensured that the right item was picked and placed into the right bin. The result? Improved task accuracy, plus faster picking and the elimination of the quality assurance step previously required to ensure every order contained the right items, further improving productivity.

The FulfillmentEdge solution hardware

Both pilots utilized the Zebra's HD4000 Enterprise Head-Mounted Display, a belt-mounted Zebra WT6000 wearable mobile computer and Zebra's RS6000 or RS5100 Bluetooth ring scanner. Pilot #2 also tested two additional hardware components: the addition of voice for voice-directed work orders and Zebra mobile printers for on-the-spot label printing.

The FulfillmentEdge solution software

Both pilots utilized the FulfillmentEdge Mobile Optimization Server and the FulfillmentEdge Analytics Engine. The FulfillmentEdge Mobile Optimization Server aggregated all the data from various backend systems into the Mobile Optimization Server database. The FulfillmentEdge Analytics Engine created the dynamic real-time work orders. The Mobile Optimization Server then managed the delivery of the dynamic work orders, sending the appropriate information at the appropriate time, properly formatted for the picker's hardware — and updated backend systems as data is received from the picker's mobile devices.

The FulfillmentEdge solution results

The results speak for themselves:

- Ramp/training time was virtually eliminated: In just hours, pickers in both pilots exceeded the expected times set by the Warehouse Management System.
- Productivity improved for even the most experienced pickers: In most cases, pickers exceeded the actual prior production run times using the manual procedures (without FulfillmentEdge).

With Zebra's FulfillmentEdge solution, workers hands are always free to handle and scan items. The mobile device remains on the worker's hip — instructions to the next pick location or to scan a barcode on a label are projected directly in the worker's line of sight via the head-mounted display. Workers no longer need to look at and interact directly with a device, saving time and virtually eliminating the need for training.



Snapshot: Pilot #1

Manufacturer of some of the world's strongest everyday leading apparel brands

The details

Number of pickers: Six

Experience level of pickers: 1 week to 16 years

Length of pilot: Two days

Technology familiarity: No head-mounted display experience

Before and after

Current process: Paper-based pick orders, picker identifies next item and chooses the travel path to the item

New process: Electronic, item and directions via the most efficient path to the item are overlaid in the picker's view via the HD4000 head-mounted display

The benefits

Productivity benefits:

- Peak efficiency was reached in just a few pick assignments
- Pickers were working on their own in just four hours
- In just two days, performance of the least experienced pickers with one to six weeks of experience matched or exceeded the performance of the most experienced pickers with 16 years of experience
- Accuracy of picks was increased through the addition of scanning location, item and bin barcodes

The scorecard

Tester ratings on a scale from 0 to 5 (5 is the highest):

Comfort rating: 4.5

No eye fatigue, eye strain, headaches, dizziness or image issues reported over the duration of the pilot

Solution Satisfaction rating: 5

Clear and concise instructions were intuitive and easy to follow; workers understood the new process almost immediately, virtually eliminating ramp time

In just two days, performance of the least experienced pickers with one to six weeks of experience matched or exceeded the performance of the most experienced pickers with 16 years of experience.

Snapshot: Pilot #2

One of the largest pharmacy healthcare providers in the U.S.

The details

Number of pickers: Two
Experience level of pickers: 5 to 6 years
Length of pilot: Three days
Technology familiarity: No head-mounted display experience

Before and after

Current process: Paper-based pick orders, picker identifies next item and chooses the travel path to the item
New process: Electronic, item and directions via the most efficient path to the item are overlaid in the picker's view via the HD4000 head-mounted display

The benefits

Productivity benefits:

- Peak efficiency was achieved after 10 pick locations
- Very easy to learn with almost no ramp time
- From the very first assignment, all expected times were exceeded
- Pickers beat their own prior times
- Accuracy of picks was increased through the addition of scanning location, item and bin barcodes

The scorecard

Timing
After using the FulfillmentEdge solution for just four hours in four different scenarios, workers were:

Scenario 1: Mobile printer for on-the-spot label printing
25% faster than the WMS expected time

Scenario 2: Pre-printed labels
24.5% faster than the WMS expected time
33.75% faster than a prior production run using standard manual processes

Scenario 3: Mobile printer for on-the-spot label printing + Voice interaction
30% faster than the WMS expected time

Scenario 4: Wave optimization
58.5% faster than the WMS expected time
65.5% faster than standard manual processes: pick time was reduced from 66 to 23 minutes

Comfort rating: 4.8
No eye fatigue, eye strain, headaches, dizziness or image issues reported over the pilot duration.

Solution Satisfaction rating: 5
Fulfillment Edge provided clear and concise instructions that are intuitive and easy to follow
Workers understood the new process almost immediately (no ramp time)

In just four hours, FulfillmentEdge delivered dramatic results. Workers picked orders between 25% to over 58% faster than the timeframes defined by the Warehouse Management System.

Tester ratings on a scale of 0 to 5 (5 is the highest)

Summary

The two proof of concept pilots conducted for two giant manufacturers validate that the Zebra FulfillmentEdge solution not only works, but also delivers on its promised value. Training time was nearly eliminated. The reliance on skilled labor was nearly eliminated. And the multi-month productivity gap between highest and lowest performers was nearly eliminated.

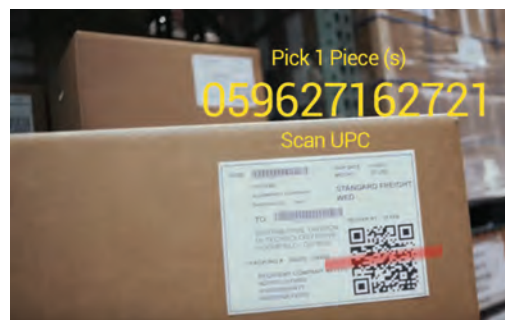
Up to three months of training time was reduced to less than a day, allowing these customers to address turnover and add temporary staff as needed — without a major investment in training time and cost, or a productivity hit — and all without impacting existing systems in any way.

For more information about FulfillmentEdge, or to find out how you can harness the power of FulfillmentEdge to better use your business intelligence to improve warehouse productivity, please visit www.zebra.com/fulfillmentedge



Leverage the power of cutting edge technology in the warehouse

Since FulfillmentEdge is technology agnostic, you can give your workers a head-mounted display that eliminates the need for workers to stop to read instructions on a mobile device display. Instead, instructions are overlaid directly into a worker's line of site.



CITATIONS

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