

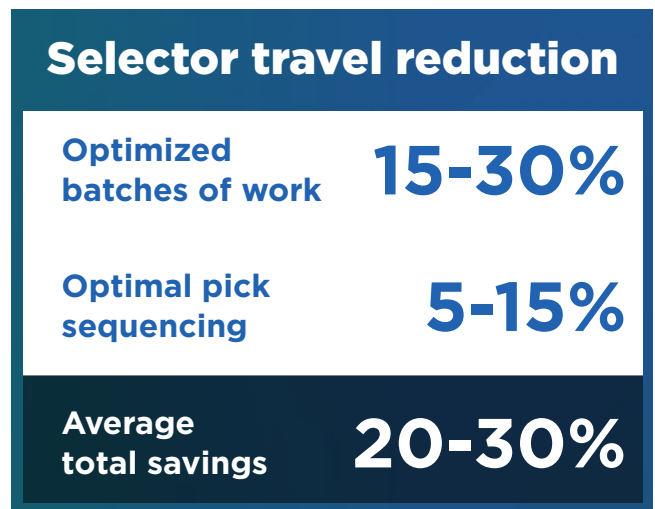
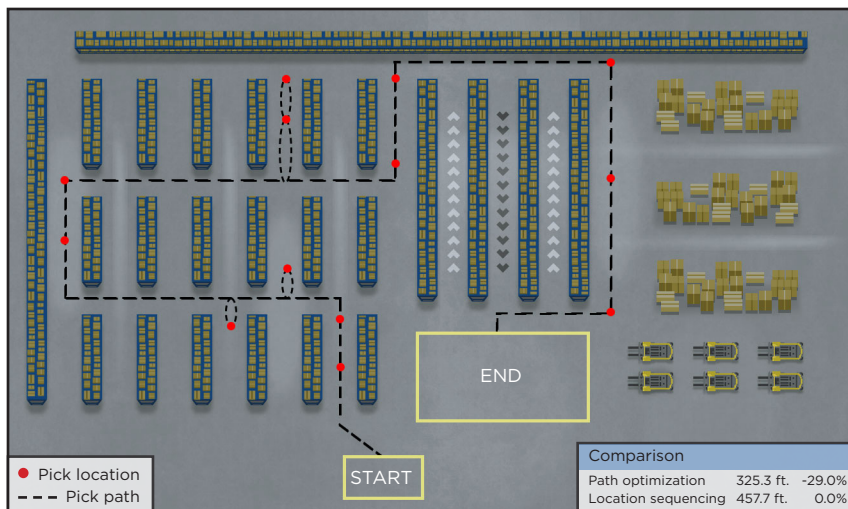
How best pallet matching for grocery DCs can reduce selector travel 20-30%

Selectors in most DCs still spend more than a third of their day traveling through the DC rather than picking product. Lucas Dynamic Work Optimization (DWO) is AI-based software that optimizes work execution resulting in major reductions in selector travel. DWO generates immediate productivity gains of 20% to 30%.

Get optimized pallets and reduced travel with Dynamic Work Optimization

Lucas DWO reduces travel by optimizing assignments of work and by defining optimal pick sequences or pick paths. The software uses multiple Lucas algorithms and a digital map of your DC to group together two or more order-pallets in batches for picking.

Lucas DWO has demonstrated travel savings ranging from 15 to 30 percent through batch optimization alone. DWO pick path optimization reduces travel an additional 5-15 percent in typical case picking processes commonly used in grocery DCs. Overall, the majority of DCs could expect to reduce travel between 20-30 percent with DWO, generating an immediate direct increase in selector productivity.



The optimization challenge in grocery DCs

Grocery DCs represent a unique travel optimization challenge. Most have a WMS system that creates pallets that are optimized to make delivery and stocking easier for retailers. These store-ready pallets are not necessarily built with warehouse efficiency as the top priority. Instead, many DCs have used automation and/or product slotting software to improve selector productivity.

DWO represents another software for reducing travel, either as a standalone or side-by-side with warehouse slotting and automation systems. DWO can use the pallets of work created in your WMS and determine which 2-3 pallets to group together in a picking assignment. For even greater travel savings, DWO can use order and inventory information from your WMS to create fully optimized multi-pallet assignments.

Best pallet matching and travel savings using Lucas Dynamic Work Optimization

Example 1

In this example, the DC's WMS created two-pallet assignments for a single stop on a given route. Work was released and picked in waves representing 10-12 routes/trucks. Lucas DWO used route and stop information from the WMS to create two-pallet assignments within a wave. Unlike the WMS assignments, the Lucas DWO assignments could include pallets for two separate stops or routes. The customer-defined assignments averaged 109 picklines and spanned an average of 11.9 aisles. The Lucas DWO assignments, by comparison, spanned an average of 8.76 aisles with 110 picklines per two-pallet assignment. The DWO batches reduced travel 21.2 percent. Using DWO pick path optimization reduced travel an additional 8.4 percent, with a total travel savings of 29.6 percent.

Example 2

In the second example, the DC's WMS defined the items to be picked for each pallet based on the maximum cube of the pallet. Selectors would then pick the pallets in batches of three on each trip through the warehouse. The WMS did not apply any additional logic to optimize the groupings of pallets. We used the pre-defined pallets from the WMS to create DWO batches of three pallets per assignment.

The average picklines per day were approximately 167,000, and the customer-defined batches averaged 156 lines per assignment. By comparison, Lucas DWO created larger three-pallet assignments with an average of 181 pick lines per batch. The DWO batches reduced travel between 20.1% and 22.5% per day, with a total travel savings of 21.1% across the six-day trial.

Example 3

In the third example, the WMS also defined the items to be picked for each pallet based on the maximum cube that could fit on the pallet. The pallets were then picked in sequence in batches of three per trip through the warehouse. As in the first case, the WMS did not apply any additional logic to optimize the pallets or groupings of pallets.

We considered two different scenarios for creating three pallet batches. In the first scenario we restricted the batches to pallets for the same truck/route. In the second scenario we considered batching across trucks. In the latter scenario there was some additional travel cost for delivering the pallets to more than one dock staging location. The additional staging time was more than offset by the benefit of reduced travel within the picking task, as the travel savings increased from 15.6% to 18.4%.

Example 4

In this example involving one of the nation's largest wholesale grocers (10 DCs), assignments were broken out from 140 cube to 70 cube (e.g. one pallet) using a batch size of 2 pallets for double jacks. Multiple orders for the same ship to within a wave were combined. Travel cost only were considered, and smaller cube assignments for the same order could be put in quadrants on a pallet to reduce trips and consolidation.

The average picklines in five different quadrants (grocery, freezer, dairy, produce and meat) over a two day period averaged 101,576 per day. Prior to DWO, the number of daily batches averaged 1,096 a day, while the DWO batches averaged 916 per day, netting a savings of 20.6% in travel, which translated to productivity gains of 8%.

Translating work optimization into cost savings

The table below calculates the potential productivity improvements based on DWO travel savings and the percentage travel in picking time in a given DC. Travel generally represents anywhere from 30-70 percent of total picking time, depending on your process, order and product density, and a variety of other factors.

If travel represents 40 percent of picking time in your DC, and DWO were to generate a 20 percent travel savings, that would translate to an 8 percent increase in selector productivity. The majority of DCs would fall in the green area of the chart, with net productivity gains ranging from 8-15 percent. That equates to hundreds of thousands of dollars a year in labor savings in an average grocery DC.

Productivity gains based on travel and optimization savings

Travel as a percent of picking time					
DWO travel savings	30	40	50	60	70
15%	5%	6%	8%	9%	11%
20%	6%	8%	10%	12%	14%
25%	8%	10%	13%	15%	18%
30%	9%	12%	15%	18%	21%

About Lucas Systems

For more than 25 years, Lucas Systems has pioneered supply chain productivity solutions for mobile workers and managers. Tens of thousands of associates at companies like C&S Wholesale Grocers, Eby-Brown, Associated Wholesale Grocers, Supermercados Econo and Piggly Wiggly trust Lucas to deliver solutions using voice and AI technologies that greatly improve worker productivity and accuracy.

“You rarely implement a new system and have users tell you ‘It’s made my life so much easier.’ Making the process better for associates makes them more productive. And that’s better for the business.”

Chris Rufa, Senior Director of Global Distribution



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