



DYNAMIC ZONE PICKING

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Totes stacked between pick zones? Pickers waiting for the next order? Pick zones not balanced? Pickers crossing paths? Pickers at the same pick location? These are common occurrences for order fulfillment and store replenishment operations when demand is unpredictable, and forecasts are unreliable. Solutions offered by the experts often include slotting analysis, automation, additional accumulation conveyor, and more space. Before any major investment is considered to alleviate the problems of inconsistent work flow in a picking, pick/pack, or put to store operation, consider Dynamic Zone Picking.

Dynamic is defined as “characterized by energy or effective action” according to the Random House Unabridged Dictionary. Characterized by energy and effective action – that is exactly the goal of the distribution center and very specifically for picking, the constraining operation of most fulfillment facilities. Most supply chain operations managers are familiar with zone picking, or pick and pass, order filling. An order is divided among two or more product zones. The product zones are slotted to optimize one or more facility metrics, usually total production volume or throughput. This concept works very well for predictable demand commodities such as office supplies, hardware, and pharmaceuticals. The demand for tape, bolts, and aspirin for a given month can be forecast well in advance. The order profile across multiple zones will remain consistent for extended periods of time during a particular season each year. Items can be assigned to certain zones and to certain locations within each zone each season or each year and the zones will remain predominantly balanced and productive.

Products influenced by style preferences or flavor preferences are usually not as predictable. Demand for fashion apparel, unique foods, and home décor items literally changes along with the weather. Maintaining a balanced flow of orders within a zone picking, or any picking, environment seems impossible for retailers

and distributors of these type items. At any given time, some zones will be without an order to pick while other zones will create a traffic jam of totes or cartons. While the first reaction may be to address the picker in the congested zone, don't assume that a lack of productivity is the issue. Another time the condition can be reversed among the zones.

Static locations or static zones in an unpredictable demand operation cannot be dynamic. Static is defined as "characterized by a fixed or stationary condition." Remember dynamic is defined as "characterized by energy or effective action." Simple logic then indicates that if demand is predictable (fixed) and zones are static (stationary) that throughput (movement of orders) will be consistent. If demand is dynamic (moving) and zones are static, then throughput will be inhibited by the picking zone configuration.

One solution would be to constantly re-slot the pick zones and move products between zones – making the zones less static. Due to weight and size requirements re-slotting cannot always solve the problem. Even is possible, reslotting is normally not feasible due to the labor and time required to analyze the data, change the system, and physically move the product. Another solution may be to add accumulation, usually conveyor, between the zones to act as a buffer. The buffer will create a short period of time during which the imbalance may be resolved by the natural fluctuation of demand across the pick zones. Adding enough conveyor to resolve the issue is often cost prohibitive and has limited effectiveness. Being dynamic requires a different approach.

Dynamic zones remove the static component of the picking or put to order area and create consistent work flow while increasing productivity. Rather than picking to a fixed point, the end of the zone, and returning for another order, pickers are

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required to pick until the next picker in sequence is prepared for another order. Each subsequent picker does the same. No queue of orders is allowed to sit at any given point in the area. Zones are defined by the work available rather than by the products to be picked and can therefore change with no planning or management intervention.

For illustration, assume a 3 picker/zone module. Each picker has an active order or batch in process. Picker C, the last picker in the module, completes Order 1 and then returns to where Picker B is picking Order 2. Picker B then passes Order 2 to Picker C. Picker B then returns to where Picker A is picking Order 3. Picker A passes Order 3 to Picker B and returns to the beginning of the module to start Order 4. This chain reaction continues throughout the day. Each picker always has one order or batch and no orders are sitting static. Zones are not defined by locations but by the availability of capacity – the pickers.

Advantages of dynamic zone picking are numerous. If one picker is removed from the module, the remaining two pickers continue working without interruption. An additional picker can be added with no interruption to the process. A change of order profile or sku velocity does not impact the process. The physical locations picked by each picker will vary with each order based on the work available at any given time. The slowest picker on the line cannot solely determine the throughput of the module. Productivity and accuracy improve as congestion and wasted motion, particularly walking, are minimized. Dynamic zone picking automatically adjusts to the existing conditions of a moment in time without any change of slotting, programming, work assignments, or material handling equipment. Your facility can be “characterized by energy and effective action” by implementing dynamic zone picking.

Contact us at info@hy-tek.com or call us at 678.842.9114, if you want to learn more about Dynamic Zone Picking.