

Viewpoint

Optimizing RF Cart Picking

It is not uncommon that product dimensions and order volume attributes result in a unit picking solution that call for the use of Radio Frequency (RF) cart picking within the confines of a Warehouse Management System (WMS). Cart picking is definitely a low capital option when compared to tilt tray or pick-to-light alternatives, but that does not mean it has to be labor intensive. There are several factors to consider when optimizing labor use in an RF cart picking environment.

1. The Right Equipment

Equipment selection begins with choosing the right carton or tote sizes to be used in picking. The “one size fits all” principle is not one that necessarily applies in this decision. Product dimensions, order volumes, and cartonization / packing strategies factor into what size and type of cartons or totes should be used.

The next equipment decision involves choosing the best set of carts to accommodate the cartons or tote sizes that will be used. The following table lists the attributes that should be considered and the impact they have on picking productivity.

Caster Quality	Higher quality swivel casters allow for better maneuverability and have a longer lifespan. Determining the weight that must be supported by the carts will help in not “under” or “over” buying on the casters.
Cart Weight	Cart weight impacts picker fatigue. Wire shelf carts can offer a durable yet lighter weight option.
Container Capacity	It is essential to determine the maximum number of containers that can be managed simultaneously by a picker. This number could be constrained by the system or by human ability depending on the WMS and its associated processes. Knowing this information is needed in determining cart size and shelving needs.
Shelving Clearance	It is important to know how much clearance is needed between the top of a picking container and the cart shelf above it.
Pick Aisle Clearance	The previous attributes may lead to the selection of a cart that is too big to navigate pick aisles. It is important that pick aisle dimensions are accounted for when making the final decision of which carts to buy.
Ladder Attachments	Ladders can add significant weight to a cart and expose pickers to undo risk. If possible, it is best to group higher level locations in their own pick zone so that the number of carts requiring a ladder can be reduced significantly.



The last equipment decision involves choosing the best portable RF device. Voice RF units offer fantastic advantages because they free up the hands and eliminate the need to read screens for directives. However, not all WMS packages offer viable interfaces to voice systems and learning curves can be longer when compared to simple hand held RF devices. When choosing between hand held and wrist mounted RF devices, it should be noted that hand held devices are generally more durable than wrist mounted devices due to the wear and tear that occurs to the ring scanner on wrist units. However, the advantage of the wrist mounted device is that a picker has both hands free to use.

2. The Right Process

In developing the best process for unit picking, first determine how pick containers should be initially assigned to a cart for picking. Ideally, a WMS would allow each carton to be assigned to a static position on the cart that can be referenced by the RF at the time of pick. This is done to reduce container search time during picking.

Next, determine how the WMS selects which picking containers are assigned to the cart. This is important because it is preferable to have containers assigned that would all start and finish in the shortest pick path possible. Not all WMS applications are created equal in the area of cart setup, and it is necessary to understand capabilities of competing systems in a package selection process.

At the time of the pick, it can be redundant to require confirmation of both the picking location and SKU. Determine which verification is most important to the operation and eliminate the other if possible.

The final major task in establishing the best picking process is laying out the pick path. This requires defining where the pickers will start, end, and how they will travel in between. It is a good idea to leave gaps in the systemic numbering sequence used from one location to the next. This allows for the insertion of new locations at a future date without having to re-sequence the locations around it.

3. The Right Slotting

The objective of product slotting is to group high volume products together on an on-going basis with minimal human intervention so that picker walk time is minimized. Seasonality, new product introductions, sales promotions, and product retirements are factors that impact the effectiveness of slotting plans. Some of these factors can be accounted for by slotting functionality, but some require manual intervention.

Many top WMS applications have built in functionality that offers product slotting. However, there are also many bolt-on applications that can provide the same features. If a bolt-on application is needed, then detailed investigation should be performed into how the application interfaces with the WMS as well as how it executes on product movements.

4. The Right Feedback

Picker feedback and reporting should always include both productivity and quality measurements. One without the other is not fully effective. Productivity numbers can usually be mined via a reporting tool from WMS transactional tables if the WMS does not provide satisfactory built-in reporting.

Pick quality reporting can be a little tricky because a WMS is not going to recognize when an over, under, or wrong pick occurs. In-line conveyor scales can be extremely effective in identifying weight discrepancies for manual audit. When in-line conveyor scales are not available, then the next best option is to use a sampling plan. Regardless of how containers are flagged to be checked, the results should be logged in a database for reporting purposes.

If developing the reports is the first step, then the next step is the frequency of their presentation to the pickers. The best option is a direct link to the RF screen that a picker can flash to by using a hot key. Electronic marquee boards are also effective. Both RF and marquee board options require an interface to the repository holding the data. If that is not feasible, then printed reports can be displayed at regular intervals throughout a shift.

Finally, pickers should be rewarded when specified levels of productivity and quality are reached or maintained. Recognition on a daily, weekly, or monthly basis in some form should be established so that expectations are properly set.

5. The Right WMS

Obviously, selecting the right WMS depends on much more than just the area of unit picking. However, a WMS application's ability to support the desired RF devices, picking process, slotting plan, and reporting needs should be considered in the decision.

Investing in a WMS is a major decision that requires detailed investigation into system functionality by independent professionals experienced in their implementation and use.

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