

Supply Chain News: Most Effective Use of Task Interleaving May Require Rethinking Product Flows

Food Company Changes Dock Door Arrangement to Enhance Results from Linking Tasks; How Many Task Types Should You Include in the Pool?

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"Task interleaving," or the combining of tasks for operators in a distribution center to increase productivity and reduce equipment "deadheading," isn't for everyone, but can drive big productivity gains for those that can make it work.

That's part of what **Tom Kozenski**, VP of Product Strategy at RedPrairie, and analyst **Steve Banker** of the ARC Advisory Group, concluded on a recent Videocast from Supply Chain Digest and the Supply Chain Television Channel on **The DC Productivity Triad: Task Management, Labor Management, and Slotting Optimization**. To view the on-demand version, go here: [DC Productivity Video-cast](#).

Task interleaving is a subset of the task management engine of a warehouse management system (WMS). The core task management system should assign specific tasks to workers (putaways, picks, replenishments, cycle counts, etc.) and communicate them electronically via radio frequency or voice terminals. The workers then complete the task and confirm that the work has been done using the same wireless technologies.

In higher end WMS systems, those tasks are assigned based on the so-called "3 Ps":

Permission: Is the operator permitted to do a specific task (training, certification, on the right type of equipment, etc.).

Proximity: Is it efficient for the operator to do a task based on where he or she is in the DC right now?

Priority: How important is this task (for example, is

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it a "hot" replenishment")?

Each WMS will have its own specific algorithms for how these factors are combined to assign tasks to workers. Generally, the task management configuration process will offer flexibility in how these rules are established. The system should also allow the generated task assignments to be "overruled" in real-time by floor managers if needed, though the ease of doing this will also vary from system to system.

"There is no obvious logic about how work and material should flow throughout a warehouse," Banker said on the broadcast. "There is a real difference between what a "Tier 1" type WMS system can do versus lower end systems."

While putaway, picking, etc., are the most obvious and generally most critical tasks to consider, Kozenski says the maximum value will be achieved if the task engine is looking across all types of work in the DC in its pool of work to be assigned. This is especially true when the option of "task interleaving" is introduced. Task interleaving involves linking different types of tasks to a given operator, such as a full pallet putaway with a full pallet re-

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Role of Work/Task Management



Work management integrates all operations throughout the DC

plenishment for a case picking area.

This is as opposed to workers focusing only on single tasks, such as putaway, which would mean driving back empty to receiving after each bit of work.

Using the task management engine, the system could instead identify that there is a storage location for the second task that is close to the putaway location from the first task, then assign that task to the putaway operator, reducing the amount of empty travel versus single threaded work assignment.

“With a broad list of possible tasks, the operation still has the option of which tasks to interleave and which to not,” Kozenski said. However, the more

tasks that are included in the tasking pool, the greater the opportunities to efficiently combine tasks. (See graphic above.)

Kozenski also says that with more dynamic DCs operations, including use of cross docking or flow through and lots of value added services, the value of task interleaving is usually enhanced.

“The configurable workflows associated with inbound and outbound services in the DC have had a dramatic impact on the use of task interleaving,” Kozenski said. “For example, there might be a few more touches of things that have to occur between the unloading of a truck and putaway. Or, there might be things that have to happen between when an order is picked and when it is packed and loaded. Those will all create tasks that

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have to be embedded in the task interleaving strategies.”

Designing a DC for Task Interleaving

Most companies think about how to use tasking and task interleaving within the facility that they have. But in many cases, it may be worth considering the potential to maximize use of interleaving when designing a new DC, or to evaluate layout or process changes in an existing DC to maximize productivity.

That’s what one large food company did when it implemented task interleaving, Kozenski said on the broadcast.

Like most companies, the DCs this company ran had all its receiving doors on one end of the building and its shipping doors on the other.

But the company wanted to link receipts from its factories with truck staging and loading. So, it reconfigured its doors into sets of five receiving and five loading docks each. By doing that, it was able to achieve double digit productivity gains in these



operations, Kozenski said, since the putaway task was so close to the drop off point for loading.

“You really need to look at your DC layout and flows to maximize task interleaving potential,” Kozenski said.

Should more companies look at DC flows and layouts to perhaps better utilize task interleaving potential? When does interleaving make sense and when does it not? Let us know your thoughts at the Feedback button below.