

Glen Road Systems, Inc.

FastTrak® WM+

One touch distribution
60 minutes to customer



FastTrak® WM+ – *Integration made easy*™
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GRSI

- Founded in 1987
 - Focus on supply chain solutions
 - Conshohocken, PA (Philadelphia)
- **FastTrak[®] WM +**
 - Warehouse Management System (WMS)
 - Warehouse Execution Suite[™] (WES)
 - Host Interface (HI)
 - Warehouse Control System (WCS)
 - Order Management System (OMS)
 - Packaging Integration (PI)



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Clients for life



Pitney Bowes



nicole.



liz claborne



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and many more...



One touch distribution 60 minutes to customer



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Goals

- Improve throughput for single line, multi-line, and large store orders using one system
- Process orders – **waveless** and very fast
- Less than 60 minutes from start to finish per order
- Increase flow and movement
- Cartonization - plan package – size and cost
- Reduce total labor, freight, and material costs
- Same day delivery



One Touch Distribution is managed by GRSI **FastTrak**[®] WM+

- Components
 - Warehouse Management System (WMS)
 - Warehouse Control System (WCS)
 - Order Management System (OMS)
 - Cartonization
 - Packaging Integration (PI)

Integration made easy[™]



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FastTrak[®] WM+

- Open architecture
 - Microsoft .NET
 - Microsoft SQL server
 - Microsoft Windows
 - Source code licensing
- Version 3.0 for enhanced automation
- Full-service warehouse integration
- 24x7x365 life-cycle support

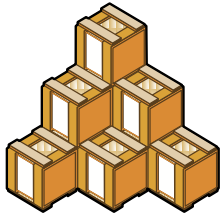


FastTrak[®] WM+

- WMS provides information
 - OMS: Order / SKU management system
- WCS manages all equipment
 - PI: Packaging Integration systems
 - Shipping systems
- Diagnostics
- 24x7x365 support
- **Fixed price – you OWN the code**



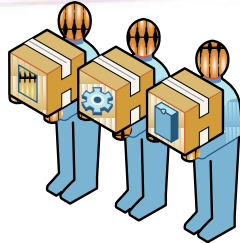
FastTrak[®] WM+



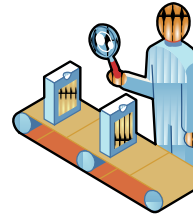
Receiving



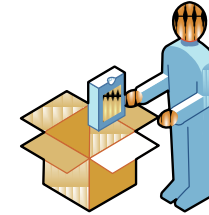
Stocking



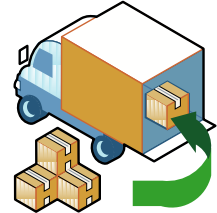
Picking



Quality
Control - Check



Packaging
Cartonization



Shipping

WMS Warehouse Management System

←—————→
WES (warehouse execution system) - WCS and OMS –
Controls all equipment and systems including RF, conveyors,
routing, pick/put-to-light, voice picking, AS/RS, carousels,
labeling, scales, scanners, and sorters

Supports tracking, tracing, controls, electrical, reporting,
diagnostics, host interfacing, shipping, batching, waving, and
wave management



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FastTrak[®] architecture

Host systems:

- SAP
- Oracle
- JD Edwards
- RedPrairie
- Infor
- Manhattan
- HighJump
- Legacy
- More...

ERP/WMS Host

Platforms:

- Windows
- Unix
- IBM, RISC, or AS/400
- Mainframe

Single-point connectivity

FastTrak[®] WM+



Ethernet backbone

Electrical controls PLCs

Inventory - WMS

- Receiving
- Putaway
- Picking
- Replenishment
- Robots
- Packing/shipping
- Manifesting
- Batching/waving
- Cartonization



Equipment - WCS

- Conveyors
- AS/RS
- Carousels
- Scanners/cameras
- Scales
- Sorters
- Picking: light, voice, RF, and paper
- Robots
- Print and apply
- Document insertion
- Packaging systems



Information

- Human machine interfaces
- Dashboard displays
- E-mail/browser alerts
- RF handhelds
- Diagnostics and reporting



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Metrics to start with (Ex. 10,000 SKU warehouse)

Count by type

10,000 Active SKU's	SKU's by Type	% of Hits	Lines per Day	Lines per Hour by Type	Rate per Hour	Pickers Needed	Peak Lines
70% are C SKUs	7000	5% C Picks	763	109	80	1.36	3,050
25% are B SKUs	2500	60% B Picks	9,150	1,307	600	2.18	36,600
5% are A SKUs	500	35% A Picks	5,338	763	700	1.09	21,350
			15,250				61,000



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Metrics include the data below on additional slides

Orders per day							
Orders day	Value	30% 1 Line	20% 2 Line	20% 3Line	25% 5 Line	5% 10 Line	Total Orders
5,000	Average	1,500	1,000	1,000	1,250	250	5,000
20,000	Peak	6,000	4,000	4,000	5,000	1,000	20,000
Orders per hour - Average							
714							
Orders per hour - Peak							
1,429							



Metrics include the data below on additional slides

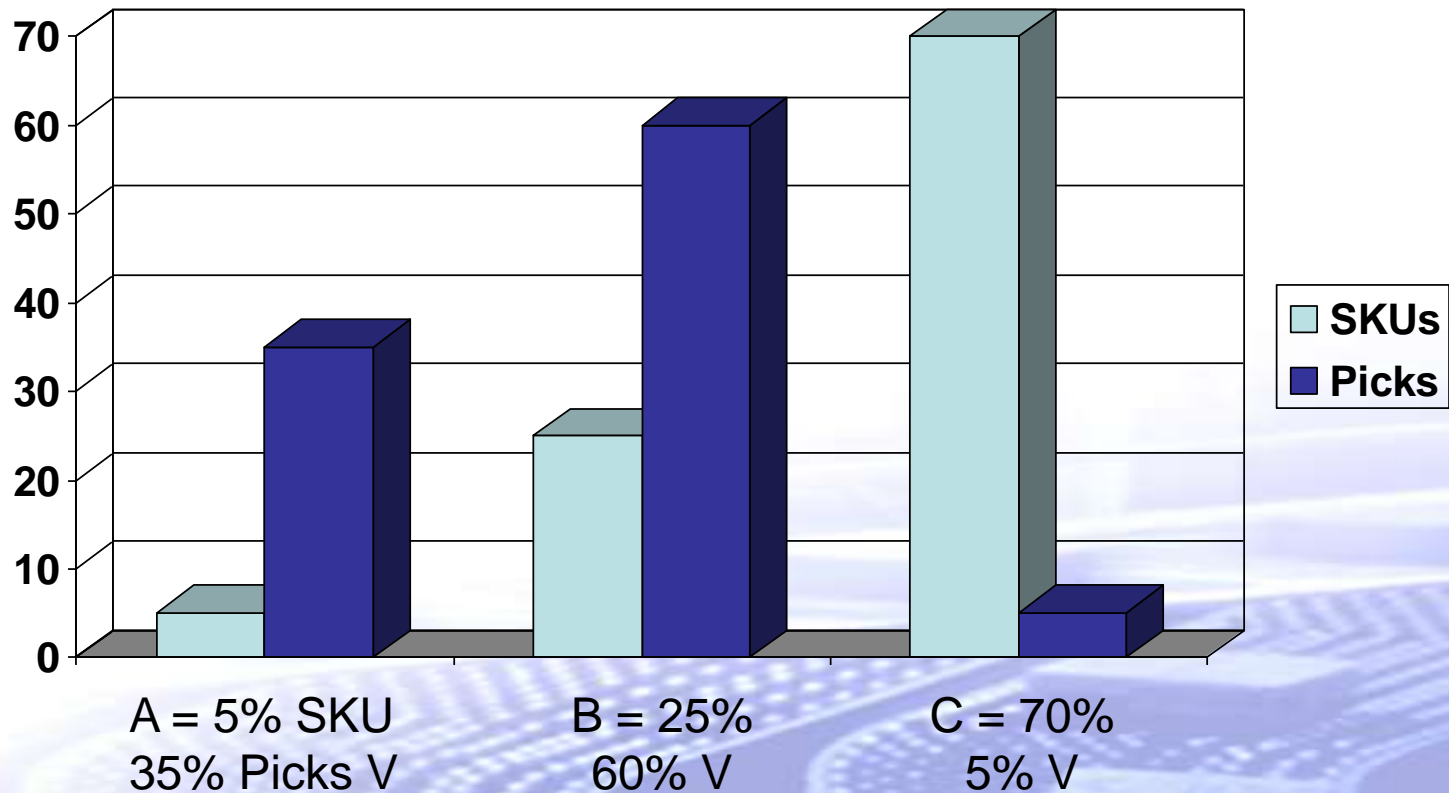
Lines per day							
Orders day	Value	30% 1 Line	20% 2 Line	20% 3Line	25% 5 Line	5% 10 Lines	Total Lines
5,000	Average	1,500	2,000	3,000	6,250	2,500	15,250
20,000	Peak	6,000	8,000	12,000	25,000	10,000	61,000

Lines per hour - Average	
	2,179

Lines per hour - Peak	
	4,357



% of volume movement per SKU grouping



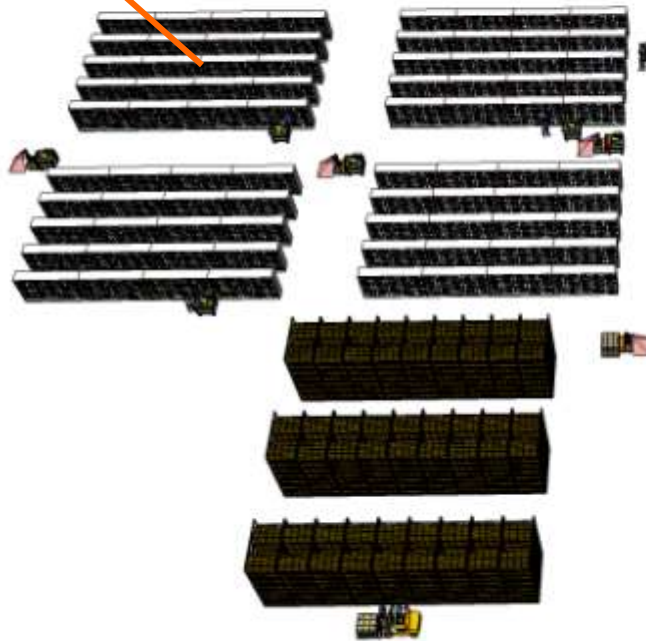
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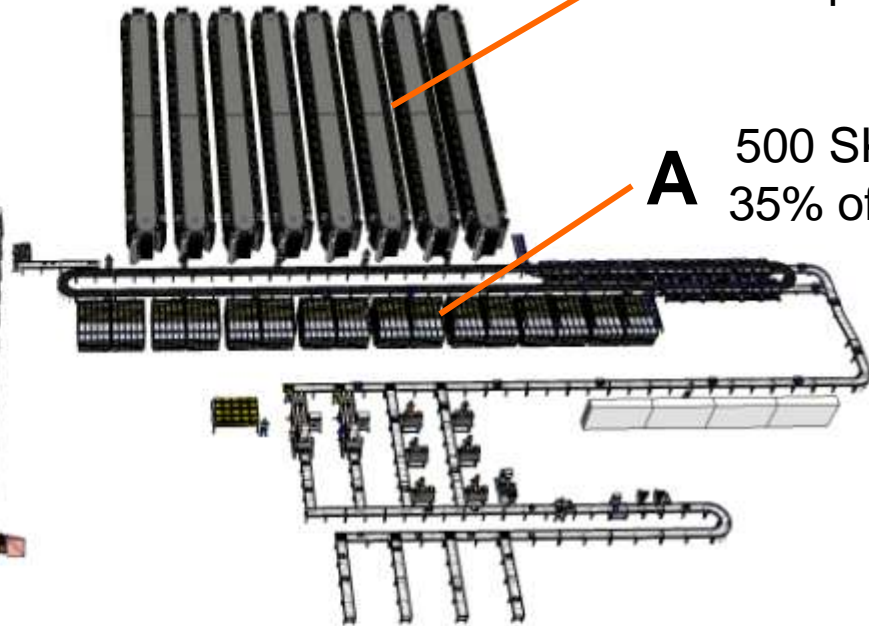
Concept for A, B, & C SKUs

In-motion order fulfillment system

C 7,000 SKUs = 5% of picks



B 2,500 SKUs = 60% of picks



A 500 SKUs = 35% of picks



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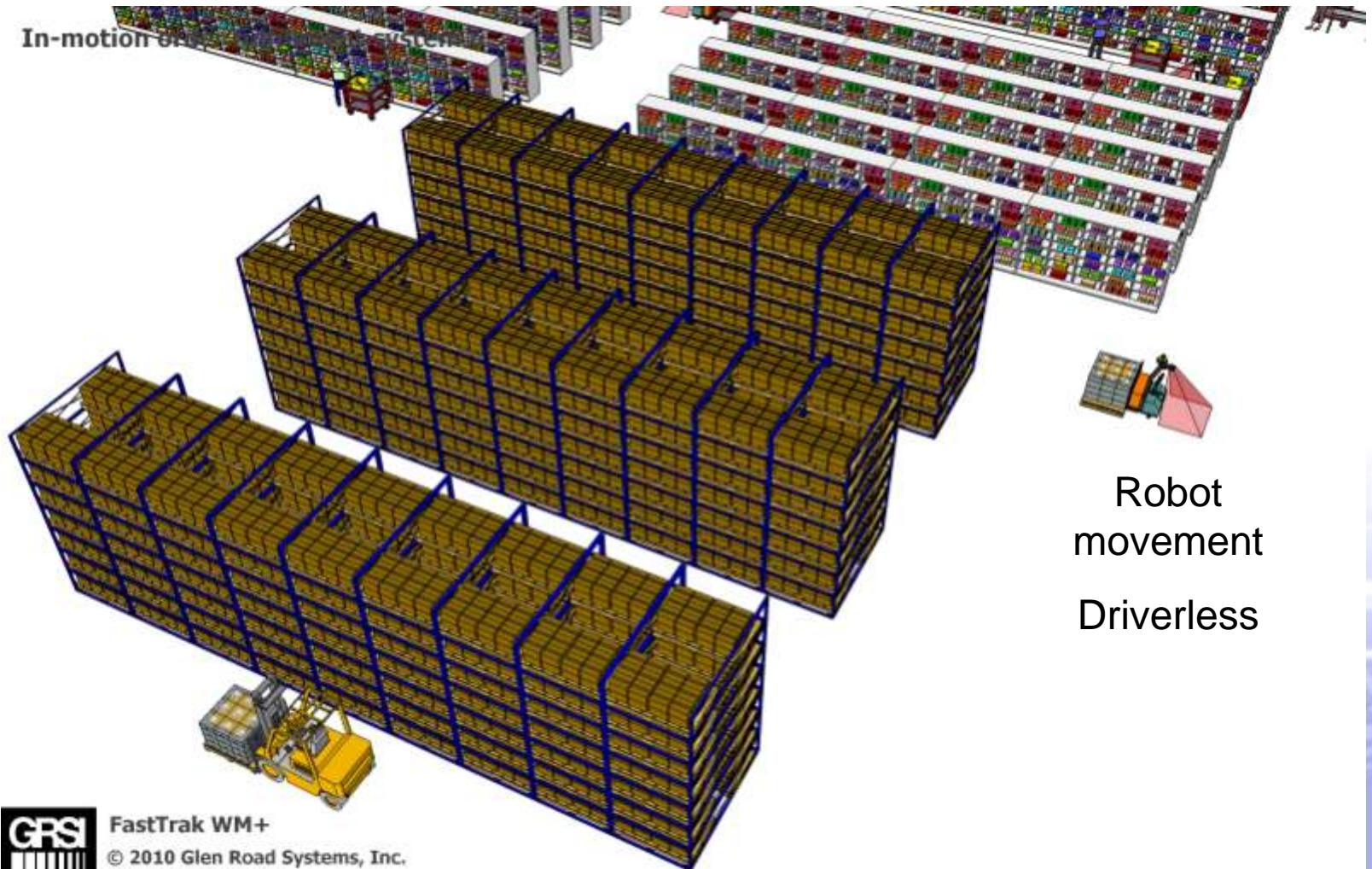
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From pallet storage



Robot
movement
Driverless



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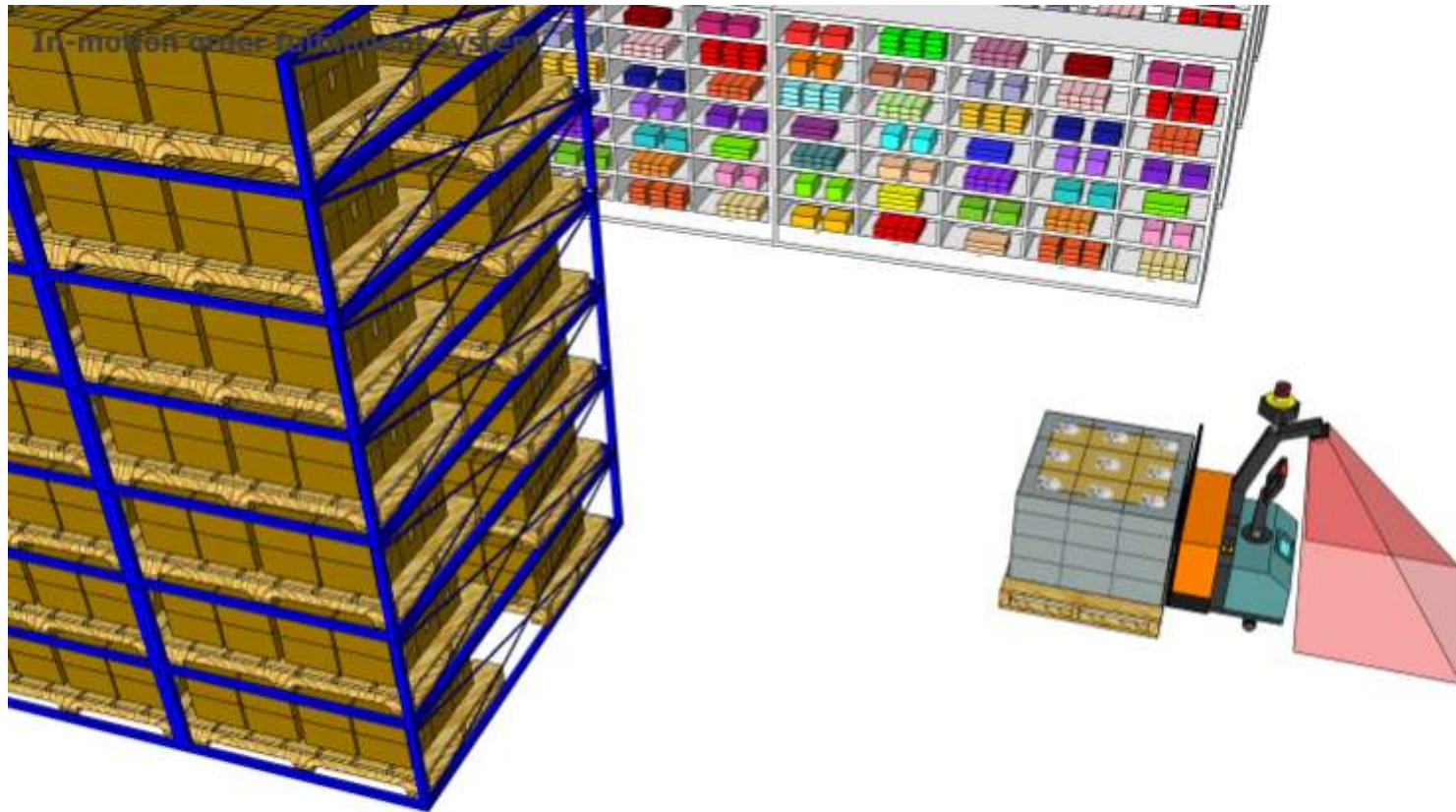
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Seegrid self-guided robots



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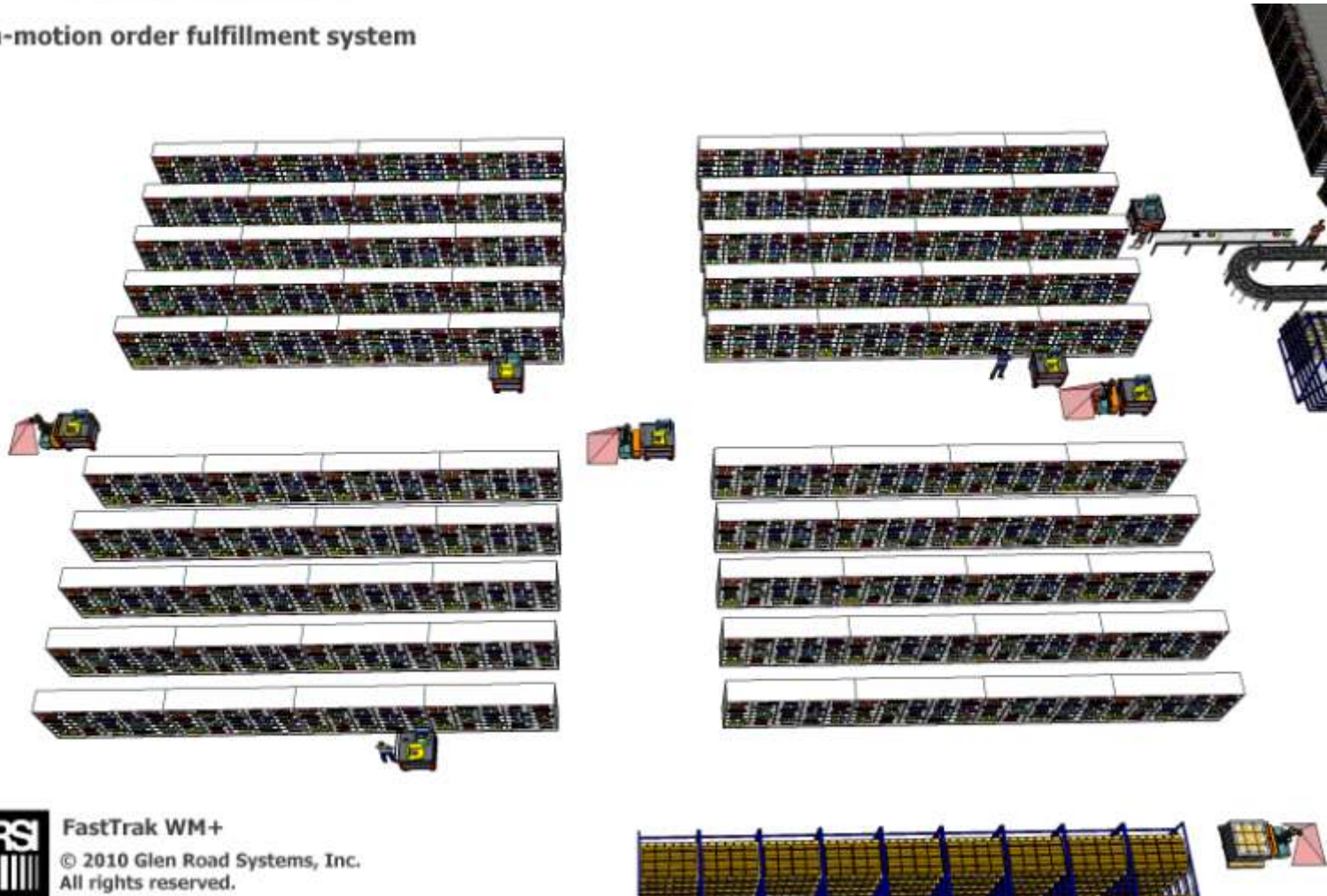


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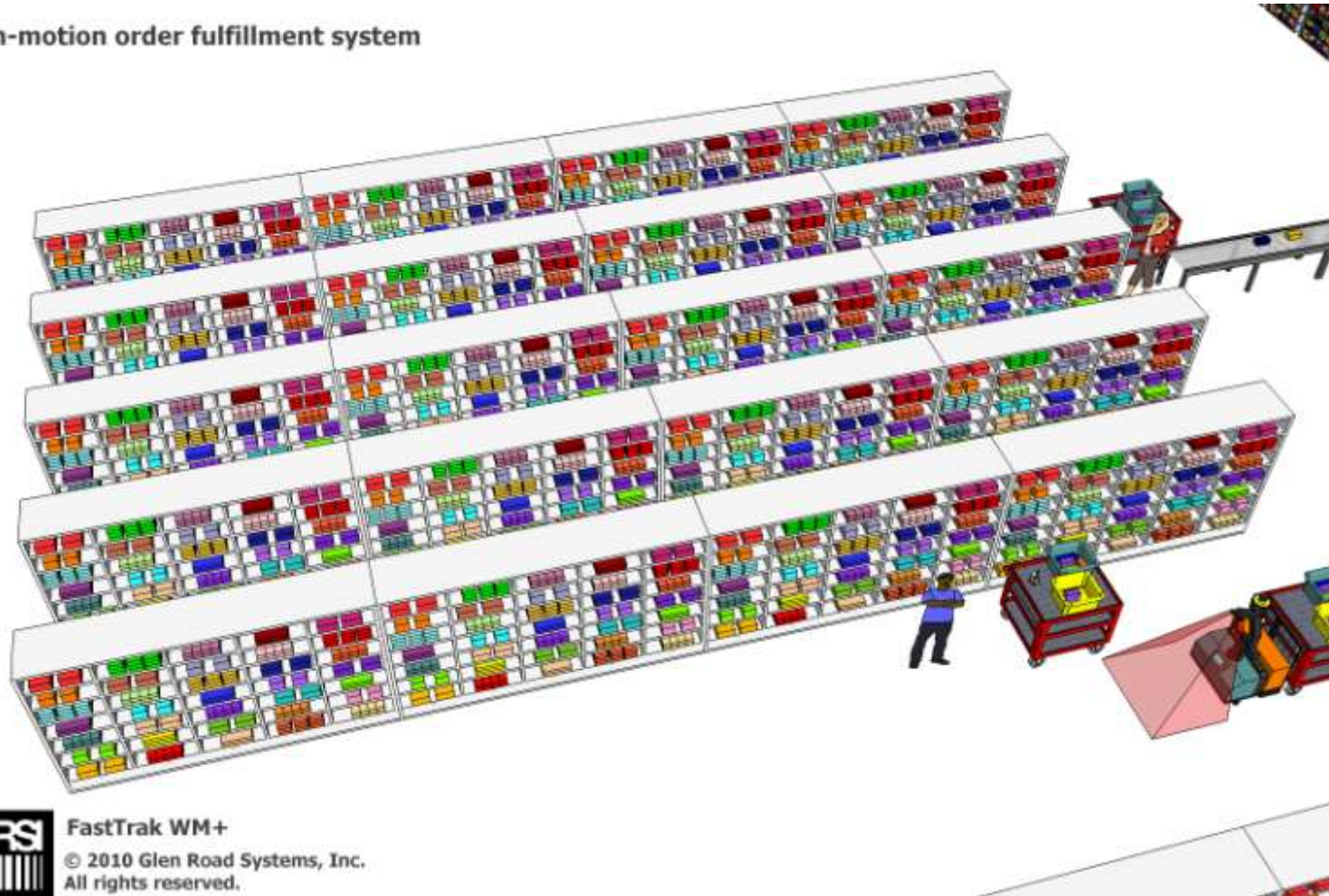
Shelving area – RF/Voice zone pick by SKU to totes – drop at P&D stations and transported by self-guided robots
70% of SKUs = 5% line picks

In-motion order fulfillment system



Zone pick – 70% of the SKUs = 5% of the line picks

In-motion order fulfillment system



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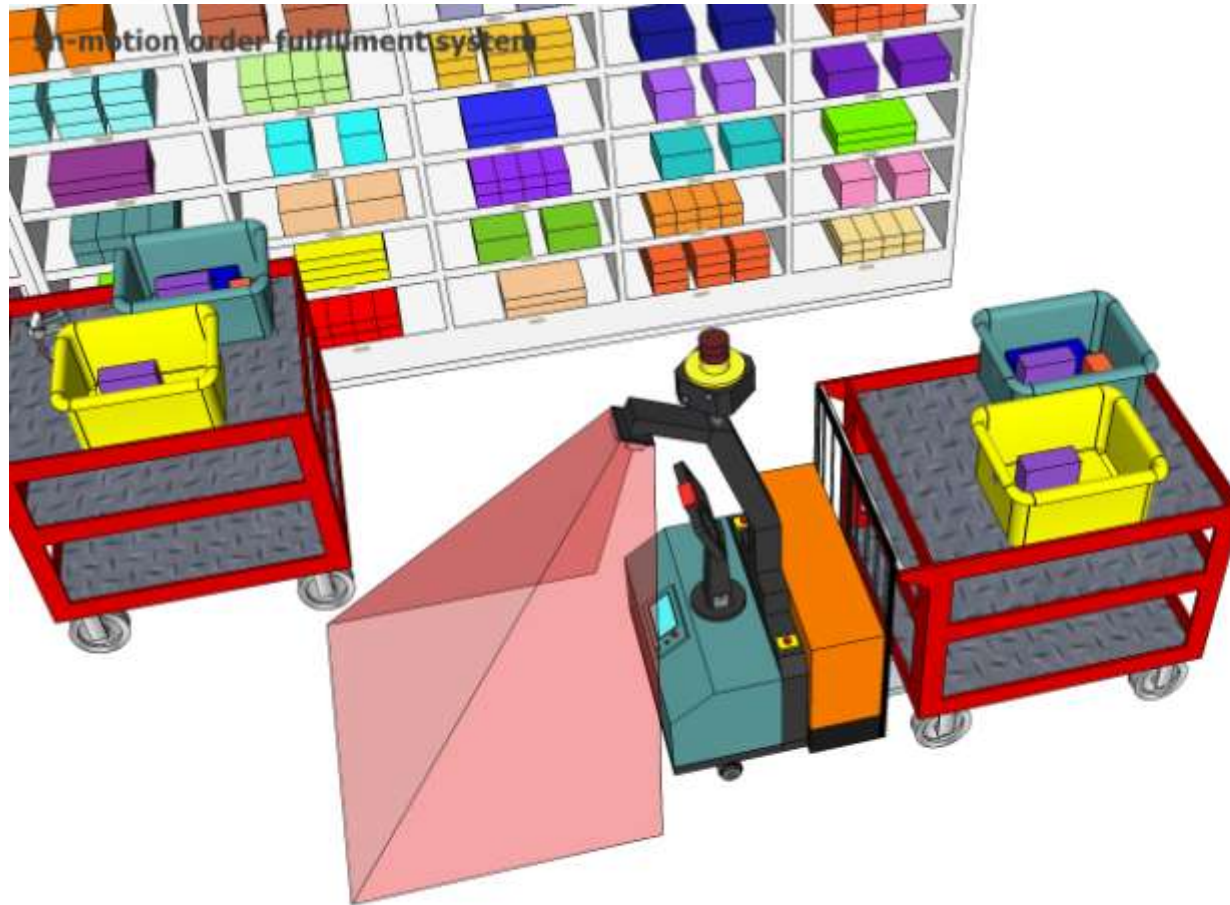
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Seegrid robot moving SKUs to sorting and packaging areas



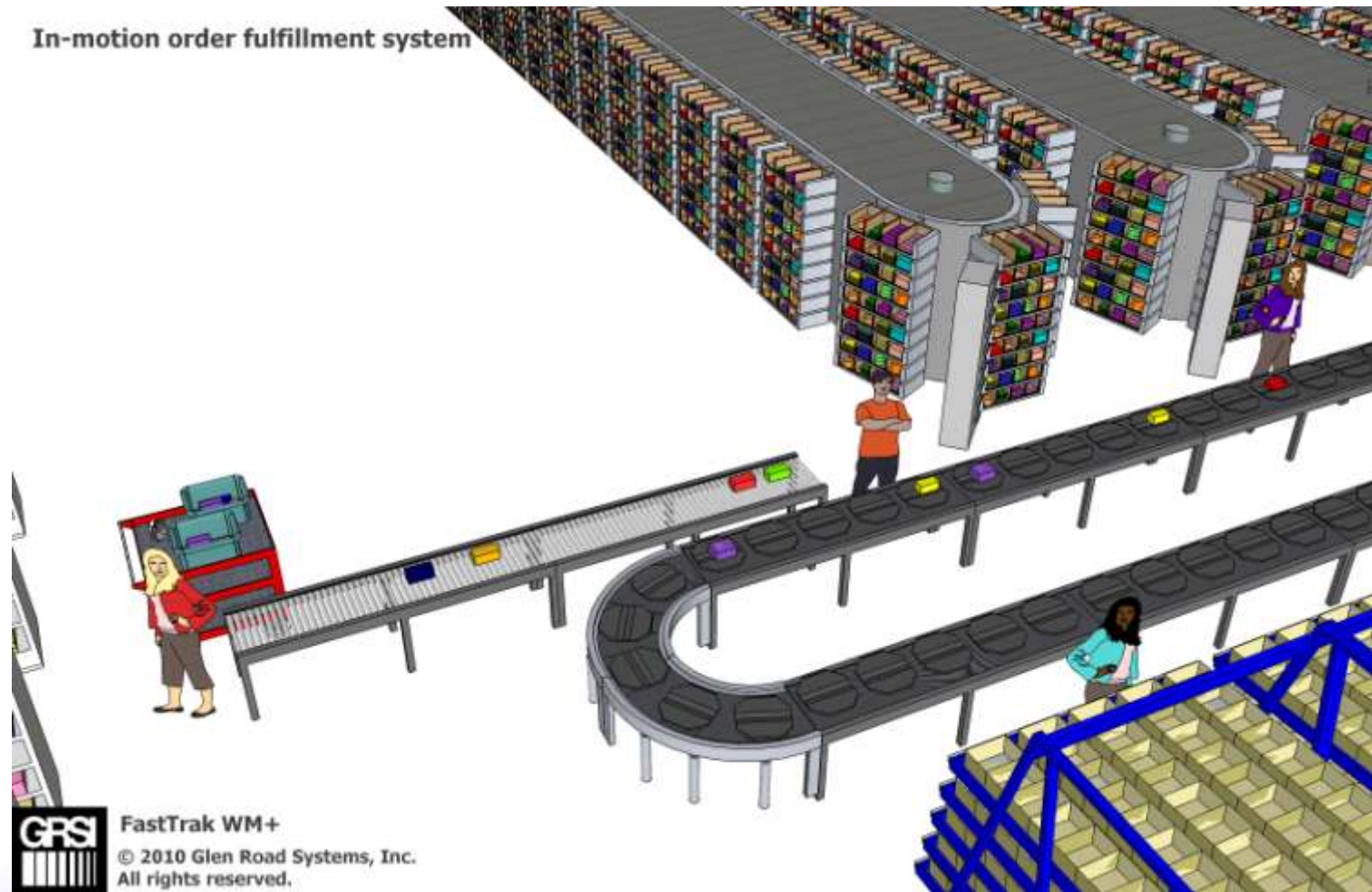
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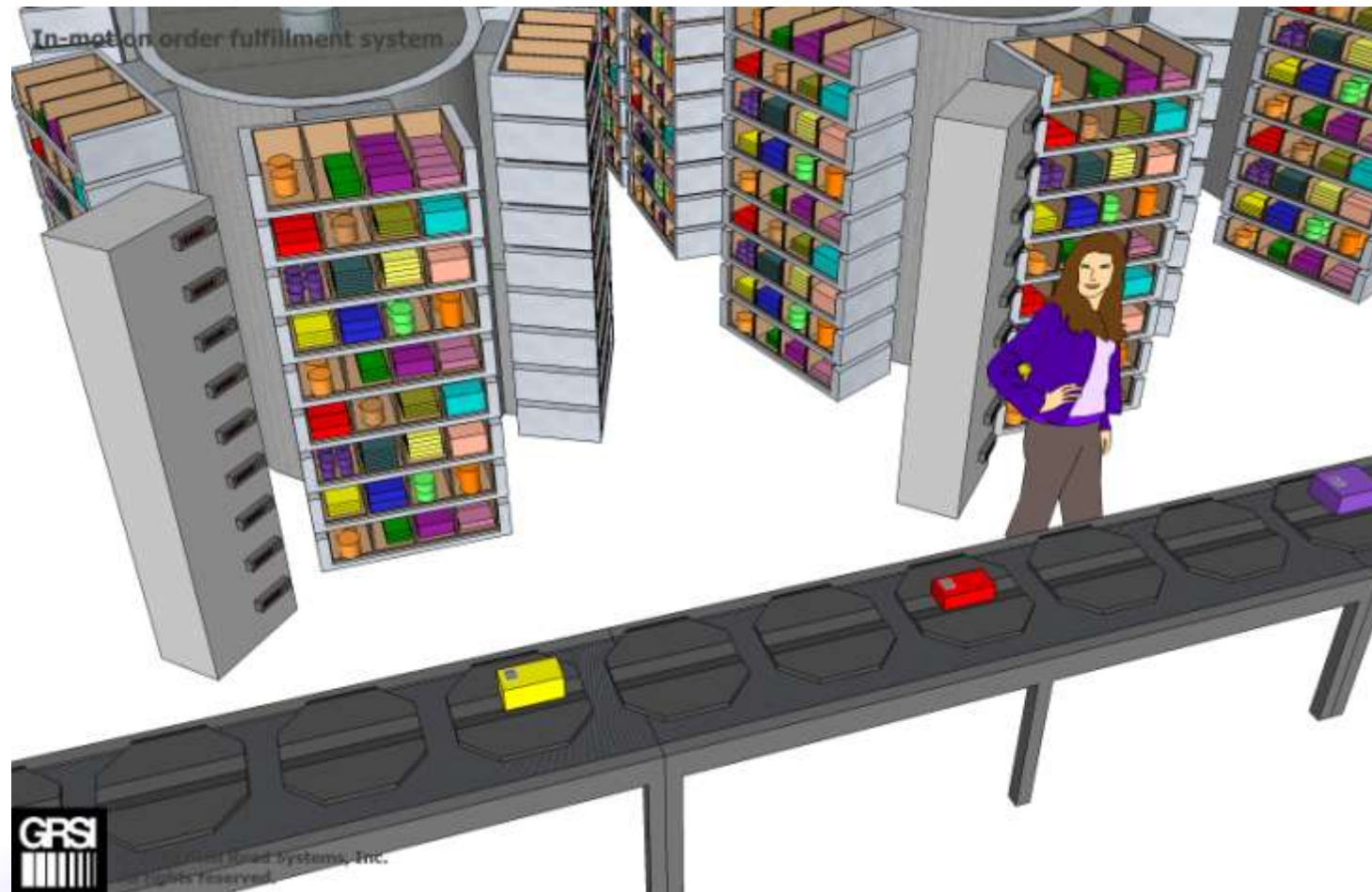
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Staging totes from shelving pick into teal totes – Start the order!



Pick medium movers – 25% of the SKUs = 60% of the lines

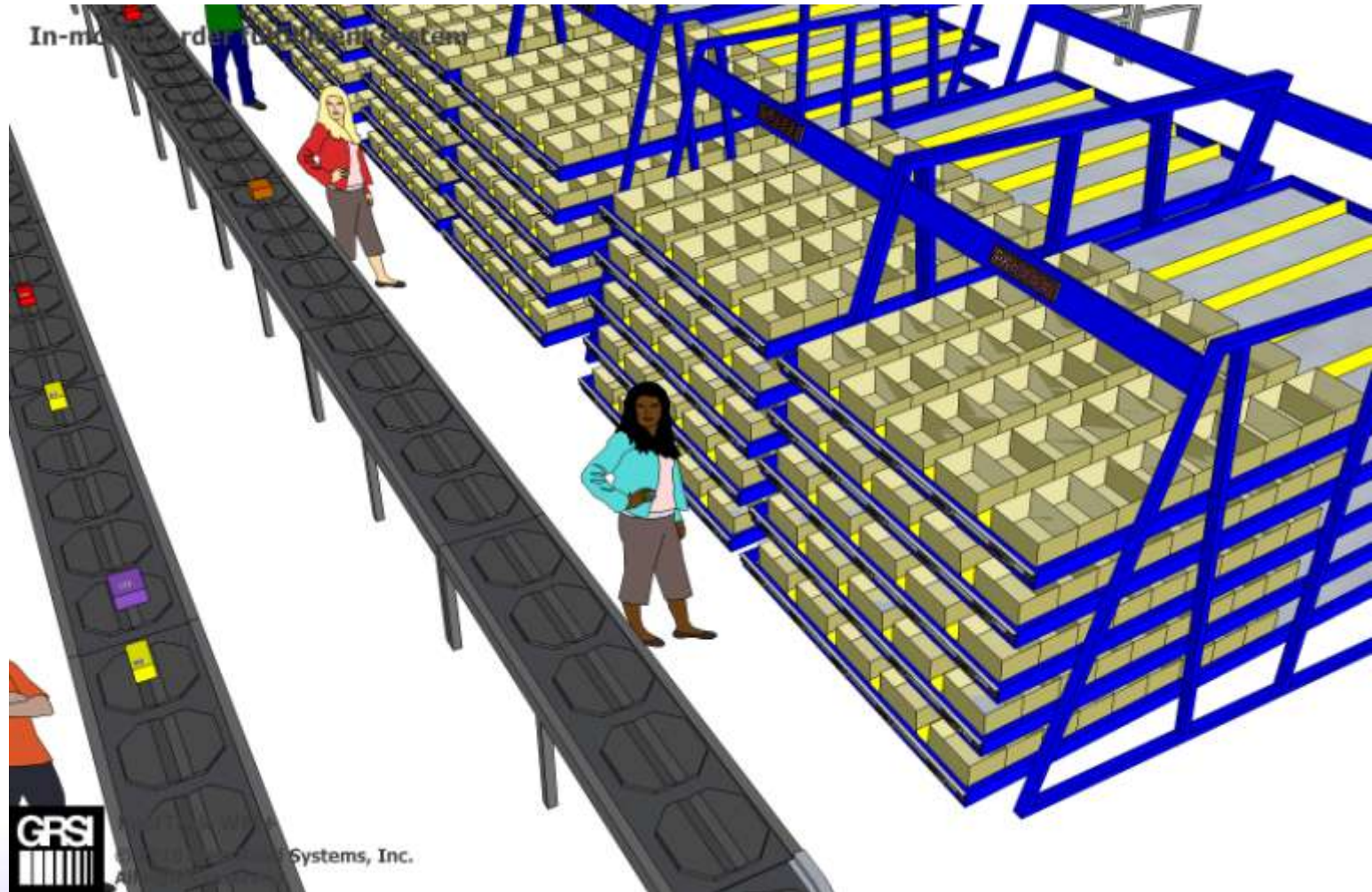


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Pick-to-light to sorter – Batch pick 5% of the SKUs = 35% of the lines

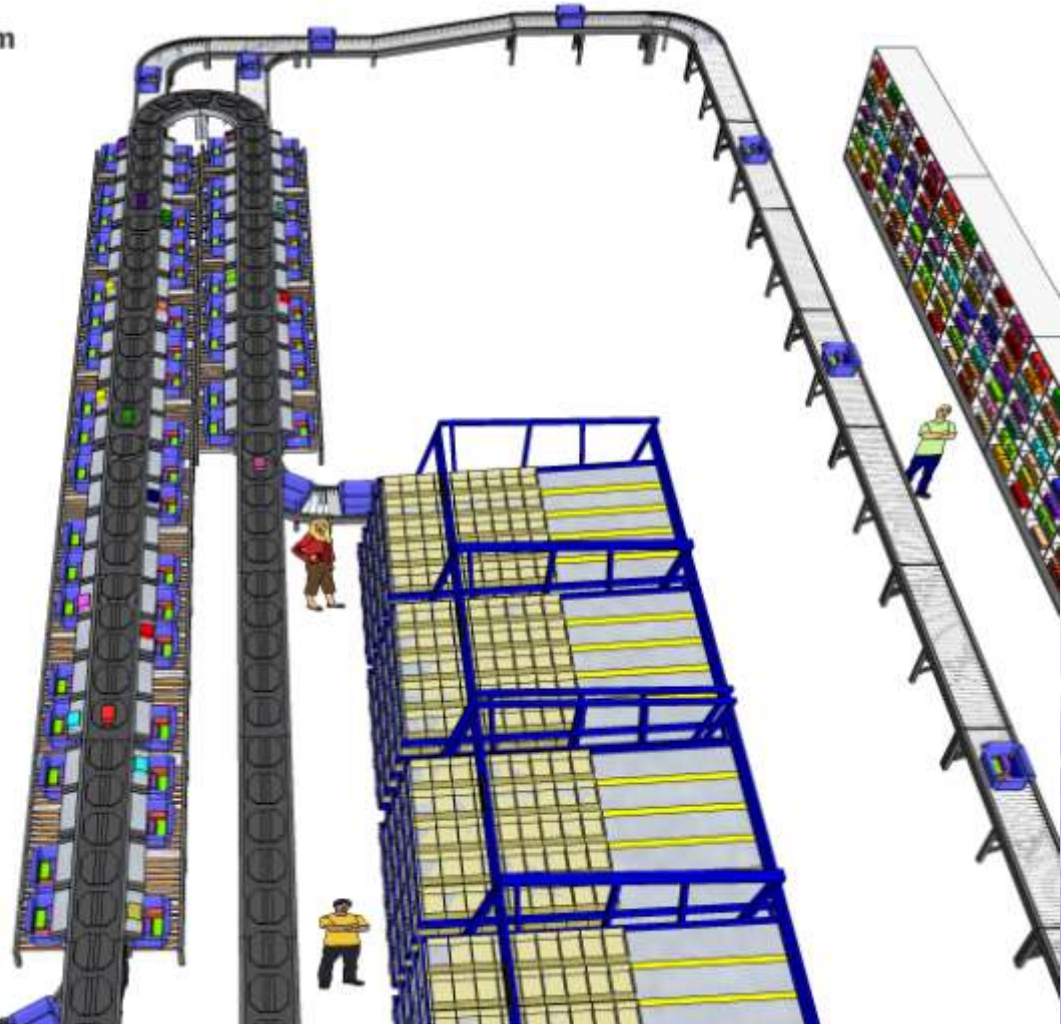


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Pick-to-sorter to orders (Store or B2C) Accumulation to transport tote

In-motion order fulfillment system



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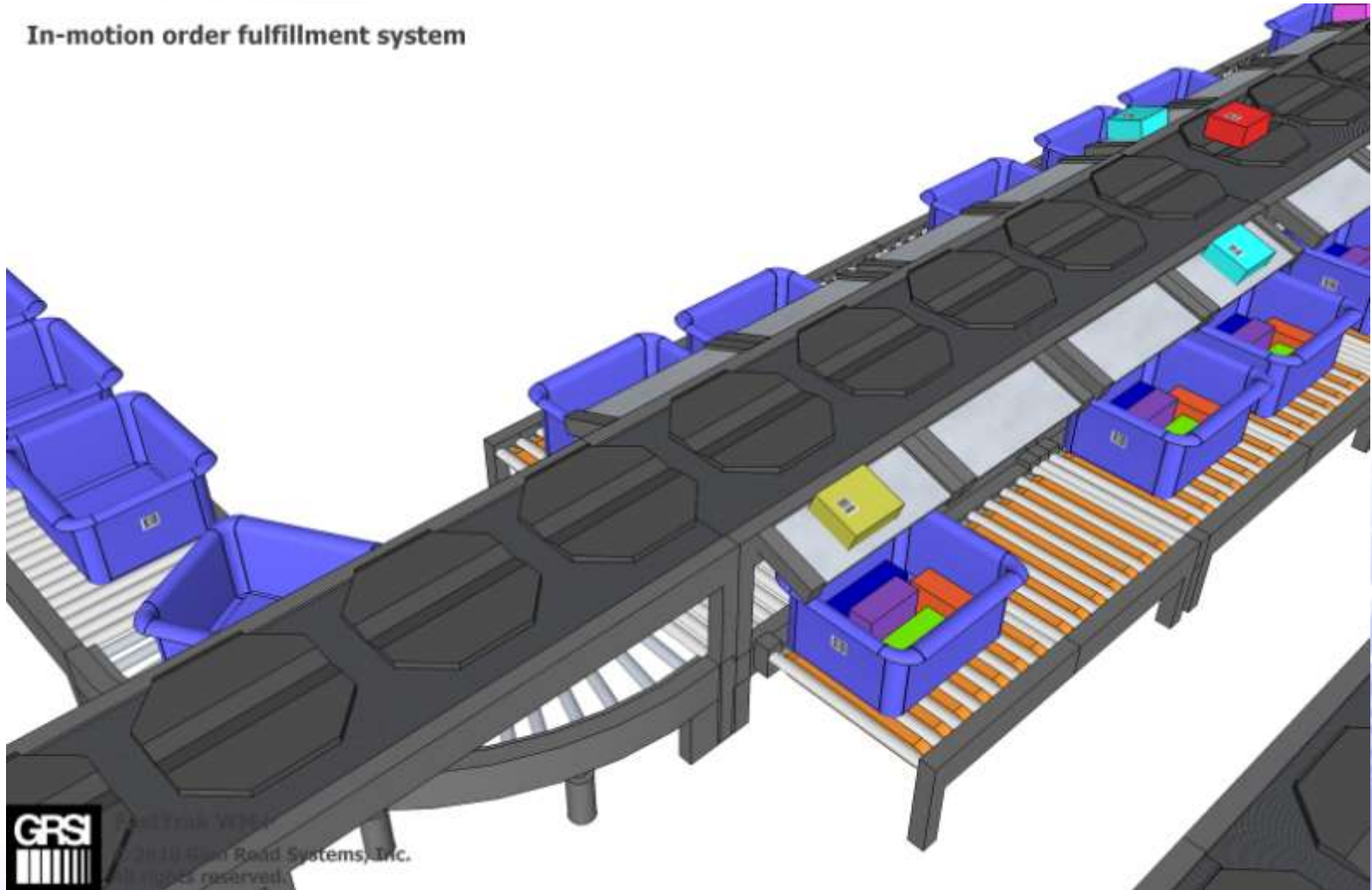


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Sort to order – By store aisle or client – Automated tote movement – In and out

In-motion order fulfillment system



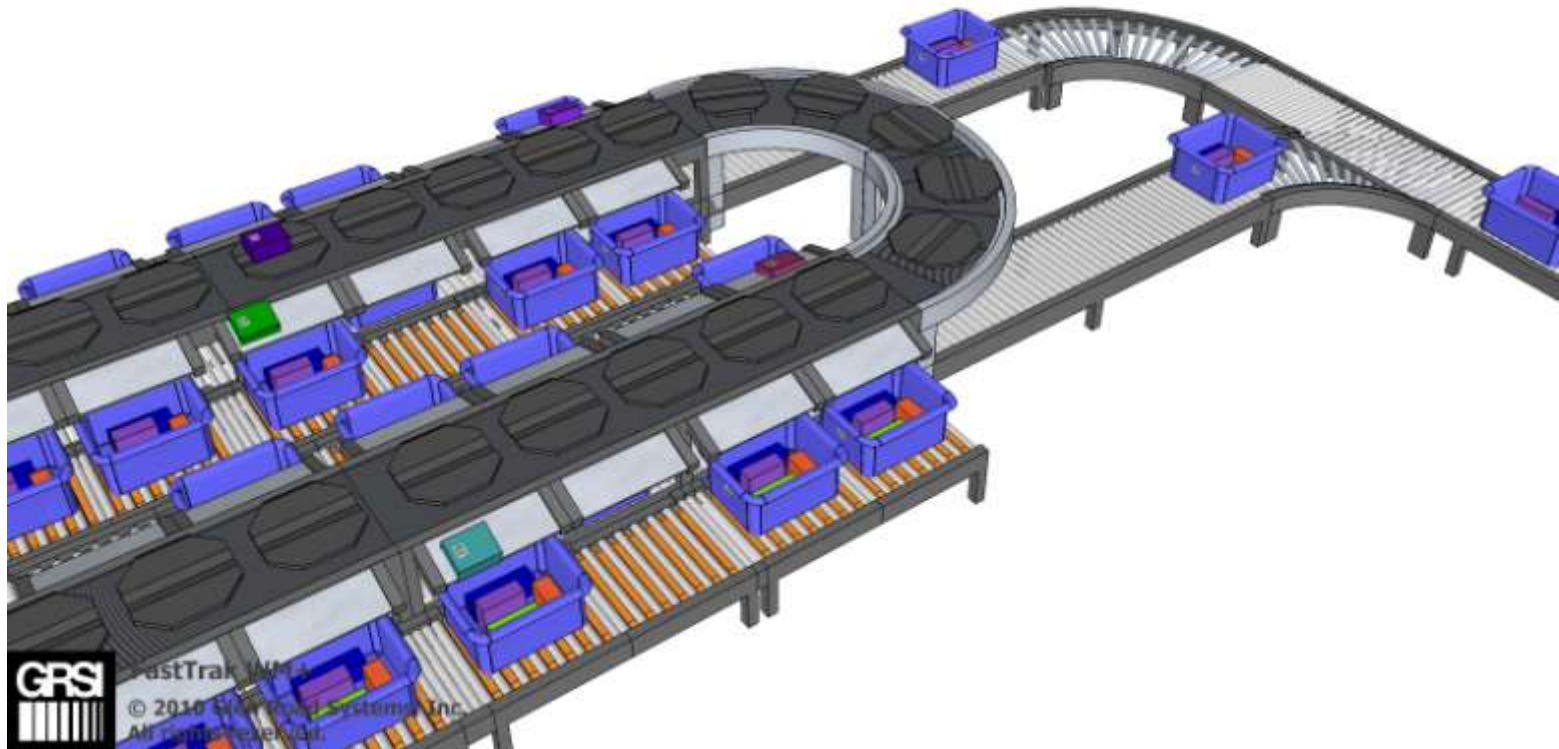
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Automated tote movement

In-motion order fulfillment system



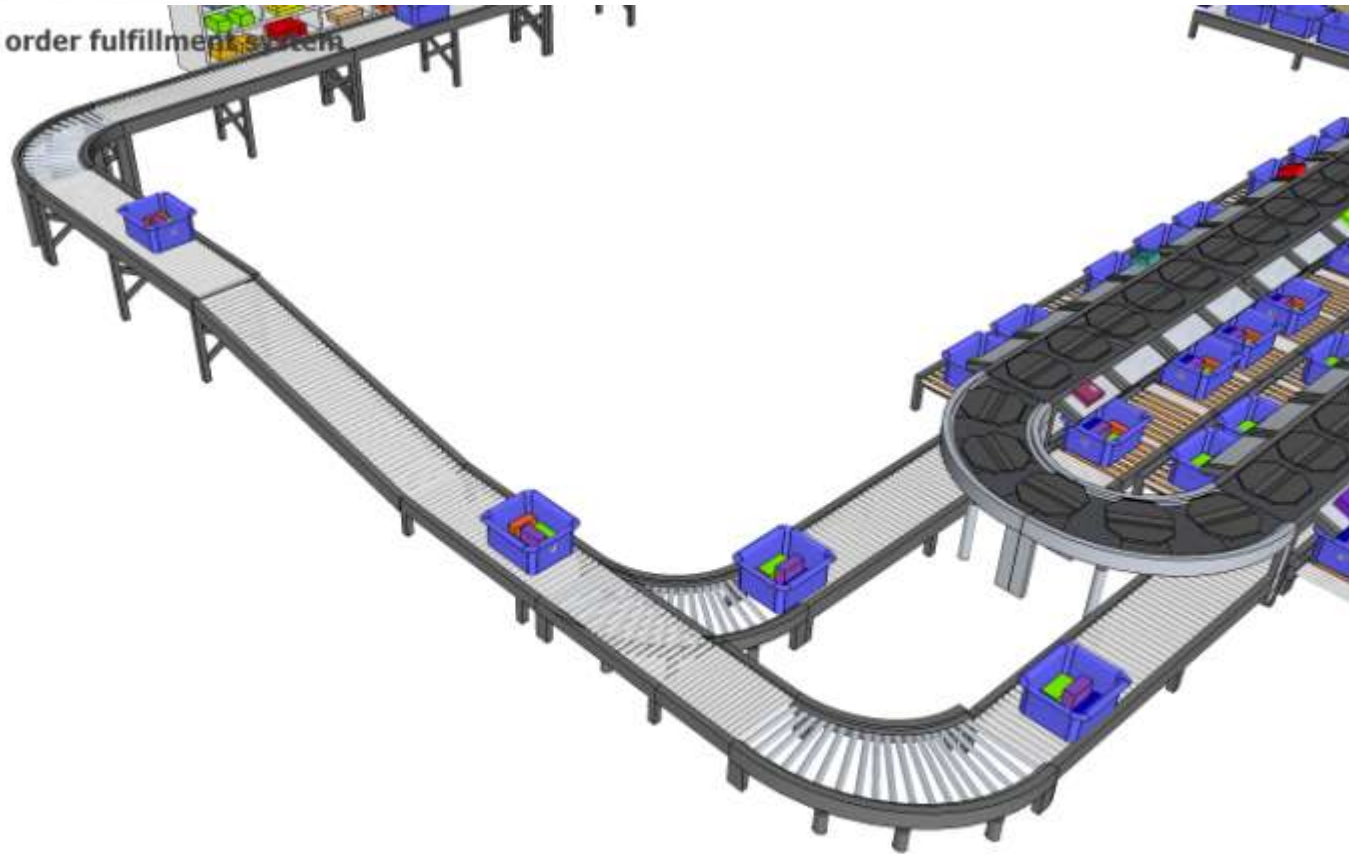
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Transport – Any number of configurations

In-motion order fulfillment system



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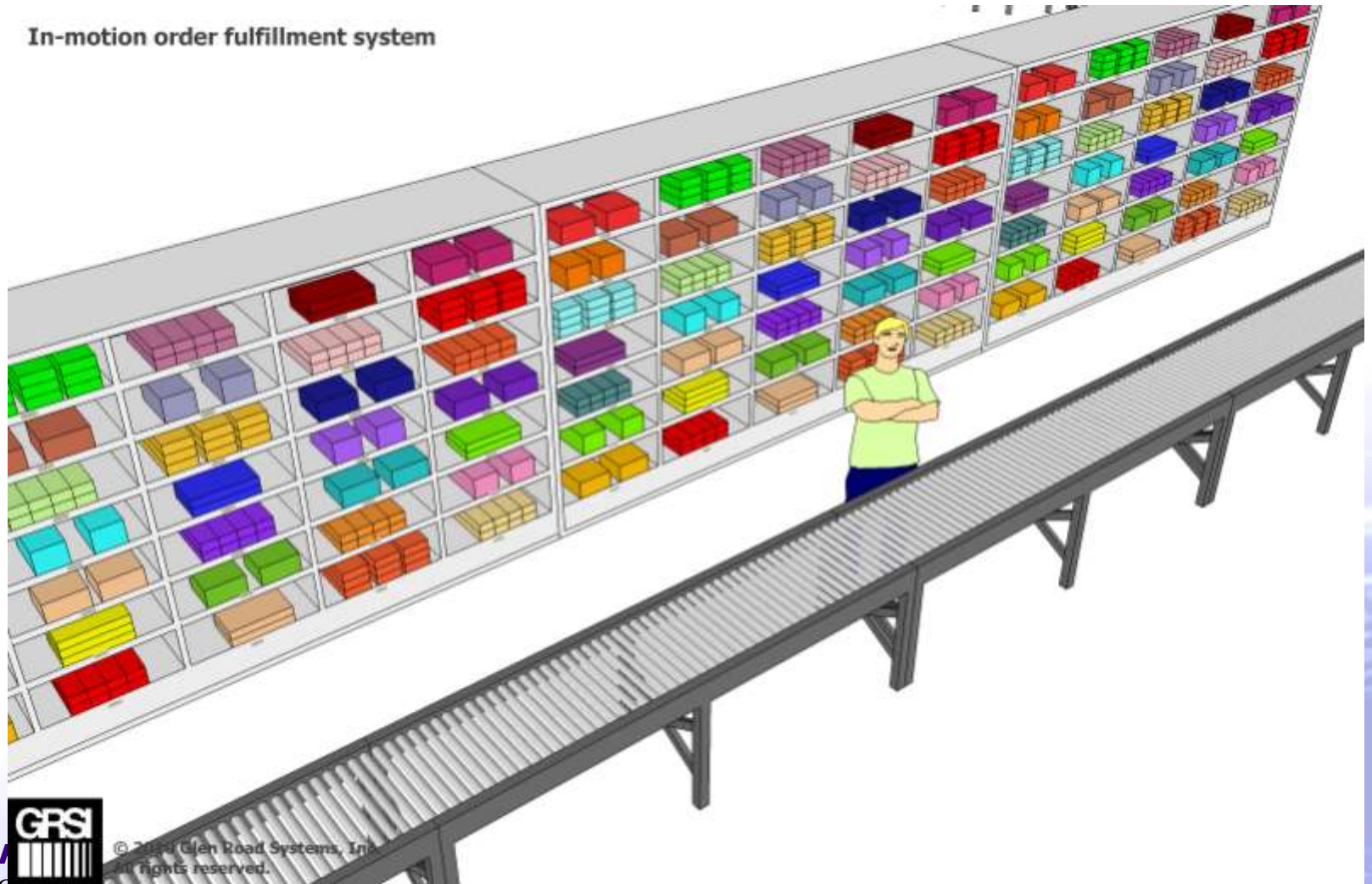


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Pick non-sortable items

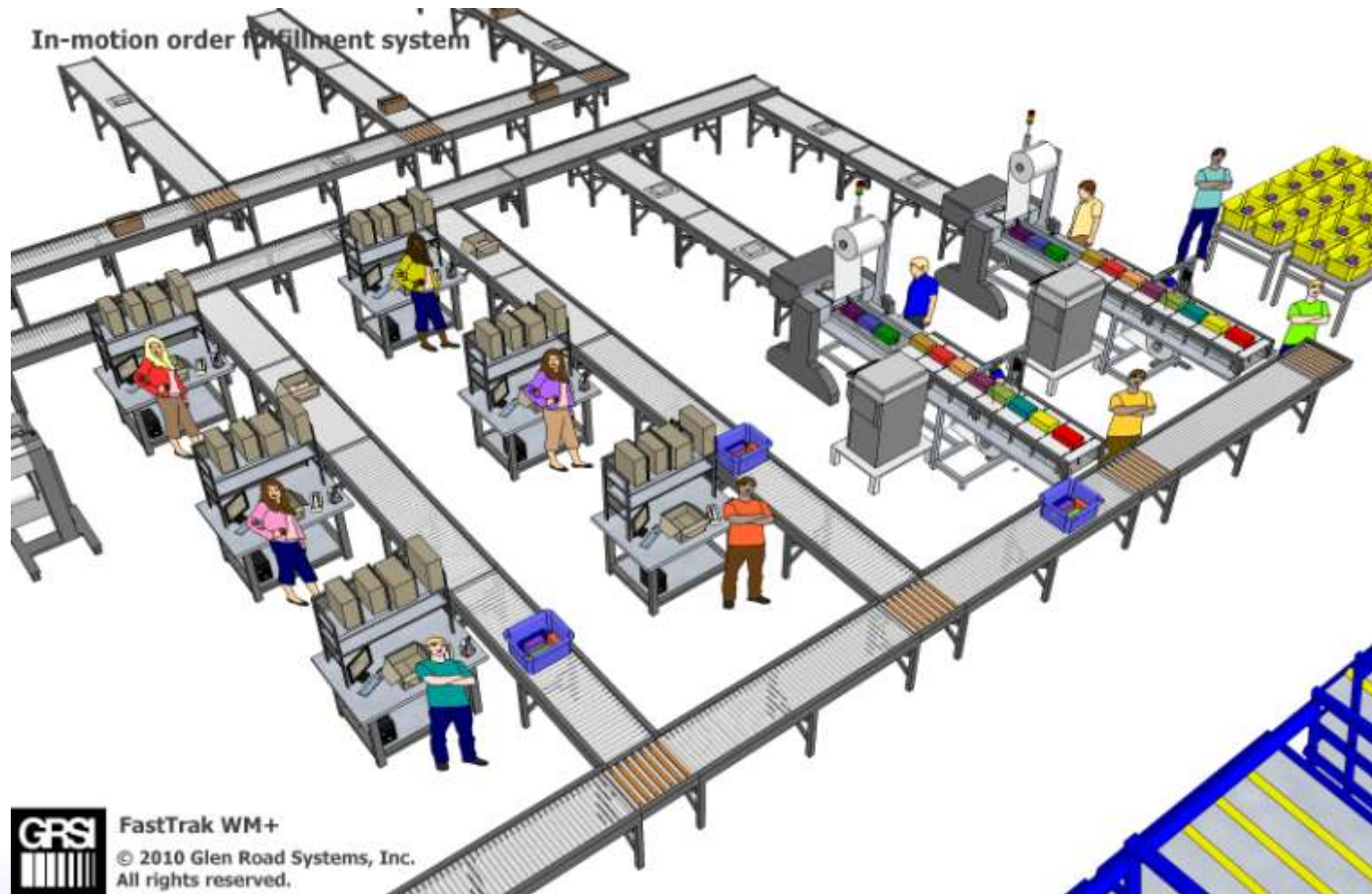
In-motion order fulfillment system



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Directed by cartonization to pack stations by size and characteristics



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Manual pack station. Items and pack List are placed into a carton that has an LPN bar code for tracking.



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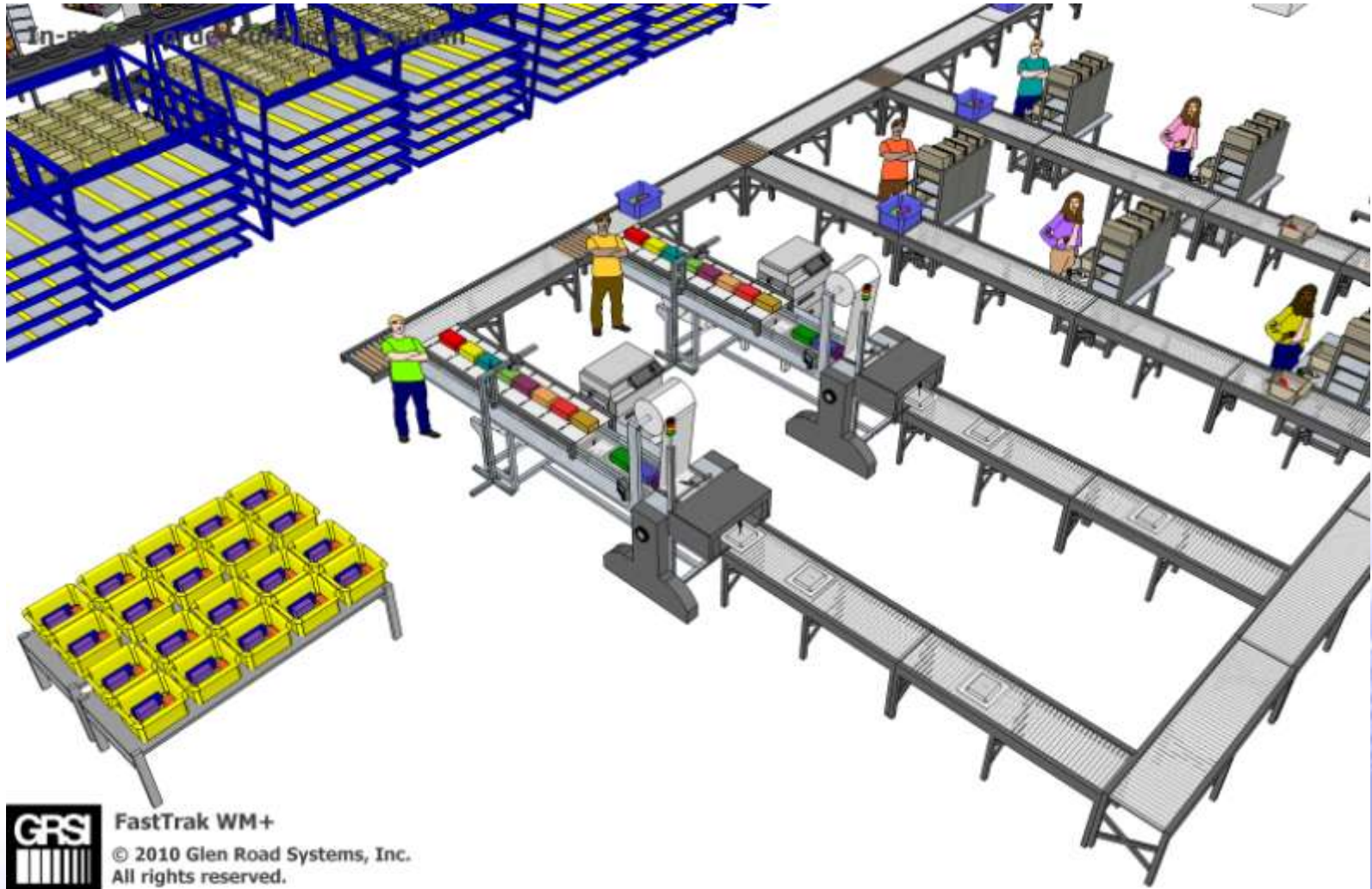
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Single-item orders are automatically packaged by a cold seal and carton machines – 1,000 orders per hour per line



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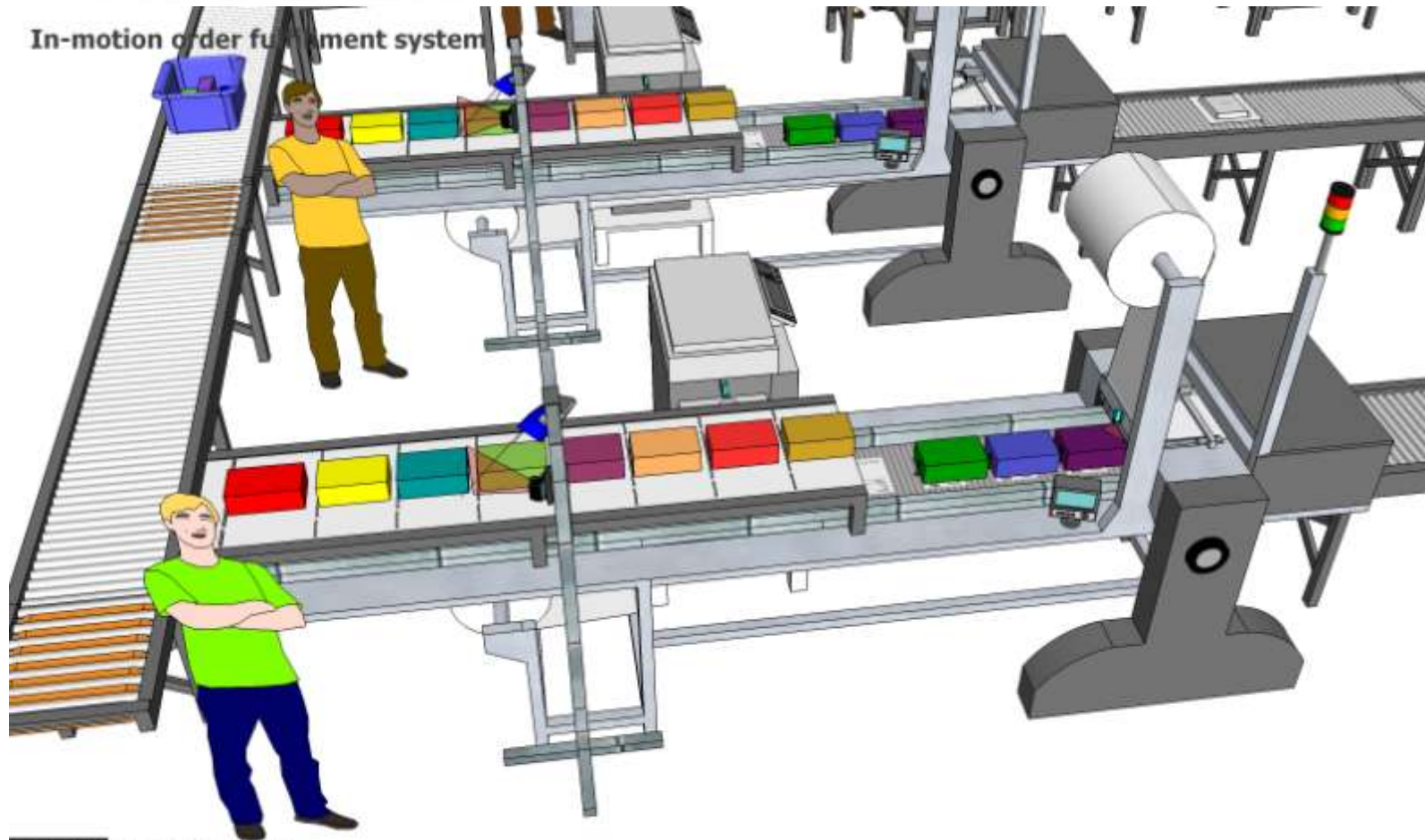
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Automated cold seal packaging machine – 1,000 orders per hour per line



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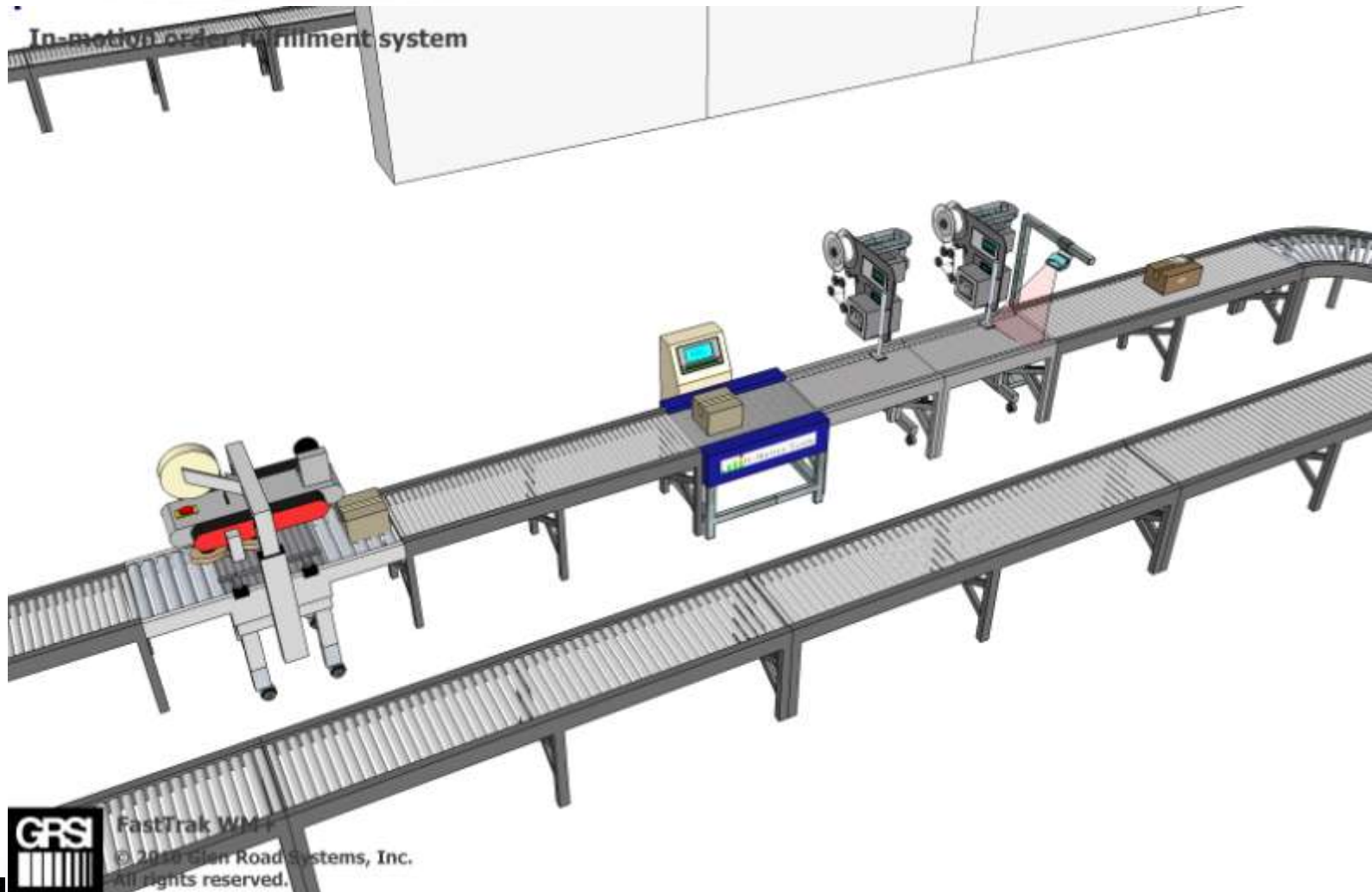
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Orders are automatically closed, taped, and weighed. The order's shipping label is printed, applied, and verified.

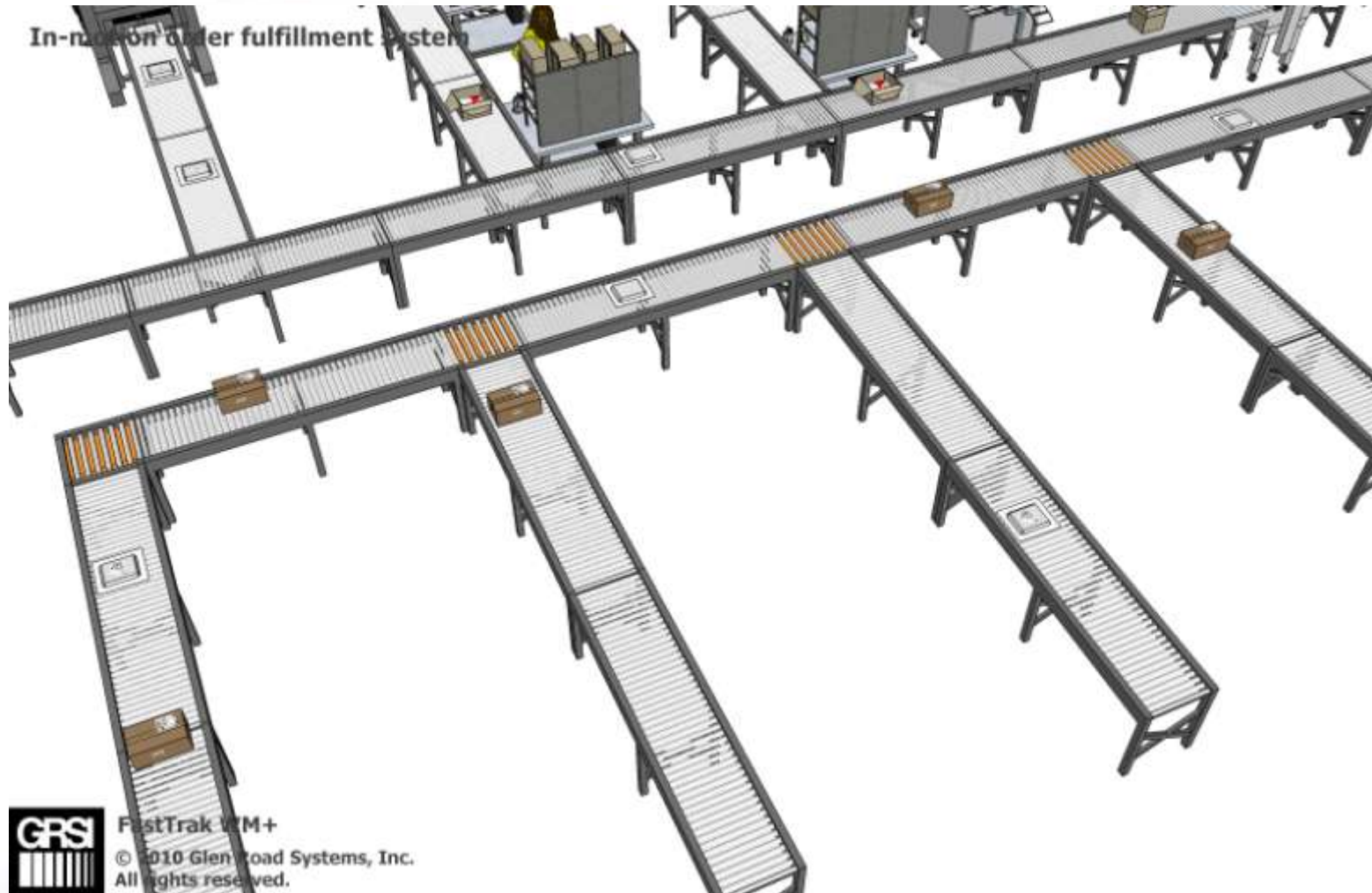


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Orders are sorted to appropriate shipping carrier lane



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Other in-motion packaging systems

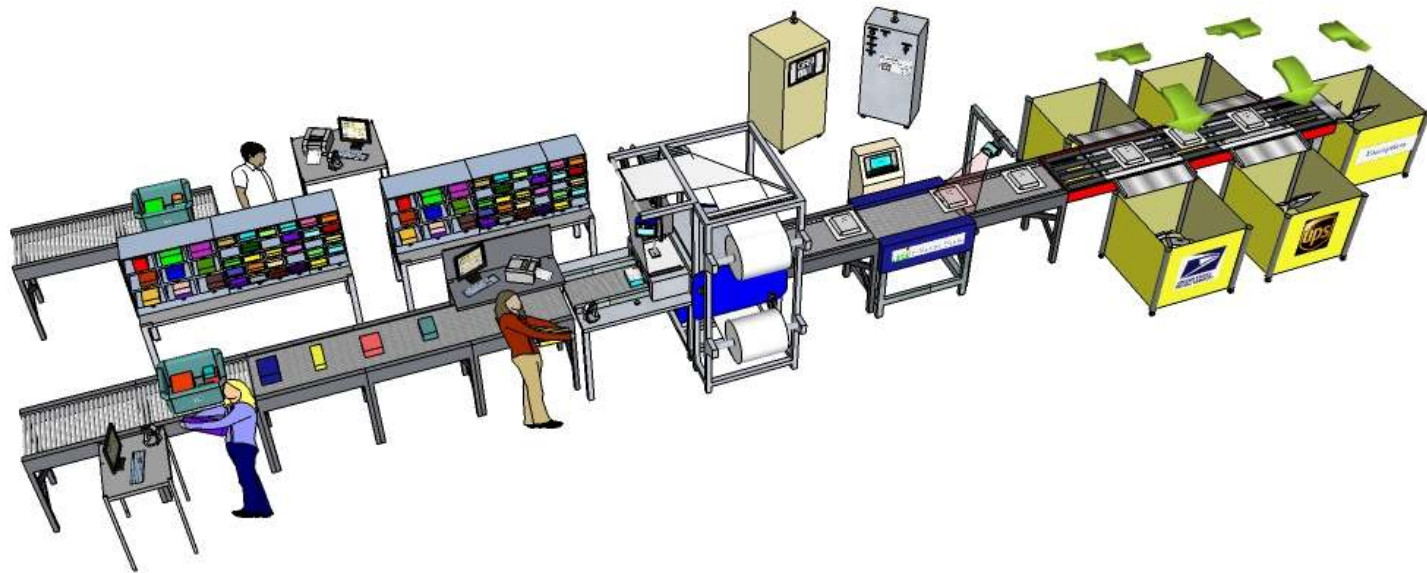


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Automated Jiffy pack (cold seal) line – 1000 orders per hour – Single and multi-line orders

In-Motion Packaging System



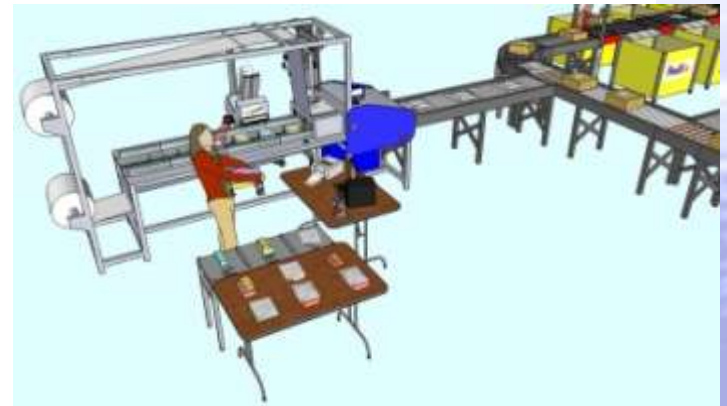
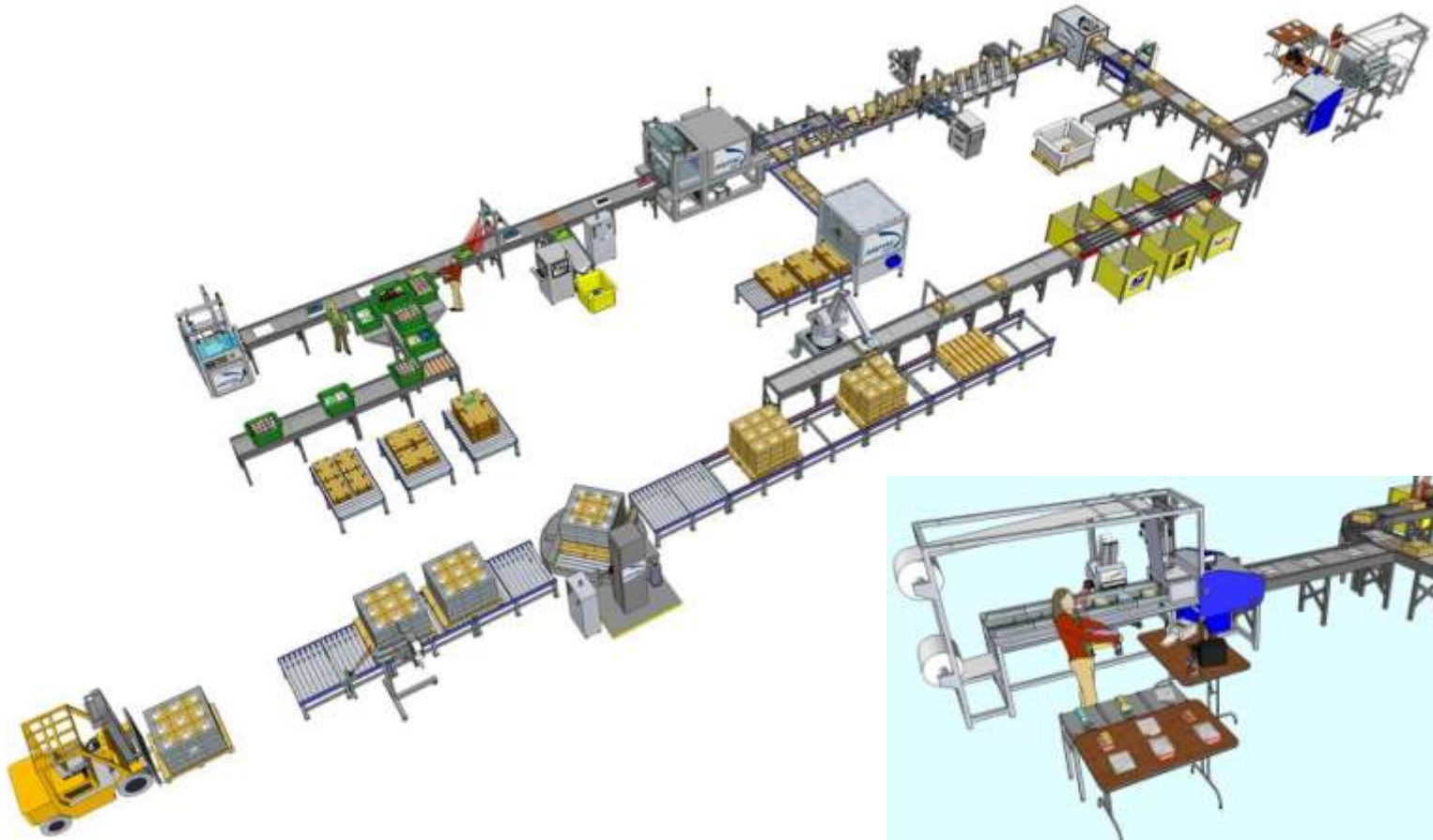
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Apparel and accessory

Last 100' of distribution – 3 people process 2,000 orders per hour



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CARTONIZATION



Less

Material

Labor

Weight

Damage

Waste

Freight

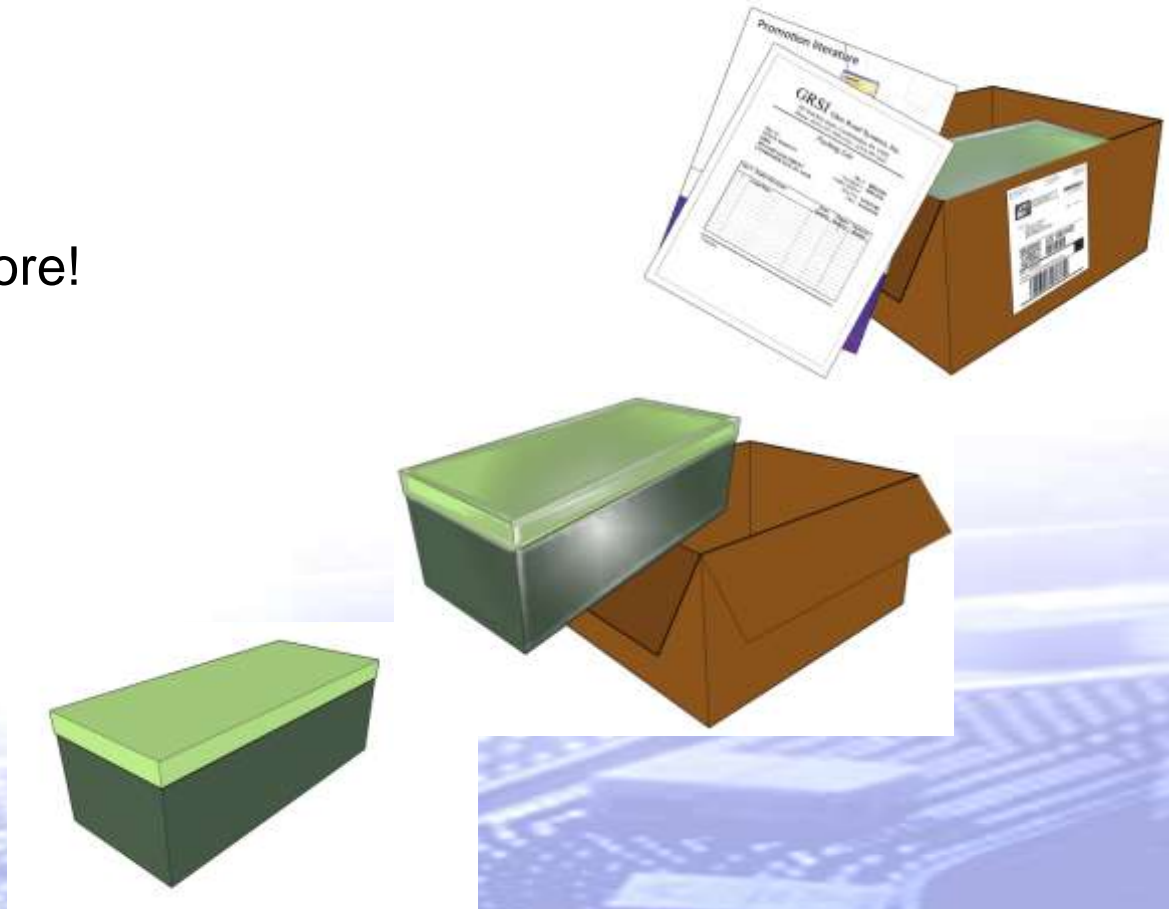


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Cartonization automation

- Focus is integrated packaging for distribution
 - Cartons
 - Bags
 - Flats
 - Envelopes and more!
- Goal
 - Speed
 - Accuracy
 - Quality
 - Value added
 - Support

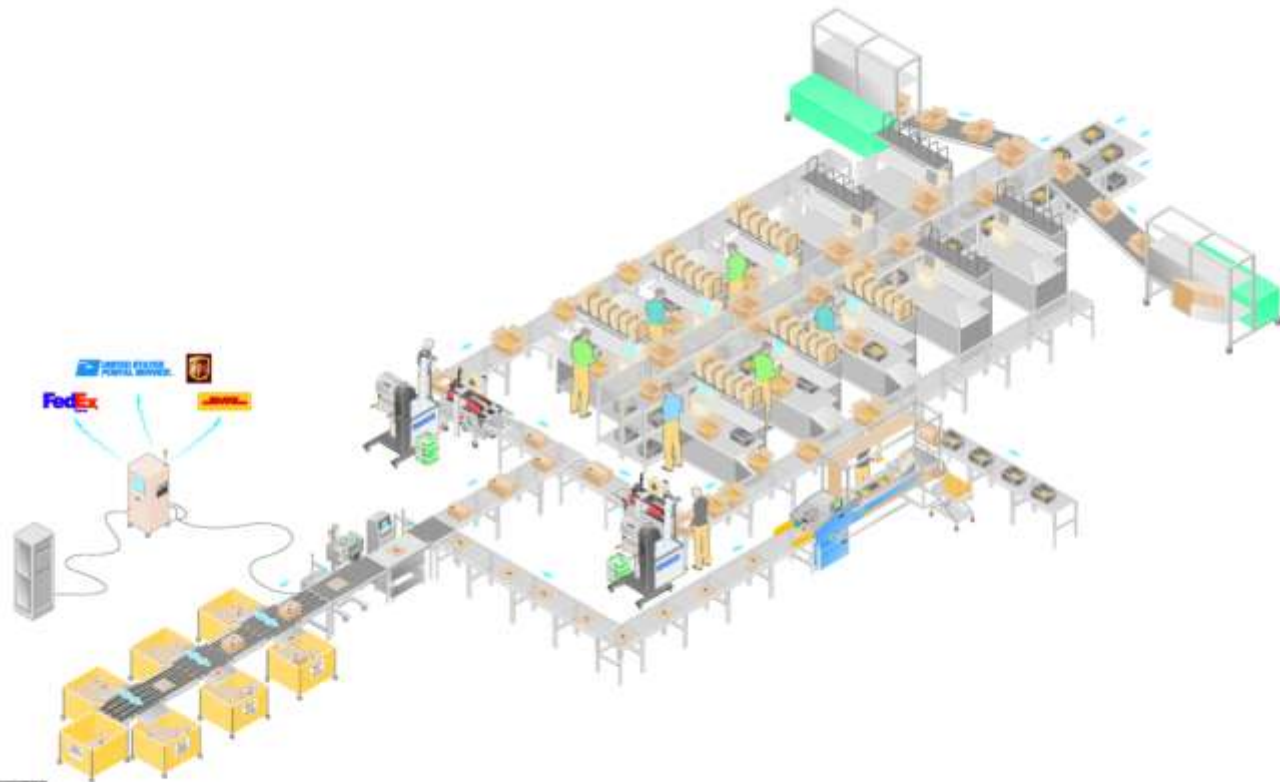


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In-motion packaging

1,000 flat envelopes and 2,500
cartons per hour



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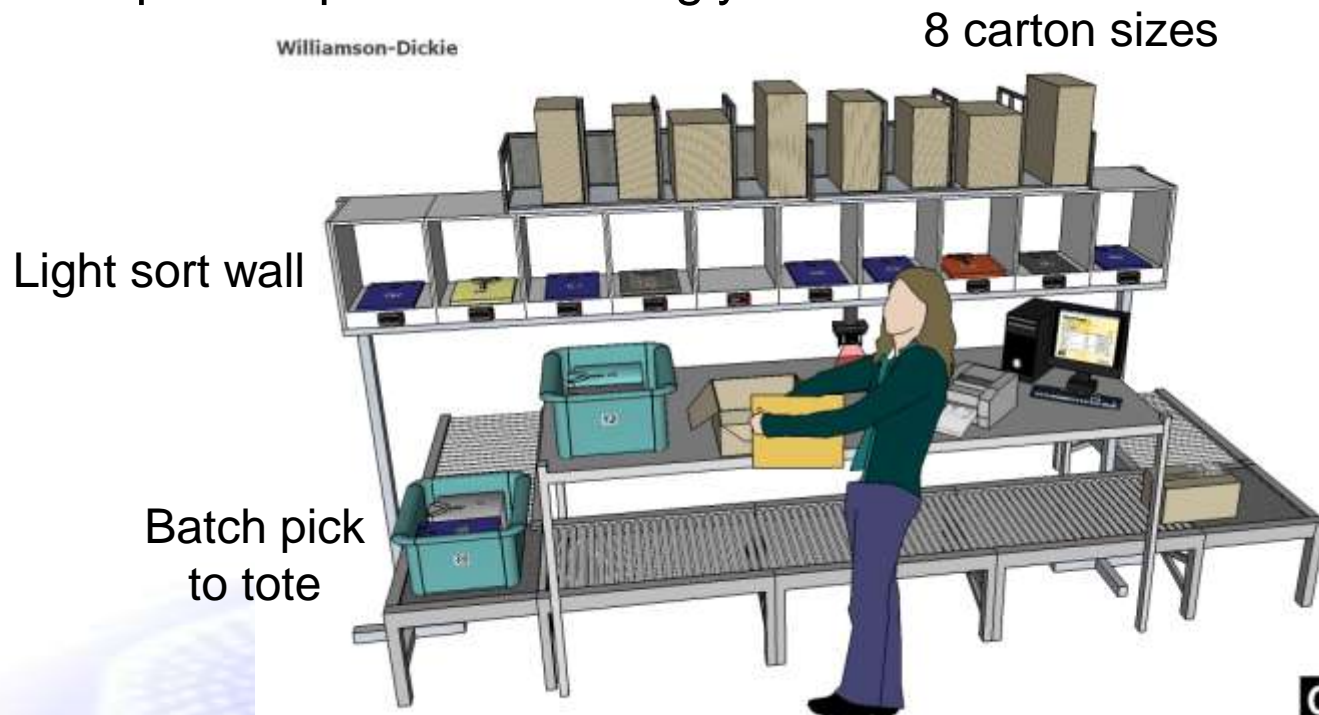
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Packaging guidance

- Use a variety of carton sizes while maintaining high throughput
 - Scan order ID
 - Proper carton size displayed on screen
 - Operator packs accordingly



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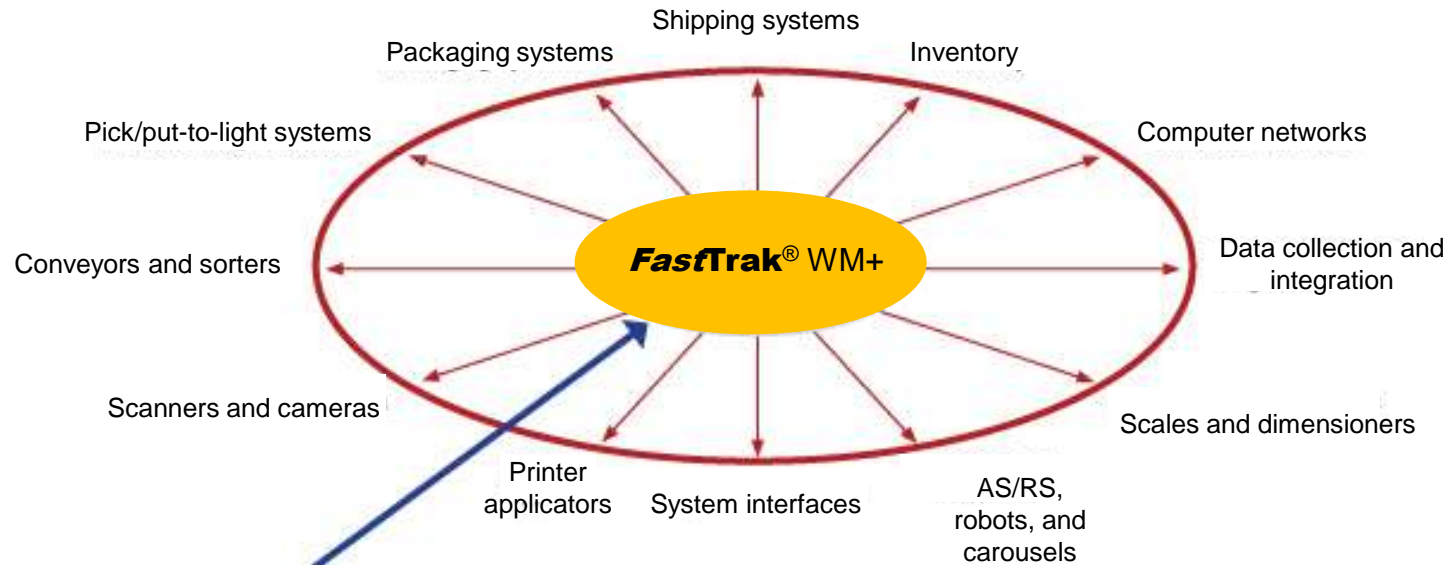


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Support



GRSI 24x7x365 support

- Single-point of contact for support
- Rapid response
- Remote assistance
- Maximum up-time



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Thank you for your interest

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