

Integrating New Automation: WES is An Operator's Must-Have

Presented by:

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POWERED BY **POSSIBILITIES.**



powered by  MHI

Introductions



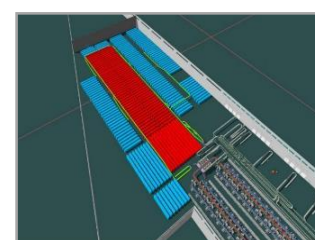
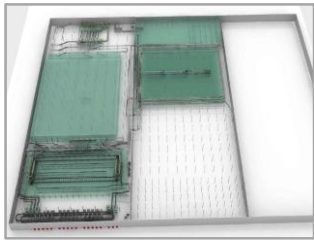
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What is a Systems Integrator?

Systems Integrator - is an individual or business that designs, engineers, installs and commissions logistics systems for clients by combining equipment, controls and supply chain software products

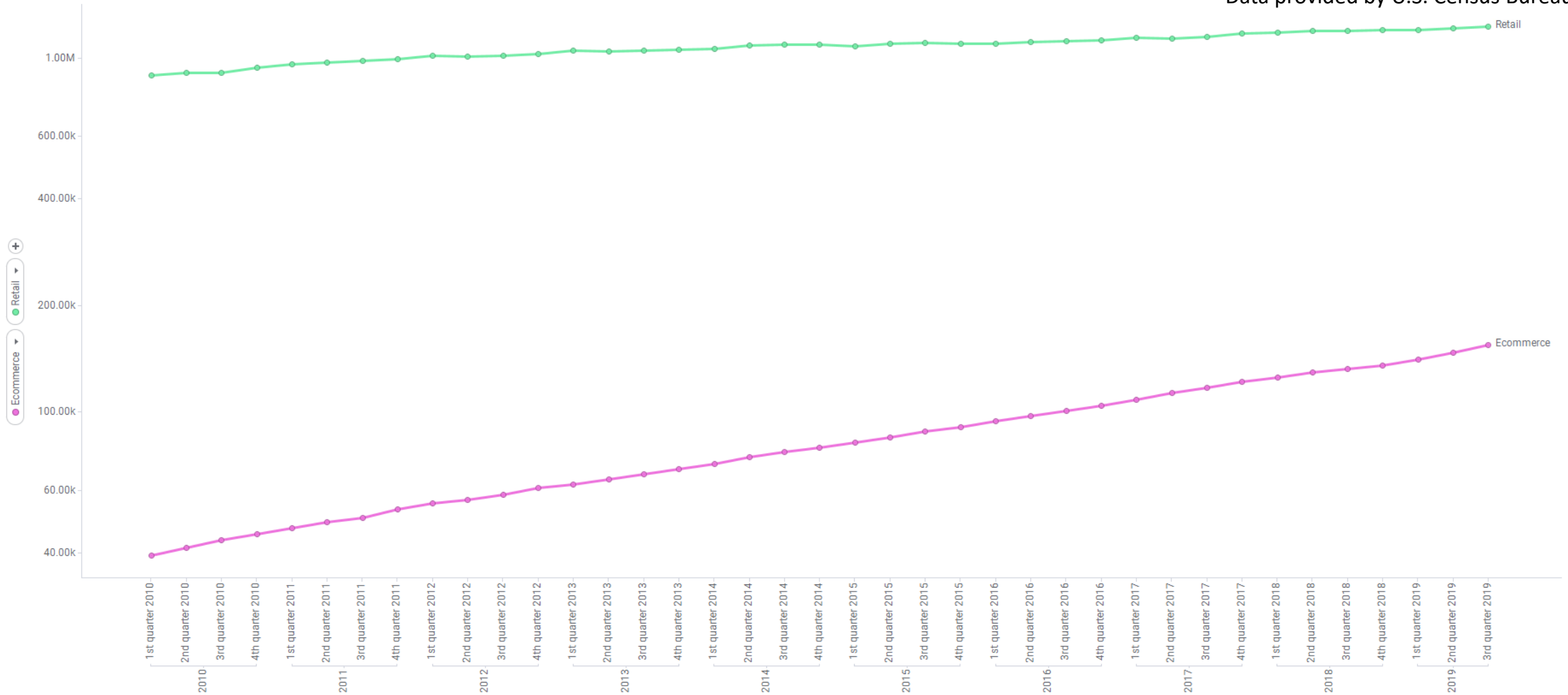




LABOR!
LABOR!
LABOR!

Retail and Ecommerce Quarterly - Sales Trend

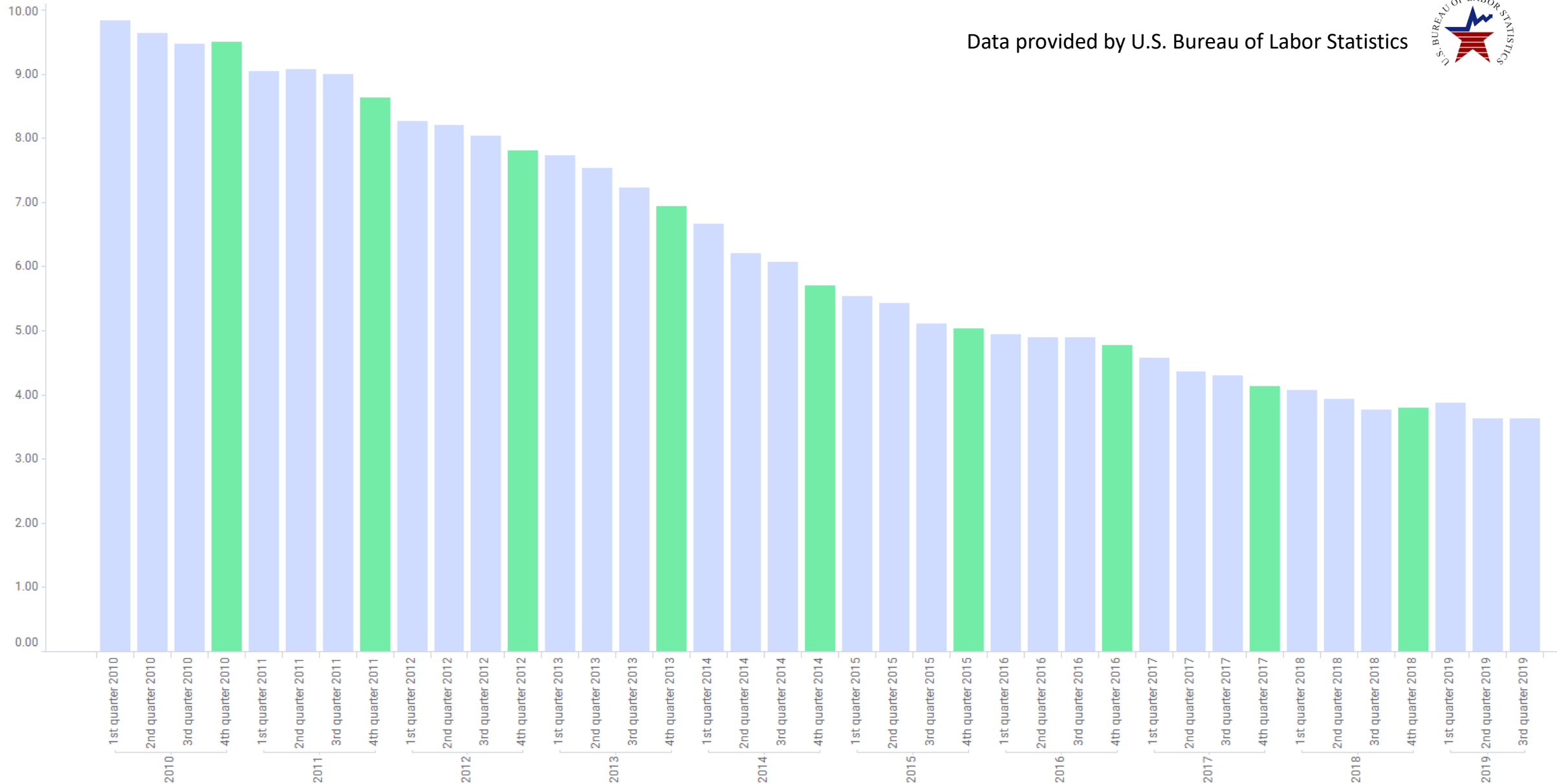
Data provided by U.S. Census Bureau



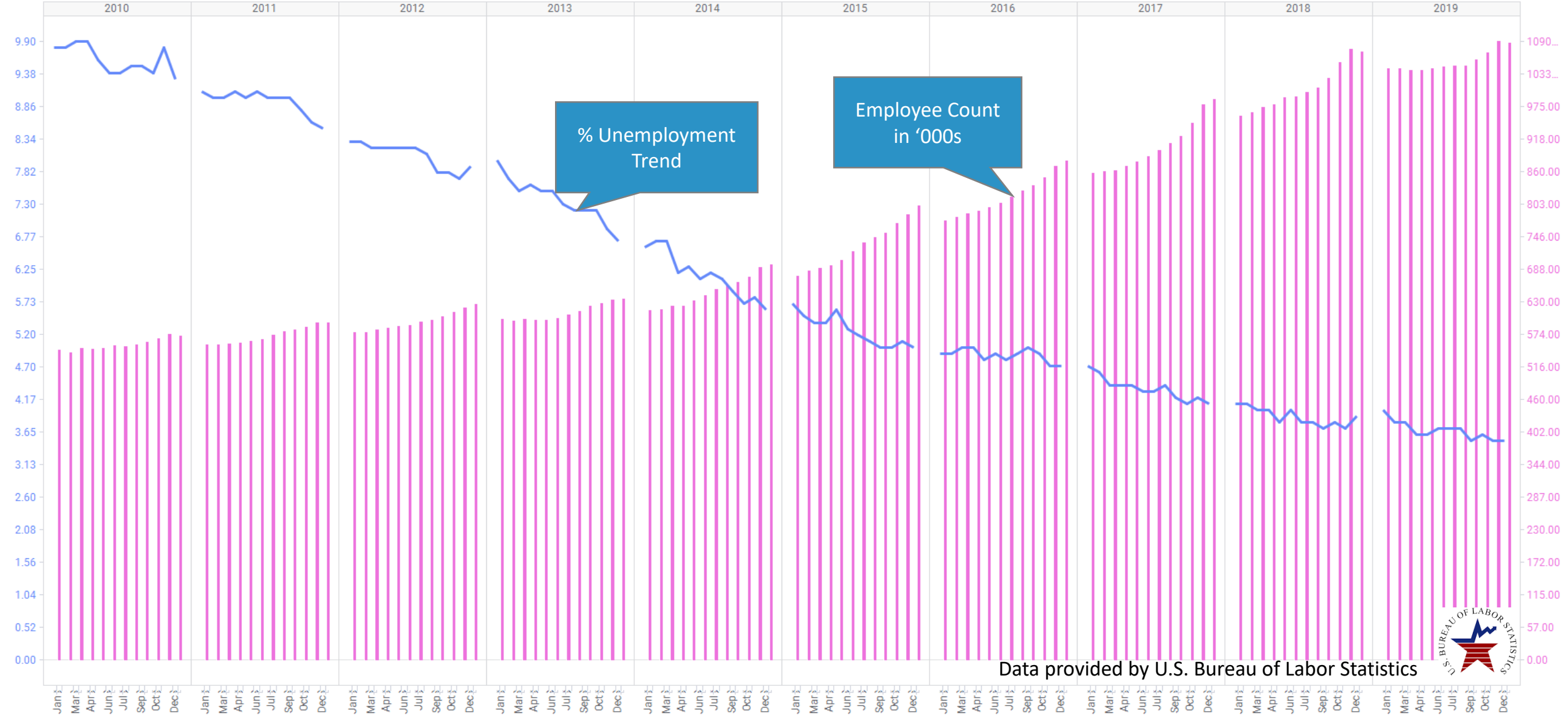
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Unemployment % Trend by Quarter

Data provided by U.S. Bureau of Labor Statistics



Monthly Unemployment and Warehouse Labor



LABOR REDUCTION TECHNOLOGIES

Conventional -----> Leading Edge

Conveyor



- Transport
- Accumulation
- Sort

Sorters



- Crossbelt
- Tilt Tray
- Sliding Shoe
- Bombay

Put-to-Order



- Put-To-Light (PTL)
- Push Through
- Pull Through
- Put-to-order

Goods-To-Man



- Mini-load
- Shuttles
- Unit load
- Goods to Person

AMR



- Autonomous Mobile Robots (AMR)

Robotics



- Robotic Arms
- AI

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Put & Pick-To-Light



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Autonomous Mobile Robots (AMR)



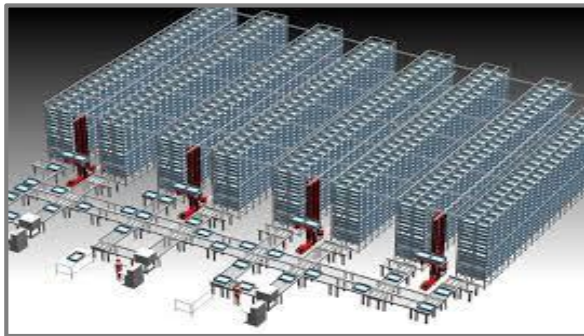
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Pocket/Pouch Unit Sortation



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Automated Storage & Retrieval (ASRS)

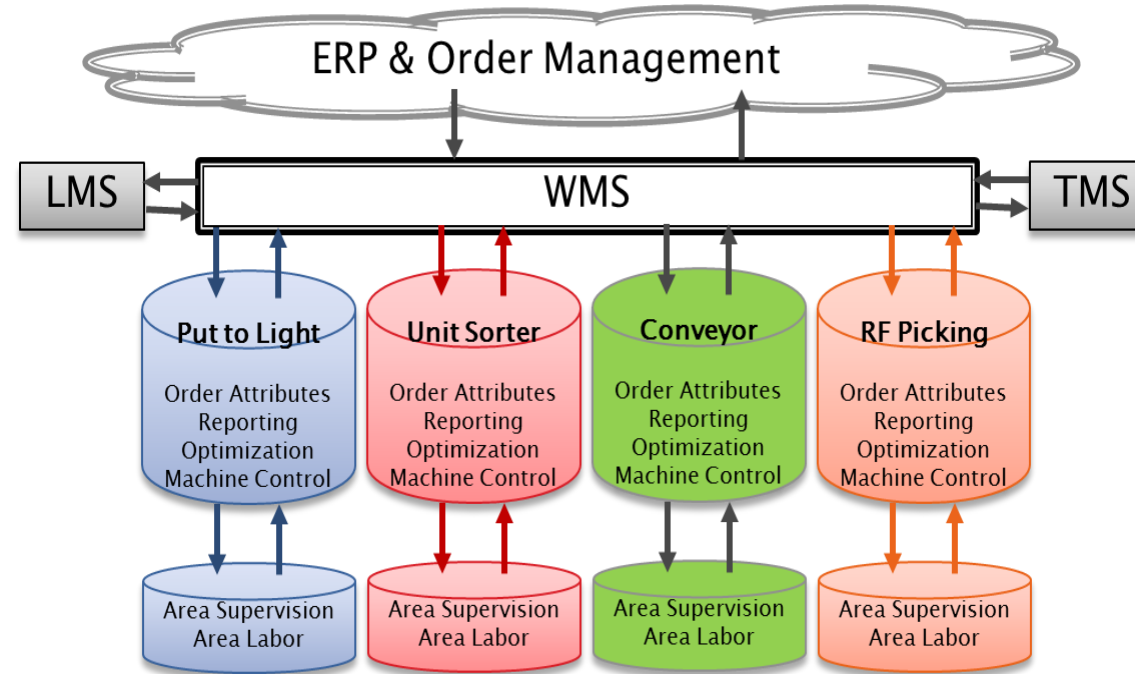


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Robotic Arms



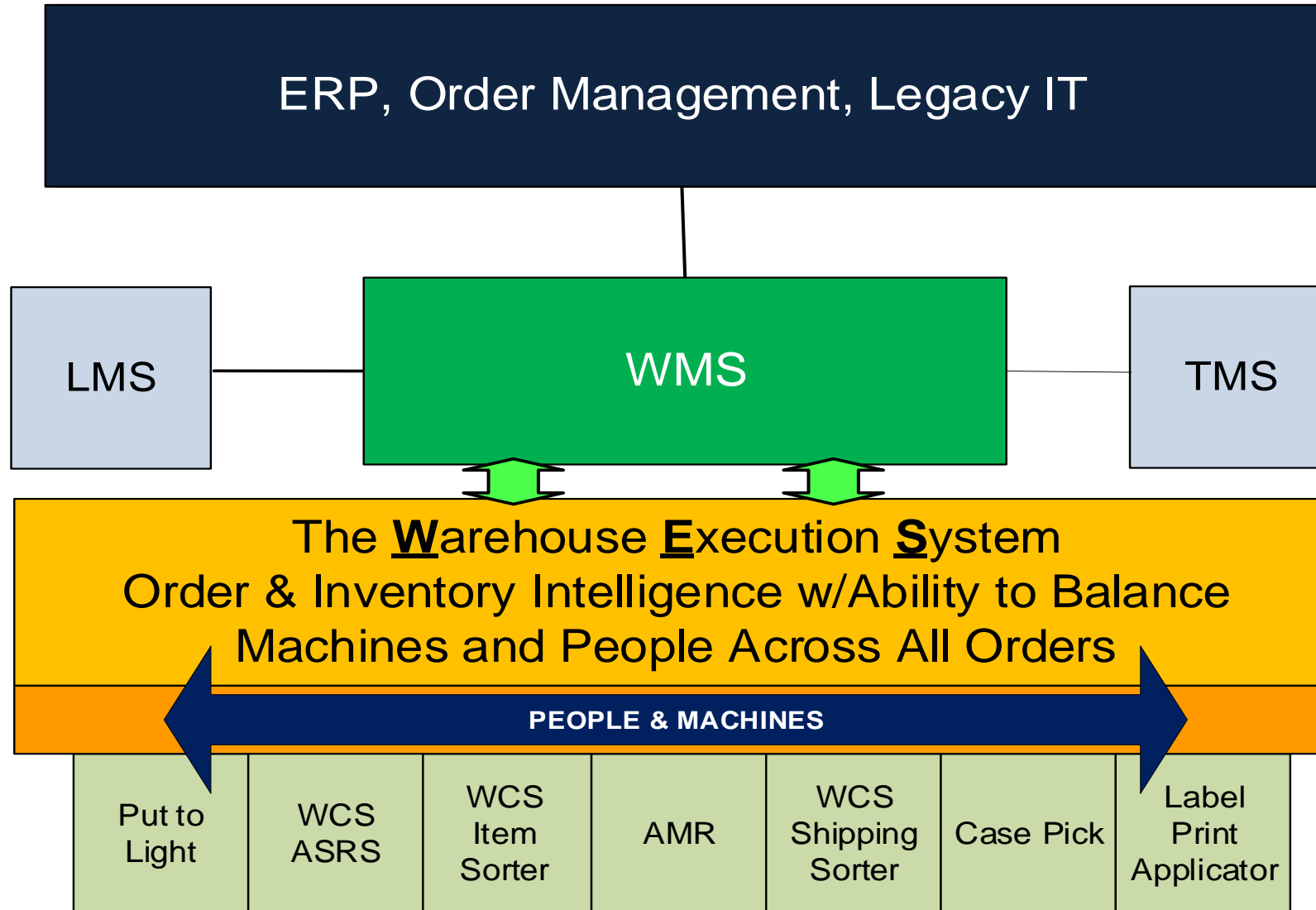
Typical WMS/WCS Deployment Model



Challenges

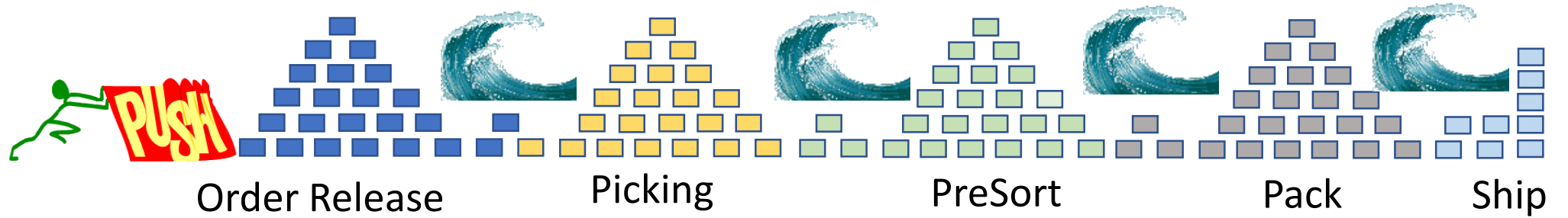
- Silos of WCS interfacing to WMS
- Each WCS has no awareness of another WCS's work
- Multiple technologies stacks to maintain
- Multiple WMS interfaces to maintain
- Intelligence to balanced labor accomplished by gathering data from multiple systems
- Synchronization across technologies doesn't exist

WMS/WES Deployment Model

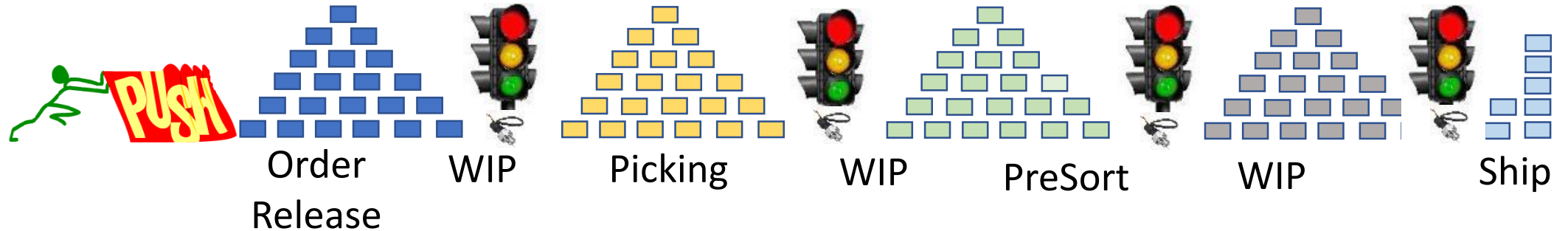


WES Methodologies

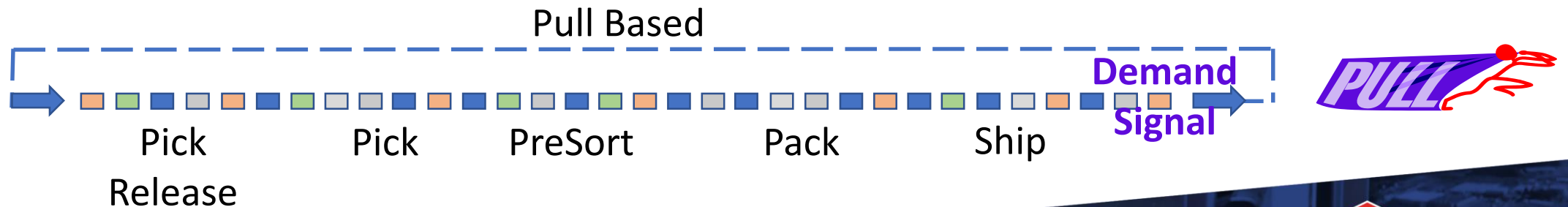
1
Monitor
Wave
Completion



2
Monitor
Machines
via Sensors

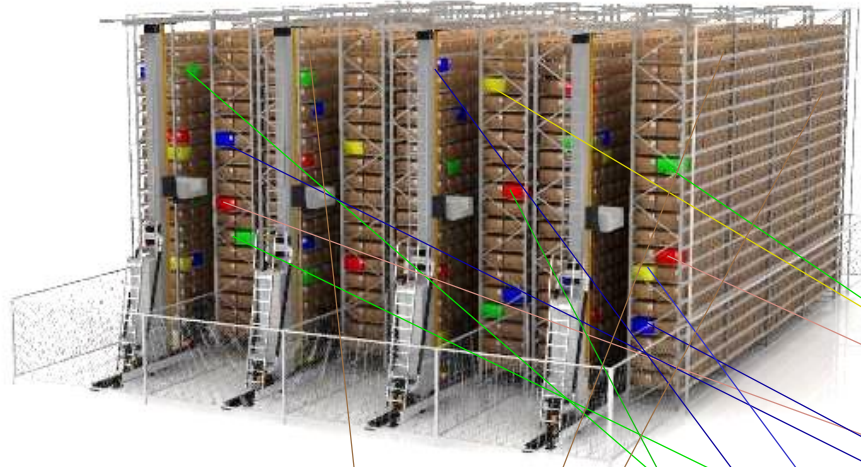


3
Monitor
Demand
Signal

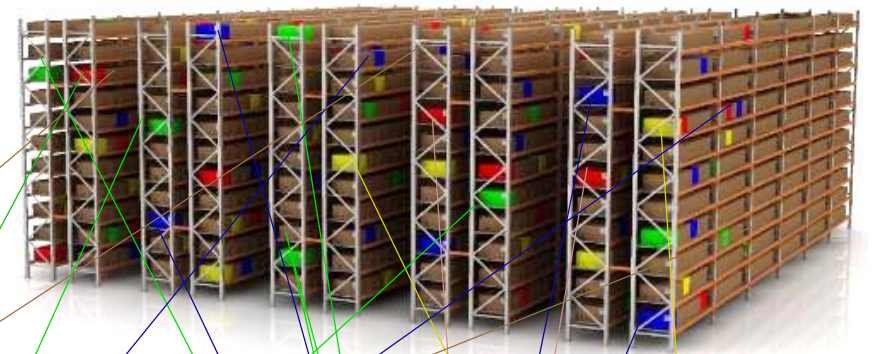


Synchronizing & Sequencing Work

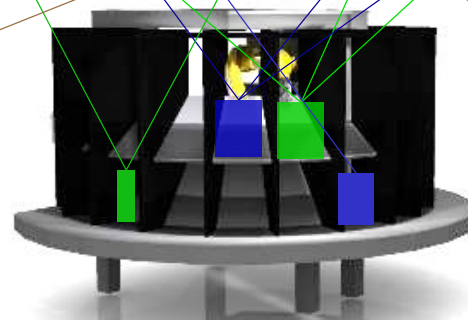
Machine Picking



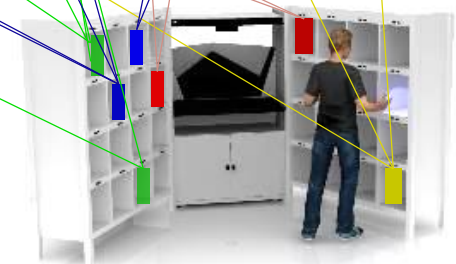
Human Picking



LTL/FTL Orders



Automation Friendly Orders

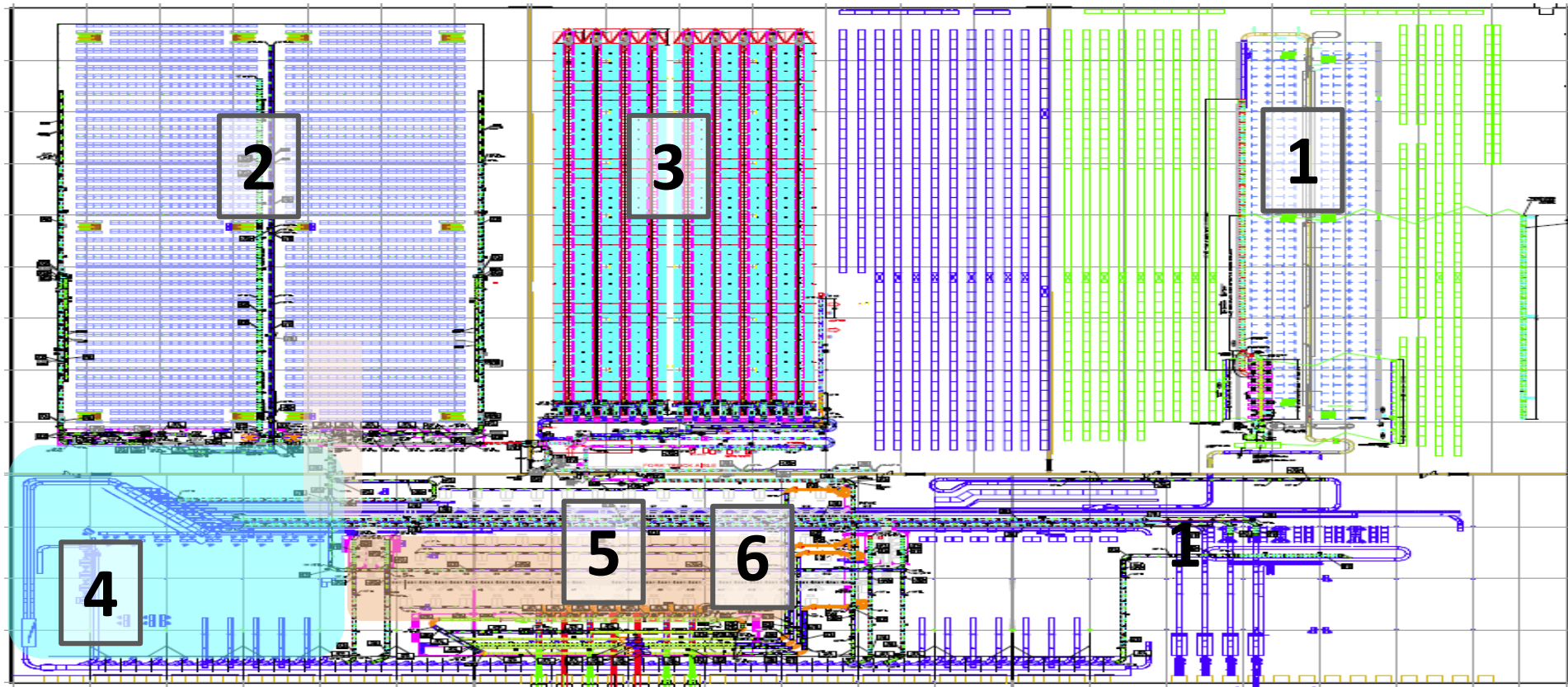


All Ecommerce Orders



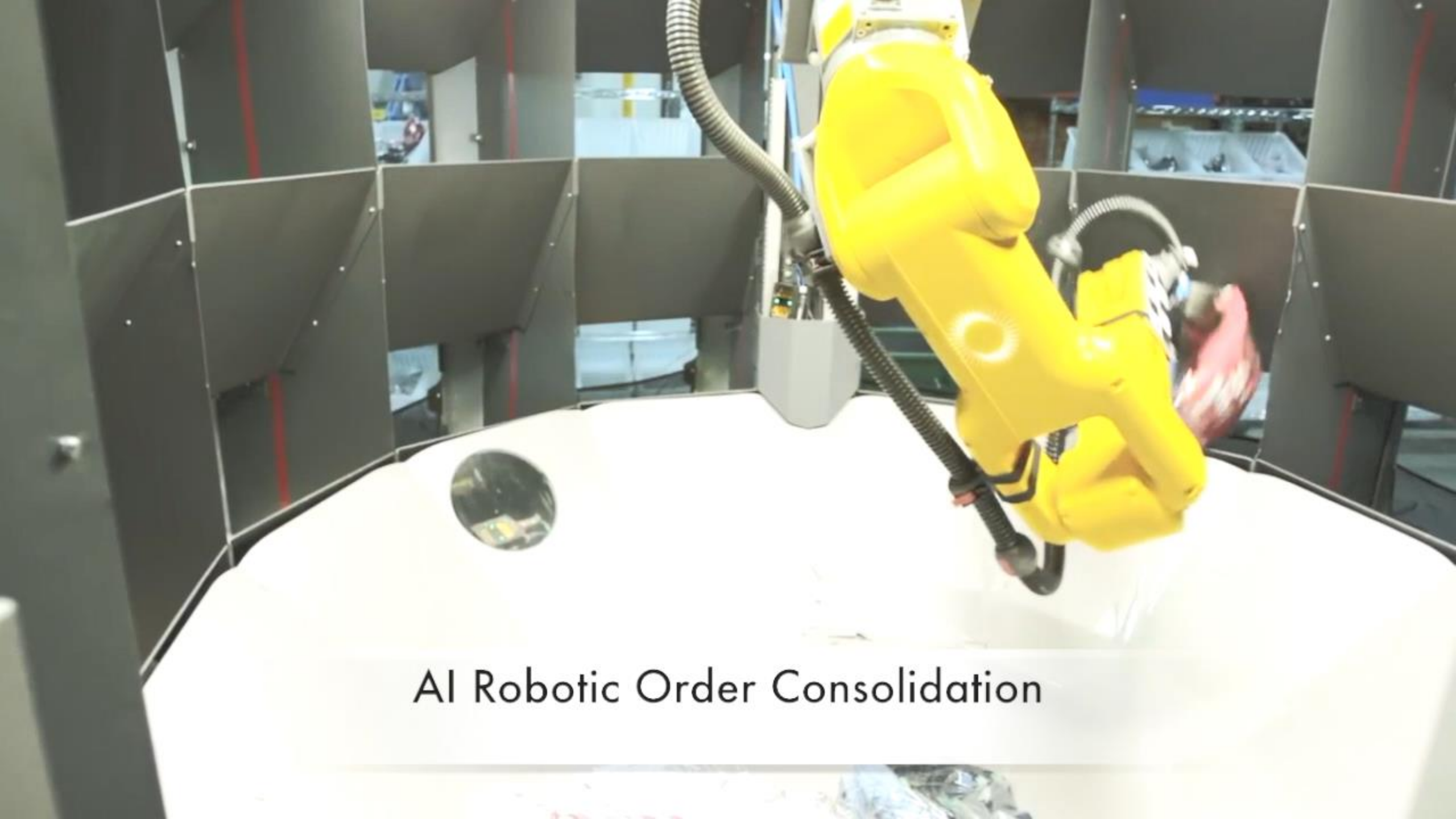
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Gap Inc, Fulfillment Center Retrofit



1 – Pick Module 1
2 – Pick Module 2
3 – Inbound ASRS

4 – Routing Sortation
5 – Unit Sortation w/Put Walls
6 – Robotic Sort Station w/AI



AI Robotic Order Consolidation

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