

10^{PLUS} Applications Using Autonomous Mobile Robots & Robotics to Solve Labor Issues

Presented by:

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CONVEYCO

Good people. Great solutions.



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Today's Objectives

- HUGE Breadth of AMR & Robotics are Available
- Specialized Application AMRs Likely Exist
- Combining Several Models Yield Higher Benefits
- Leave Knowing More Today than You Knew Yesterday!

What & Why AMRs & Robotics

- Flexibility!!
 - Application
 - Material
 - Location
 - Processes...
- Saves Labor
- Increases Accuracy
- Improves Throughput
- Eliminates Single Point of Failure
- Provides a Fast ROI
- Allows for Rapid Growth
- Efficiently Handles Peaks & Valley

Easy Proof of Concept – POC

AMRs Unique Qualities:

- Flexibility
- Scalability
- Easy to Move/Locate
- Minimum Infrastructure

Just Some Applications:

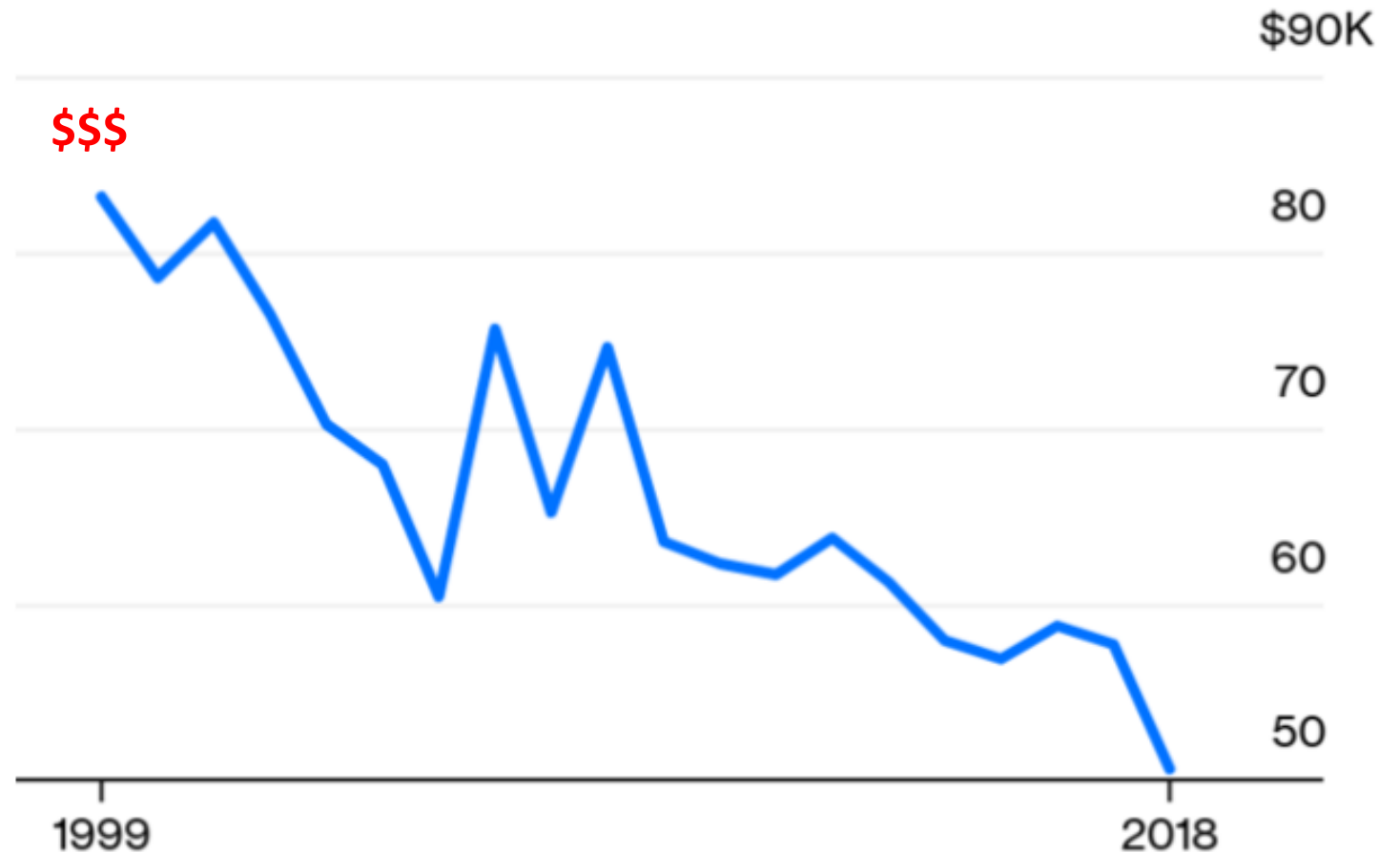
- Order Picking
- Sortation
- Consolidation
- Kitting
- Many More

Its About the \$\$\$

- [illegible]

Better Robot, Better Price

North America industrial robot cost* per unit shipped



Source: Robotic Industries Association

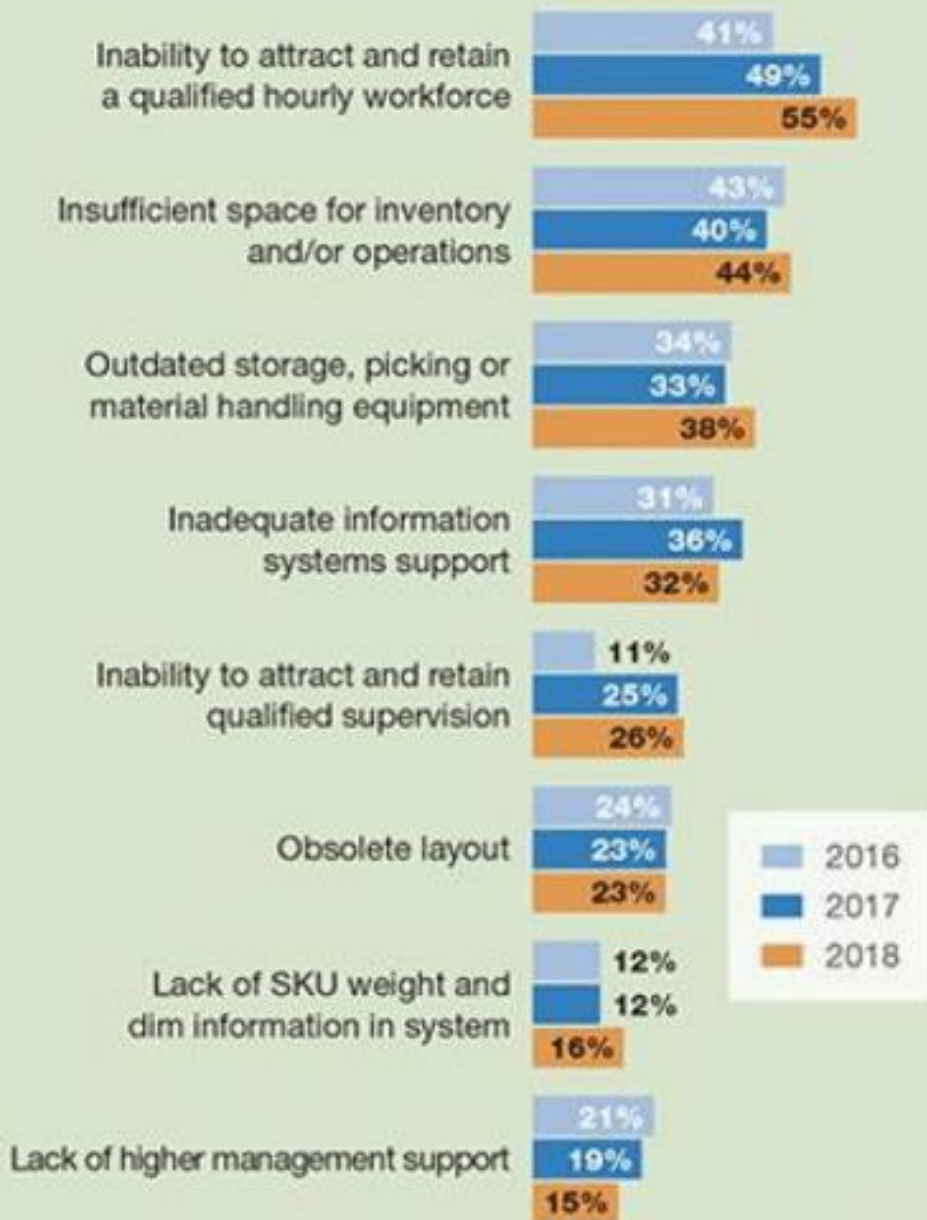
*In nominal dollars

BloombergOpinion

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Major issues as it pertains to warehouse/DC operations



Source: Peerless Research Group (PRG)

Answers DC Issues

- Labor
- Space
- Automation



AGV vs AMR

- Fixed Path vs. Autonomous
- Sensing Items, People & Things and Avoiding Them
OR
NOT



High Speed Sortation – Manual Induction



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High Speed Sortation – Take Away



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High Speed Sortation – Robotic Induction



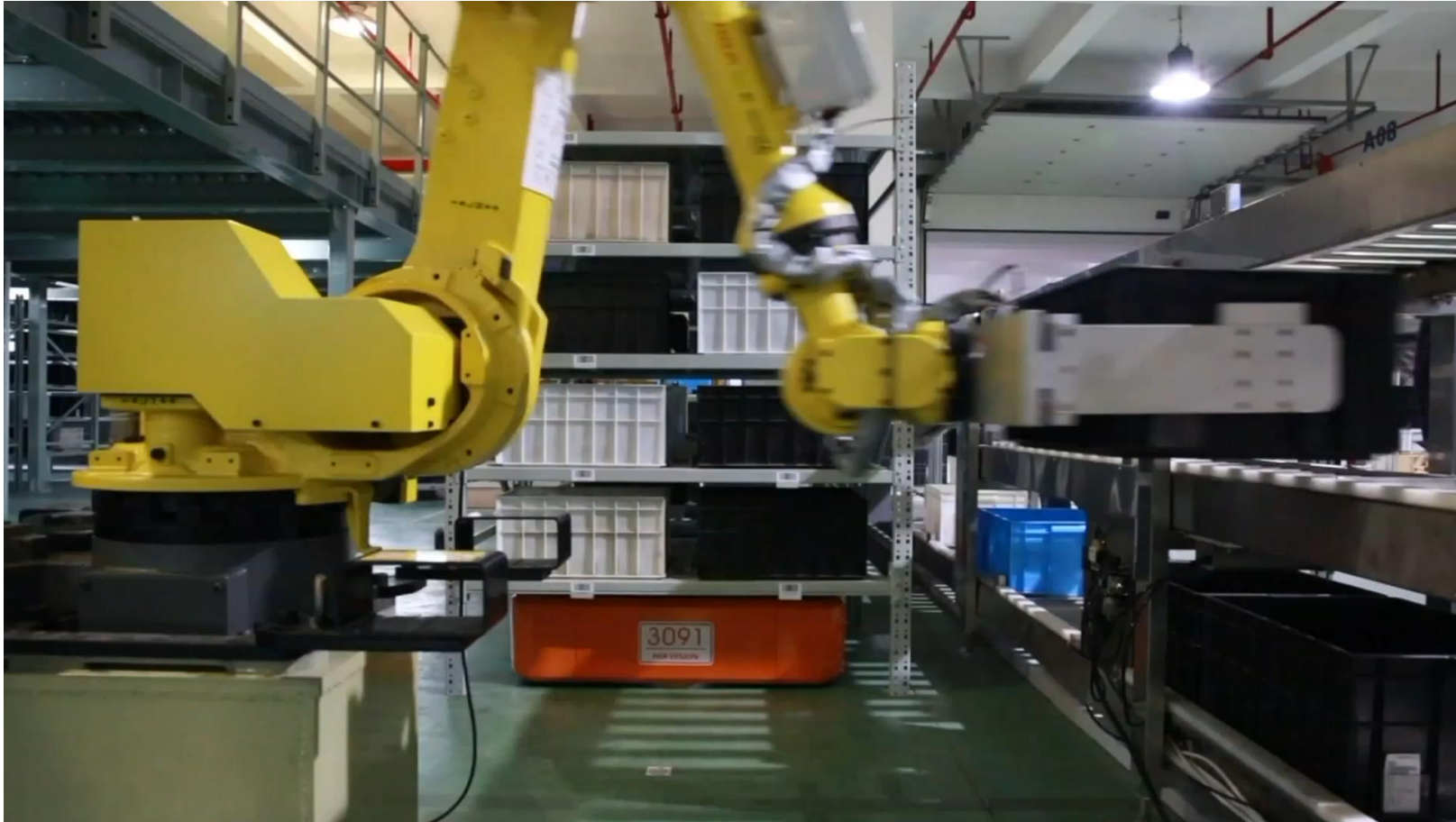
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Order Picking (Goods to Person)



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Robotic Picking (Goods to Person)



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Order Picking & Storage (AS/RS)



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Replenishment – Shelving – Flow Rack



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Retail Store Replenishment



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Order Picking (Zone to Zone)

Simple 3-step process



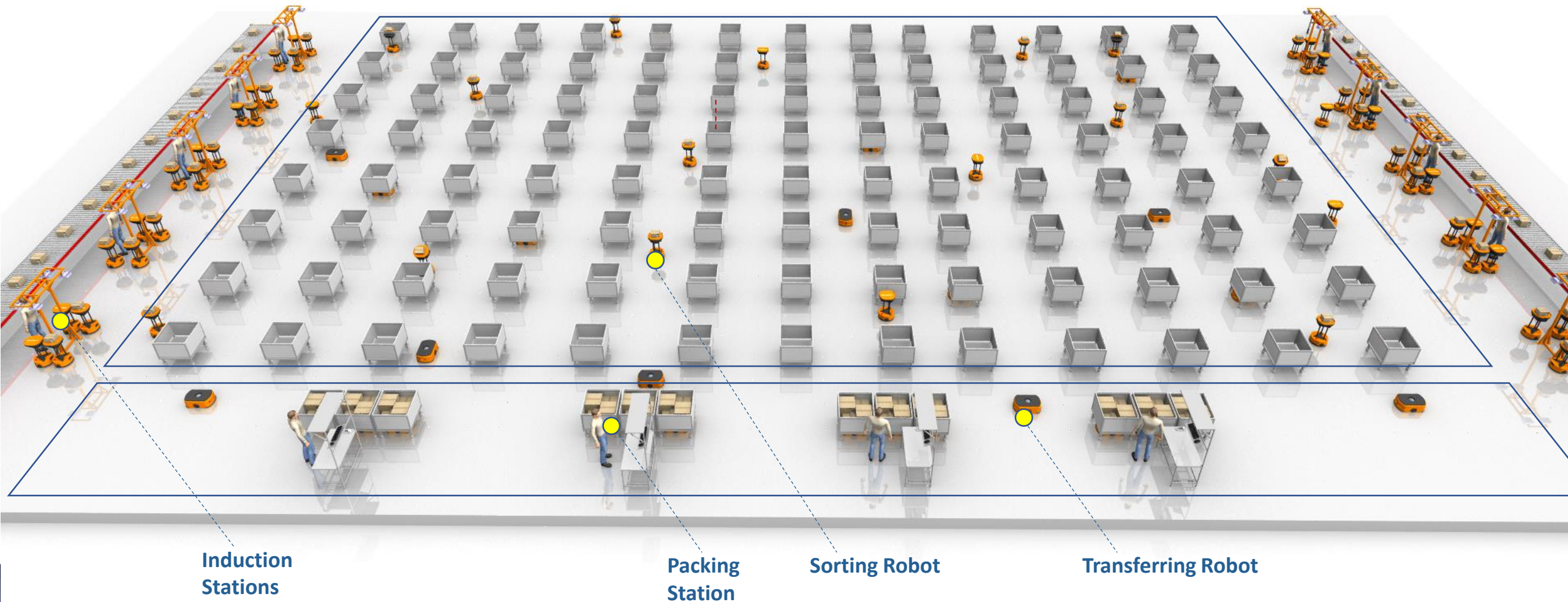
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Order Picking (Person to Goods)



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Low/Medium Sortation – Kitting – Returns



Low/Medium Sortation – Kitting – Returns



POWERED BY POSSIBILITIES.

Low/Medium Sortation – Kitting – Returns



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Low/Medium Sortation – Kitting – Returns



Kitting (Person to Goods)



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Deliver to Work Zones



Feeding Buffer & Automated Systems



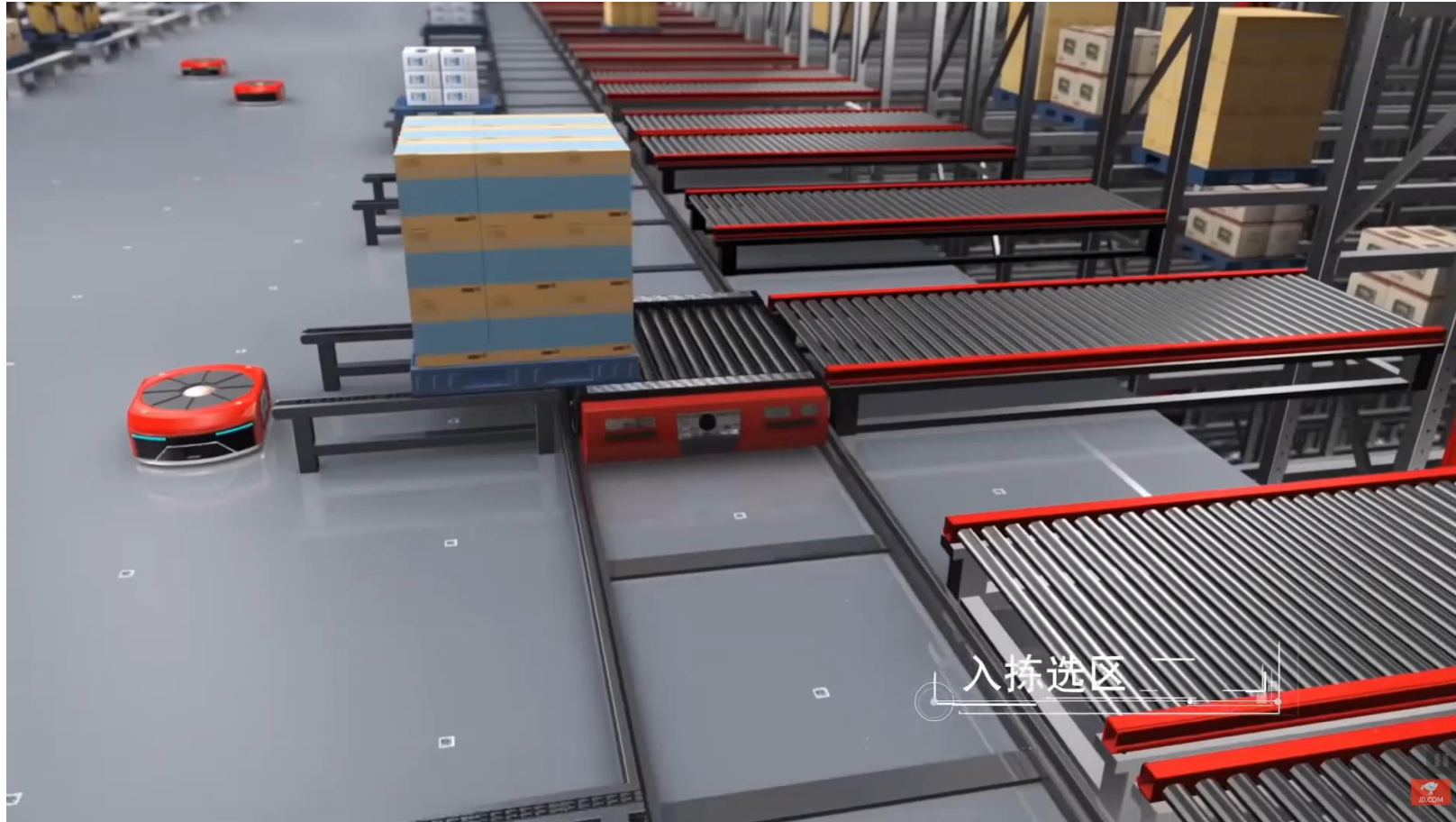
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Receiving



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AS/RS to Storage



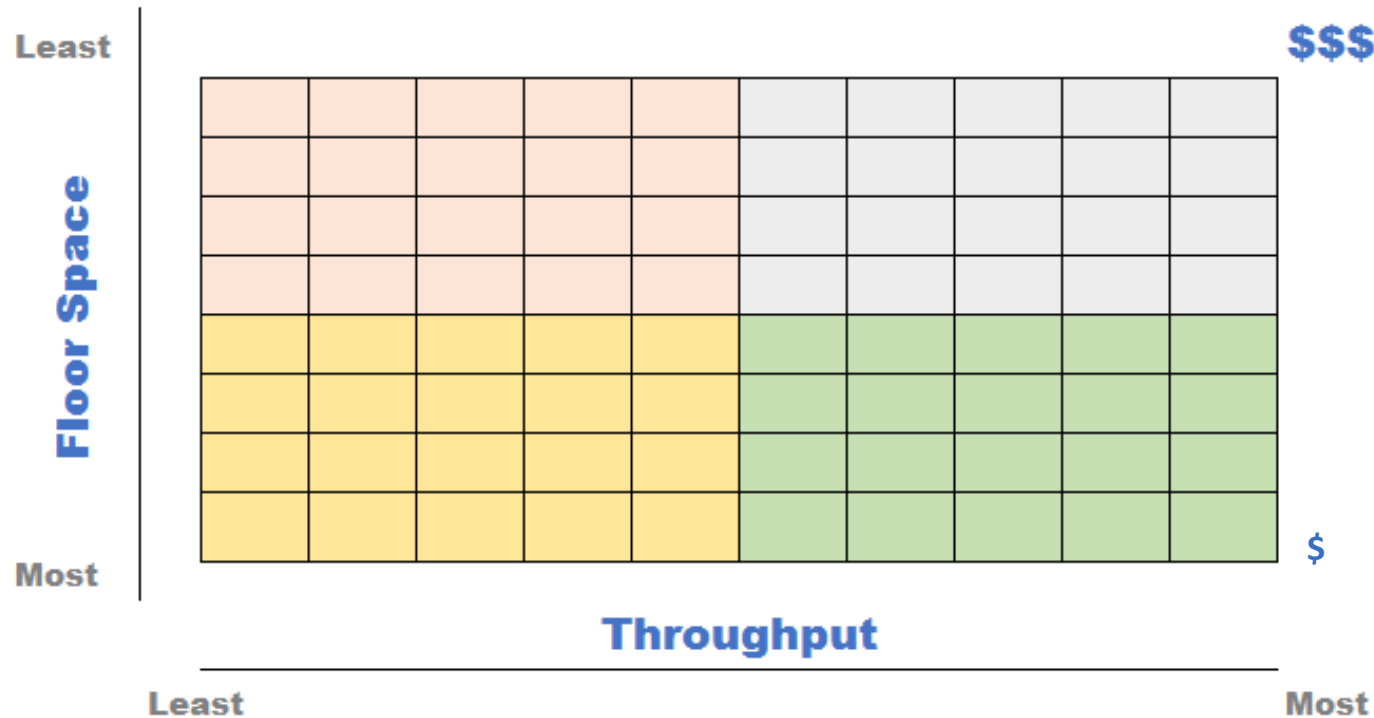
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De-Palletizing (Full Case Handling)



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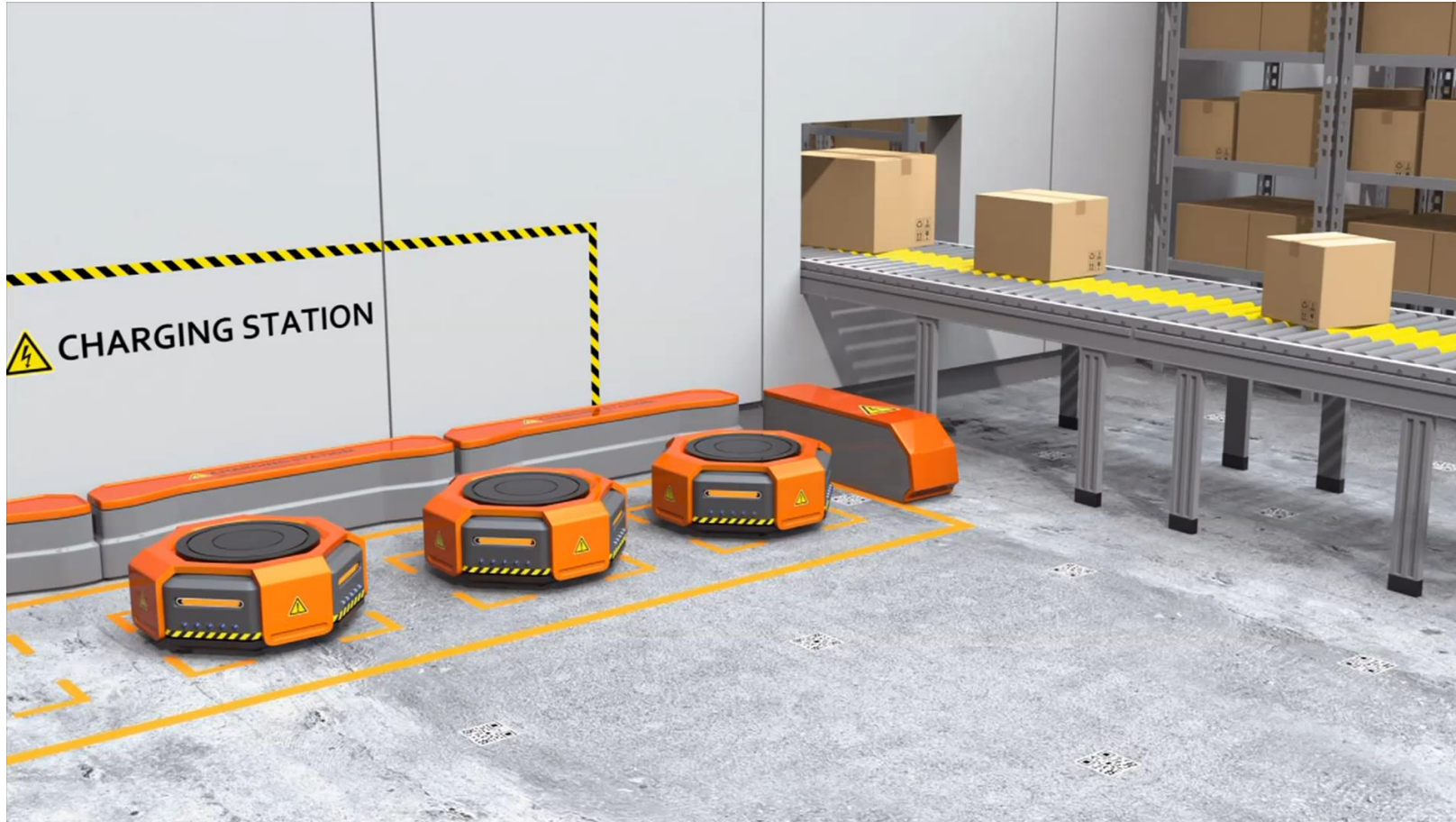
Criteria: You Pick 2... I Pick the Third



- Elements That Make Up Costs & Throughput:

- Robots
- Induction Stations
- Destinations/Locations
- Value Added Processes

Living The Dream ;-)



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