

The 21st Century Warehouse

Sponsored by:



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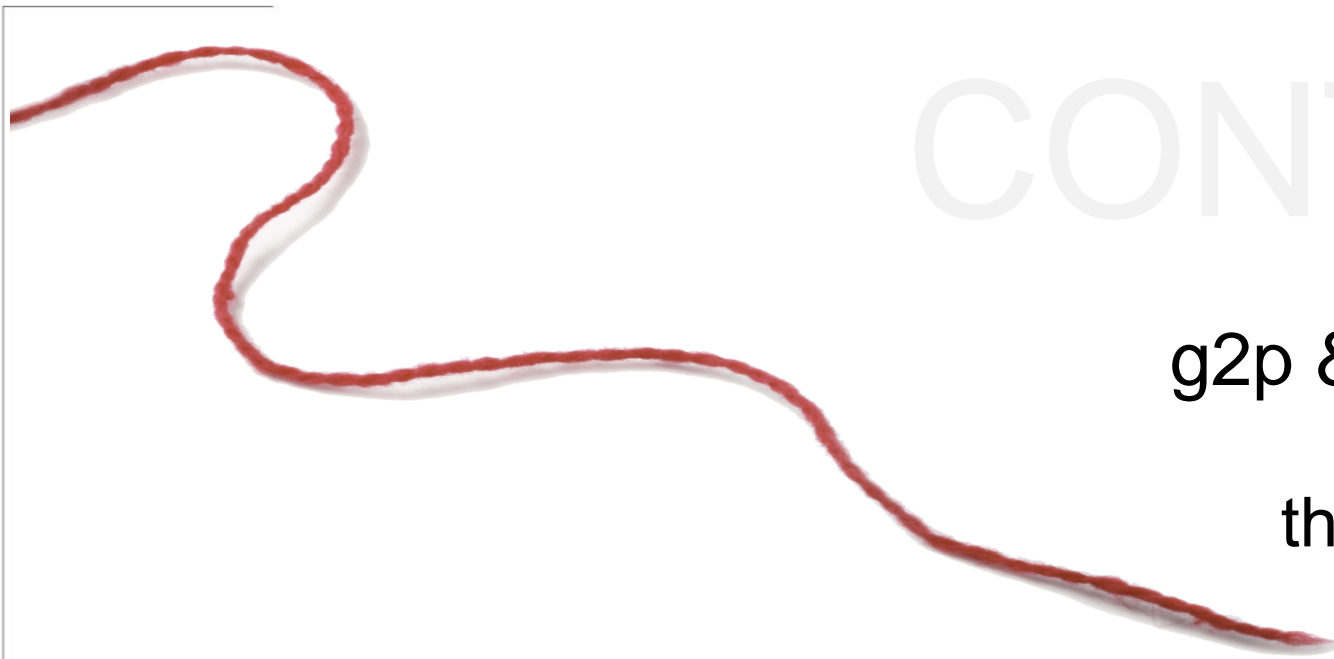


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the 21st century warehouse

technology, trends and
applications for the future





CONTENT

history

goods to person
pharmaceutical demand

g2p & applications

Shuttle applications

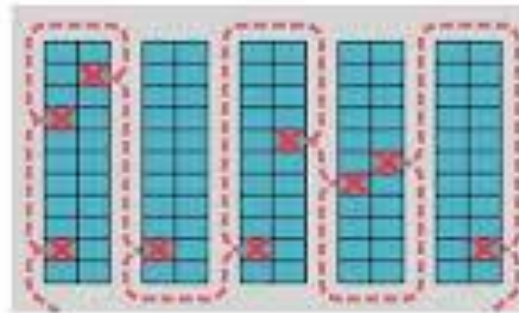
the vision “all in”

reality
available

HISTORY

Why goods to person?

Travel Distance

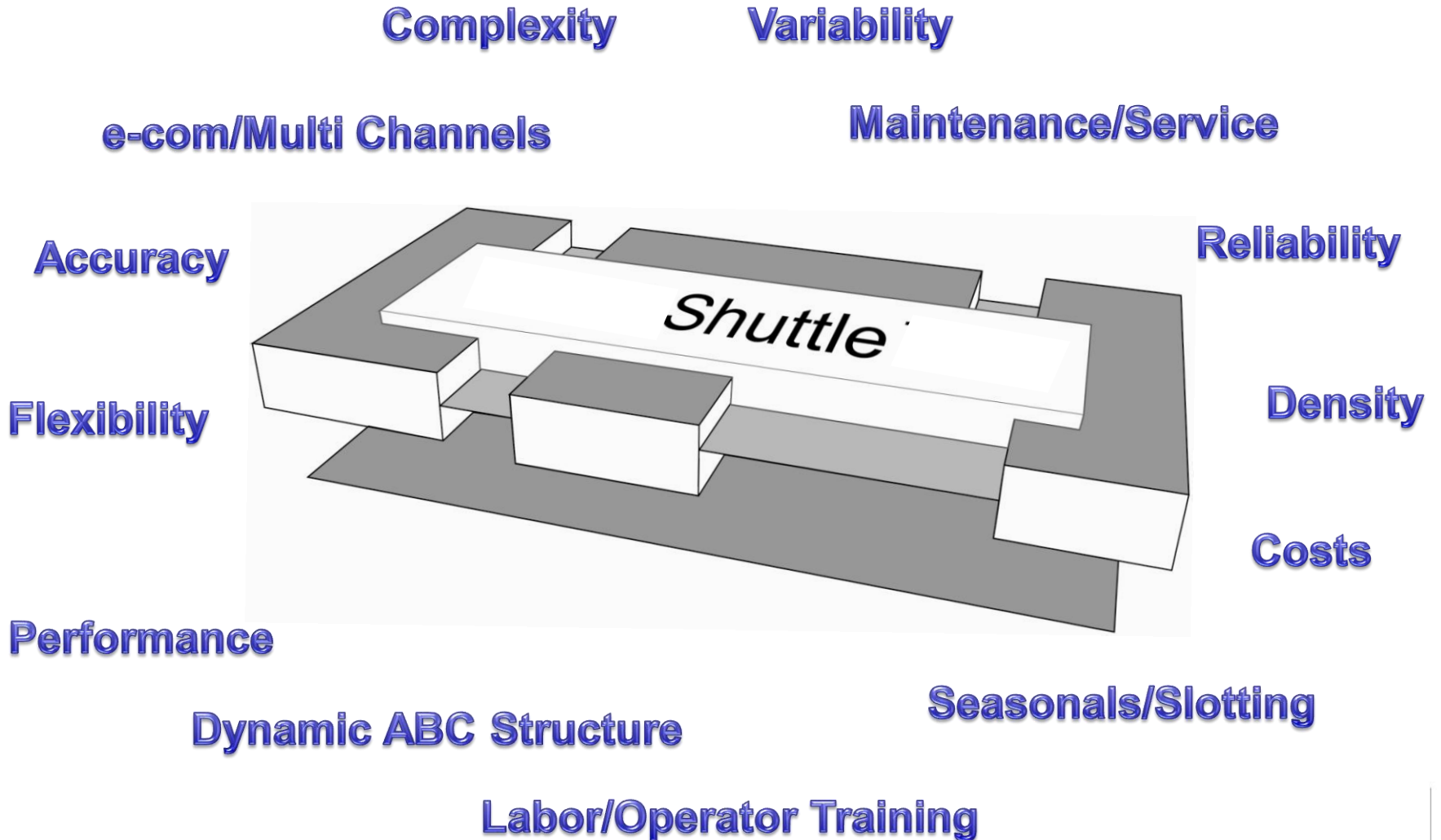


Remember: Traveling is
60%-70% of labor costs

$$P(n^{Picks}, n^{orders}) = \frac{n^{picks}}{t^{pick}(n^{picks}) + t^{basis}(n^{orders}) + t^{way}(n^{picks}, n^{orders})}$$

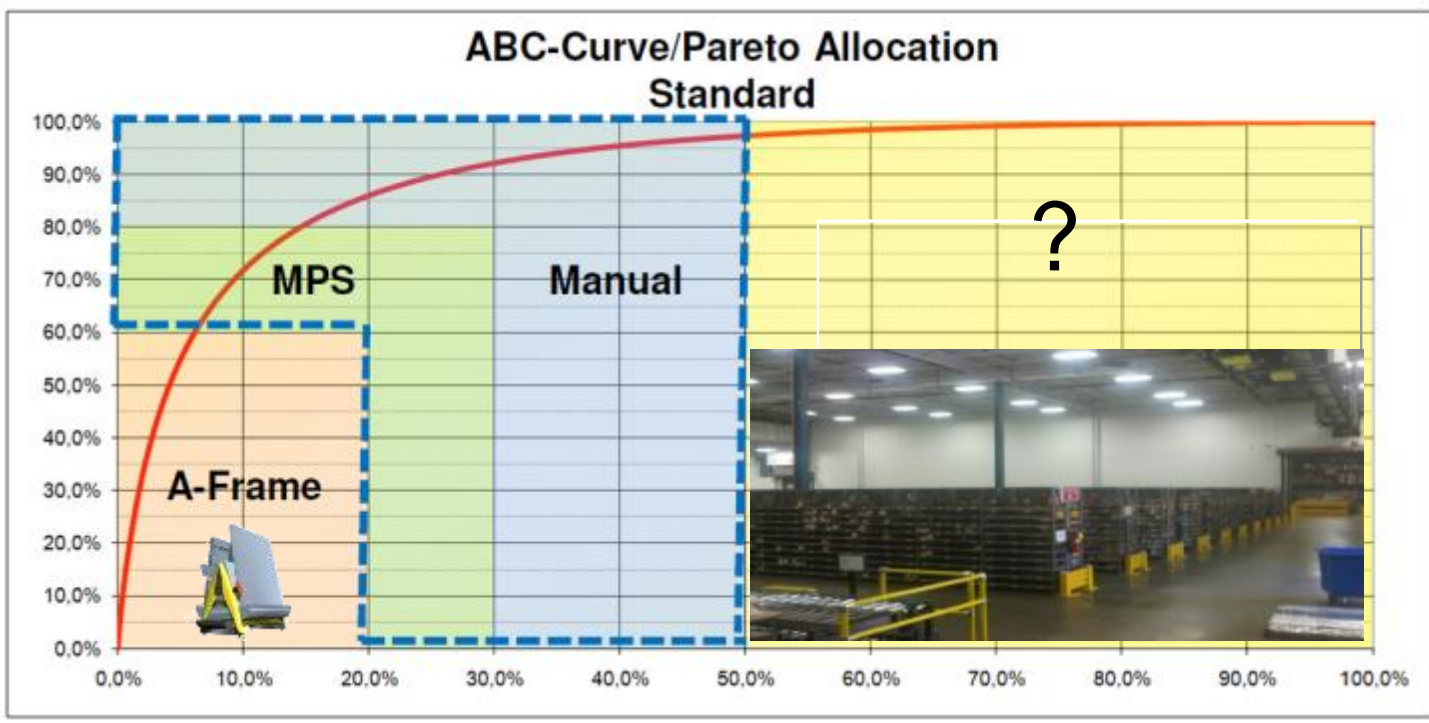
HISTORY

Warehouse issues

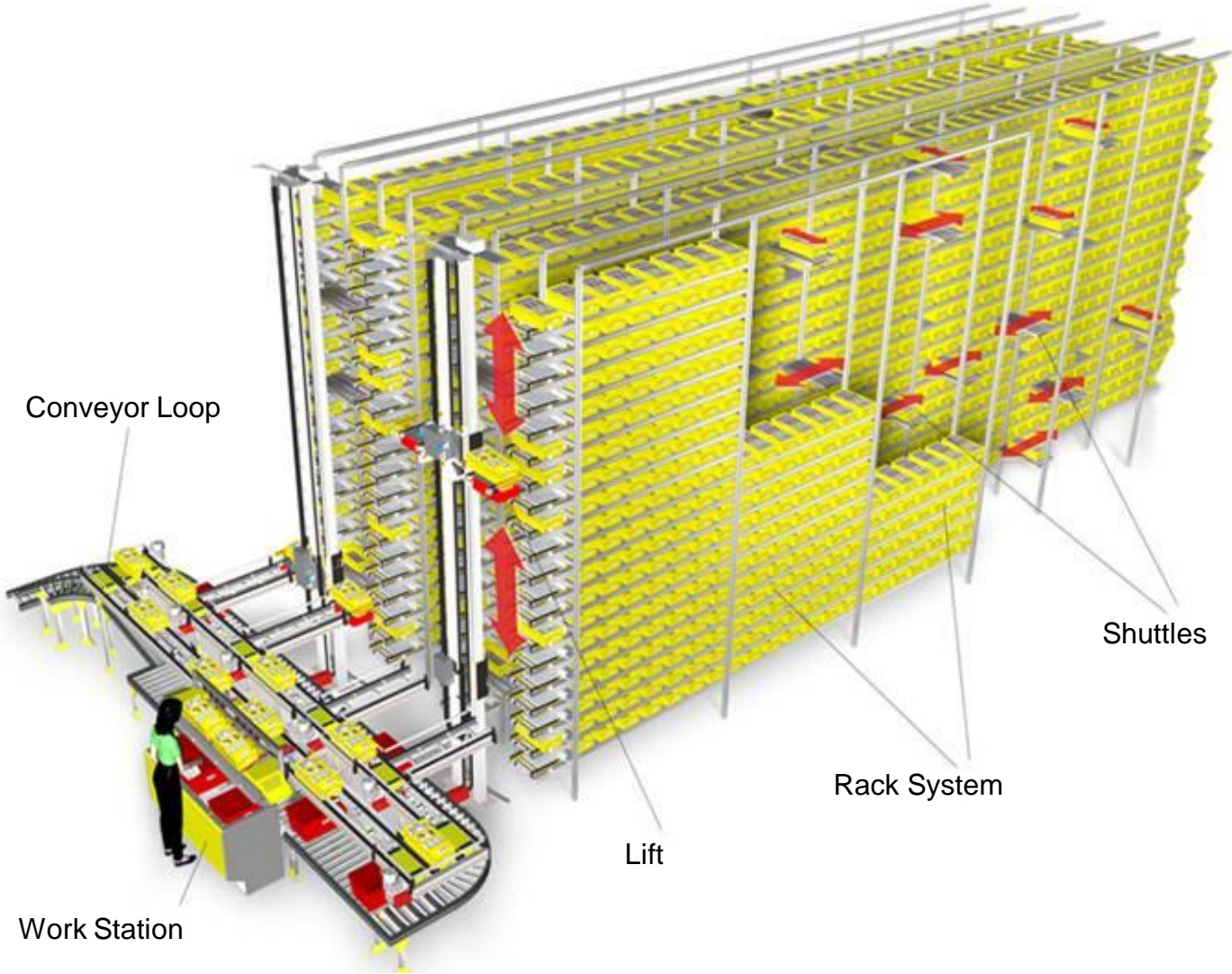


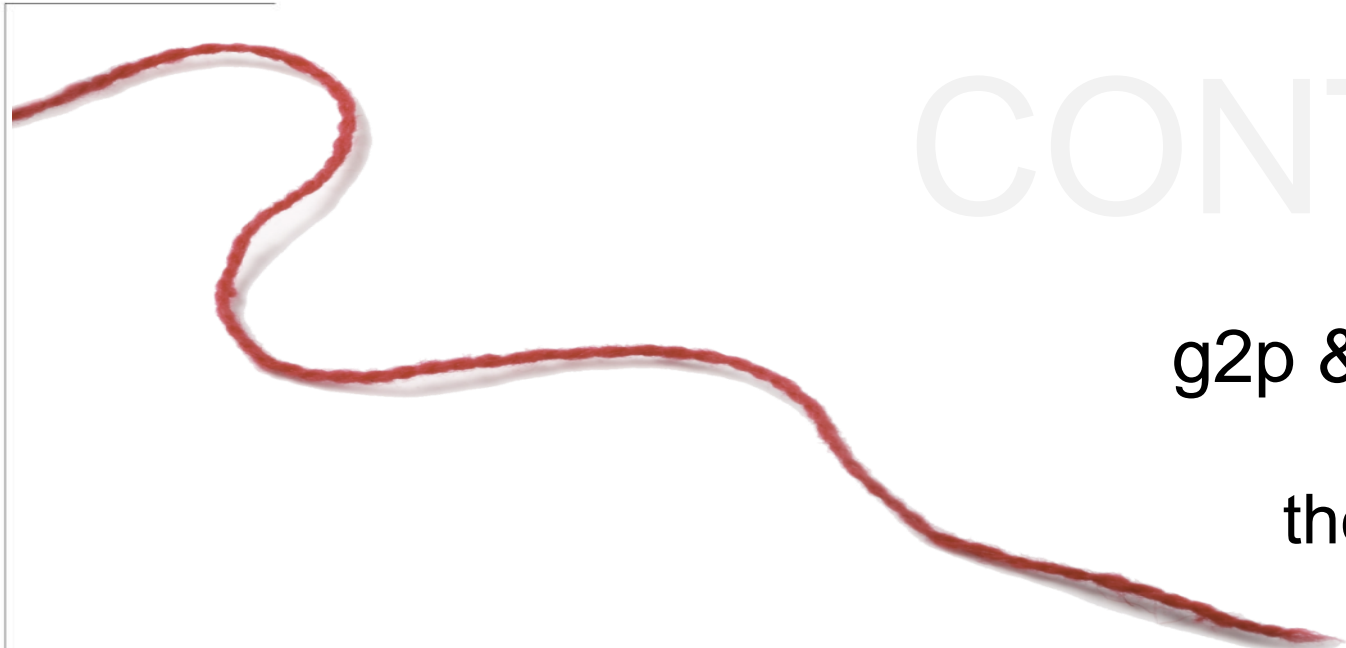
HISTORY

Pharmaceutical Wholesale Distribution



SHUTTLE Principles





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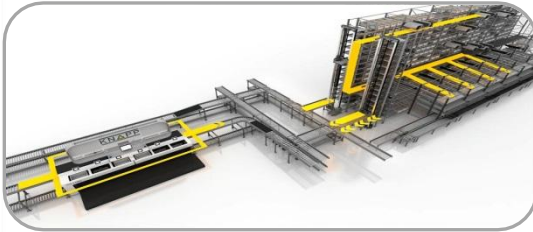
the vision “all in”

reality

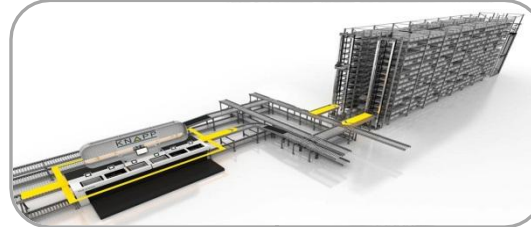
available

APPLICATIONS

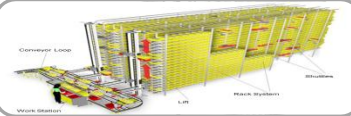
all-in



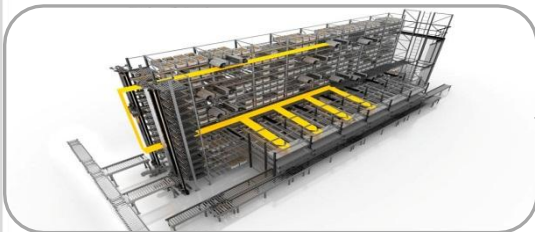
G2P picking



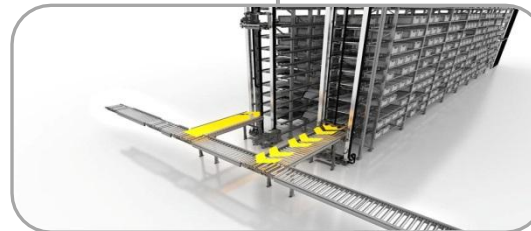
storage/buffer



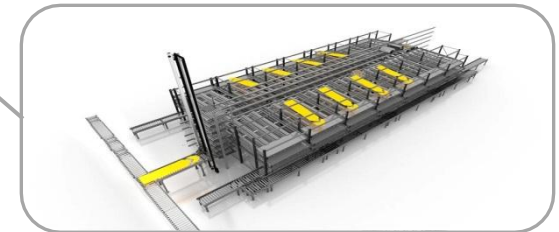
replenishment



sequencing

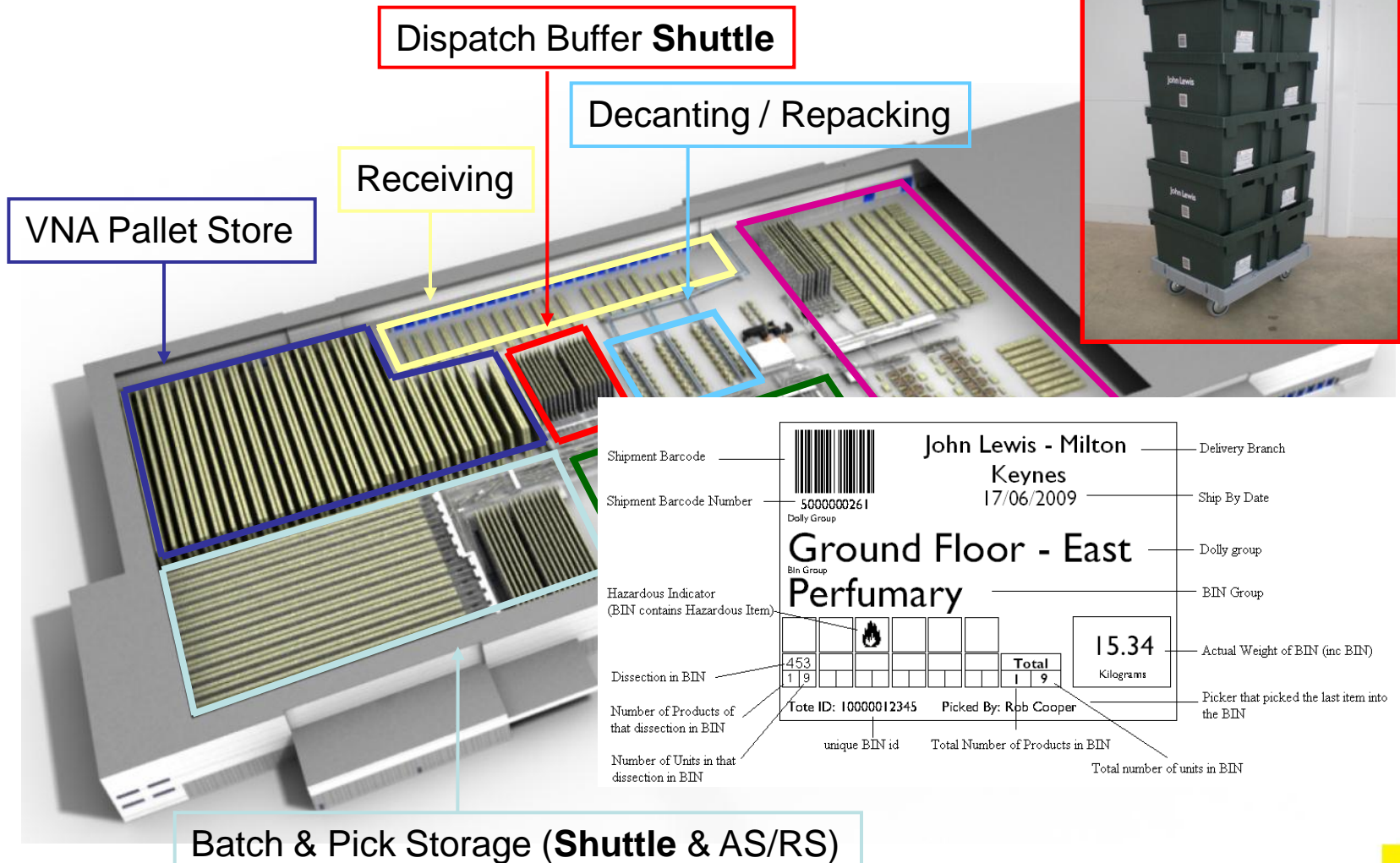




sorting



APPLICATIONS

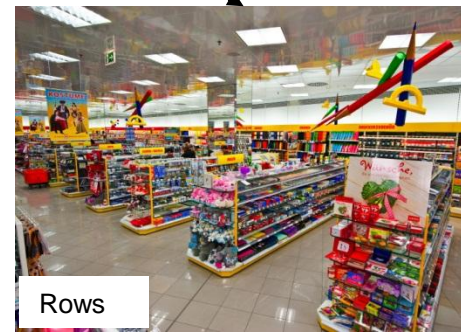
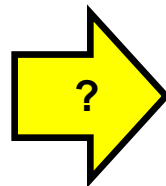
G2P, storage and sequencing



Shipment Barcode		John Lewis - Milton Keynes	Delivery Branch
Shipment Barcode Number	5000000261	17/06/2009	Ship By Date
	Dolly Group		
		Ground Floor - East	Dolly group
		Perfumary	BIN Group
Hazardous Indicator (BIN contains Hazardous Item)			
Dissection in BIN	453 1 9	Total 9	Actual Weight of BIN (inc BIN)
Number of Products of that dissection in BIN			15.34 Kilograms
Number of Units in that dissection in BIN			Picker that picked the last item into the BIN
	Tote ID: 10000012345	Picked By: Rpb Cooper	
	unique BIN id	Total Number of Products in BIN	Total number of units in BIN

APPLICATIONS

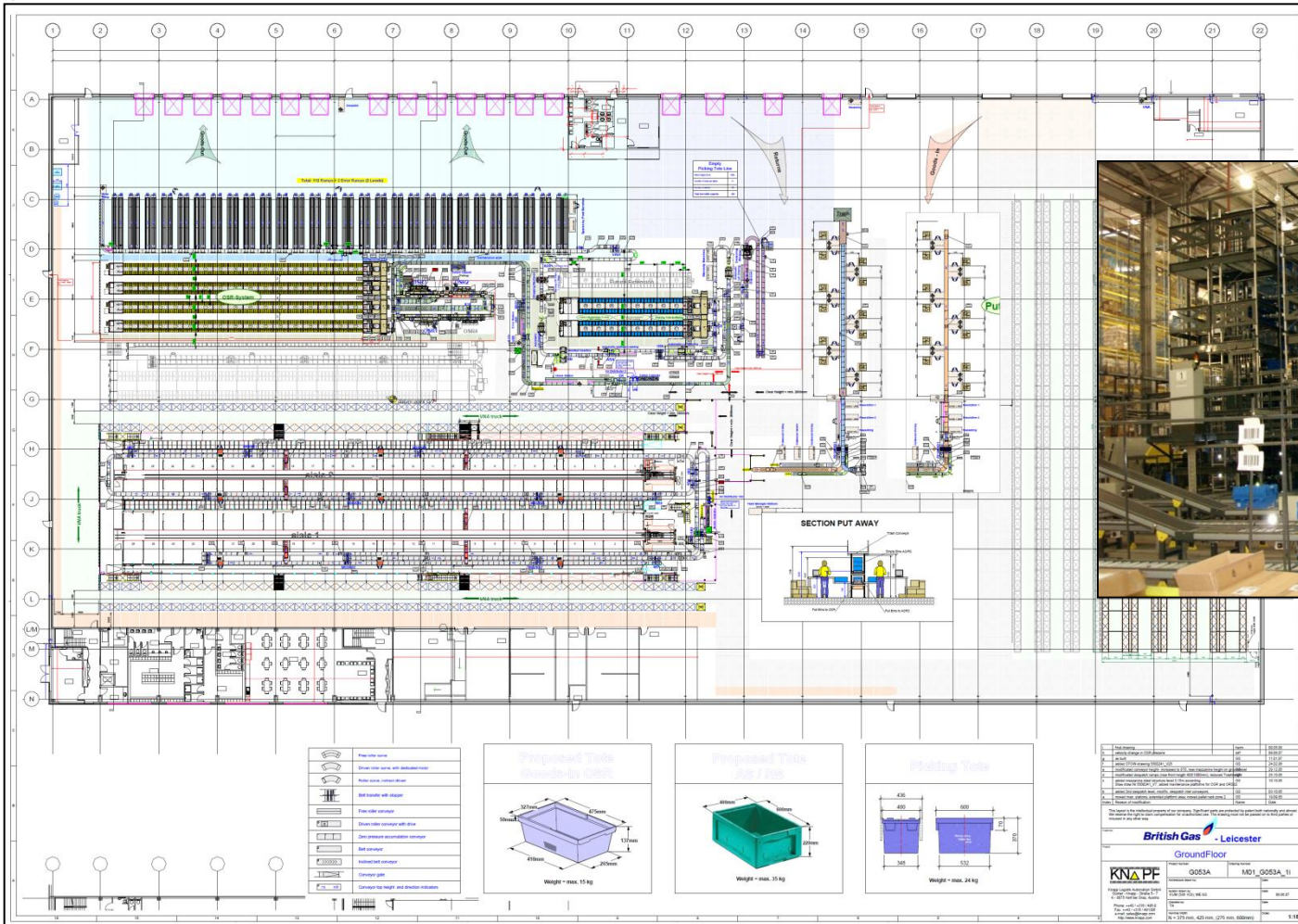
Sorting, sequencing, shop friendly



KEY DATA	
Sector	Pharmaceuticals, cosmetics, household goods
Installation location	Ulm, Germany
Size of warehouse (goods-out)	Approx. 50,000 m ² (3,500 m ²)
Product quantity/SKUs	120,000
Plant throughput/hour	3,000 containers

APPLICATIONS

Order Buffer

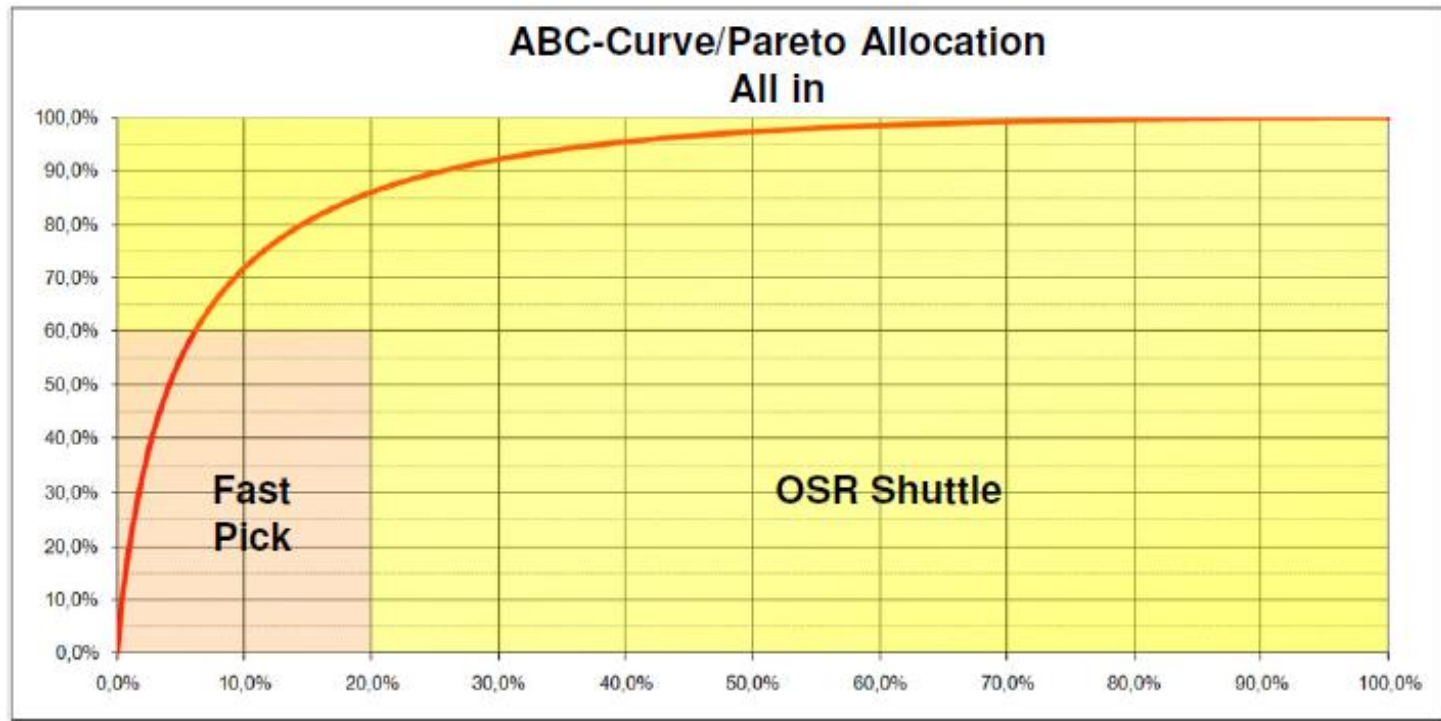


KEY DATA

Sector	Spare parts
Installation location	Leicester, UK
Total floor space	12,800 m ²
Number of articles (SKUs)	52,000
Lines/day	51,000
Items/day	90,000
Dispatch containers/day	2,600

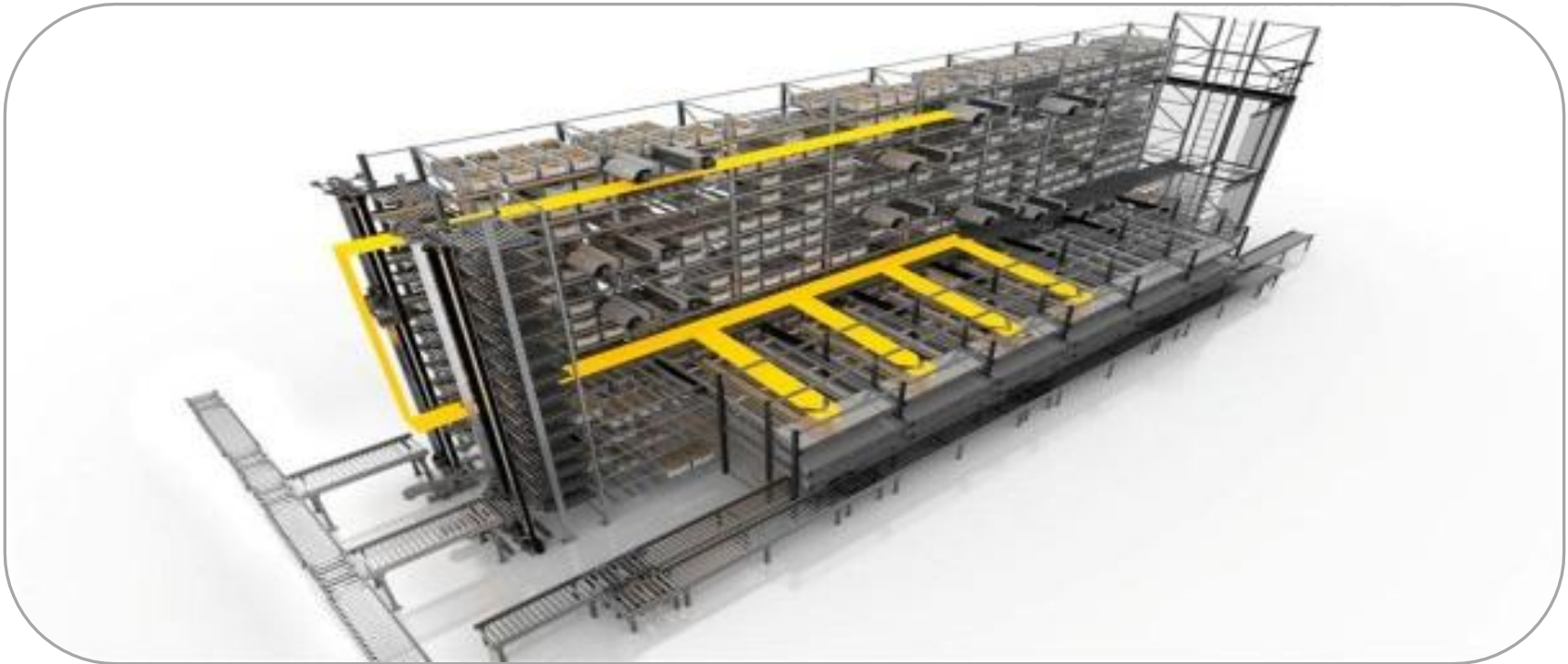
APPLICATIONS

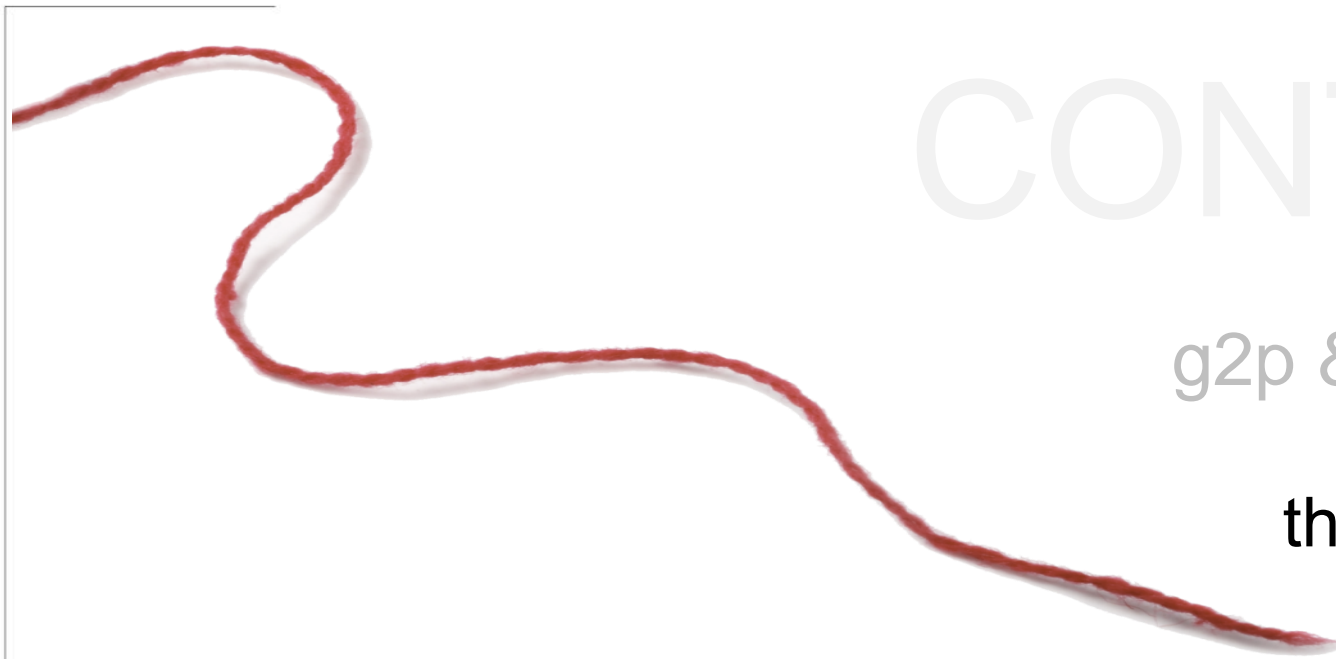
G2P (slow & medium), fast movers?



APPLICATIONS

Replenishment manual picking, fast movers





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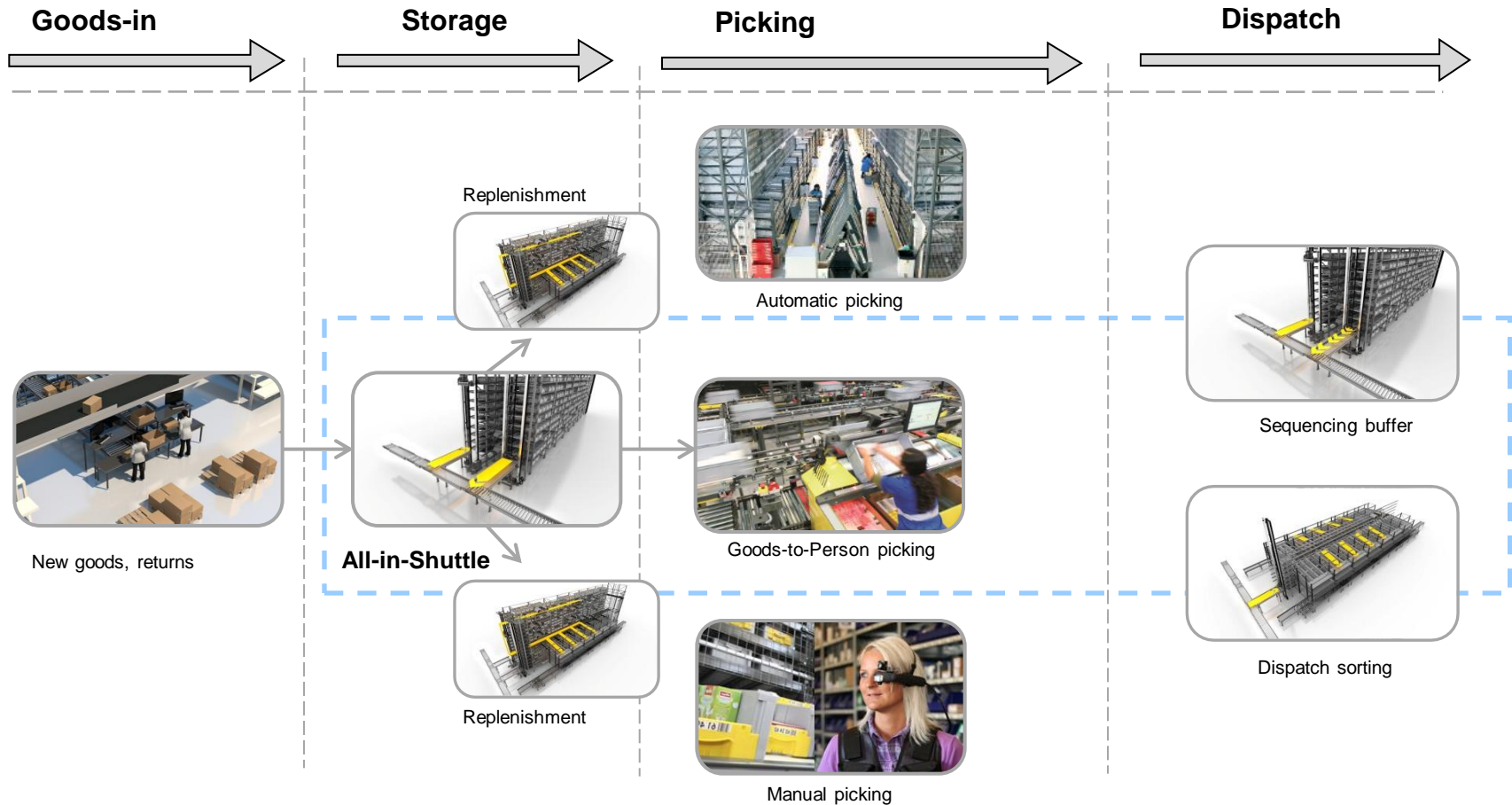
g2p & applications

Shuttle applications

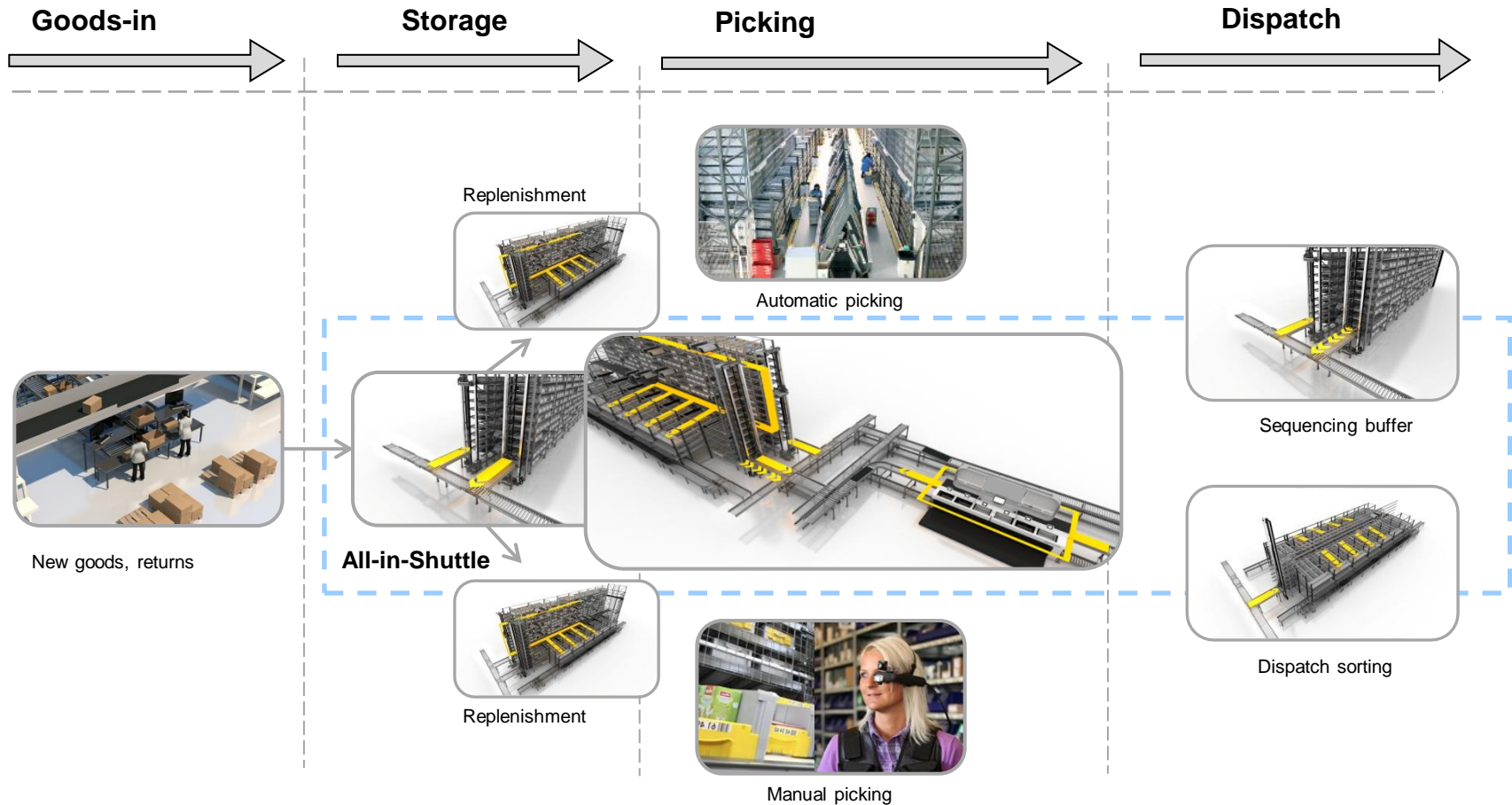
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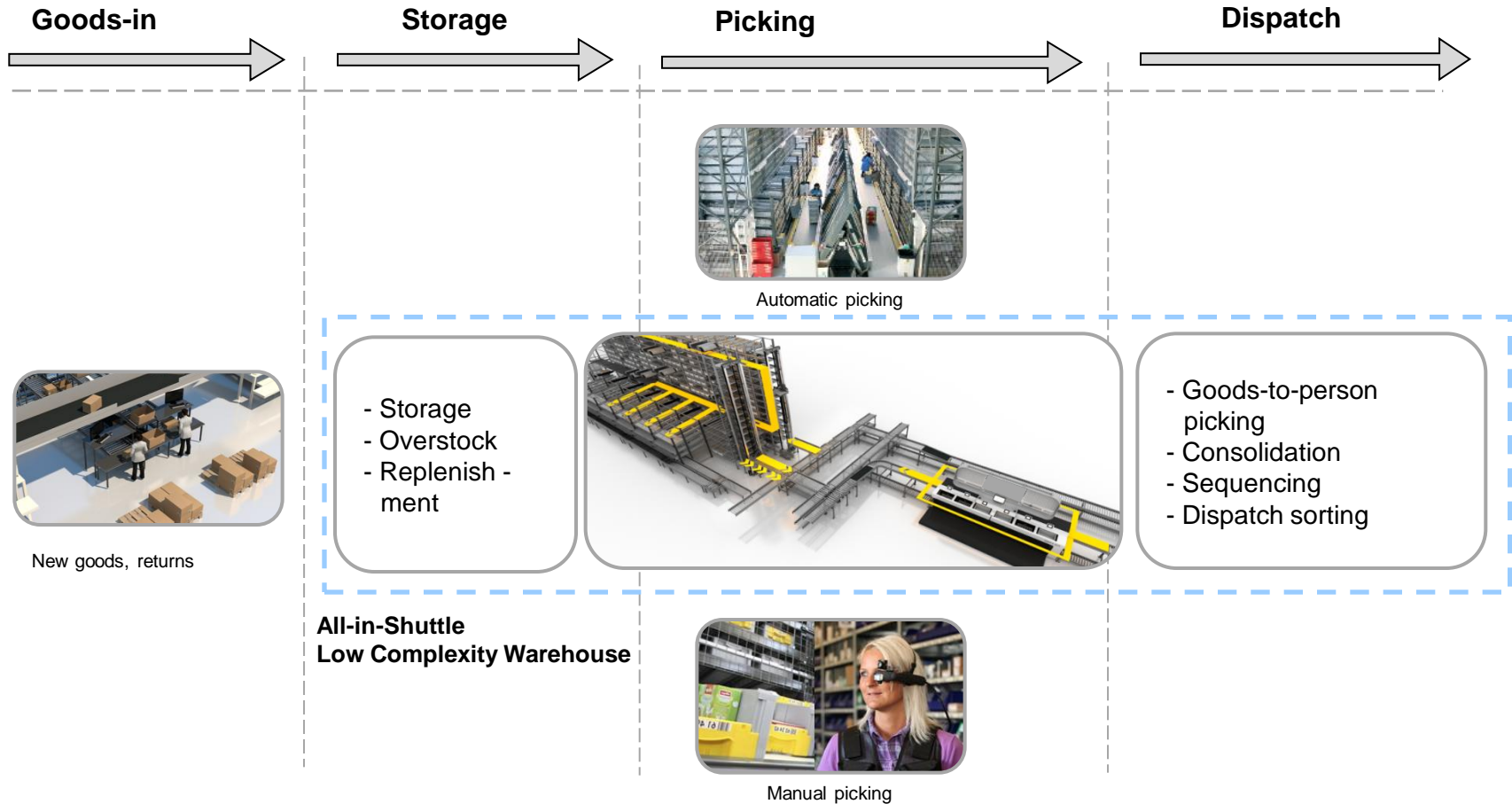
ALL IN



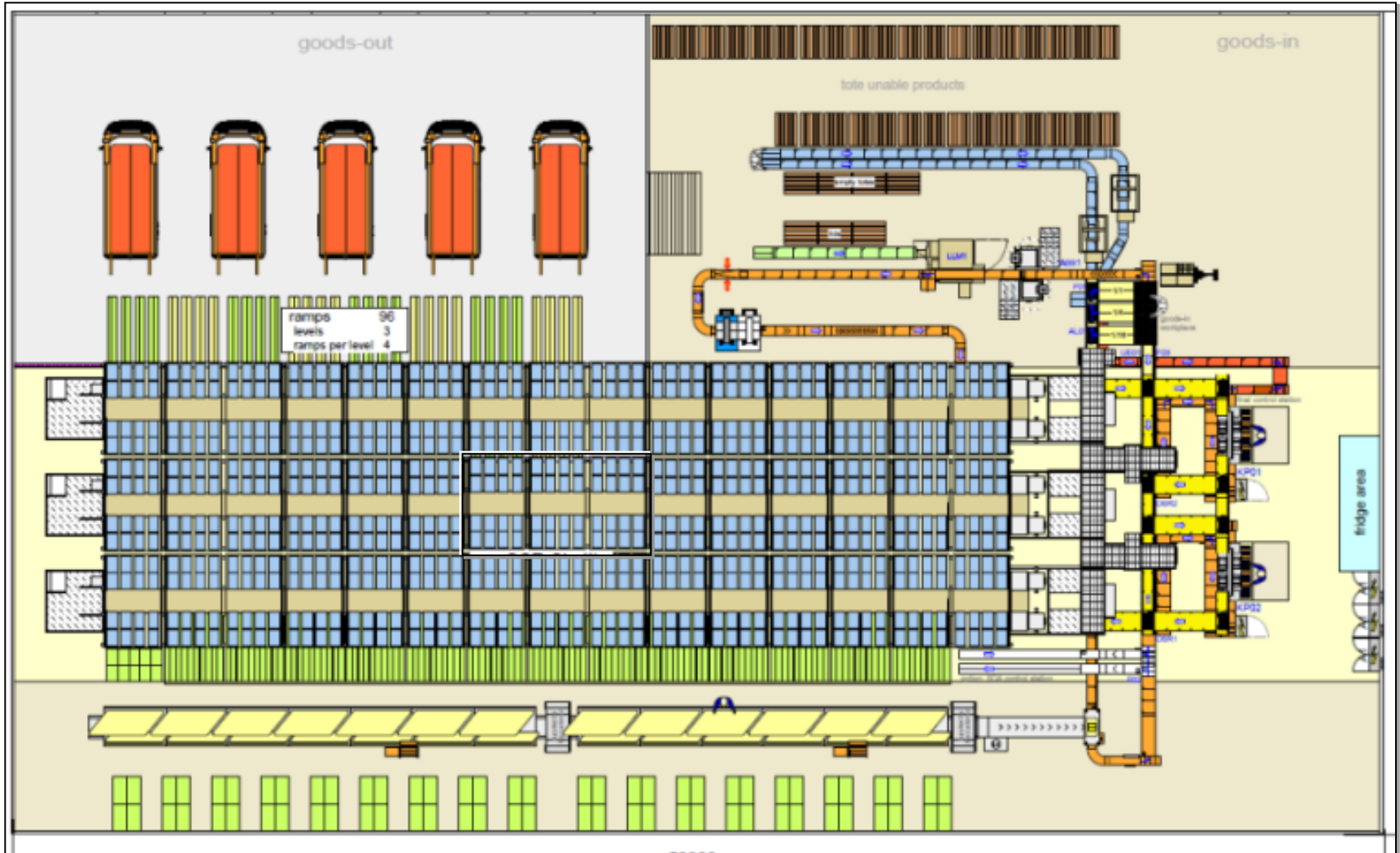
ALL IN



ALL IN



ALL IN Reality...



Thank You!

Questions?

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