

Körber Supply Chain

Master Class Series

Today's Class:

Leveraging automation and other technologies to address labor challenges



Speakers



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Supply Chain Master Class: Addressing Labor Challenges



Why are we here? What are we trying to accomplish?

Class Schedule:

- May 19: New labor challenges in warehousing (*On-Demand*)
- May 21: Adjusting your workforce to new regulations after COVID-19 (*On-Demand*)
- May 26: Mitigating retail execution challenges through technology optimization (*On-Demand*)
- May 28: Scaling up and down for seasonality or crisis (*On-Demand*)
- June 2: Leveraging automation and other technologies to address labor challenges

Next Supply Chain Master Class: Cold Storage Trends – Class starts on June 9

Housekeeping



All phone lines are muted

Recording of today's class and slides will be email to you within 48 hours

Questions:

- Ask questions during today's class in the GoToWebinar Questions window
- Questions will be addressed at the end of today's class or we will follow up with questions via email after class

Poll Question:

- Which of these have you currently automated? - OR - Which would you prioritize to automate first?

Handout: Warehouse automation & labor – friend or foe?

Automation...

- is the domain of mega shippers
- takes substantial investment
- replaces human labor
- needs custom-designed space
- once implemented is fixed and inflexible
- applies only to repetitive tasks and standard units
- does not scale up/down incrementally
- requires several months to install and get up to speed
- calls for specialists to remain on-hand for sustained performance

Amazon workers stage pre-Christmas strike in Germany

by Alanna Petroff @AlannaPetroff
 December 21, 2015: 4:44 PM ET

Recommend 0

Facebook, Twitter, LinkedIn, Email, Print icons

Labour shortage may break supply chain in Coronavirus lockdown extension

With millions of migrants either locked in or back home, and with every government statement on containment increasing the fear factor among workers, businesses are struggling to deploy even 20% of the required labour force.

ET Bureau | Last Updated: Apr 10, 2020, 08:00 AM IST

The Warehouse Labor Gap is Unsustainable

Posted by Clint Reiser on March 20, 2019 · No Comments

Hundreds of Amazon warehouse workers to call in sick in coronavirus protest

Employees say company has failed to provide adequate safety measures and has refused paid sick leave

Labor shortages threaten European logistics boom, force Prologis to adapt assets

Author: Cathal McElroy
 Theme: Real Estate, Retail & Consumer Products



WAREHOUSING Labor Shortage Hurts Logistics Industry

Warehouse growth driven by e-commerce is running smack into the reality of nearly full employment.

David Sparkman
 SEP 10, 2018

Print, Email, Facebook, LinkedIn, Twitter, Pinterest icons

Rapid growth of e-commerce will create demand for an additional 452,000 warehouse and distribution workers in 2018-19, which could turn out to be unsustainable in the already labor-strapped industry, says a new report from CBRE, the international industrial real estate firm.



The supply chain is speeding up

Are your people too?



The NIOSH lifting equation

JOB ANALYSIS WORKSHEET											
DEPARTMENT <u>Shipping</u>				JOB DESCRIPTION <u>Loading paper supply rolls</u>							
JOB TITLE <u>Packager</u>				ANALYST'S NAME _____							
ANALYST'S NAME _____				DATE _____							
DATE _____				Example 2							
STEP 1. Measure and record task variables											
Object Weight (lbs)		Hand Location (in)				Vertical Distance (in)	Asymmetric Angle (degrees)		Frequency Rate (lifts/min)	Duration (HRS)	Object Coupling
		Origin		Dest.			Origin	Destination			
L (AVG.)	L (Max.)	H	V	H	V	D	A	A	F	T	C
35	35	15	27	20	10	17	0	0	<.2	<1	Poor
STEP 2. Determine the multipliers and compute the RWL's											
RWL = LC × HM × VM × DM × AM × FM × CM											
ORIGIN		RWL = <input type="text" value="51"/> × <input type="text" value=".67"/> × <input type="text" value=".98"/> × <input type="text" value=".93"/> × <input type="text" value="1.0"/> × <input type="text" value="1.0"/> × <input type="text" value=".90"/> = <input type="text" value="28.0 Lbs"/>									
DESTINATION		RWL = <input type="text" value="51"/> × <input type="text" value=".50"/> × <input type="text" value=".85"/> × <input type="text" value=".93"/> × <input type="text" value="1.0"/> × <input type="text" value="1.0"/> × <input type="text" value=".90"/> = <input type="text" value="18.1 Lbs"/>									
STEP 3. Compute the LIFTING INDEX											
ORIGIN		LIFTING INDEX = $\frac{\text{OBJECT WEIGHT (L)}}{\text{RWL}} = \frac{35}{28.0} =$ <input type="text" value="1.3"/>									
DESTINATION		LIFTING INDEX = $\frac{\text{OBJECT WEIGHT (L)}}{\text{RWL}} = \frac{35}{18.1} =$ <input type="text" value="1.9"/>									

Figure 9: Example 2, Job Analysis Worksheet

Leveraging automation

Reducing complexity in 4 steps

A roadmap to more automated processes

1. Understanding your true labor cost

2. Identify areas for improvement

3. Select the right solution / technology

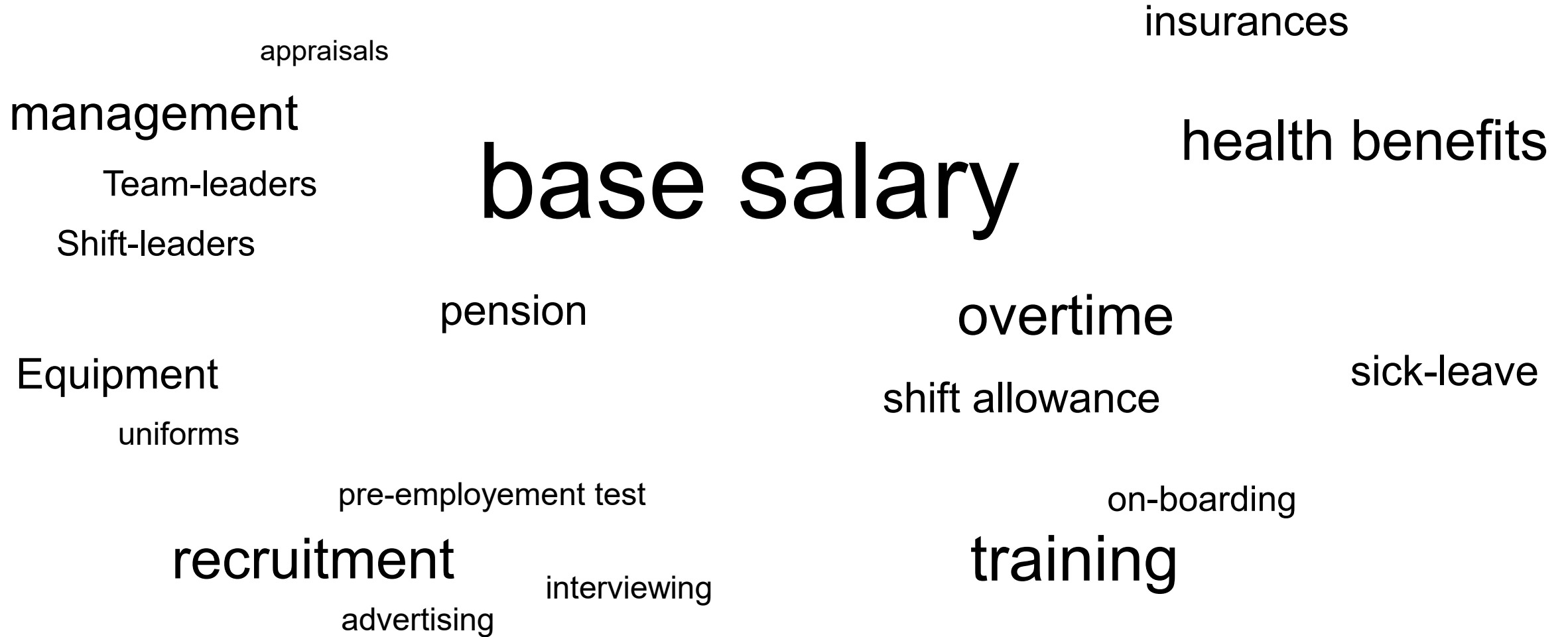
4. Addressing concerns about flexibility

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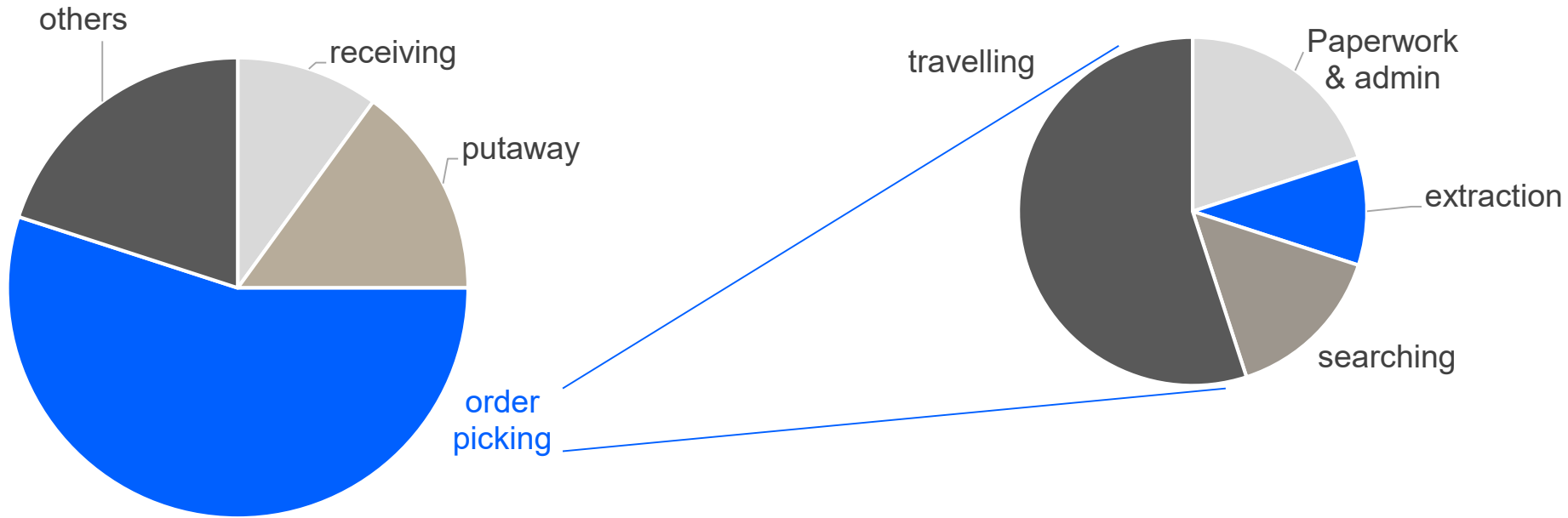


Do you know your real cost-of-labor?



Where to start?

Focus on the most time-consuming activities



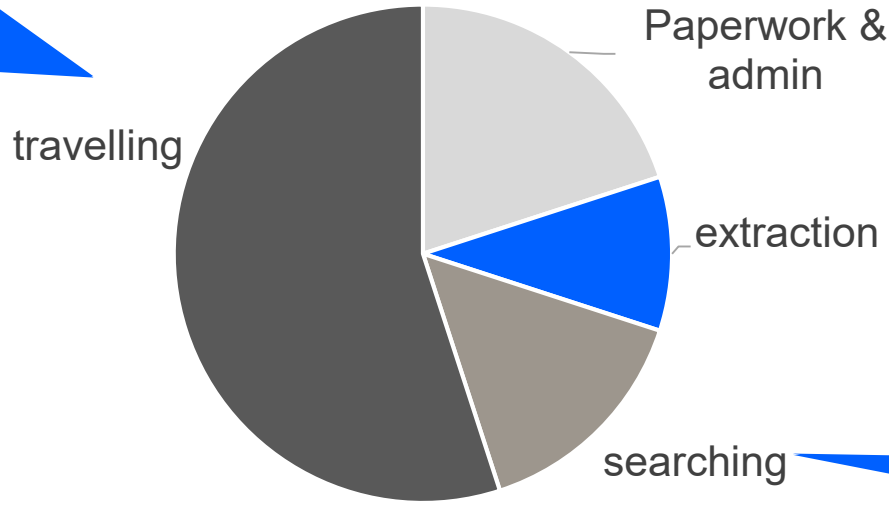
Share of operational costs in a warehouse

Breakdown of order picking time

Different technologies to optimize different sub-tasks

Existing and emerging technologies

- AI based Smart slotting
- Path-/task optimization
- Zone-based picking
- AMR supported picking
- Goods to Person



- RF based picking
- Voice Picking

- A-frames
- Order Release modules
- Automated Layer Picking
- Goods-to-Robot

- Pick-by-Light
- Pick-by-glass
- AMR supported picking

New technology, but still targeting the same areas

Source of chart:

Automation of order picking

Typical productivity by solution type



Conventional Picking

Zone-based Picking

Good to Person

Good to Robot

75 to 150 Orderlines/hr

100 to 250 orderlines/hr

200 to 800 orderlines/hr

200 to 800 orderlines/hr

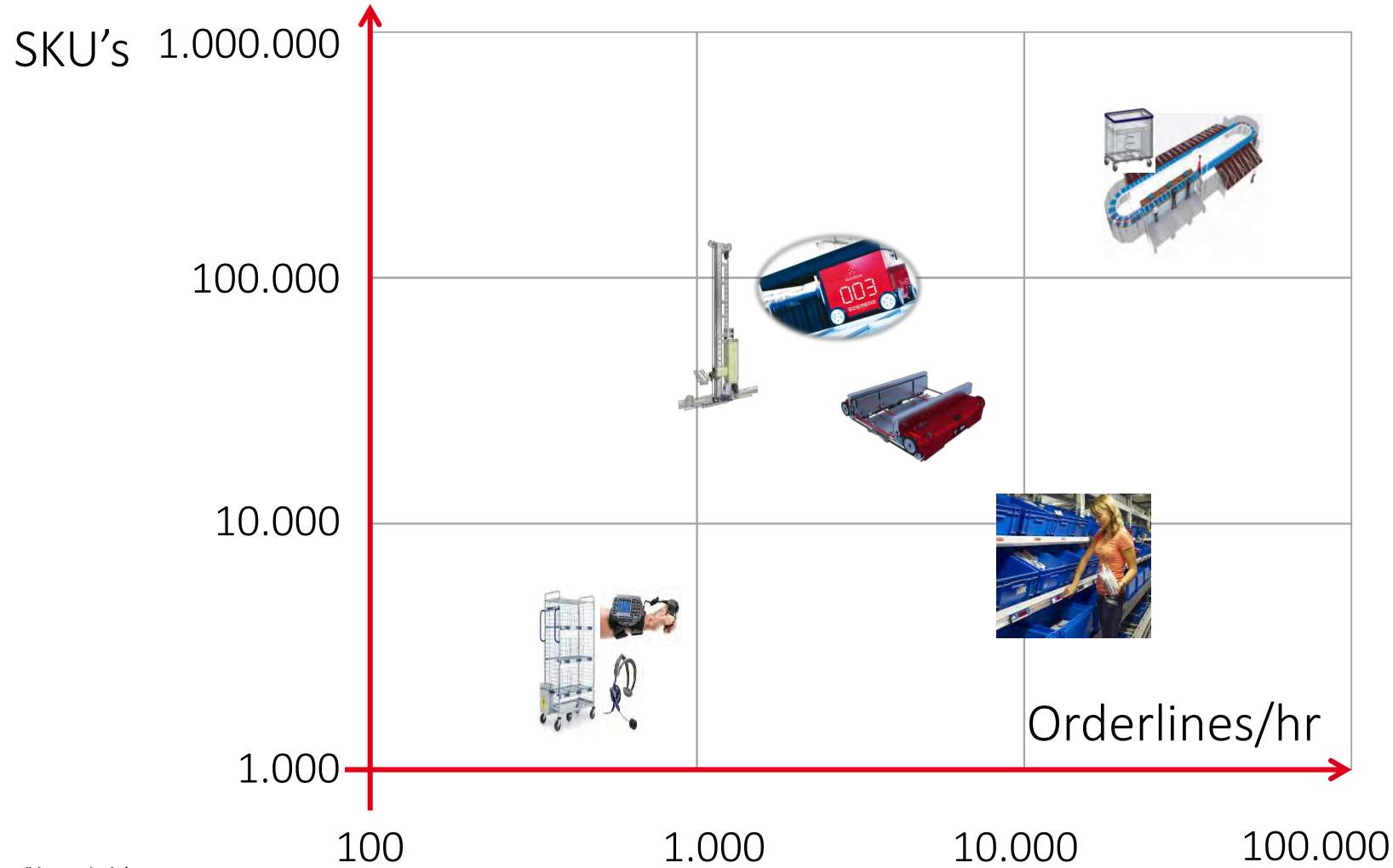
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Source: Körber, Apics Anaheim (Park Logistics), TGW, Righthand Robotics

Selecting the right technology

Defining a framework for technology evaluation



Lowest cost-per-pick

Each technology has a sweetspot.
Combinations are **often used**

Position is based on lowest-cost-per pick, including:

- MHE depreciation
- Labor cost
- Building rental
- maintenance

Many other factors will influence this chart, *i.e.*

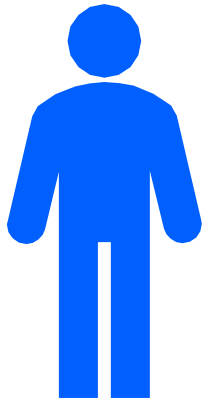
- Size & shape of building,
- labor costs
- Product types & dimensions

Addressing concerns: Changing paradigms

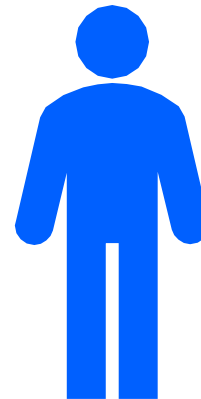
New technology solving the age-old problems of Automation



Automation is **not**
flexible enough

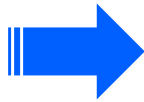
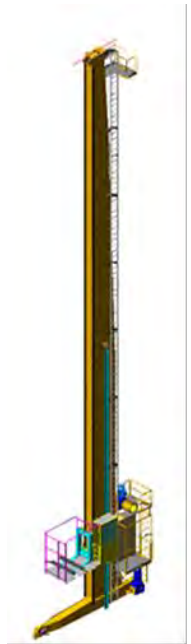


Automation requires
large investments



Changing paradigms

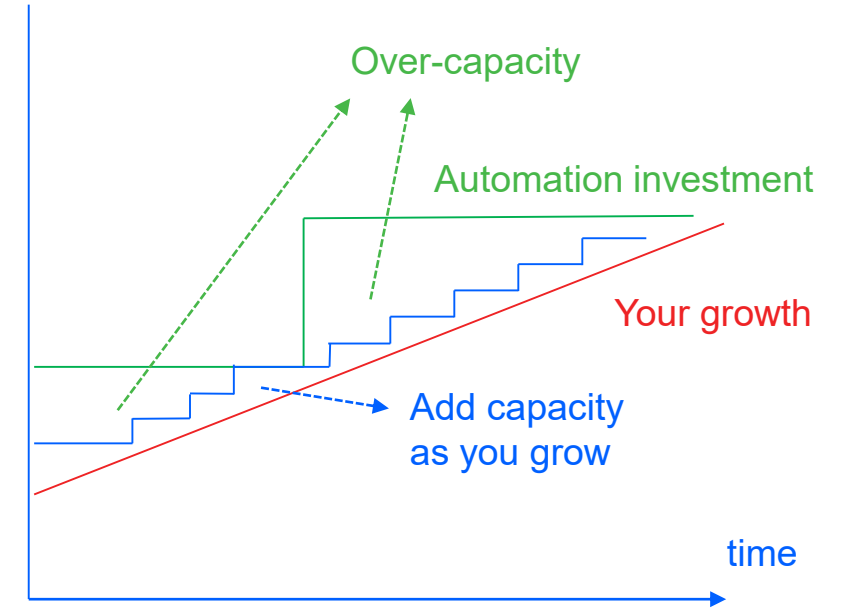
New technology solving the age-old problems of Automation



- Scales in **large increments**
- Storage & throughput **are connected.**

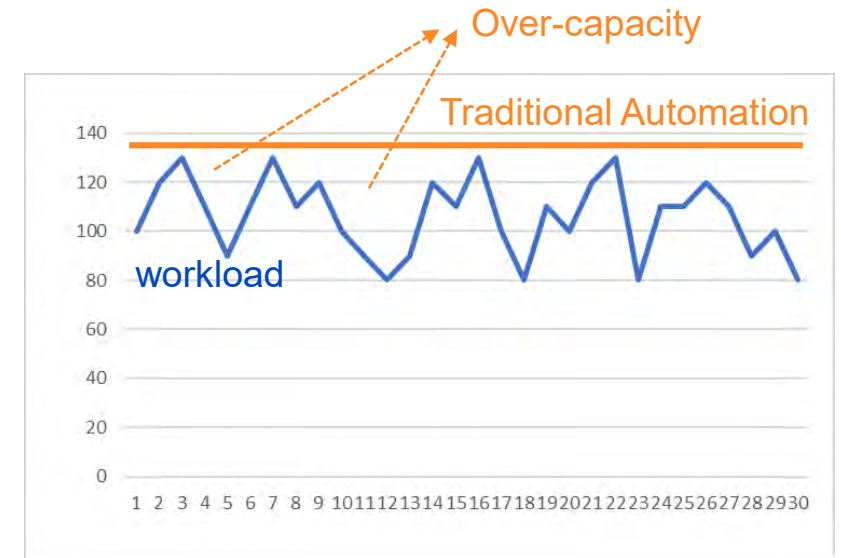
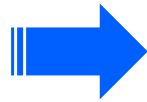
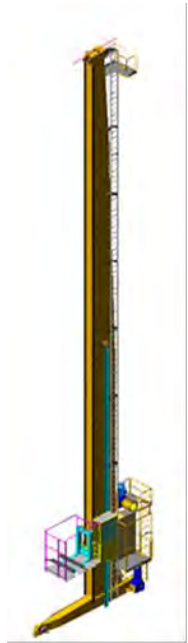
- Scales in **small increments**
- Storage & throughput **are independent**

WH throughput



Changing paradigms

New technology solving the age-old problems of Automation

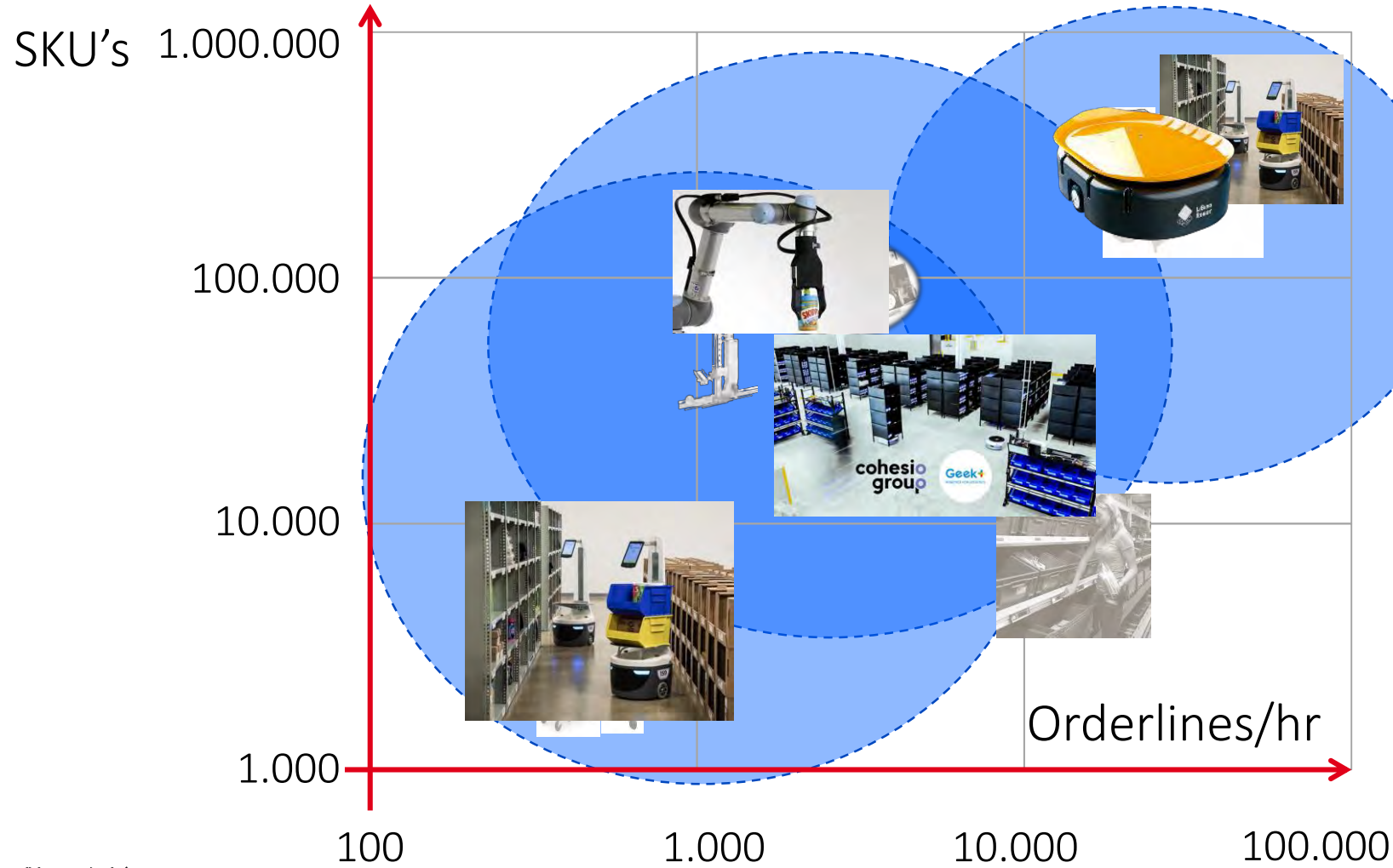


Daily throughput is **fixed/limited** to a specific design value.

Automation covers the basic workload and people can be added to deal with short-term peaks.
This will give a much **better ROI**

Selecting the right technology

Defining a framework for technology evaluation



Lowest cost-per-pick

As new technology emerges, it will find its place on the chart.

... But with typically a larger application-range due to higher flexibility

Conclusion / wrap up

Automation can be a good solution to address labor challenges,

You will need a good understanding of your **true labor cost**, and where most of their **time is spent**.

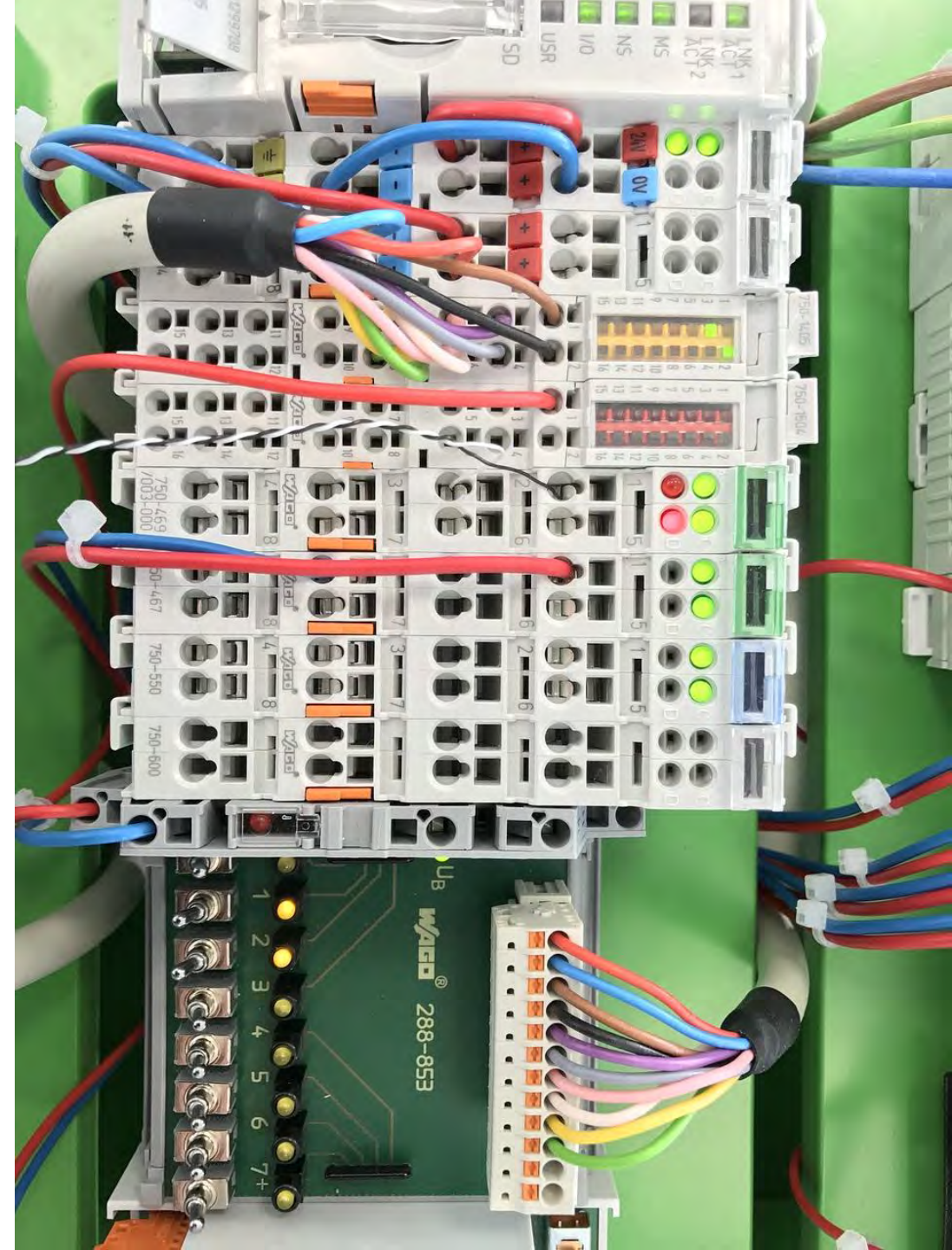
Then, select the **right solution** to fit your business needs.

A new generation of solutions mitigates the traditional concerns attached to automation, offering better **flexibility**, **scalability** and better **ROI**.

Conquer supply chain complexity

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Questions & Discussion

Next Supply Chain Master Class Series! Kicks off on Tuesday, June 9



Cold Storage Trends

Answers to today's cold storage issues rarely fall in your lap. Or do they? Join the presentations and discussion regarding AMR & voice in cold storage, traceability and food safety and much more.

June 9:

Cold storage and e-grocers: Changing environments

With more consumers than ever shopping online for groceries the Cold Storage supply chain is entering a rapidly changing era of consumer expectations. The need for supply chain technology integration, transparency and adaptability is crucial to meeting customer demands and responding to changing environments.

Contributor:

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