

Reducing Labor and Space While Each Picking with Simple Automation

Sponsored by:



Presented by:

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Sales



MHI.

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REDUCING LABOR AND SPACE WHILE EACH PICKING WITH SIMPLE AUTOMATION

We are Here to Discuss:

Industry Best Practices

Proven Technologies

Proven Reliability

With the GOALS of:

Reduced Floor Space

Reduced Labor

ROI

KNOWN AND ACCEPTED PIECE PICKING PRACTICES AND TECHNOLOGIES:

STATIC SYSTEMS



KNOWN AND ACCEPTED PIECE PICKING PRACTICES AND TECHNOLOGIES:

STATIC SHELVING



KNOWN AND ACCEPTED PIECE PICKING PRACTICES AND TECHNOLOGIES:

FLOW RACK / PICK MODULES



KNOWN AND ACCEPTED PIECE PICKING PRACTICES AND TECHNOLOGIES:

STATIC SYSTEMS IN GENERAL

- Walk to, Search, and Pick by Paper (usually in a line sequence order)
- Walk to, Search, and Pick Utilizing RF (also typically by line sequence)
- Walk to, Search, Pick Drop on Conveyor Line
- Mezzanine Shelving Systems, 2 and 3 levels, Utilizing Above Technologies
- Pick Module Shelving Integrated with Conveyor
- Multi Level Pick Modules Integrated to Conveyor
- Pick to Light and/or Pick to Voice can be Implemented for All of the Above

KNOWN AND ACCEPTED PIECE PICKING PRACTICES AND TECHNOLOGIES:

Static Product Order / Stock Pickers



KNOWN AND ACCEPTED PIECE PICKING PRACTICES AND TECHNOLOGIES:

Static Product Mobile Pick Systems / Smart Carts



KNOWN AND ACCEPTED PIECE PICKING PRACTICES AND TECHNOLOGIES:

STATIC PRODUCT IN GENERAL

- Walk or Drive to Pick Utilizing RF (By line sequence)
- Walk or Drive to Pick Utilizing RFID (By line sequence)
- Walk to or Drive Utilizing: Pick to Light, Visual, or Voice which can be Implemented for All of the Above

KNOWN AND ACCEPTED PIECE PICKING PRACTICES AND TECHNOLOGIES:

Static Storage

Static Shelving

Flow Rack

Pick Modules

Order / Stock Pickers

Mobile Smart Carts

*Theses are Industry Accepted Practices:
Pickers to the Product or Walk and Search*

KNOWN AND ACCEPTED PIECE PICKING PRACTICES AND TECHNOLOGIES:

Semi Automated
Automated Solutions

KNOWN AND ACCEPTED PIECE PICKING PRACTICES AND TECHNOLOGIES:

Vertical Carousels



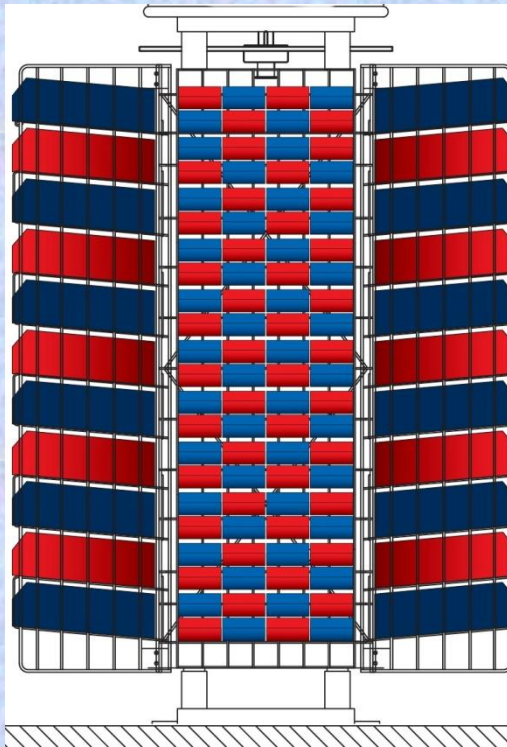
KNOWN AND ACCEPTED PIECE PICKING PRACTICES AND TECHNOLOGIES:

Vertical Lift Modules (VLMs)



KNOWN AND ACCEPTED PIECE PICKING PRACTICES AND TECHNOLOGIES:

Horizontal Carousels



KNOWN AND ACCEPTED PIECE PICKING PRACTICES AND TECHNOLOGIES:

HORIZONTAL CAROUSELS

- Bring Parts to the Picker
- Pick by Paper / Paper with Bar Code Scanner
- Pick Utilizing RF or RFID
- Pick Utilizing Pick to Light or Voice, or Voice Pick to Light, or Visual 3D Picking, Photo Picking (Product Picture)
-

KNOWN AND ACCEPTED PIECE PICKING PRACTICES AND TECHNOLOGIES:

Robotic Total Automation CAS/RS



KNOWN AND ACCEPTED PIECE PICKING PRACTICES AND TECHNOLOGIES:

CAROUSEL AUTOMATED STORAGE & RETRIEVAL SYSTEMS (CAS/RS)

- Brings Parts to the Picker (Remote Picking)
- Pick via Paper with Bar Code Scanner
- Pick Utilizing RF or RFID
- Pick Utilizing Pick to Light or Voice, or Voice Pick to Light, or Visual 3D Picking, Photo Picking (Product Picture)
- Remote Picking (or Kitting)

KNOWN AND ACCEPTED PIECE PICKING PRACTICES AND TECHNOLOGIES:

Other Automated Pick Systems

A Frames – V Frames - Mini Load AS/RS
CAS/RS – AS/RS Remote Picking

Some are Old Technologies, Some are the Newest Technologies. However, the Above Exceed This Seminar's Focus of "Simple Automated Practices" to Reduce Space and Labor

Reducing Labor and Space While Each Picking with Simple Automation

*With All the Proven Technologies,
What Solutions Fit the Best Practice
for Both Space and Labor Savings?*

Reducing Labor and Space While Each Picking with Simple Automation

First Identify What is Best Practice for our Parts based on:

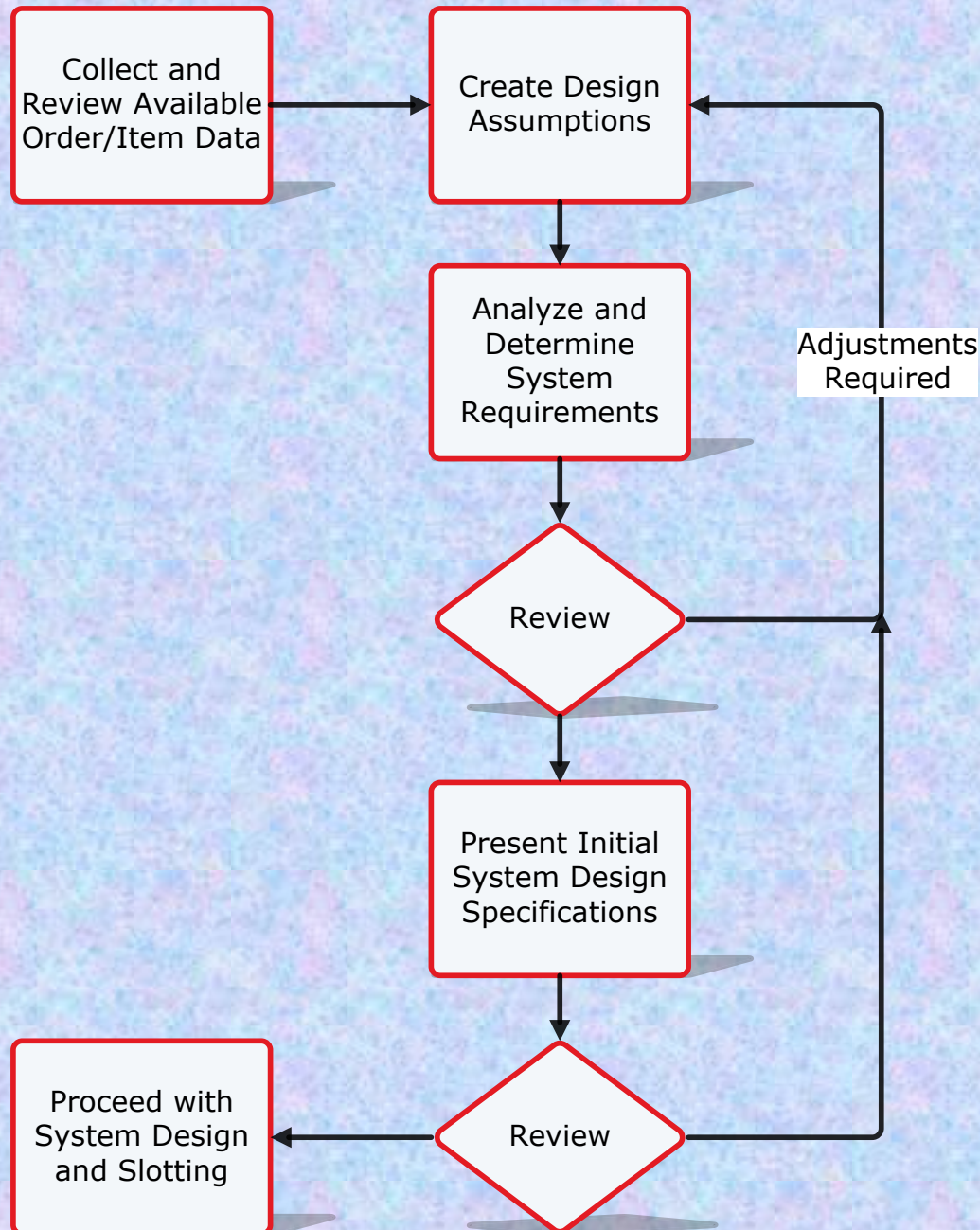
- *Size*
- *Weight*
- *Throughput*
- *Order Profile*
- *Available Overhead Cube*
- *Floor Space Desired*

Reducing Labor and Space While Each Picking with Simple Automation

I Personally Highly Recommend Detailed Slotting.

Once Slotted, the Order Profile Analysis is a Necessity

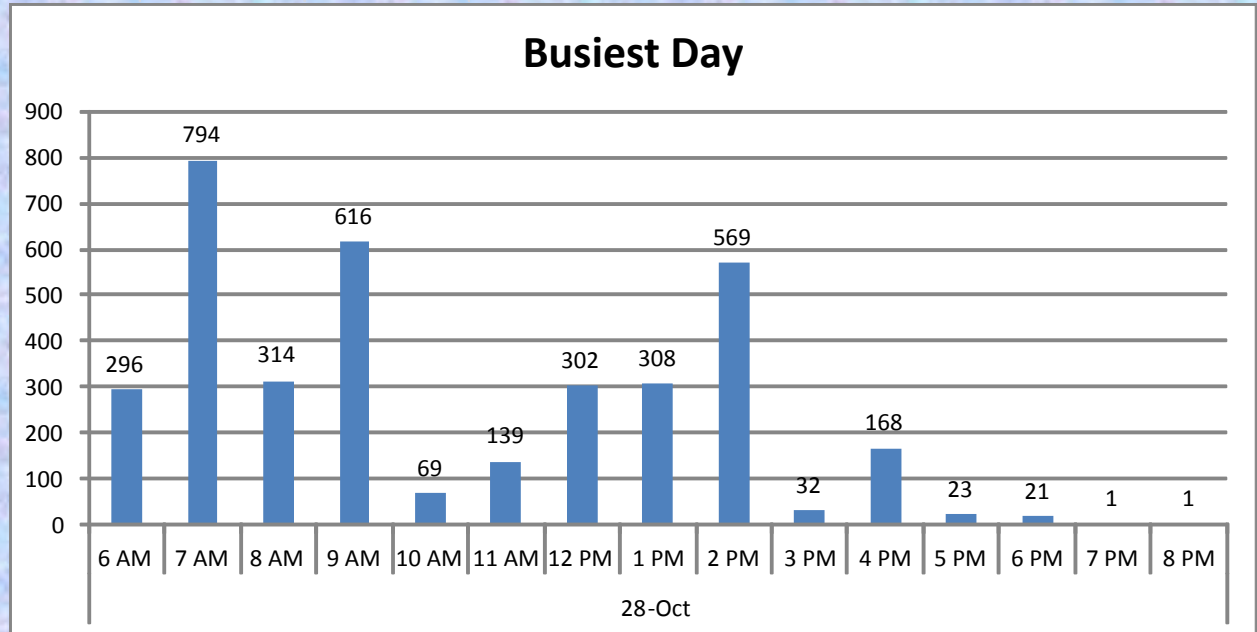
The Data Process



Line Data

Day	Total Lines	AVG	MIN	MAX	% of Total
SUN	48,767	938	572	1,184	6%
MON	160,242	3,082	1,698	3,539	19%
TUE	129,793	2,496	2,050	2,964	15%
WED	156,013	2,944	2,522	3,228	19%
THU	127,343	2,403	1,207	2,712	15%
FRI	152,907	2,941	2,376	3,653	18%
SAT	63,820	1,227	963	1,433	8%
	838,885	2,290	572	3,653	19%

Busiest Day



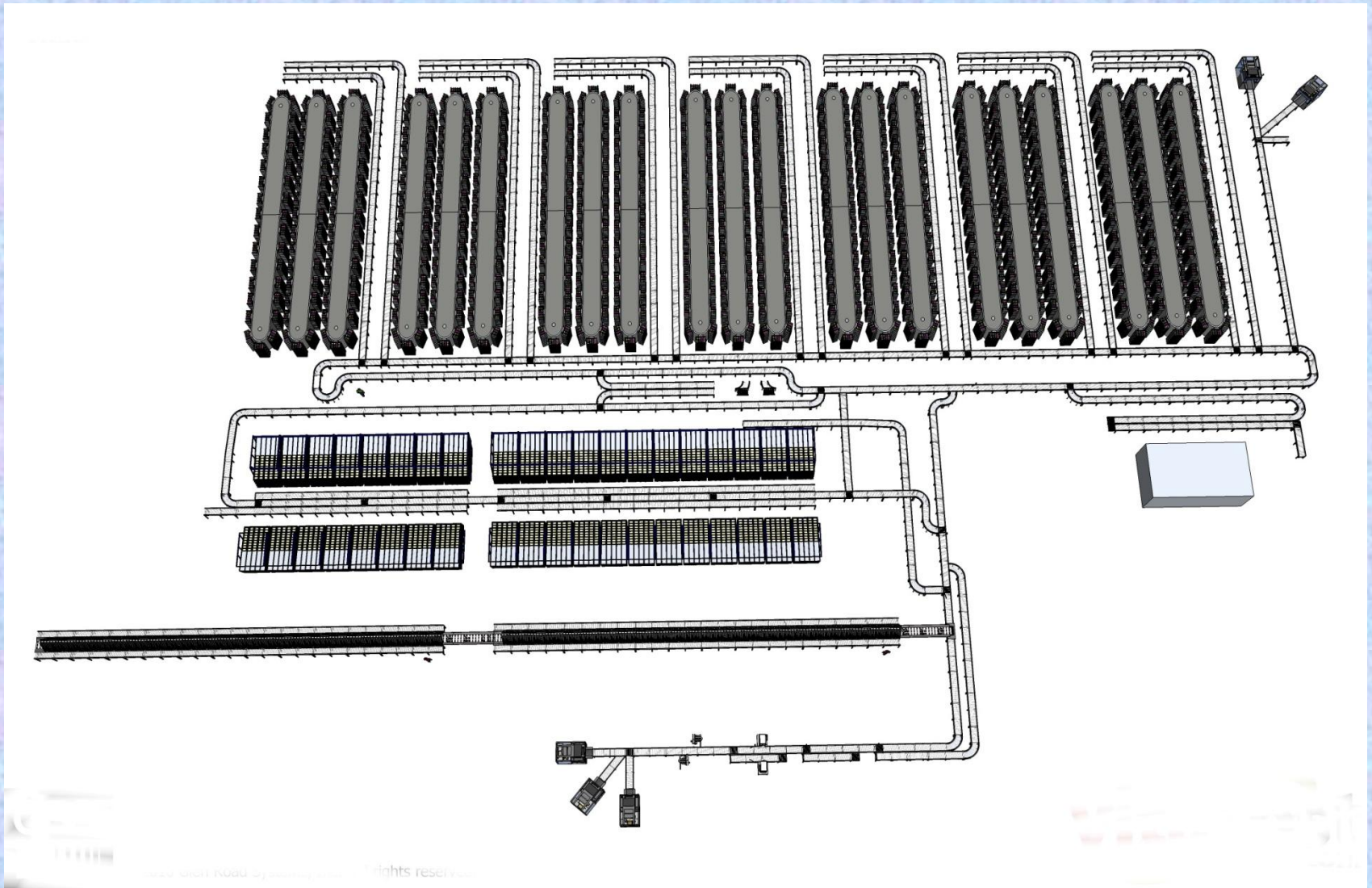
ALLOCATION

	Rack Candidate	To Be Reviewed (TBR)	Carousel Candidate	FlowRack / Floor Locations
QTY	374	750	1627	86
% of TOTAL	18%		78%	4%

Part Data

Allocated Storage	0 Lines	Less Than 1 Line per month	1+ Lines per Month	1+ Lines per Week	1+ Lines per Day	5+ Lines per Day	10+ Lines per Day	Total
2500 ft ³ < X < 12000 ft ³					3		4	7
500 ft ³ < X < 2500 ft ³			2	2	17	8	7	36
100 ft ³ < X < 500 ft ³				17	33	11	16	77
24 ft ³ < X < 100 ft ³			16	50	71	19	7	163
16 ft ³ < X < 24 ft ³		1	4	23	30	5	4	67
14 ft ³ < X < 16 ft ³			1	14	10	3		28
12 ft ³ < X < 14 ft ³			2	18	10	2		32
10 ft ³ < X < 12 ft ³	1		4	19	14	1		39
8 ft ³ < X < 10 ft ³			5	25	16	2		48
6 ft ³ < X < 8 ft ³		1	7	33	14	2	1	58
4 ft ³ < X < 6 ft ³			11	55	22	4	2	94
2 ft ³ < X < 4 ft ³		8	25	108	35	2		178
1 ft ³ < X < 2 ft ³		11	49	113	22	1	1	197
0.5 ft ³ < X < 1 ft ³		13	67	109	14			203
0.25 ft ³ < X < 0.5 ft ³		38	100	113	6			257
0 ft ³ < X < 0.2 ft ³	21	135	280	112	5			553
X < 0 ft ³	175	360	164	43	8			750
Large Unit Cube	4	3	16	23	4			50
Total	201	570	753	877	334	60	42	2837

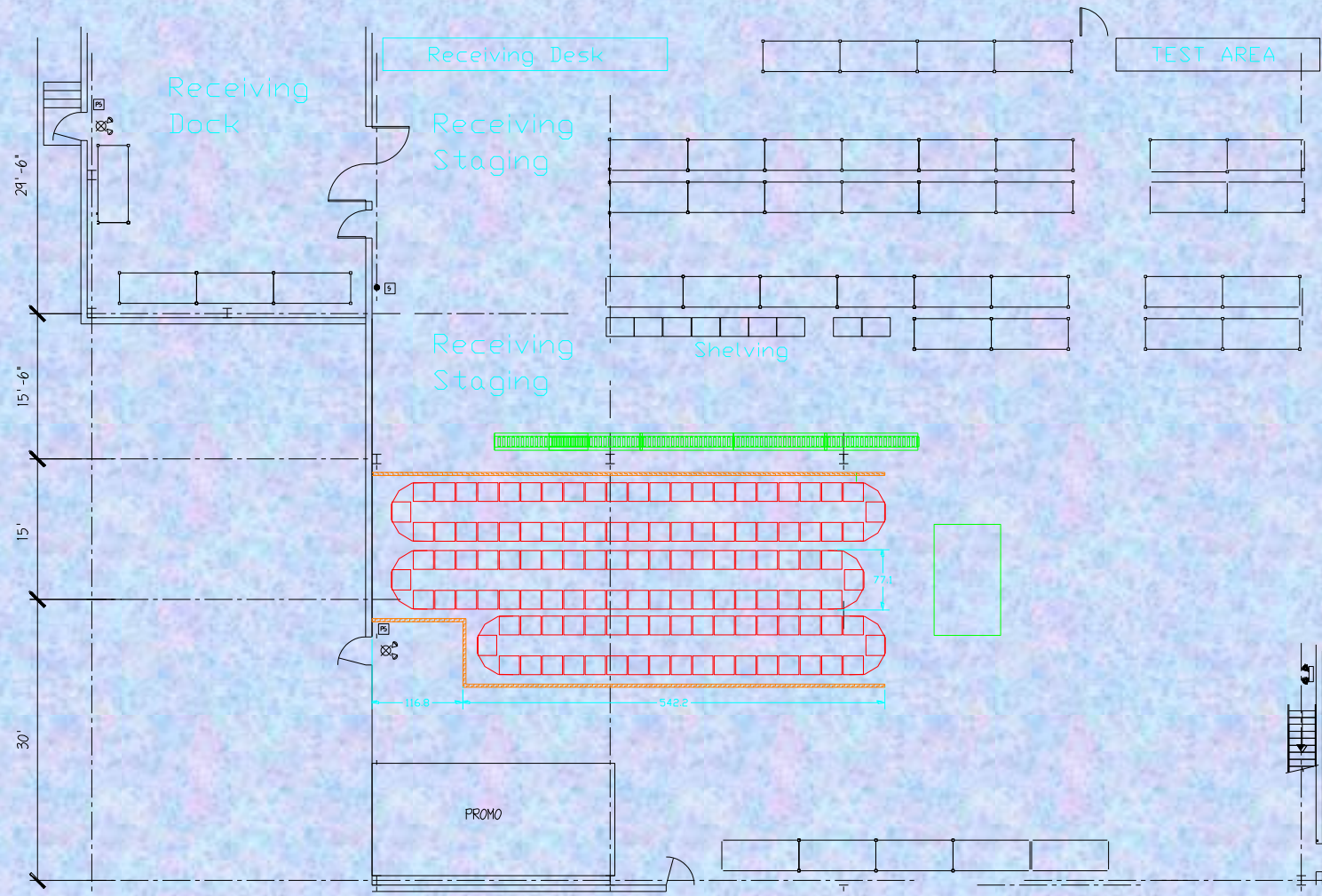
Large Scale Solutions



Medium Scale Solutions



Small Scale Solutions



Reducing Labor and Space While Each Picking with Simple Automation

Simple Intelligent Automation



Reducing Labor and Space While Each Picking with Simple Automation

- Software Controlled
 - Pick to Light, Visual, Laser or Voice
 - Pseudo Picking & Batch Picking
- In a POD Environment

Reducing Labor and Space While Each Picking with Simple Automation

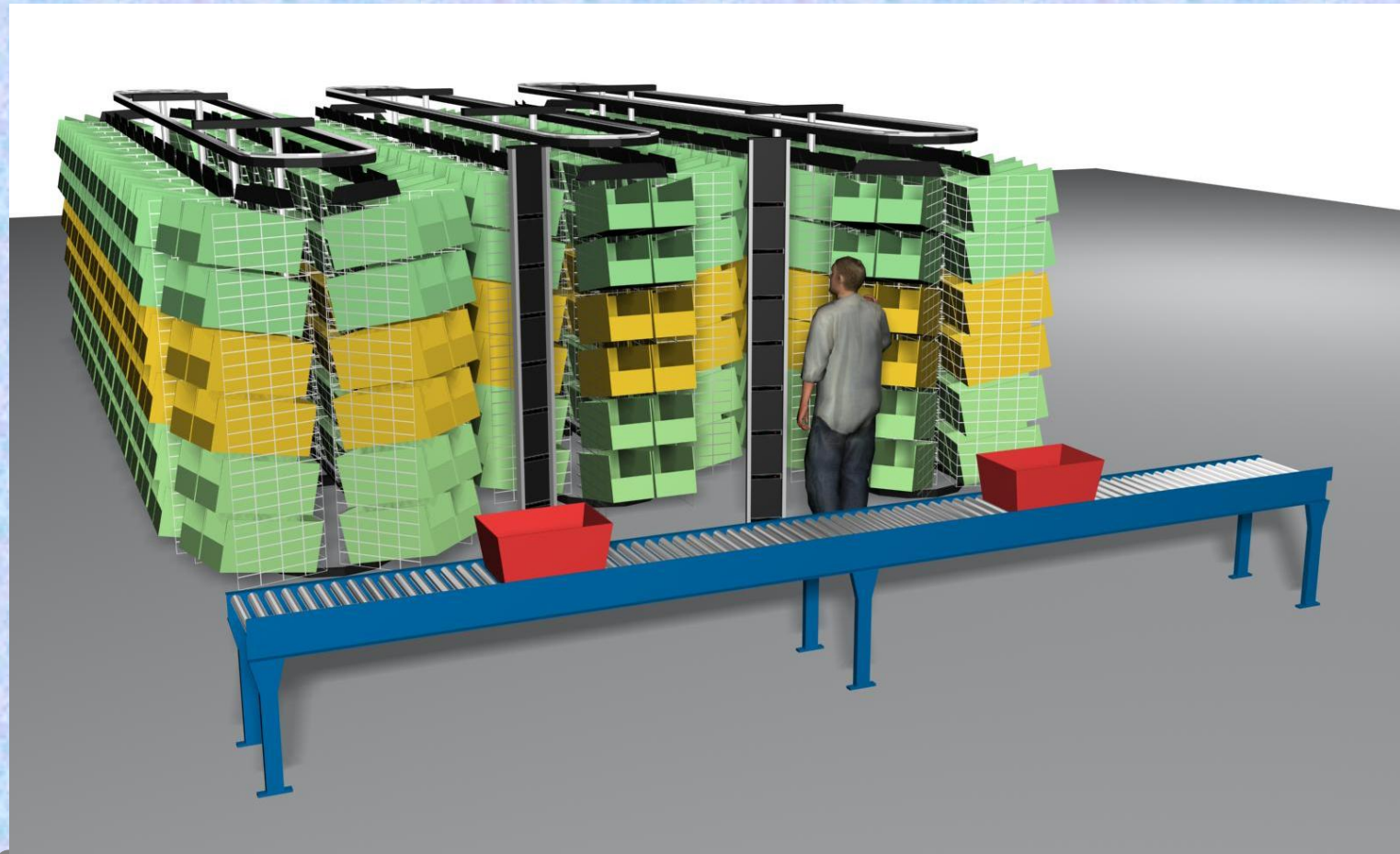
The KEY is the POD

The Pod Allows for High Throughput with a Single Operator in Batch Picking environment utilizing:

Pick to Light, Voice, Visual, or Combination of the above.

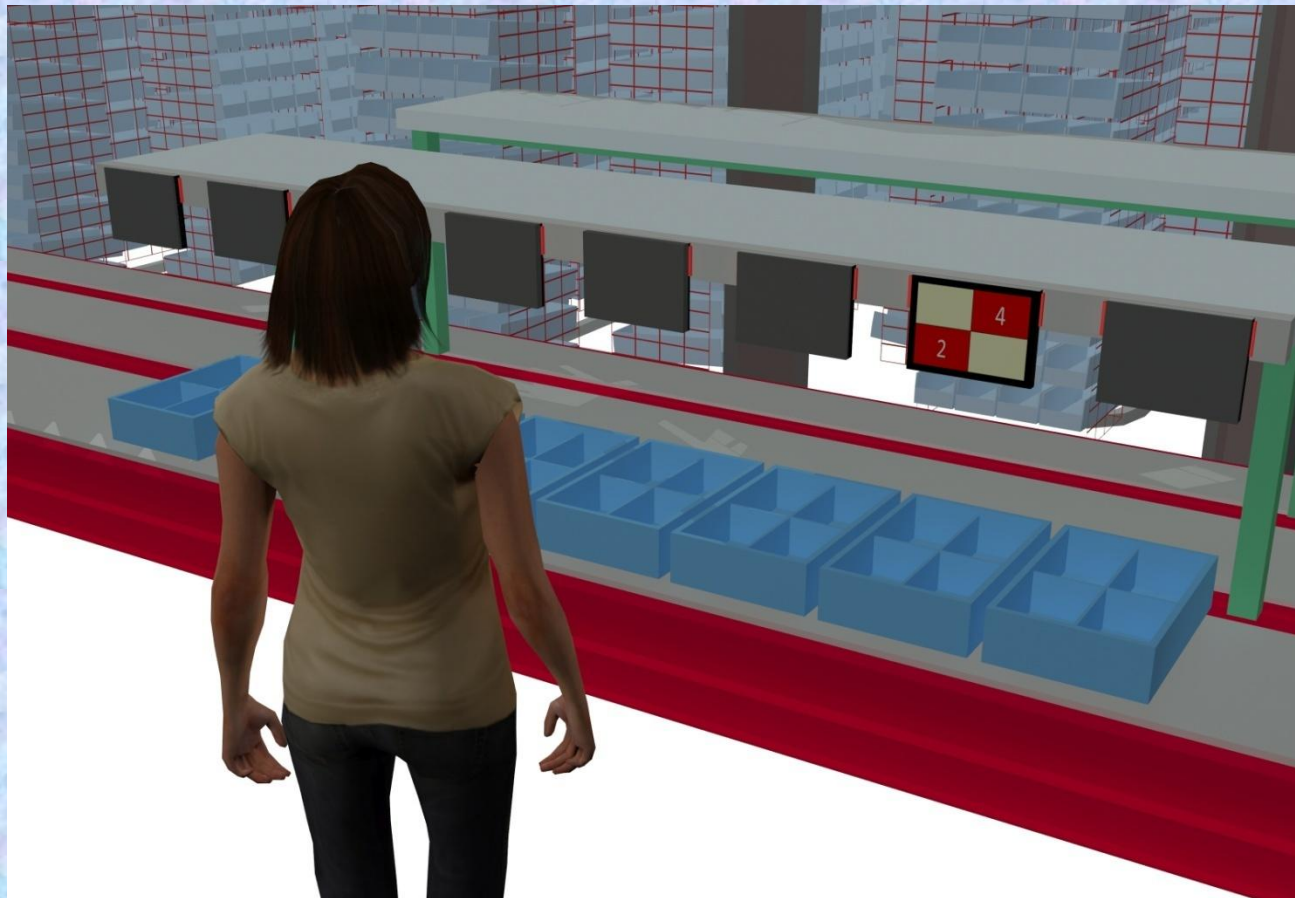
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Pick from 1 unit while other 2 units get into position



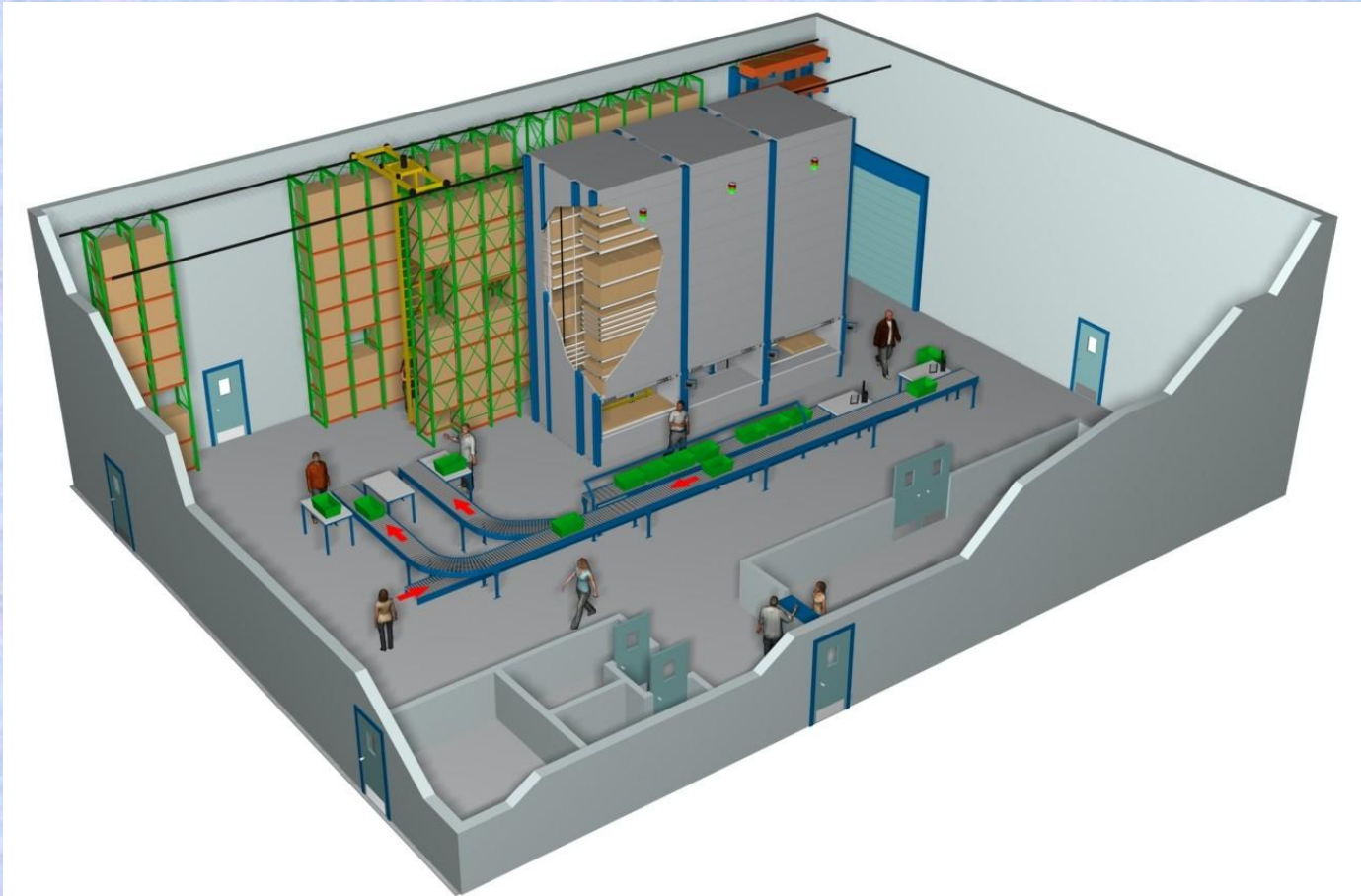
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The Ability to Batch Pick



Reducing Labor and Space While Each Picking with Simple Automation

Applies to All the Semi-Automated Solutions



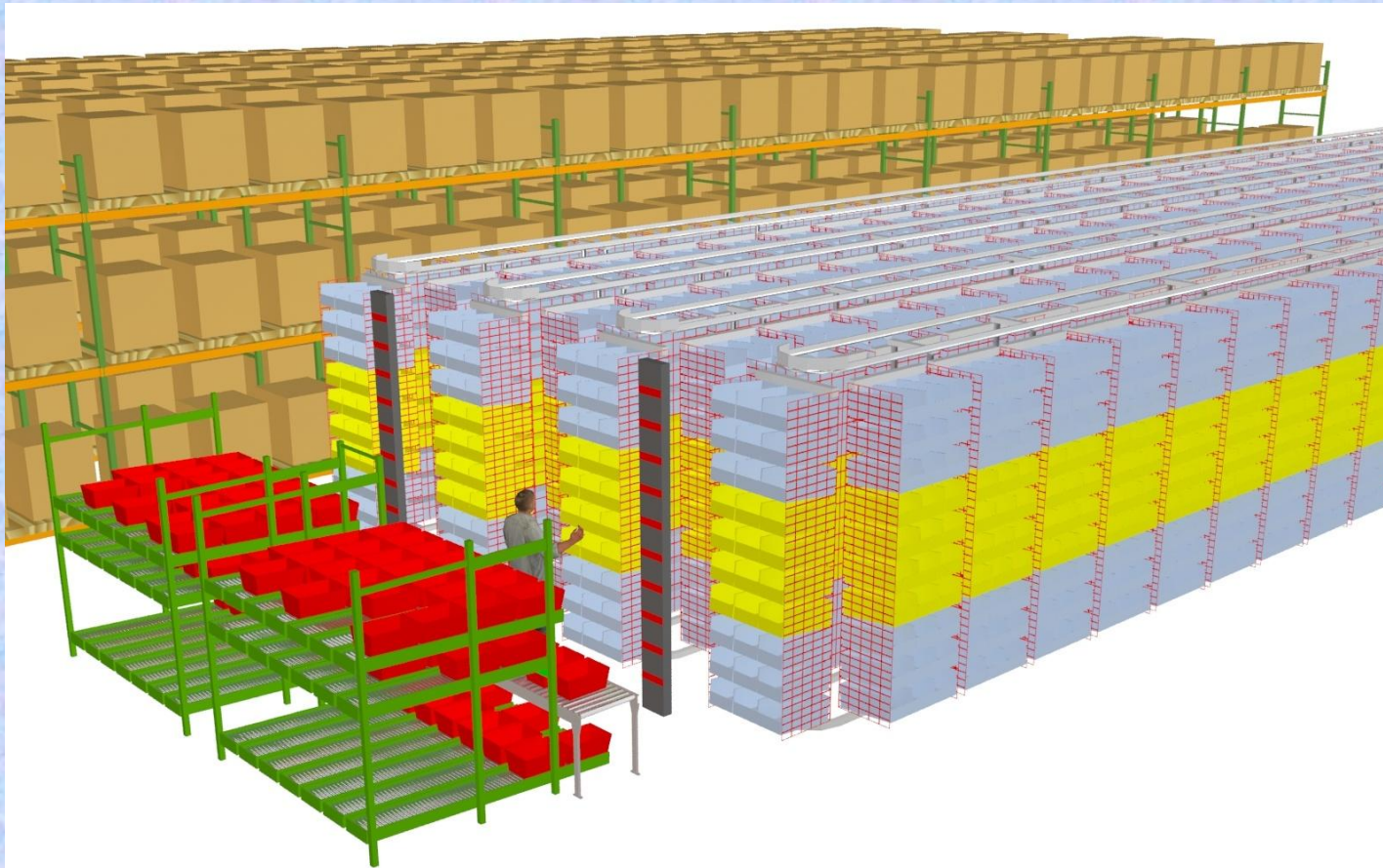
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Think Outside the Box (Cold Box / Freezer)



Reducing Labor and Space While Each Picking with Simple Automation

Think Outside the Box - Universal Pod



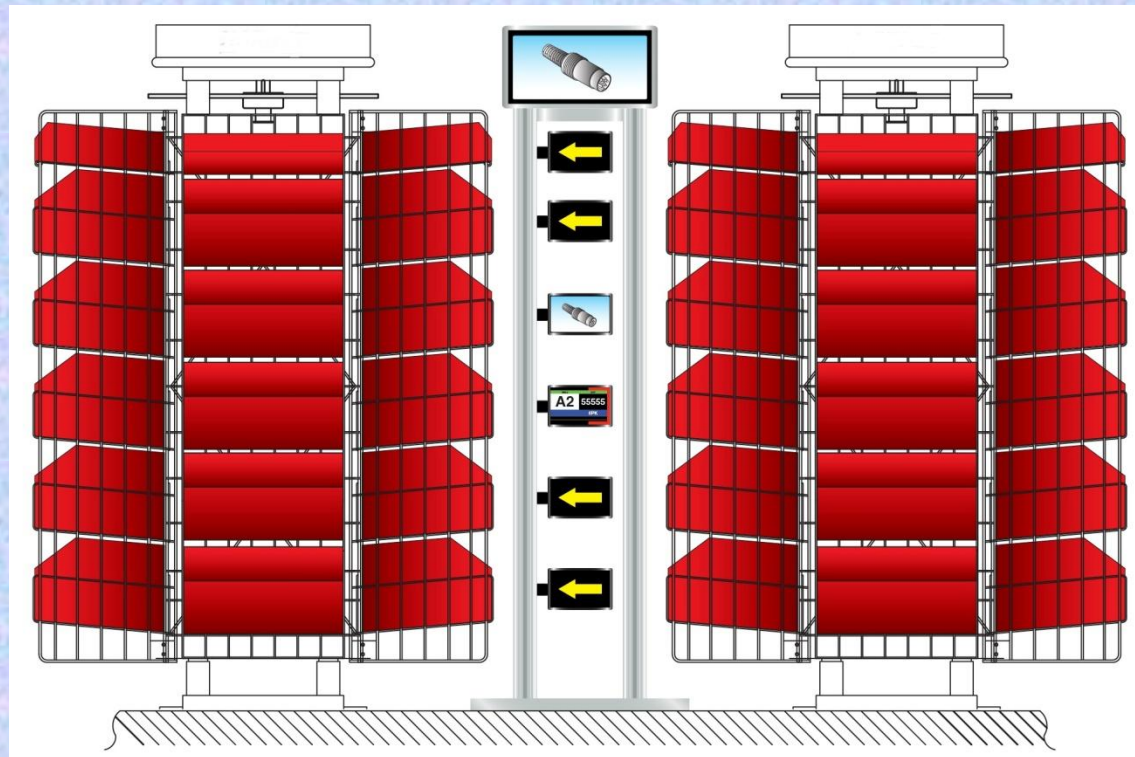
Reducing Labor and Space While Each Picking with Simple Automation

Properly Designed Pod Picking Means

- Parts Coming to the Picker
- Little or No Operator Dwell Time
- Small Work Zone
- The Ability to Pick a Single Line Item for Multiple Orders
- Picking from State of the Art Light Directed Picking

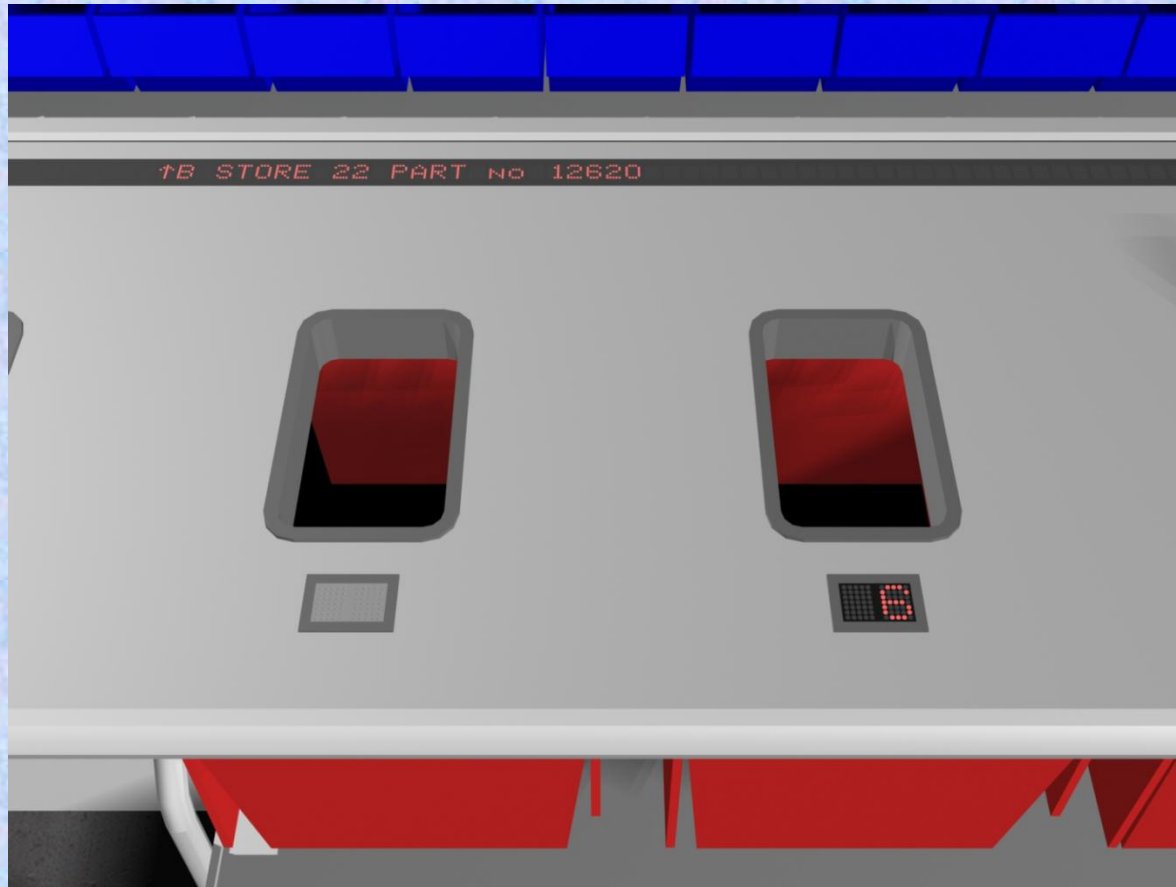
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Smart Lights and Lasers



Reducing Labor and Space While Each Picking with Simple Automation

Think Outside the Box – Auto Scan Visual



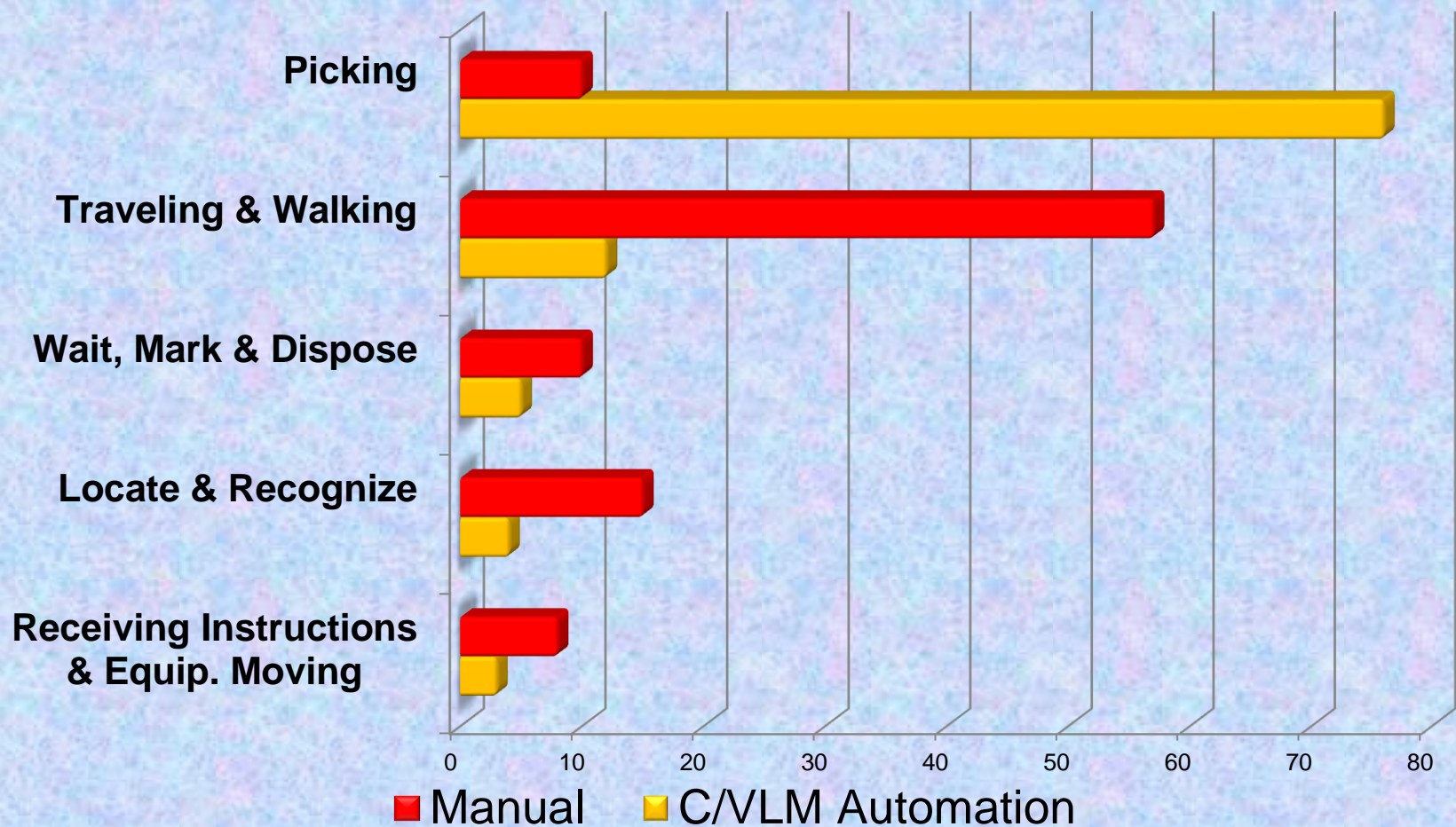
Productivity Picking Strategies

Technologies:	Bag & Tag (lines per hour)	Pick & Toss (lines per hour)
Shelving	20 – 40	50 - 110
Drawers	15 – 35	35 - 60
Flow Rack	60 – 125	150 – 250
PTL / Voice Flow Rack	60 – 150	150 – 400
Horizontal Carousels	65 – 160	250 – 500
Vertical Carousels	60 – 150	150 – 400
Vertical Lift Modules	50 – 150	125 - 300

Reducing Labor and Space While Each Picking with Simple Automation

Technologies:	Wasted Unit Space	Wasted Space Ceiling Height 20'
Shelving	50%	50%
Drawers	20%	70%
Flow Rack	50%	50%
PTL Rack	50%	50%
Horizontal Carousels	30%	30%
Vertical Carousels	20%	10%
Vertical Lift Modules	20%	10%

Reducing Labor and Space While Each Picking with Simple Automation



Reducing Labor and Space While Each Picking with Simple Automation

New Technologies - Mini Vertical Carousels



Low Cost , High THROUGHPUT SOLUTIONS THAT SAVE SPACE!

Vertical Carousels

Horizontal Carousels

Mini Vertical Carousels,

Vertical Lift Modules,

CAS/RS Systems

&

Integrated Combinations of the above

Can all Save Significant amounts of

LABOR & SPACE

Reducing Labor and Space While Each Picking with Simple Automation

Excellent
Return on Investment

Typically under 2 years

Often under 18 months

And most always under 3 years worse case

For More Information:

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