PROMAT 2015

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Combining Standard Solutions to Solve Complex Case & Piece Picking Challenges

Sponsored by:

SSI SCHÄFER

Presented by:

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Materials Handling Division

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Integrated Standard Solutions

Integrated Standard Solutions utilize traditional materials handling products to form a complete system and are seamlessly combined to solve complex picking challenges.

Agenda

- Classify Inventory
- Match Inventory to Storage Technology
- Slot Inventory within the Storage Technology
- Map Processes and Workflow to Maximize Throughput and Reduce Labor
- Integrate Business Systems to Maximize Visibility
- Add Automation to Reduce Cost

Integrated Standard Solutions

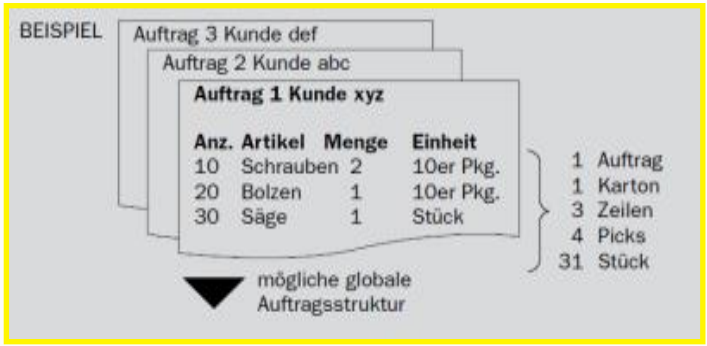
… are standardized processes and equipment, which are combined to form a complete system and function as a complete solution.

The products are seamlessly integrated to form the system as a whole.

1st Step

- Data Acquisition
- (Actual Condition)

  - Number of SKU's
  - Number of orders
  - Number of lines
  - Number of picks
  - Number of employees
  - Working hours
  - Planed growth
  - ERP system



Vocabulary

SKU = unique product being sold

Order = combination of SKUs in quantities being sold

Order Line = quantity of a single SKU within an overall order

Quantity = individual pallets, cases, or pieces of an order line

FTE = Full-Time Equivalent personnel

Operational Information

Operational information deals with what your business is about and how you operate it.

- What type of product is being stored?
  - Food, beverages, car parts, laundry, small valuable parts, etc.

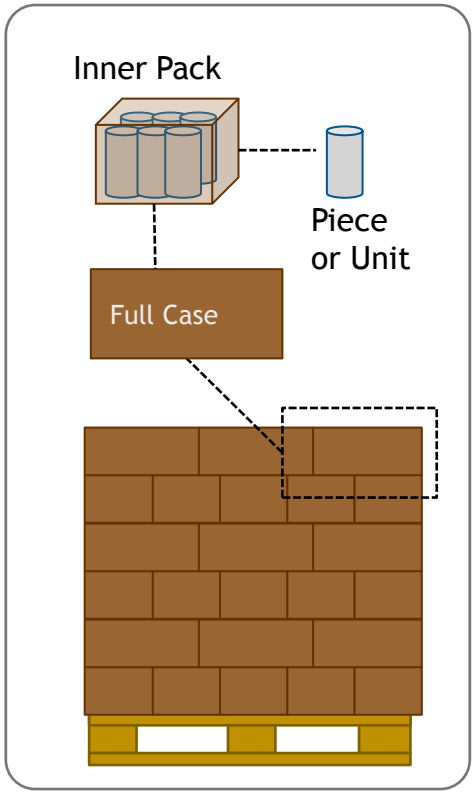
- What function will the system be performing?
  - "Black box" storage unit?
  - Picking Engine?
  - Shipping Buffer?

Operational Information

What is the picking unit of measure?

- Piece?
- Full or Mixed Pallet?

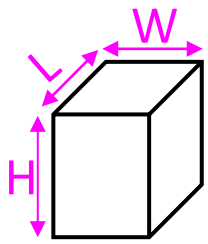
Relationship between full case, inner pack and unit.



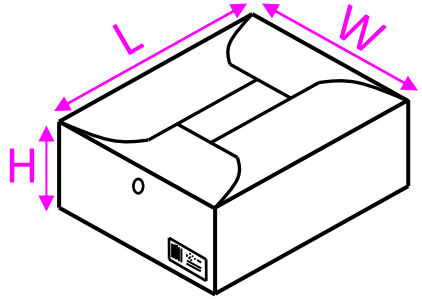
Operational Information

Product Dimensions

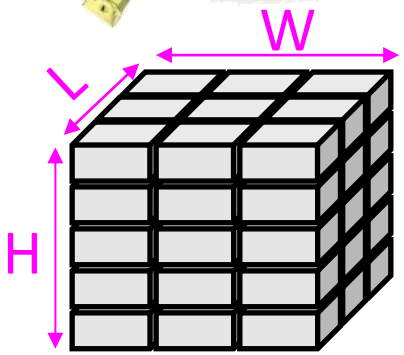
- General information about the picking unit needs to be classified and recorded in order to determine the proper equipment needed for handling.
  - L x W x H + Weight? (VERY IMPORTANT)



Piece



Case



Pallet

Operational Information

What are the **load units**?

- Are we storing totes/vendor cases?
- Are we storing on pallets or bins?
- Are we picking to order totes?

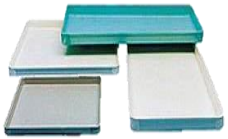

GMA


Wingtip


Nested


CHEP


Slave Board


Trays


EURO


Plastic


Plastic Totes

Operational Information

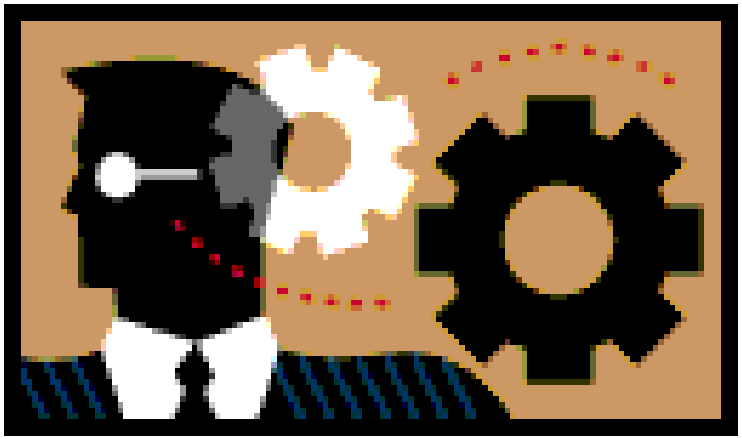
- **In what form do you ship your final orders?**
  - Cartons?
  - Returnable Totes?
  - Mixed SKU pallets?
  - Rolling carts?

- **How do you ship the final products from the DC?**
  - Captured route trucks?
  - Bulk Reserve for Manufacturing Plants?
  - Dedicated courier service? LTL,UPS, FedEx, DHL, USPS?
  - Local, North America, or Globally?
  - Distributors/Wholesale, E-Comm, Retailers
  - Or all the above in what percentages?

Operational Information

- Timeframe
  - Days/week
  - Shifts/day
  - Hours/shift
    - Operational Hours/shift = actual equipment working time w/o breaks (8 hr shift = 7.5 hr operational time)
  - Do you want to pick and replenish in the same time period?
  - Do you have weekly, monthly, or seasonal spikes to account for?

Key Data



- Summary of Business Metrics

- Key Data Areas:
  - Total SKUs stored
  - Active SKUs/day
  - Orders/day
  - Order Lines/day
  - Quantity/day
    - This can be in the form of pallets, cases, or pieces picked

- "Current" Key Data: derived or received is based on today's operation

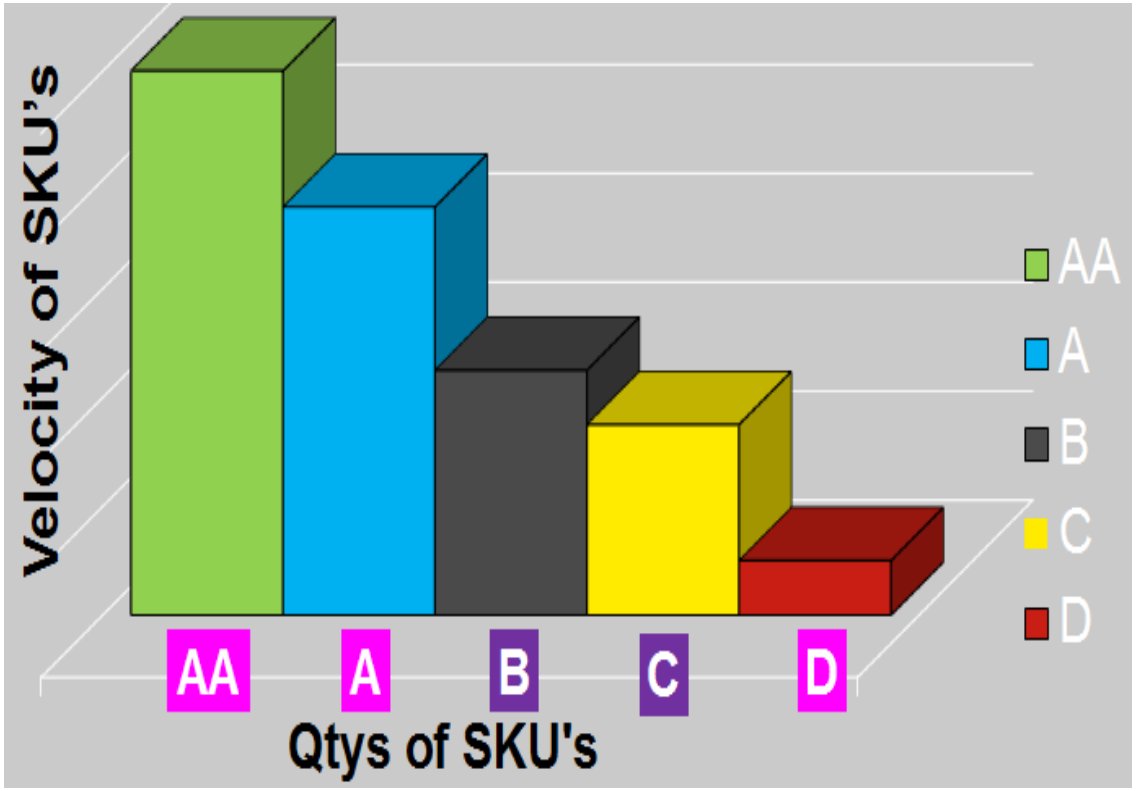
- "Design" Key Data: what is calculated based on the expected future demands of their business

Why Do We Need This Stuff?

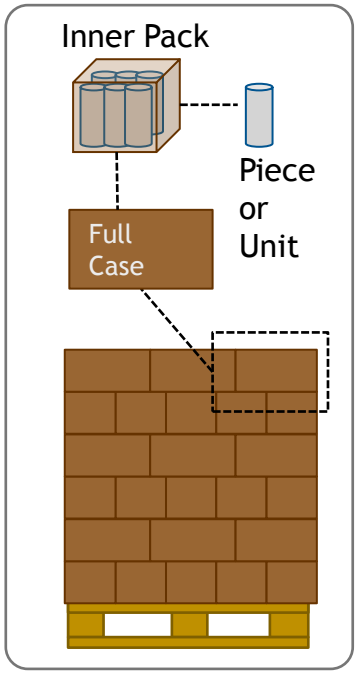
- Provides a standard vocabulary for conversation
- Documents design criteria that can be reviewed and agreed upon by the customer before design begins
- Provides a quick analysis to figure out rough concepts

1. Classify Inventory

Classify Your Inventory Into Categories Based On Picking Size (Pallet, Case, Pieced Velocity) (Fast, Medium, Slow)

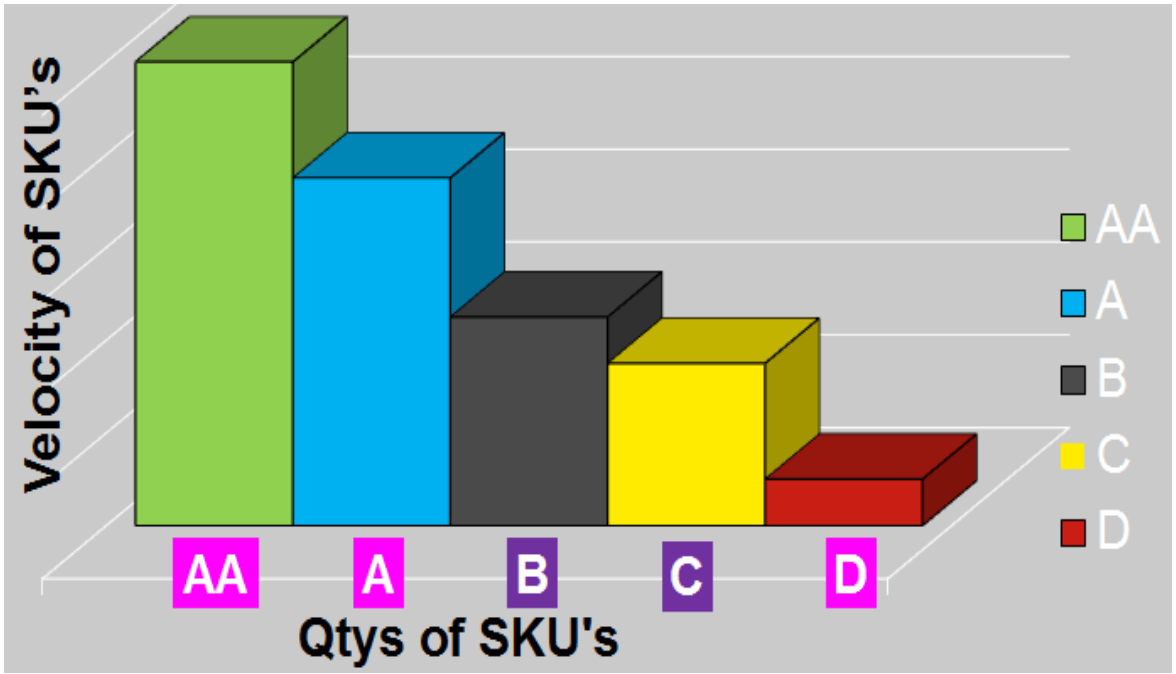


Relationship between full case, inner pack and unit.



Analyze Inventory Categories

- Companies Focus Their Attention On Fast Movers (A)
- **Ignoring Slow (C) & Medium (B) Movers - The Largest Part**



The B, C, & D's usually require the most storage space in a warehouse

Analyze Inventory Turns

- Companies Focus Their Attention On Fast Movers
  (A) –Top 10% -20%
- Opportunity with Medium (B) and Slow (C) Movers
- The Largest Categories Of SKU's –Number of Items
- More Than 50% of Storage Cube
- Exhibits Poor Space and Process Management

Medium & Slow Movers

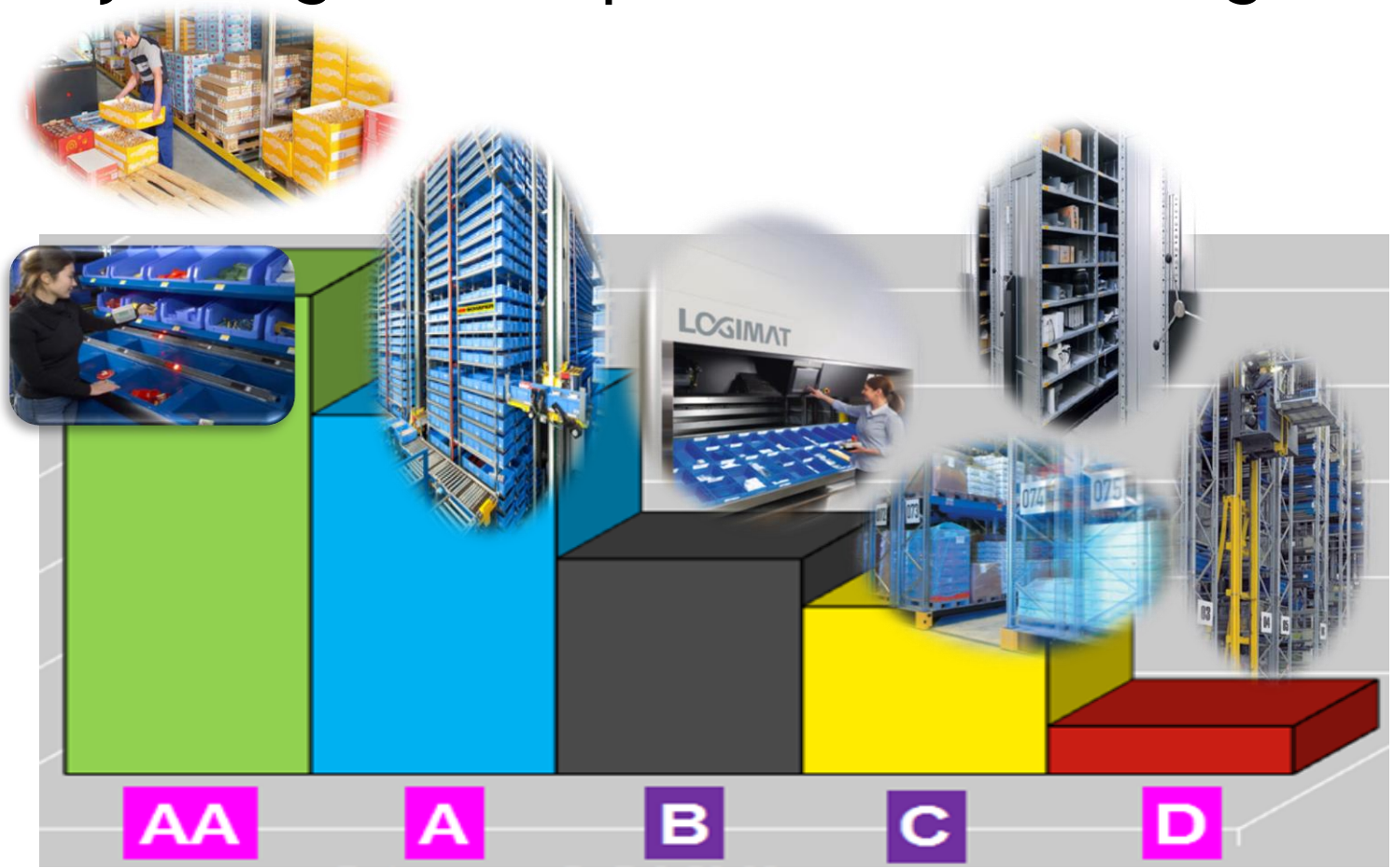
Focus On Slow & Medium Movers

- How Much Floor Space Do They Require?
- How Much Travel/Labor Do They Require?

How Can You Make Your Largest Quantity of Inventory More Efficient?

AA & A	B & C	D's
Throughput	Space	Ergonomics
Space	Processing	Accuracy
Processing	Throughput	Processing
Accuracy	Accuracy	Inventory
Inventory	Inventory	Space
Ergonomics	Ergonomics	Throughput

Inventory Categories Require Different Storage Media

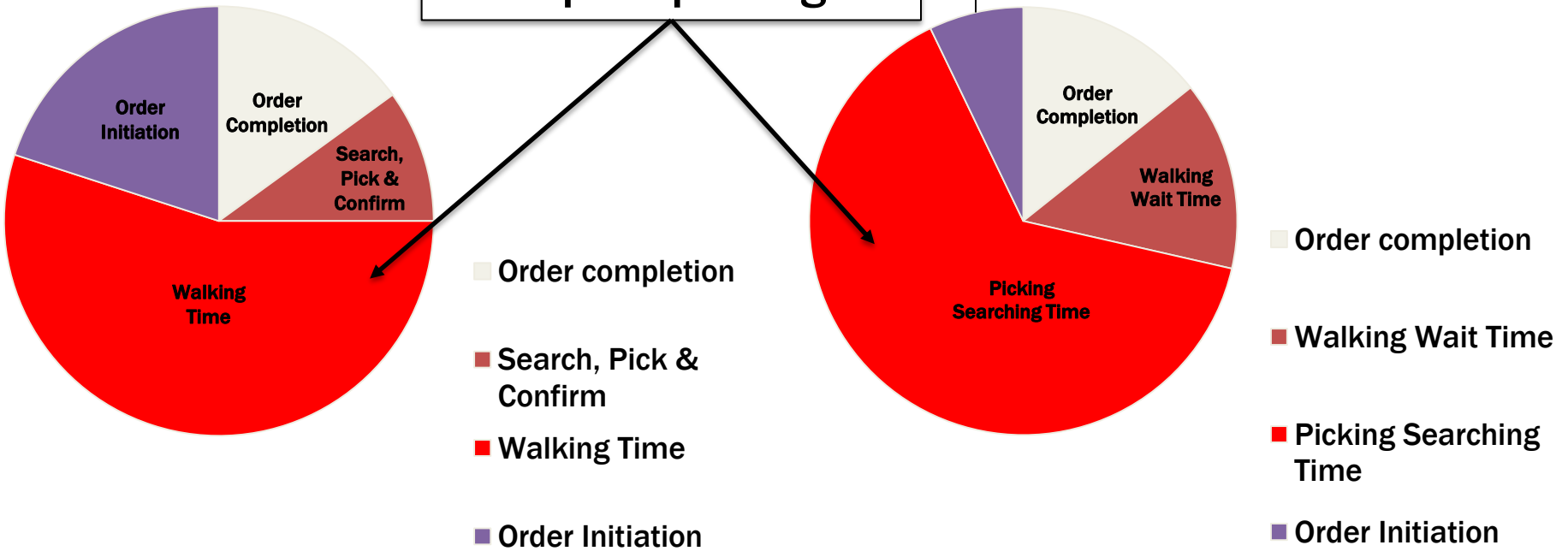


Why Automate?

Manual Order Picking

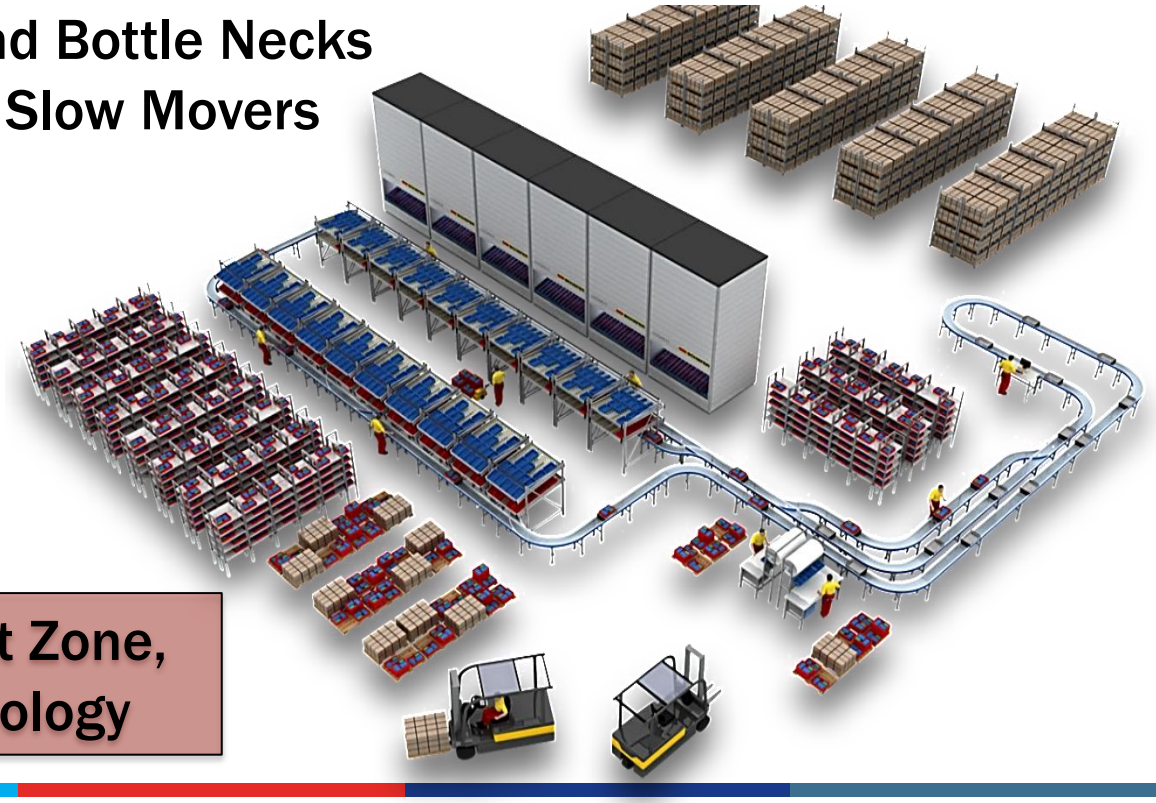
Automated Order Picking

The walking time is now spent picking



Balance Work Flow

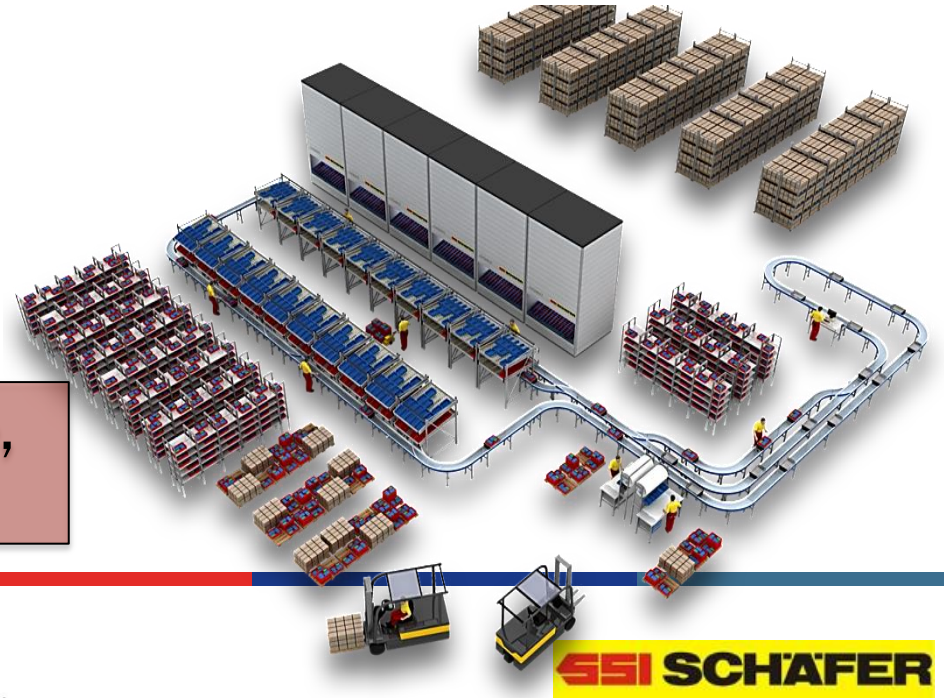
- Map Inventory & Activity Flows
- Slot Inventory To Assure Optimum Work Flow
- Eliminate Imbalances and Bottle Necks
- Minimize Impact of Very Slow Movers



The Right SKU, The Right Zone,
The Right Storage Technology

Bring Work to Worker

- **Find & Identify Areas/SKU's in The Facility Where The Worker Must Frequently Travel Long Distances To The Work**
- **These Are Areas That Can Be Improved With Slotting & Zone Designs**
- **Proper Slotting Manages SKU's and Storage Space Efficiently**
- **Travel Time Greatly Reduced**



The Right SKU, The Right Zone, The Right Storage Technology

Why Automation

1. Productivity increases and labor costs are saved.
2. Errors are reduced by up to 99%.
3. Improved inventory control.
4. Footprint is decrease so floor space is saved.
5. Through put is increase and orders turn over faster
6. Bending and reaching is reduced, improving ergonomics

Low Risk Productivity

Low Risk Technology	Bag & Tag (lines per hour)	Pick & Put (lines per hour)
Shelving	10 – 35	30 – 75
Drawers	10 – 35	30 – 50
Flow Rack	25 – 45	75 – 150
Pick To Light Shelf/Rack	35 – 60	95 – 200
Pick To Light Flow Rack	75 - 200	200 – 350*
Vertical Lift Modules	50 – 150	150 – (275*)

*Varies depending on zone size

*4 Logimats in a zone

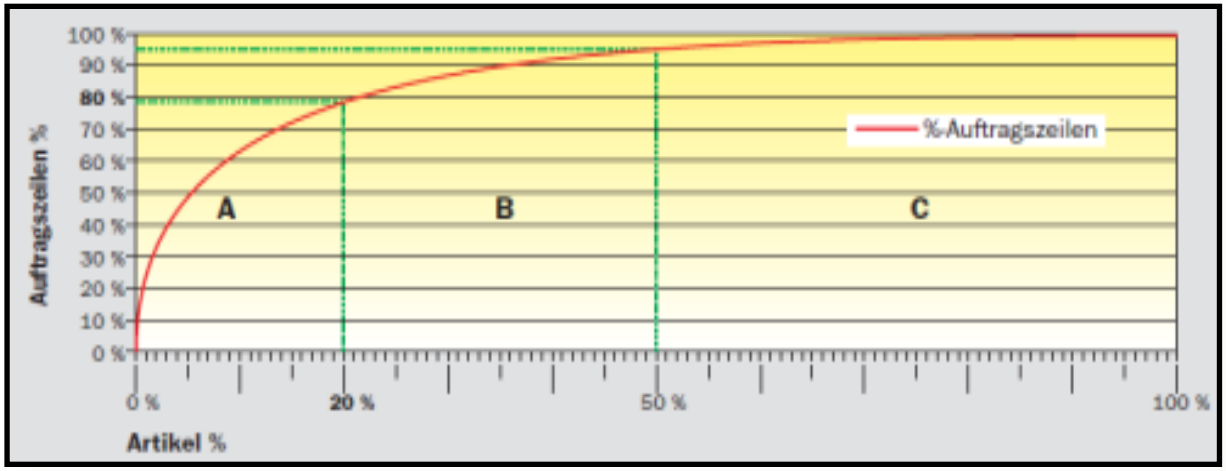
Improve Space Utilization

- Match the Part Size to the Location Size
- Use the Right Storage Medium
- Store Parts in Pick Quantities That Make Sense

  - "Eaches"
  - Cases
  - Pallets
  - Kits
  - Innerpaks
  - Combinations of Above

2nd Step

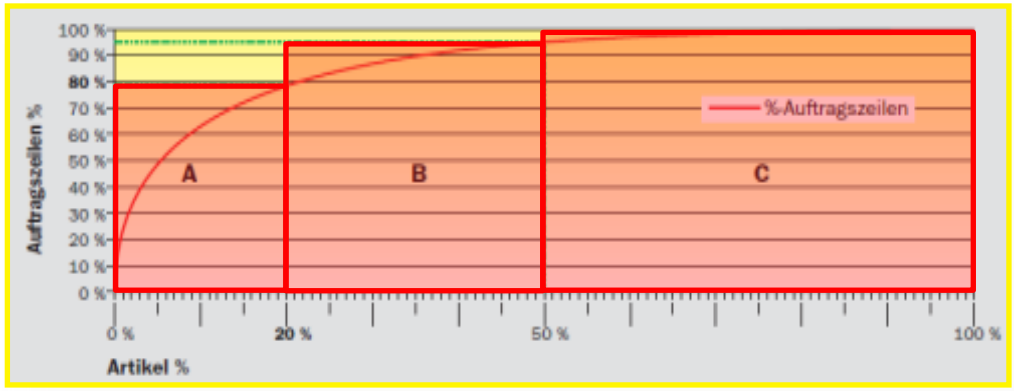
Data Analysis



3rd Step

System Selection and Layout

Based on Data Analysis



Storage system for articles of category A

Storage for articles of category B

Articles of category C

4th Step

- Classify Inventory
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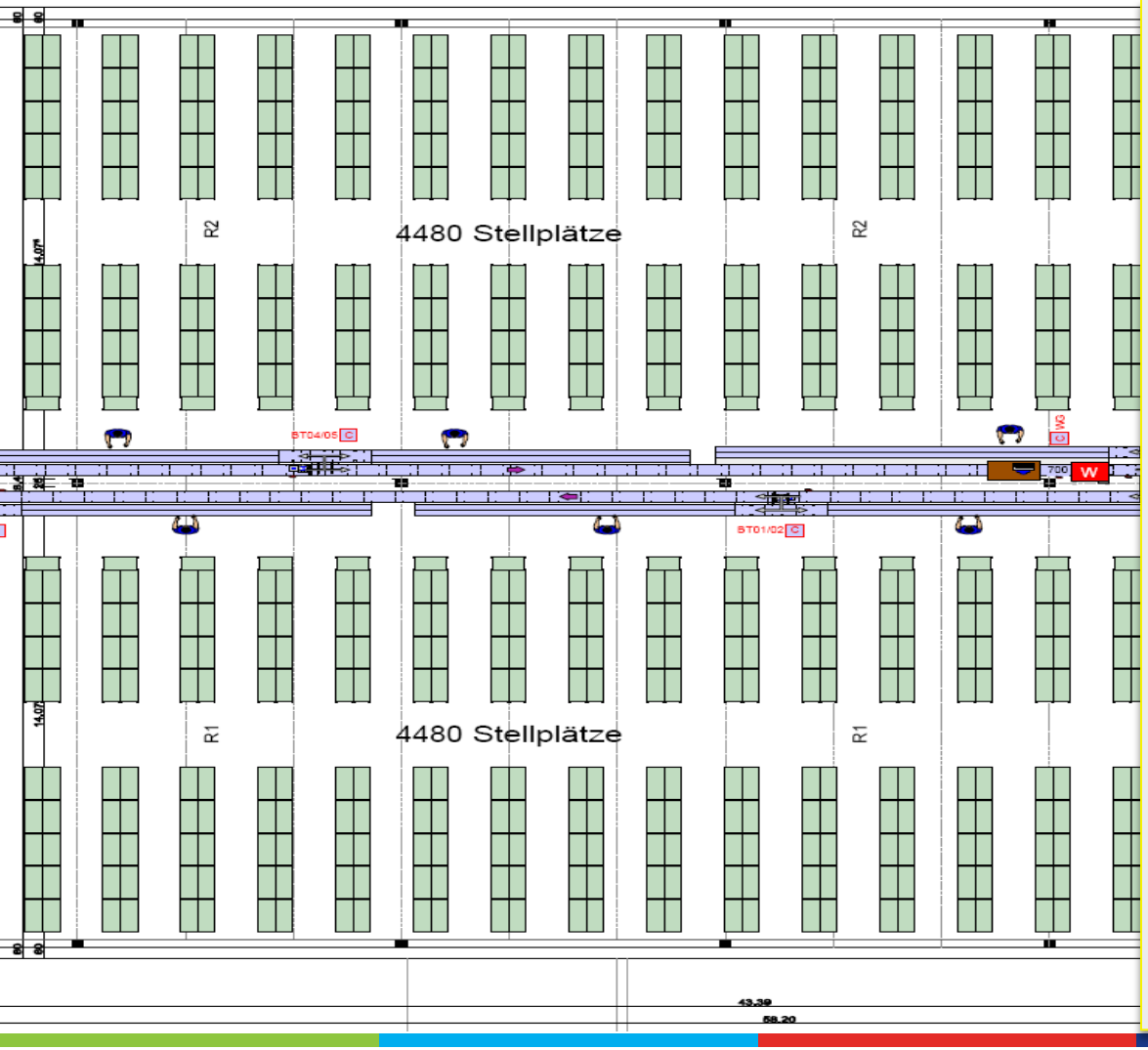
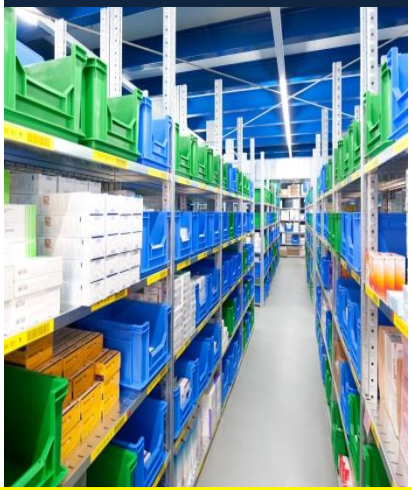


The right solution,
step by step!

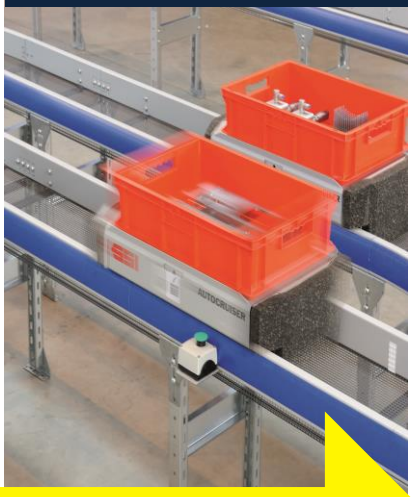
Product Group 1: Racking/Shelving



Product Group 2: Vertical Lift Module

Product Group 3: Workstation

Product Group 4: Conveyor System



Product Group 1:

Shelving/Racking Solutions

Carton Flow Rack Systems

- Direct or indirect material supply for production, assembly and distribution processes.
- Shelves are refilled from the back, therefore no interference between replenishment and order picking.
- Can be integrated with Pick-by-Light (PBL) technology.

Shelving System R3000

- Multi-tier installations and shelf-supported mezzanines can be added or expanded anytime.
- Wide range of optional equipment and accessories available.
- Can be integrated with Pick-by-Light (PBL) technology.

Product Group 2:

VERTICAL LIFT MODULE

What is a VLM?

- An automated storage and retrieval system
- Trays are located in the front and back side
- Trays are moved via lift (elevator) to the access opening
- In principle an automated tool drawer cabinet

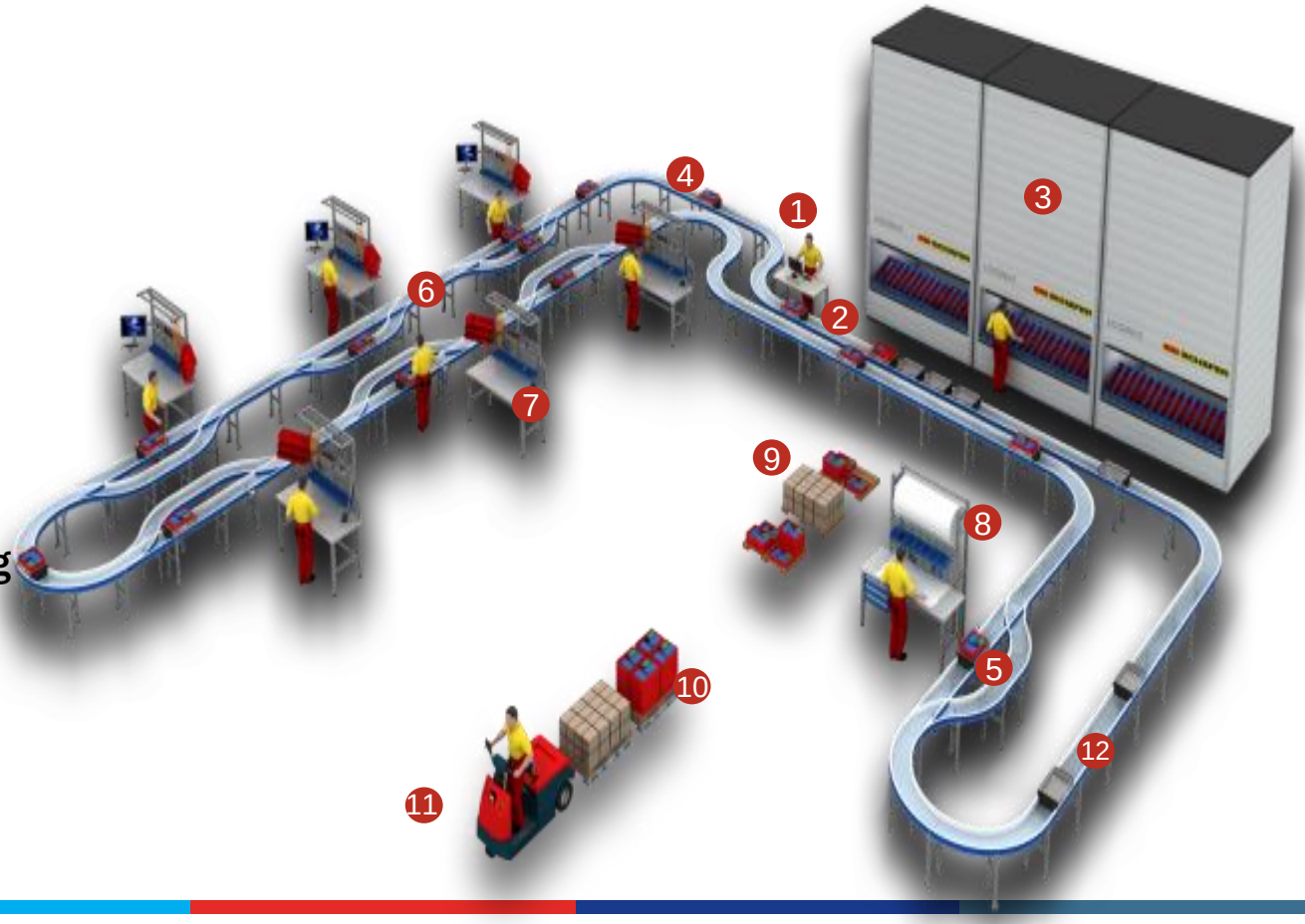
Options for expansion

- **Starter Unit, single stand-alone machine**
- **Starter-Add-On principle for multiple machines**

Integrated Lift Module with Conveyer

Integrate Standard Solutions!

1. Order start
2. Order-picking station
3. Vertical Lift Module
4. SSI Autocruiser
5. Bypass
6. Target position
7. Assembly
8. Packing area
9. Goods ready for shipping
10. SSI roller pallet
11. To shipping area
12. Empty containers buffer



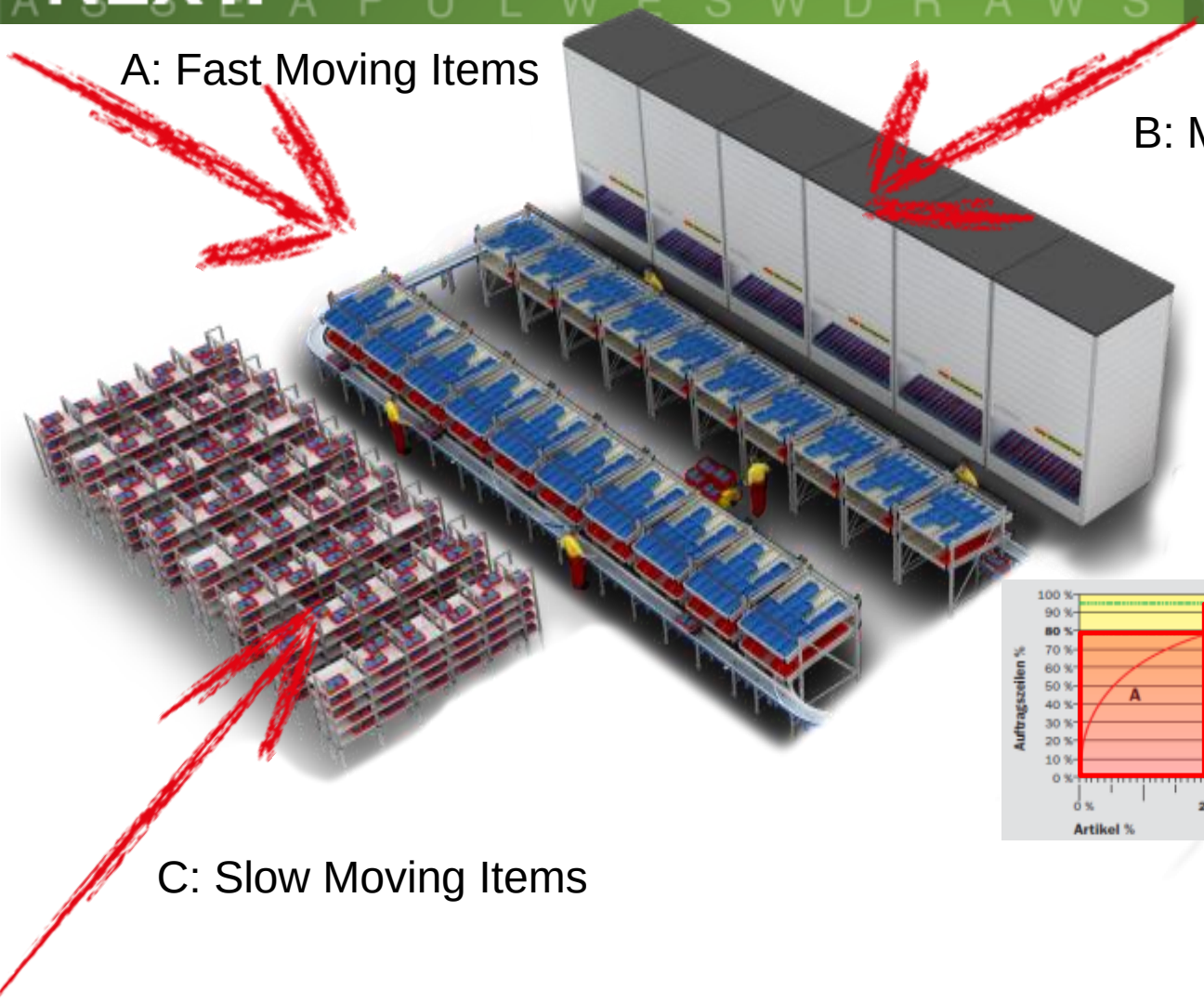
Solution: Trading

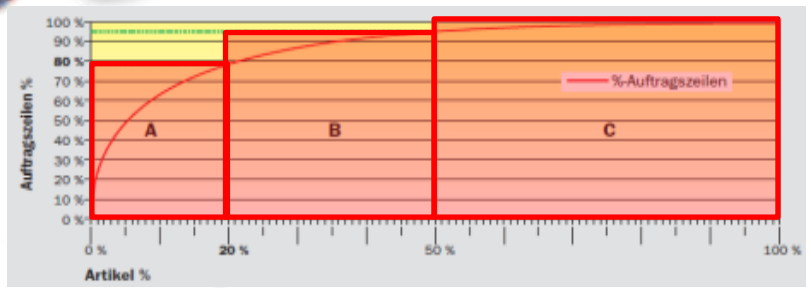
Initial position:

- An up-and-coming mid-sized online mail-order company wants to automate its manual order-picking and intralogistics processes
- The company doesn't want to make any major financial investments (< € 1 million) $1.5US
- The new concept must be scalable so that the system's output can be increased if necessary

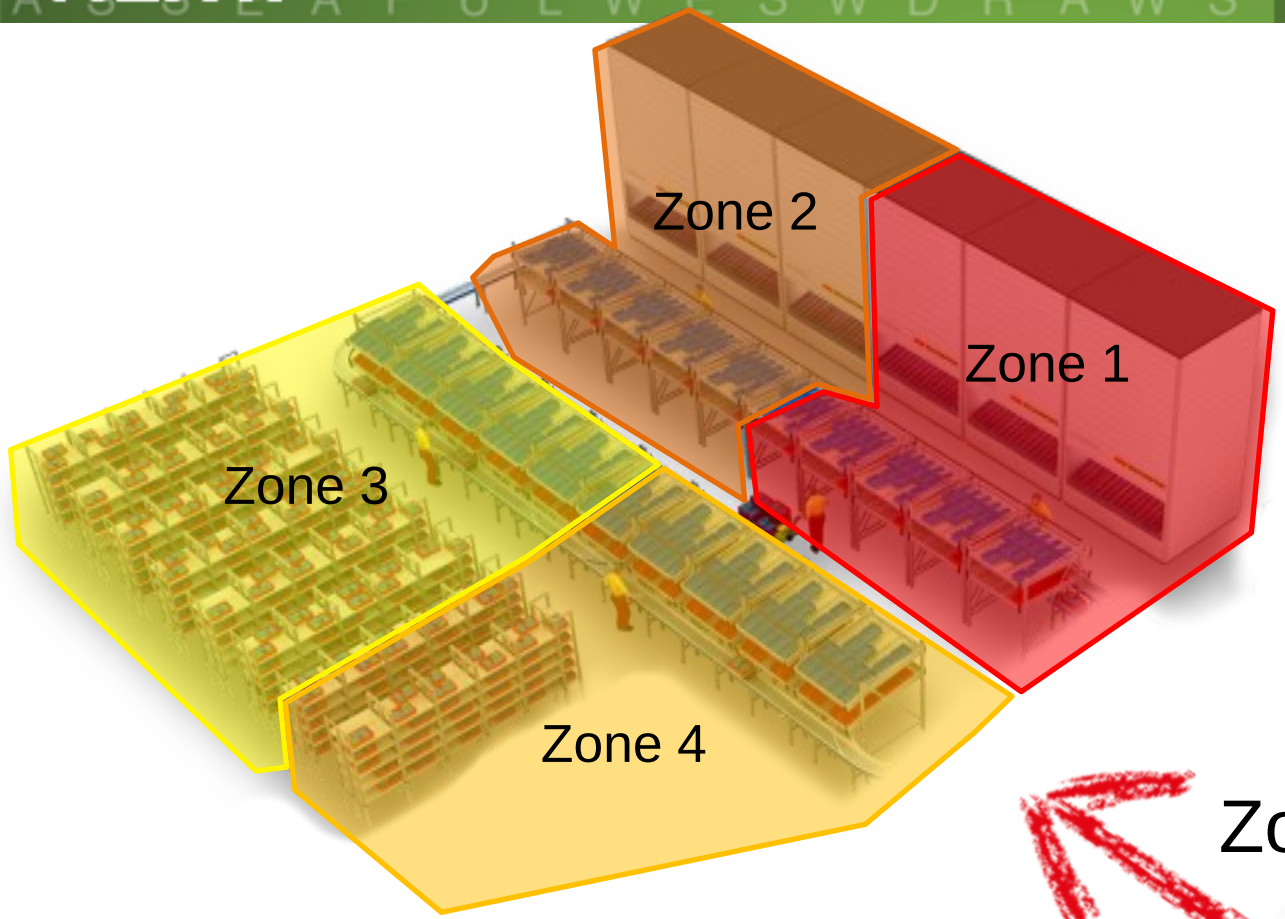
A: Fast Moving Items

B: Medium Moving Items





C: Slow Moving Items



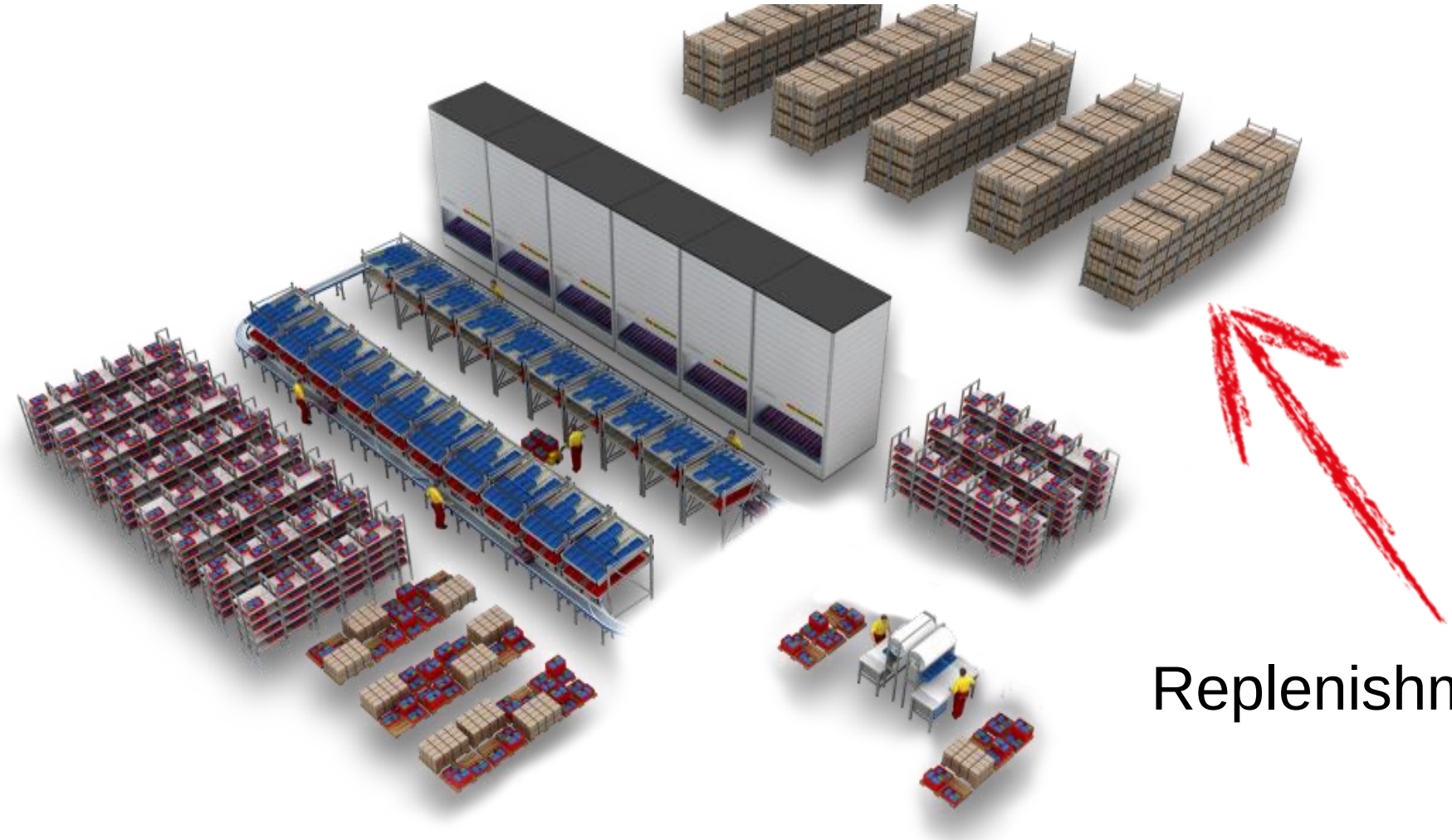
Zone Picking

Large Items?

Bulk Storage!


Packing

Promotional Items



Replenishment

FIND WHAT'S NEXT.

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Integrated Standard Solutions are applicable in all industries!

Case Study

Creativ Company A/S (DK)
Ecommerce

SITUATION AT BEGINNING

- Future-oriented expansion strategy due to continuous growth
- Missing resources for further expansion
- Linking of the different areas
- Low picking performance
- Potential improvement in quality

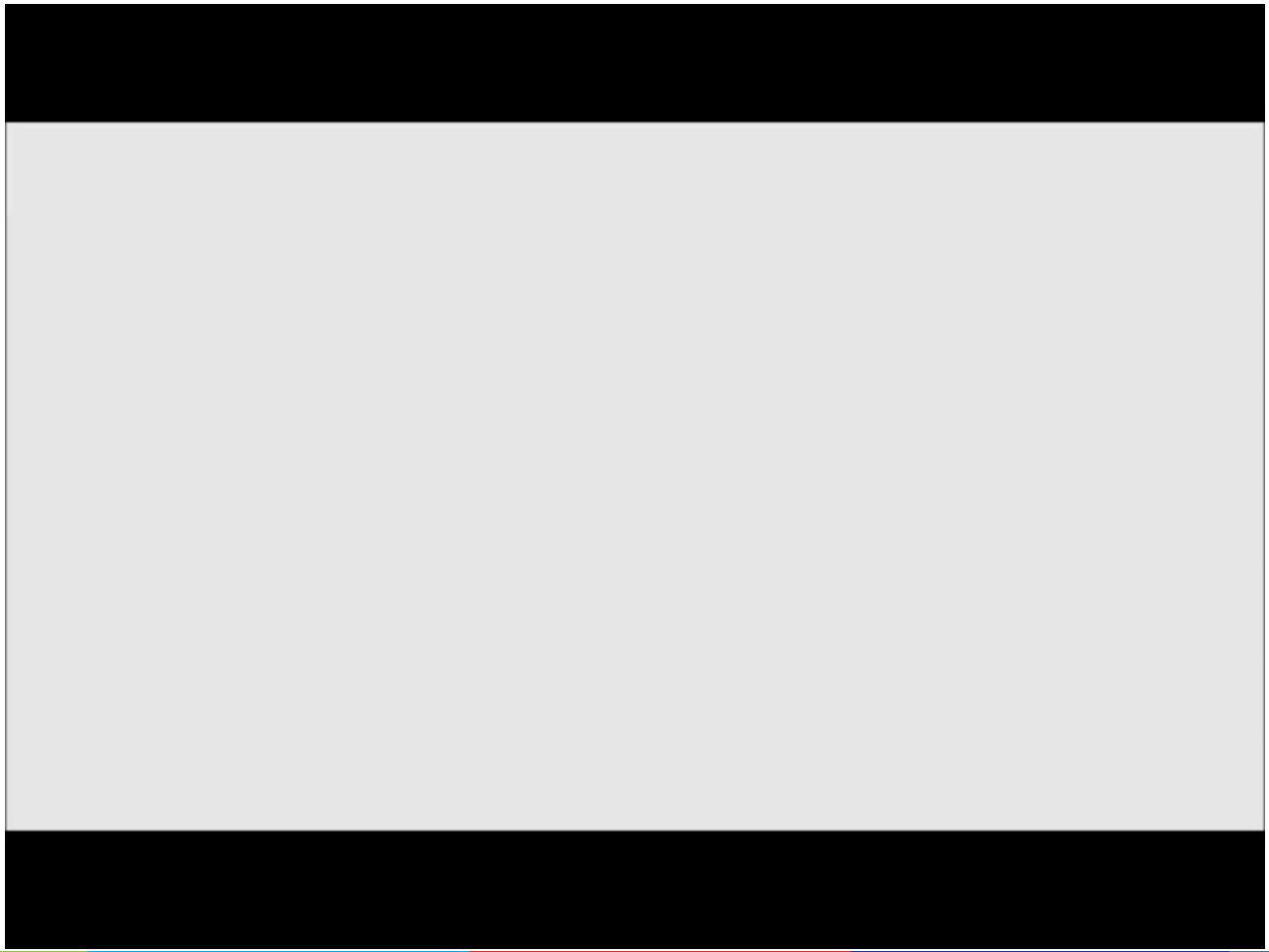
Optimization Process

- Data Acquisition
- Data Analysis
- System Selection
- Layout

SITUATION AT THE END

- Clear layout
- Optimization in stock location (ABC)
- Optimized pick processes
- Linked zones
- First step in automation
- Scalable and flexible solution
- Validation for future growth

Creativ Customer Testimony



Tremendous Throughput Gains

Cartons per hour shipped: from 80 to 270 = 237% increase

Orders per hour: from 80 to 320 = 300% increase

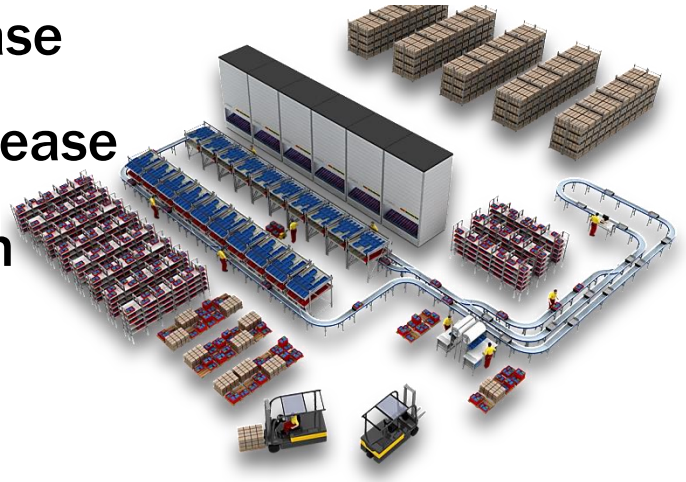
Order lines per hour: 380 to 1,080 = 284% increase

Number of operators: 42 to 28 = 34% reduction

Work hours: 10 to 8 = 20% reduction

Required space in pick-zone: from 15,880 sqft to 7,000 sqft = 56% reduction

Business increase: 28%



Creativ Company A/S (DK)
Ecommerce

Misperceptions of Small-Scale Integrated Technology

Limited range of applications (big systems only)

- **Throughput too low**
- **Too expensive; not justified**
- **Long implementation cycle**
- **Reliability; mechanical & controls issues**
- **People to take ownership**

Yesterday's answers won't solve today's problems.

Today, automating a process:

- **Can be beneficial to reduce production or fulfillment cycle times.**
- **In most cases doesn't need to be a large scale investment.**

Questions?

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