AUTOMATIC ORDERPICKING

TREND OR ONLY A NICHE APPLICATION
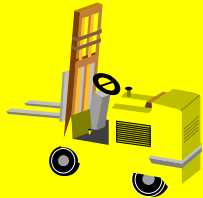
Jan van der Velden

Logimat

02-02-2005

CONTENT

- **Introduction**
- **Man-to-goods systems**
- **Goods-to-man systems**
- **Automatic orderpicking**
- **Examples**
    - Fresh food
    - Fast moving consumer goods
    - Industrial supplies
    - Fashion
- **Conclusions**

INTRODUCTION

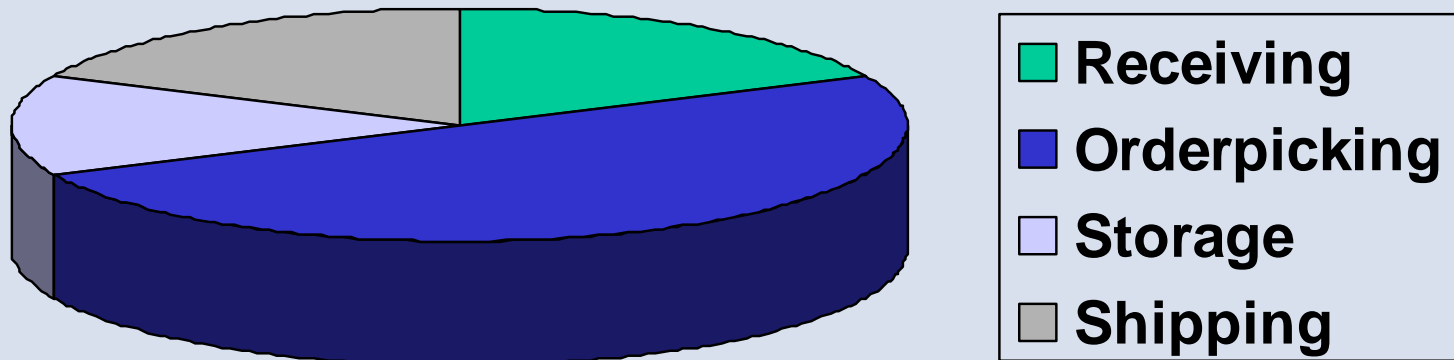| receiving | storage | picking | packing consolidation | shipping |

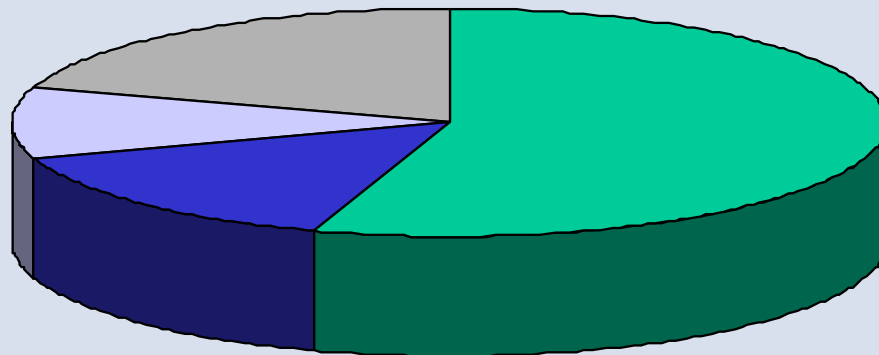**Material flow**

Customers Requirements

INTRODUCTION

Warehousing cost (traditional warehouse)

Legend:
- 🟩 Receiving
- 🟦 Orderpicking
- 🟪 Storage
- ⬜ Shipping

➡️ **Orderpicking most expensive component in warehousing**

INTRODUCTION

Specification orderpicking

Legend:
- ■ Travelling
- ■ Searching
- ■ Extracting
- ■ Paperwork/other

➡ **Most time needed for travelling**

MAN-TO-GOODS SYSTEMS

Orderpicking	Zone picking	Batch picking
Single order, single zone 1 picker, 1-n orders Supported by carts	Single order, multiple zone 1 tote contains 1 order Pick pack is possible	Two steps, multiple zones Step 1: batch picking Step 2: Sorting to orders
Limited to medium # SKUs Medium # lines per order	High # customers Small to limited # lines per order Limited to medium volume per order	Medium # customers High # lines per order

Minimal distance ➡

GOODS-TO-MAN SYSTEMS

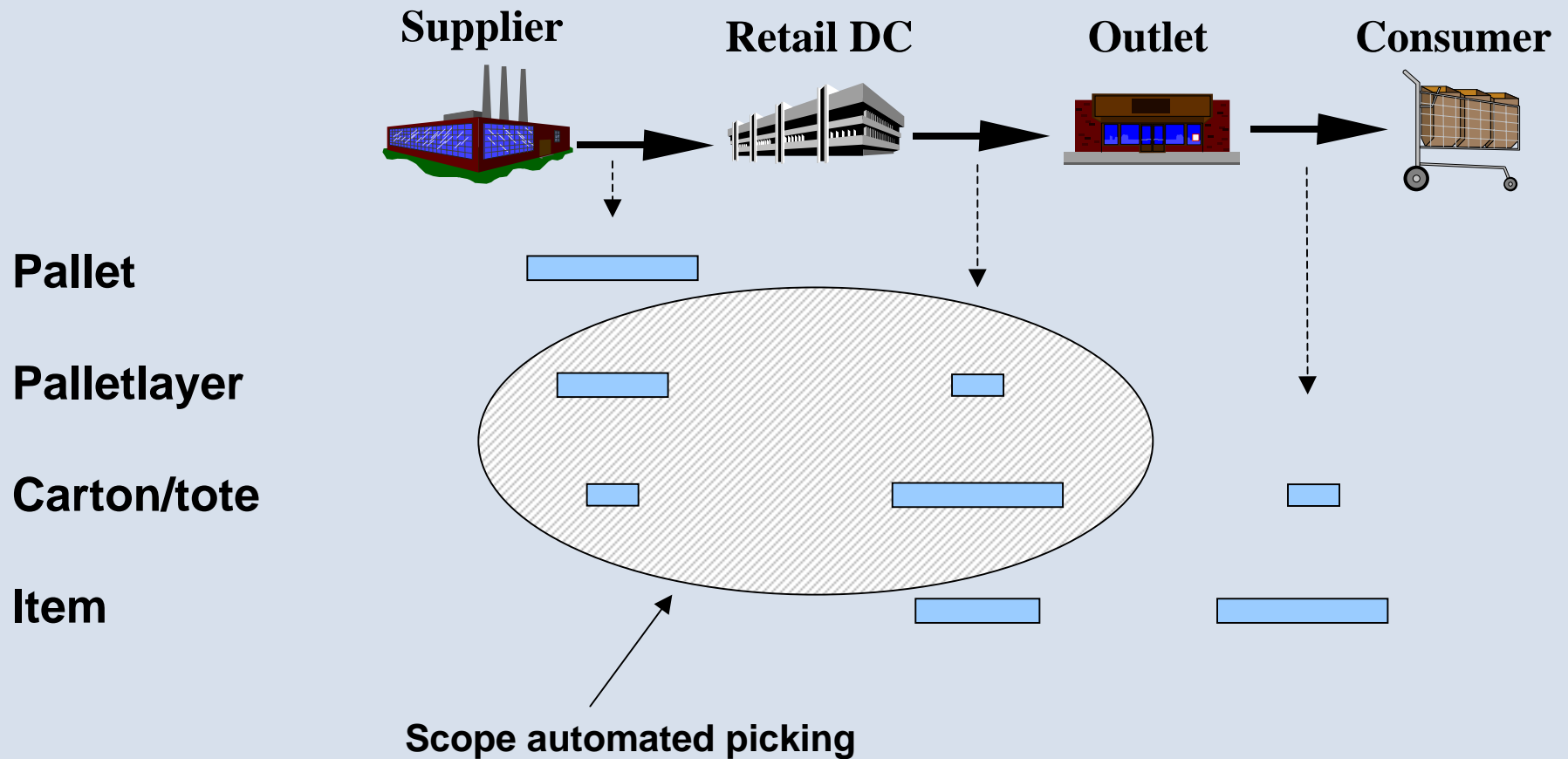| Compact picking	Order Distribution System (ODS)
Warehouse with miniload cranes - Classical frontzone solution - Dynamic replenishment of pickface	**Single step, multiple zones** 1 tote is linked to 1 order Orders have a static location, products travel through the system (Reversal of zonepick)
High # customers Limited # lines per order Especially for slow and medium movers (B and C articles)	**High # customers** Limited # SKUs Medium # lines per order

More items per pick

AUTOMATED PICKING

Supplier → Retail DC → Outlet → Consumer

Pallet

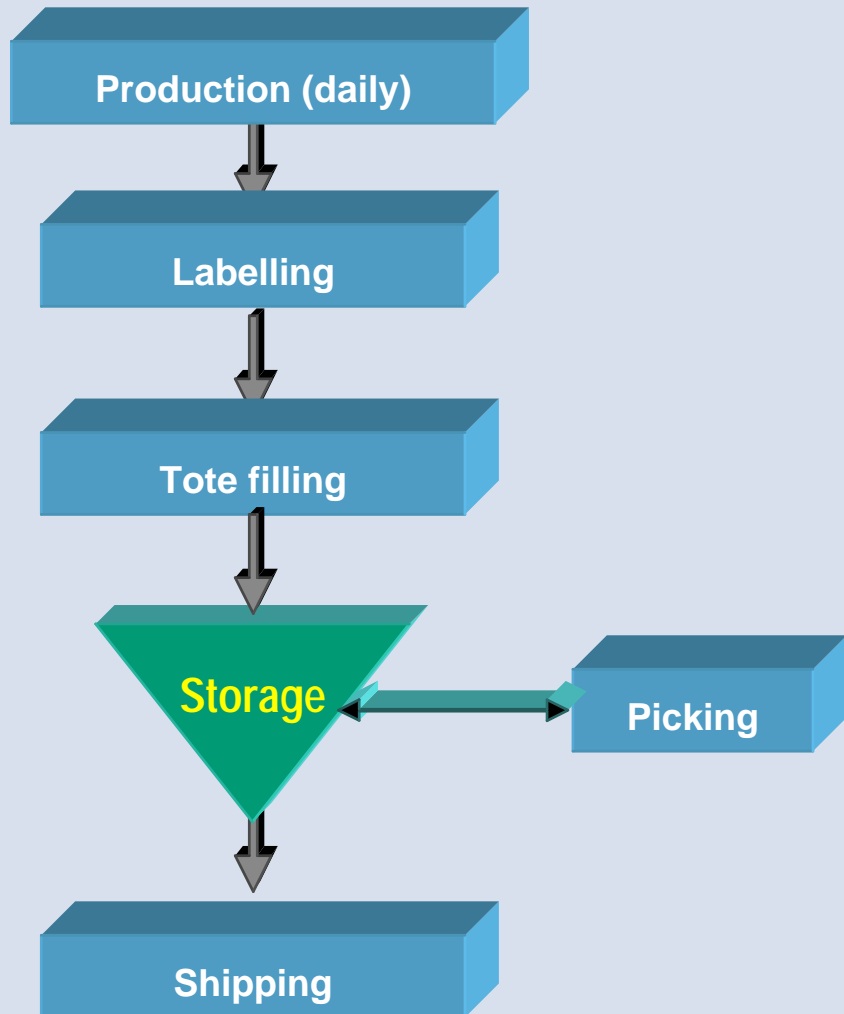**Palletlayer**

Carton/tote

Item

Scope automated picking

AUTOMATED PICKING

- **Reasons automatic picking**
  - Scarcity of labour
  - Ergonomics
  - Short delivery times
  - High accuracy
  - Cost reduction
  - Regulation

FRESH FOOD

Production (daily)

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Labelling

↓

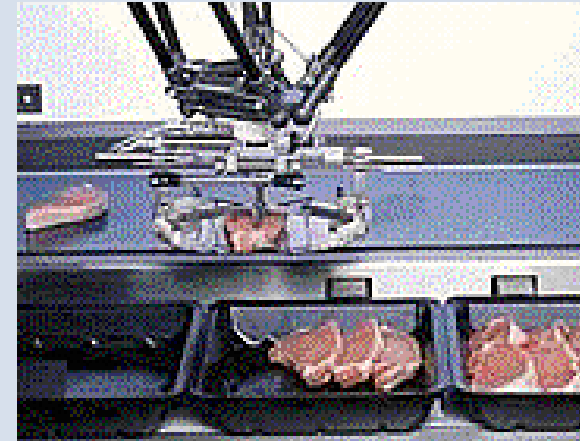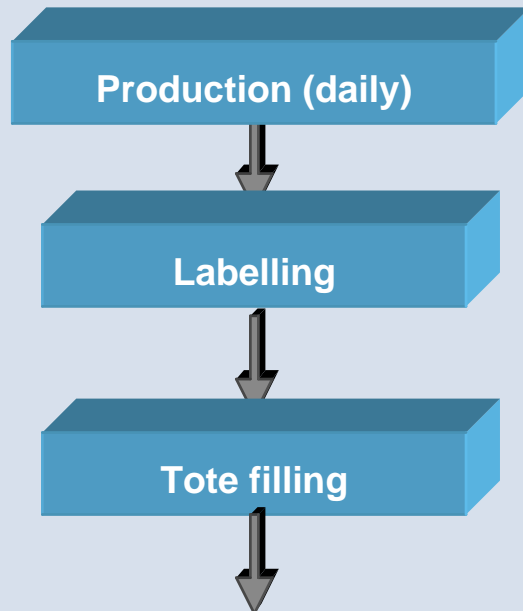Tote filling

↓

Storage ⟷ Picking

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Shipping

- **Characteristics**
  - Pressure of retailers
    - Cost reduction
    - Short delivery times
    - High quality/freshness
    - High accuracy
    - Standards (e.g. HACCP, BRC)
    - Sequence requirements on pallets / rollcages
  - Efficient space utilization
  - Scarcity of labour
  - Tracking & tracing (EC 1760/2000)

FRESH FOOD

**Pick & place robot
Robot portion loading
(AEW Delford)**

Production (daily)

Labelling
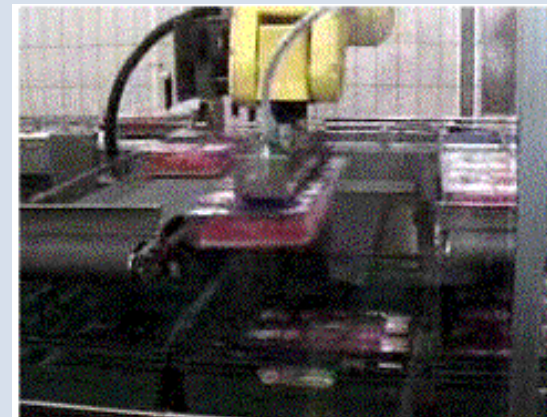
Tote filling

**Pick & place robot
Automatic tote filling
(ABAR)**

FRESH FOOD

Storage
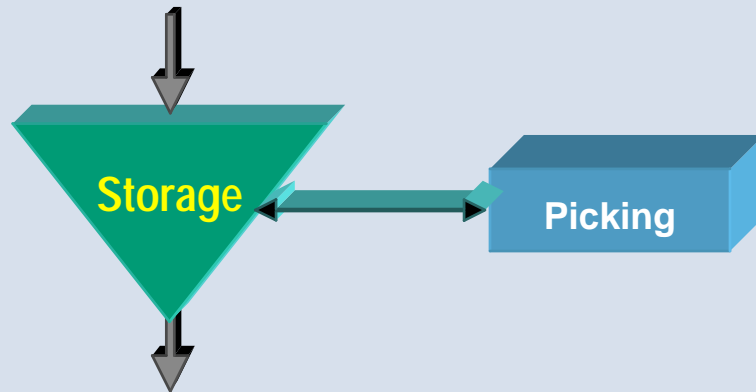
Picking

Micarna Batzenheid (Ch)
- **Automatic orderpicking**
- **Automatic labelling**
- **Palletizing in route and store sequence**

Rack Stack System (RSS)
 - **automatic picking full totes**
 - **automatic stacking**

Manual picking of items

FRESH FOOD

- **Flexibility**
  - Possibility to work in advance
  - High performance because of working in stacks
  - At peakdays, the percentage full stacks and full totes increases

- **Attention points**
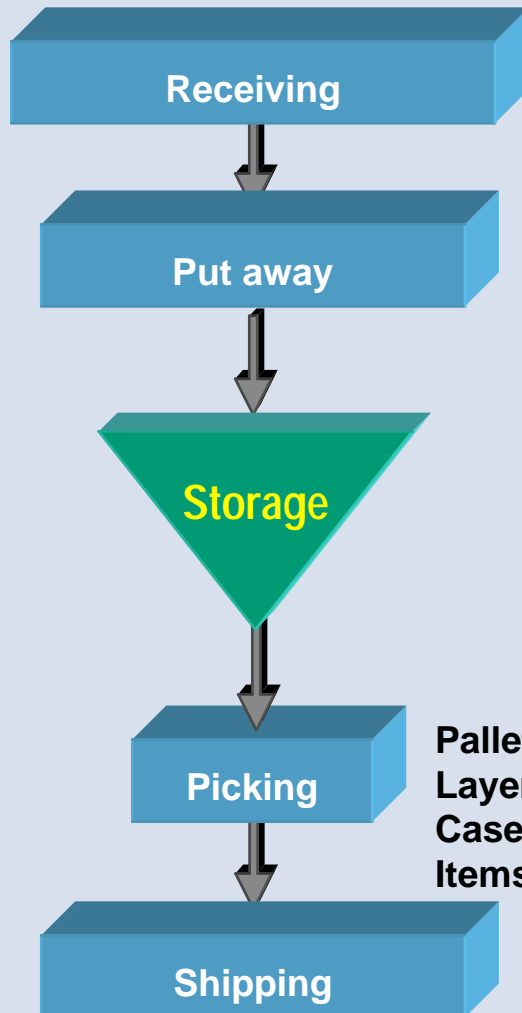 - Standard totes
  - Assortment

FRESH FOOD

Shipping

Automatic palletizing
- route sequence
- store sequence

Gantry Robot (Güdel)

FAST MOVING CONSUMER GOODS

Receiving

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Put away

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Storage

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Picking

Pallets: **Superfastmovers**
Layers: **Fastmovers**
Cases: **Mediummovers**
Items: **Slowmovers**

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Shipping

- **Characteristics**
  - High throughput
  - Short delivery times
  - High accuracy
  - Store friendly delivery
  - Efficient space utilization
  - Scarcity of labour
  - Efficiency
  - Broad assortment
  - Variety in products, packaging, weight etc.

FAST MOVING CONSUMER GOODS

- **Layer picking**
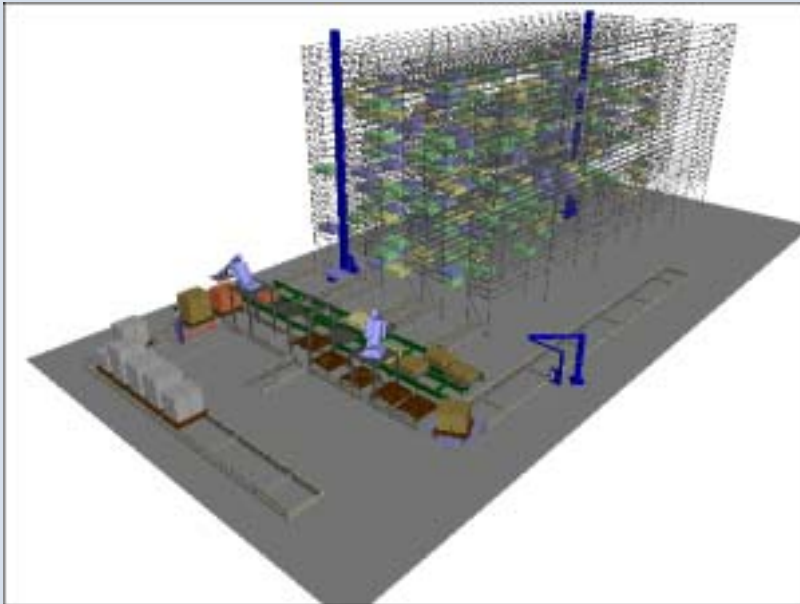
FAST MOVING CONSUMER GOODS
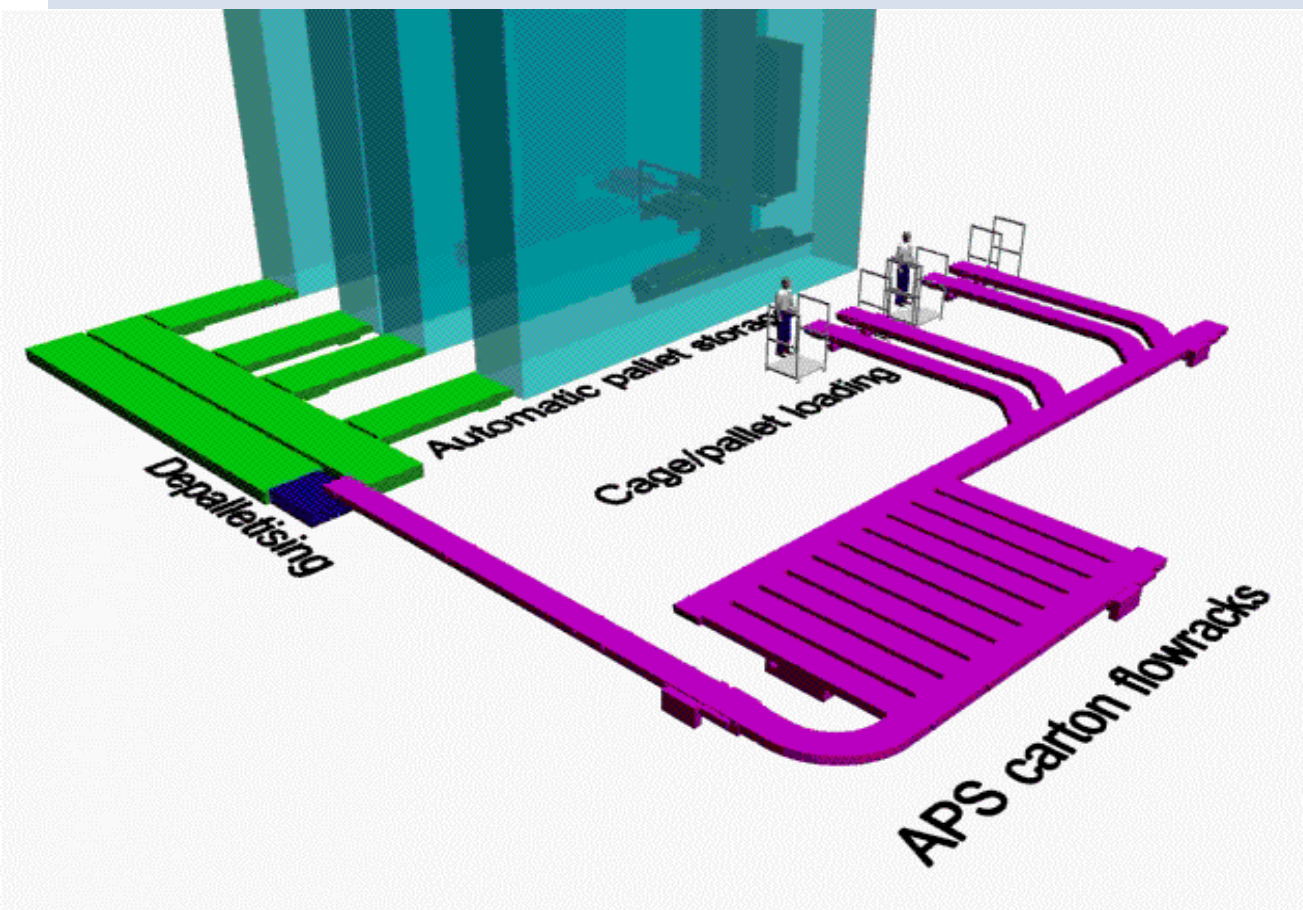
- **Flexibility**
  - Layers gives enormous flexibility on stacking different products
  - Capacity hardly influenced by carton size

- **Attention points**
  - Selection of gripper
  - How to process small % of non-mechanisable SKU's

FAST MOVING CONSUMER GOODS

- **DLS (Dynamic Logistic System)**

FAST MOVING CONSUMER GOODS

- **Flexibility**
  - Overcapacity individual modules

- **Attention points**
  - High investment per SKU, so make sure SKU range doesn't grow significantly in the near future

FAST MOVING CONSUMER GOODS

- **Case Order Machine (Witron)**
  - Fully automatic picking of cases on pallets and rollcages
  - Software generates optimal pallet stacking
  - Broad article range (cases on tray), independent of product characteristics
  - High accuracy
  - No people involved
  - Attention point: Arrival in right sequence

INDUSTRIAL SUPPLIES

- **Automatic roll cage / pallet loading**

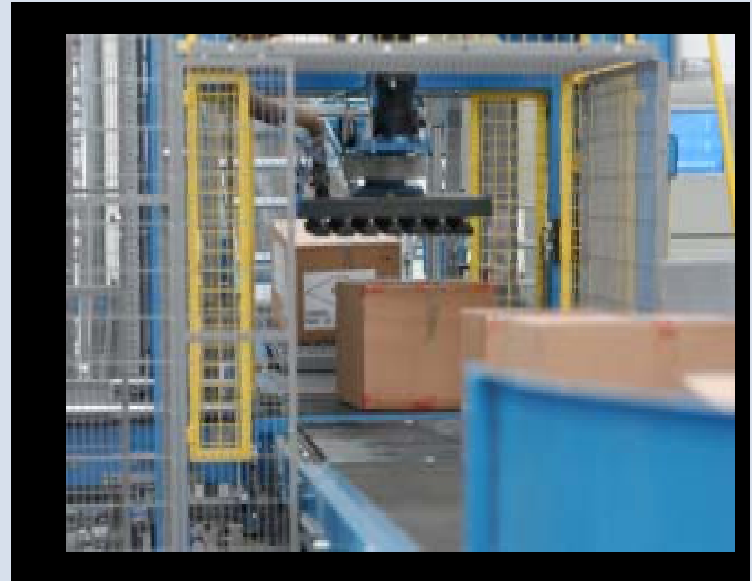**Gantry robot**
Würth
's-Hertogenbosch (NL)

Robot on track
Borstlap
Tilburg (NL)

FASHION

Full Case picking

(Nike, Laakdal, Belgium)

- **Miniload storage of cartons on tray**
- **Automatic retrieval, labeling and shipping**

CONCLUSIONS

## 'Automatic orderpicking is at breakthrough'

- **Many new developments**
- **Broad applicable**
  - different process areas
  - different industry groups
- **Focus on carton / case picking**
- **Item picking remains manual**

CONCLUSIONS

- **Handling must be stationary, product on the move**
- **Pay-back of 3 years is realistic if operated in:**
  - 2 shifts   for simple processes

    such as layer picking
  - 4 shifts   for complex processes

    such as rolcontainer loading in a prescribed sequences from a large range of SKU's

CONCLUSIONS

A Warehouse with many logistic operators
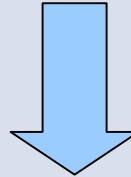
Logistic Factory with few machine oprators

Be Aware of this Transformation

Solutions to suit you