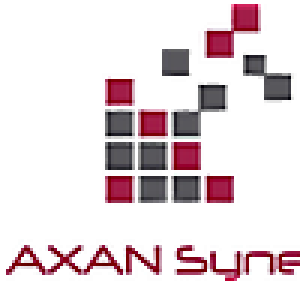


Section 1. Basic topics

Introduction in Logistics and Supply Chain Management

IMS – AXAN Synergy November 2019

AXAN Synergy

Introduction in Logistics and Supply Chain Management

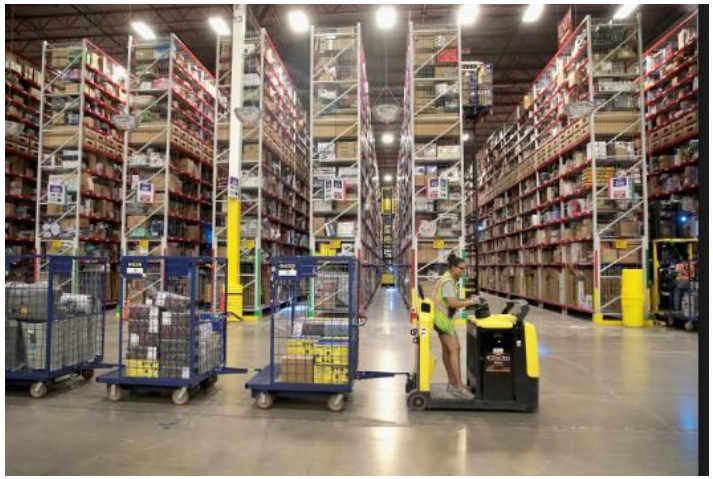
- What logistics are ?
- Why logistics are part of Supply Chain ?

AXAN Synergy

Warehouse:

The center of a company's logistics system is the warehouse. The warehouse can serve one or more business.

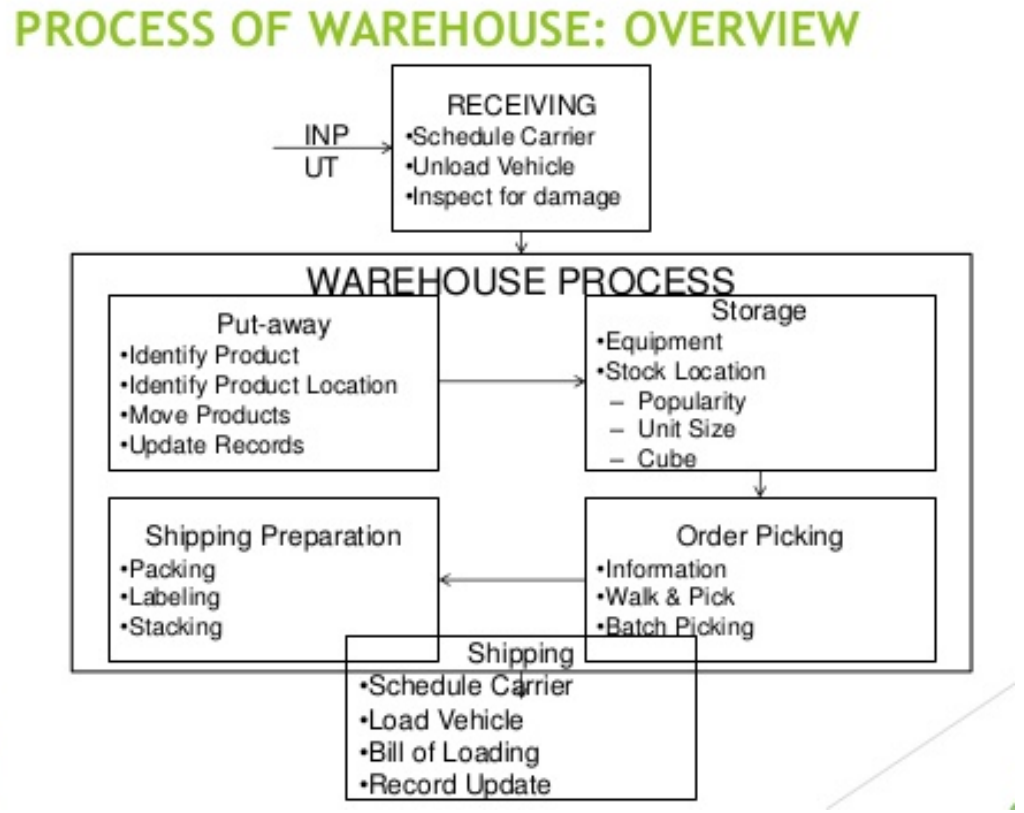
- Types of warehouses
- Warehouse basic operations



AXAN Synergy

Storage

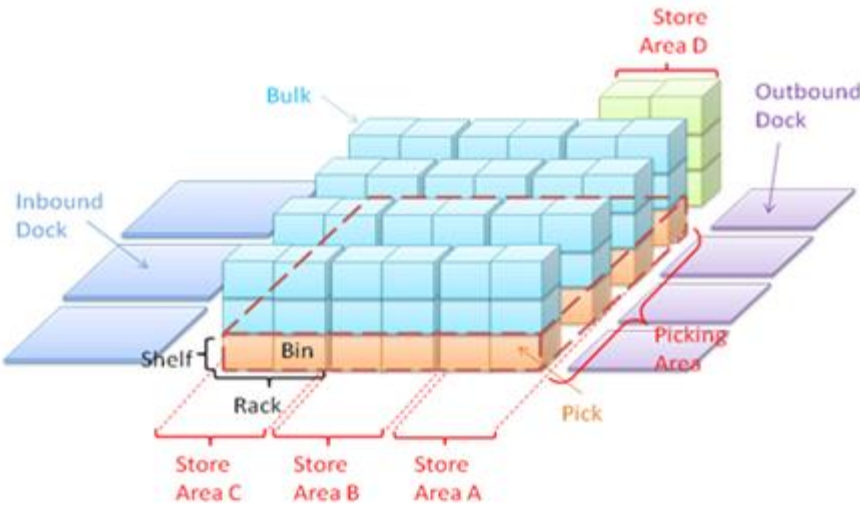
1. Entry of goods
2. Main storage
3. Execution of orders
4. Packaging and marking
5. documents control
6. Output of goods:
7. Other works

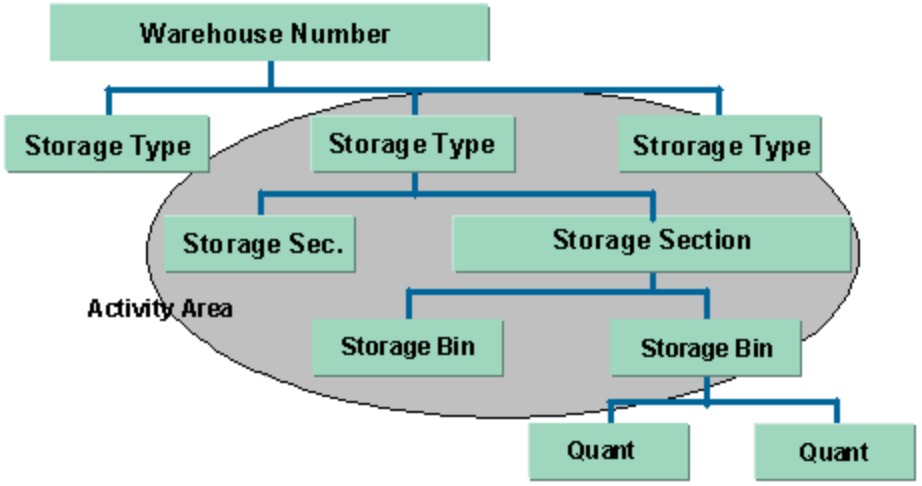


AXAN Synergy

Warehouse locations

Spatial Planning of a warehouse





AXAN Synergy

Naming warehouse locations

- Ramps – Docs

  Docs could have 2 dimensions. The building where they are and the unique number that define the location. **(01.R.97)**

- Store Area

  Store Area could have 2 dimensions. The building where they are and the unique number that define the location. **(01.A.25)**

- Store Locations

  Store Locations have 3 dimensions or 4 dimensions. The building, the row, the column and the level. **(01.B.01.01.02)**

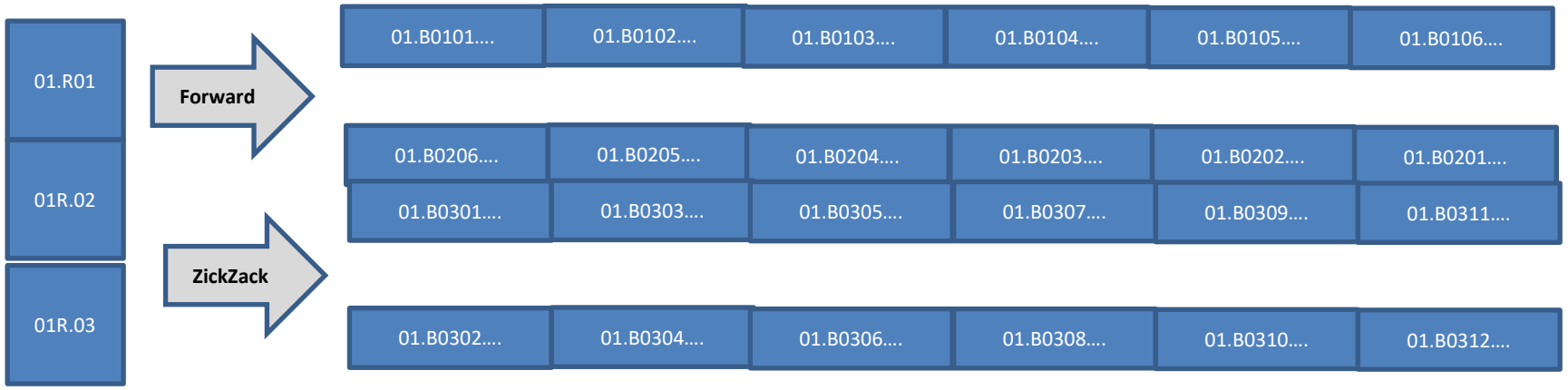
AXAN Synergy

Warehouse dimensions

- Building
- Storage type
- Row
- Column
- Level

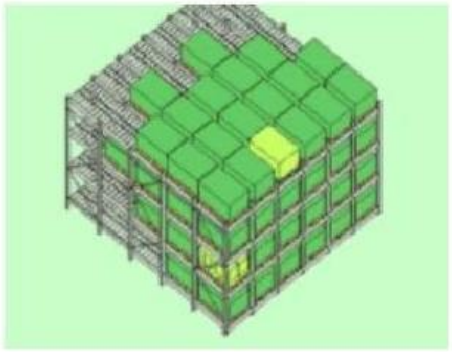
AXAN Synergy

Moving inside the warehouse

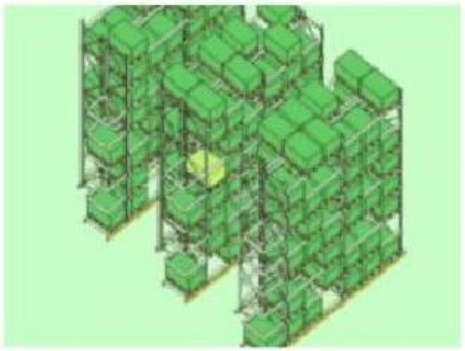


AXAN Synergy

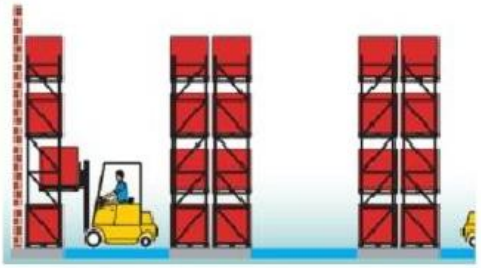
Storage Types



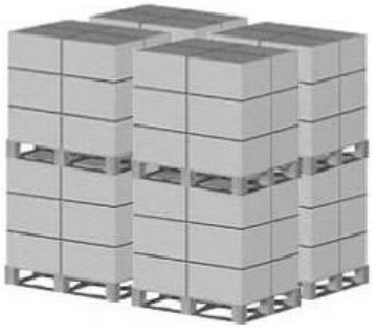
Drive – In Racking



Pallet Racking



Broad Aisle Installation

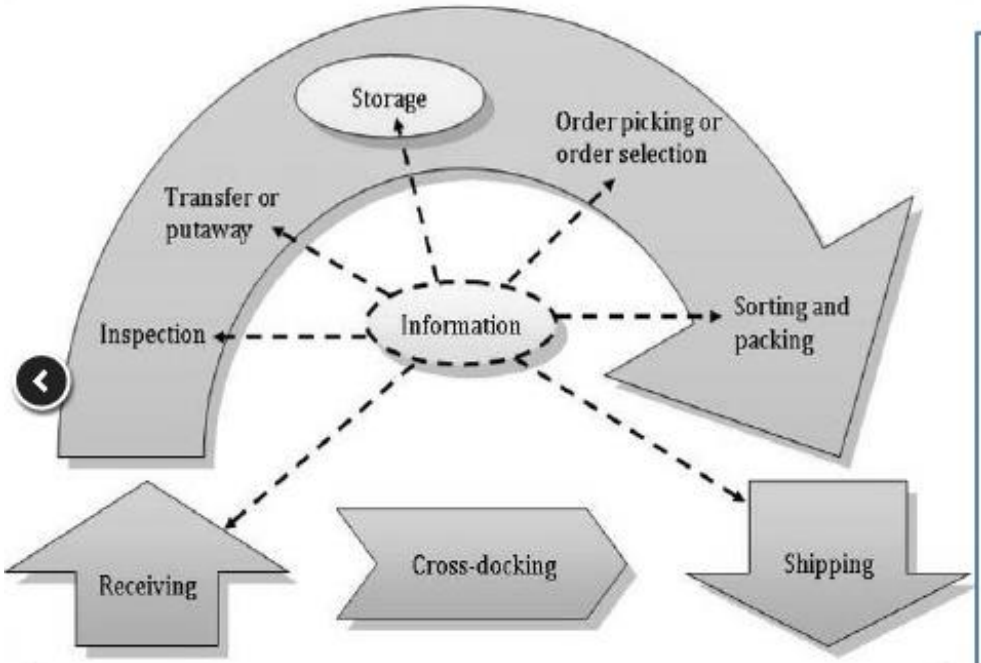


Block Stacking

Push Back

AXAN Synergy

Design of processes using technologies



Typical Warehouse Process Flow

The general flow of material in the warehouse is as depicted in the adjacent figure

The logical flow of the process is:

1. Receipt
2. Inbound Inspection
3. Putaway
4. Storage
5. Order Picking
6. Order Sorting and Packing
7. Dispatch/Shipping

Each Process itself can be performed in a number of ways.

For example there are numerous ways in which the materials can be stored – Racks, On ground, Pallets, etc. These topics are further explained in the following sections

AXAN Synergy

Receiving

The following steps and procedures are performed by Central Receiving staff;

a) Checking all the material/goods received against the supplier's packing document.

b) Inspect all external packages for any visual damage. If visible damage is apparent, conduct a more thorough inspection of the contents of the packages to look for obvious damage to the item in the carton or container.

c) All completed received goods are immediately fork away to the put away central.

d) Any products found with damage packaging or variance in quantity, must be indicated on the receiving document. Picture of the damage parts are also required to be taken for record purposes. Report the damage to the proper authority in the organization.

AXAN Synergy

Sample Goods Received Note

GRN Number:

Goods Received Note

Supplier .....Date..... Advice note number .....

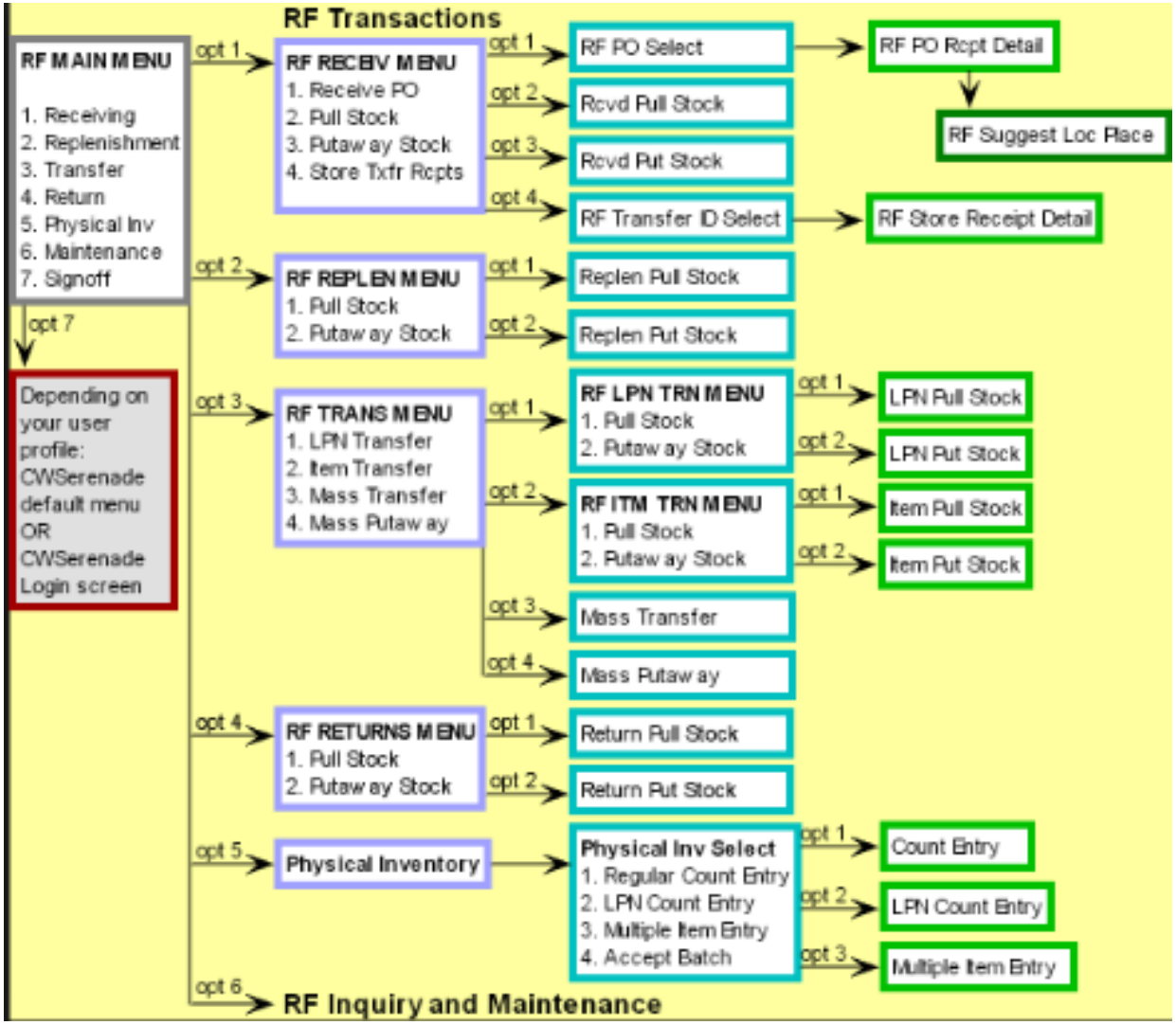
Order Number.....Delivery Location.....Cost-Centre.....

	Goods	Pack Size	Price	Order Quantity	Delivered Quantity	Comments
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						

Received by..... Checked by.....

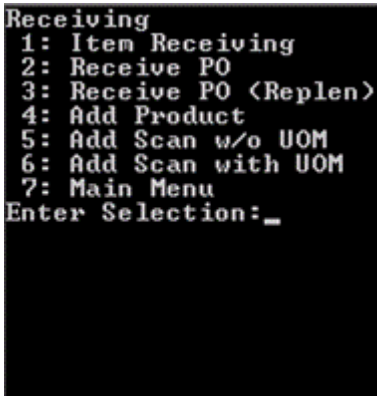
1. Accounts/Finance dept. copy
2. Supplier Copy
3. Stores/Goods Inwards copy

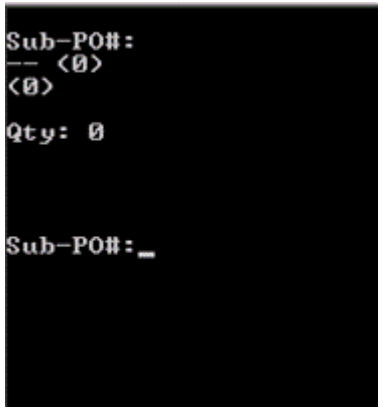
AXAN Synergy

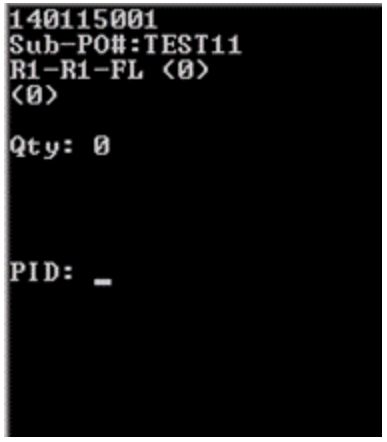


AXAN Synergy

Receiving via RF







Pending on receiving type

AXAN Synergy

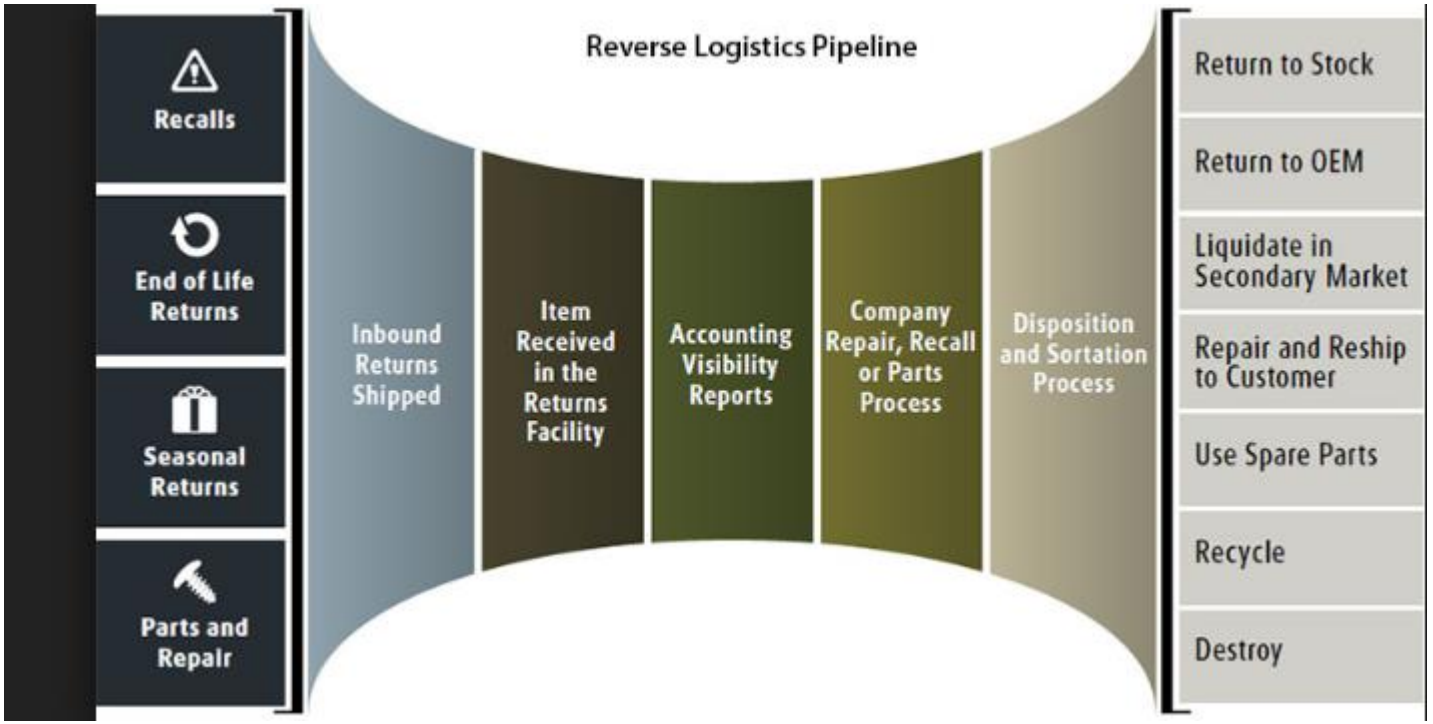
Single(Serial) Shipment Container Code (SSCC) – The Logistics Unit

A Logistics Unit, e.g. pallet, container etc. are made up of identical or different Units

It is created for the purpose of storage and / or transportation of products in logistics chain. For encoding it is used the 18-digit Serial Code Logistics Unit - SSCC (Serial Shipping Container Code) and is depicted by EAN-128.

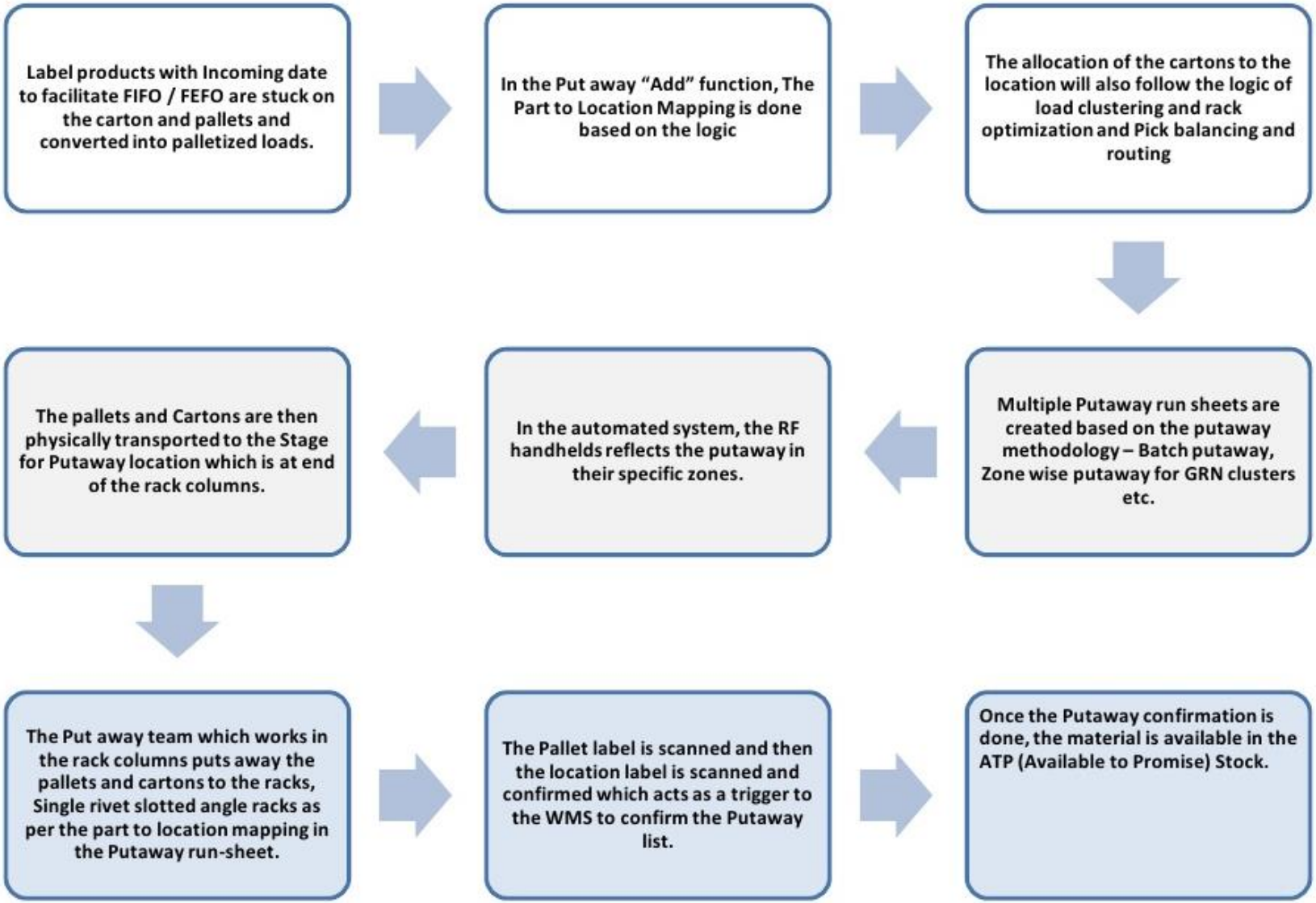
AXAN Synergy

Returns



AXAN Synergy

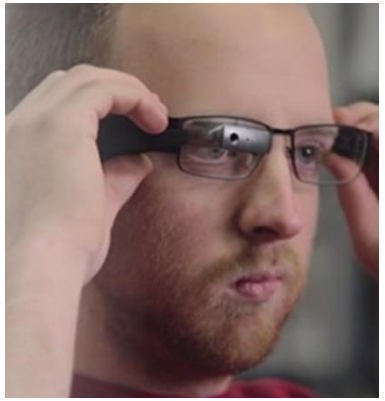
Storage – Put Away



AXAN Synergy

Picking

- With hardcopy picking list
- With RF Scanner
- Pick 2 Light
- Voice picking
- Vision picking



AXAN Synergy

Type of Picking

Types of order picking include:

- **piece picking or picker to part method**: the order picker(s) move(s) to collect the products necessary for one order. This is commonly seen in distribution centres for retail chains whereby a shop will require a great many replenishment goods. A picker may pick all or part of the replenishment for one shop.

- **zone picking method**: each order picker is assigned to one specific zone and will only realize order picking within this zone. For instance, in an electrical retail environment, both small and large items may be required and a picker on an electric vehicle such as a powered pallet truck (PPT) or an order picker vehicle may pick large and heavy items whereas a foot picker may pick small and light ones from another part of the warehouse. Eventually the two picks are collated.

- **wave picking method**: (Wave picking) the order picker(s) move(s) to collect the products necessary for several orders

- **sorting systems method**: no movement of the order picker(s), the products are brought to him by an automatic system (conveyor system, automatic storage ...).

- **pick to box method**:The WMS direct the operator to pick the sku from a storage bin or a transportation box and to put it inside the shipping box or into a box assigned to the sales order.

AXAN Synergy

Picking by hardcopy picking list

Picking List

P.L ID : 4711/190228

Order Number :

Customer :

Execution Date :

Line	Location	Item Code	Description	Lot	Pck Type	Qty	Qty Picked	Qty Left
1	01.B.020101	QE-1001	V-Max Energy Drink 330ml	09-180516	Box	10		550
2	01.B.020401	9-890	Monster Energy Drink Green 500ml	1235-020217	Box	100		2
3	01.B.060601	4567-01	Coca Cola Can 330ml	98/1/567	Can	4		986

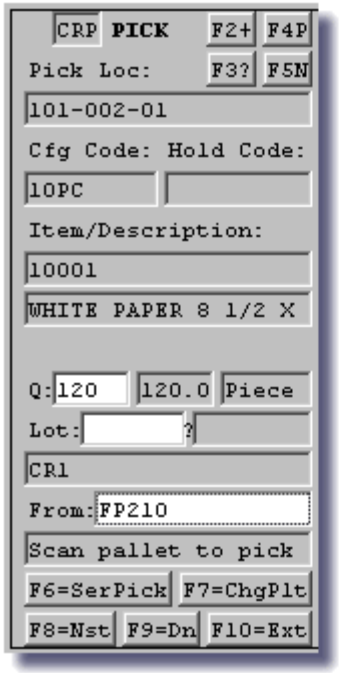
User :

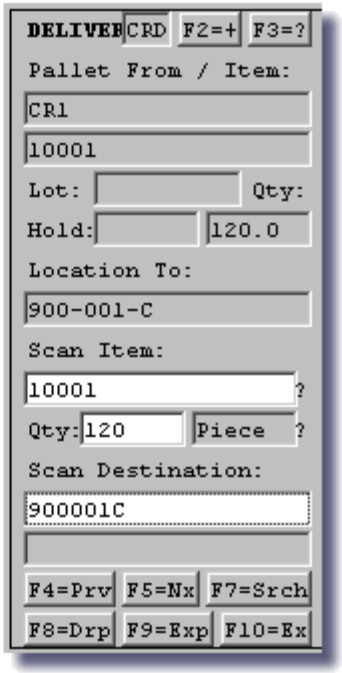
Checker :

AXAN Synergy

Picking with RF Scanner

https://www. youtube.com/watch?v=R1oLUMsijhY





AXAN Synergy

Pick 2 Light

All lights illuminate with respective pick quantities.

Work indicator will display container ID.

Required items are placed in the container.

The operator then extinguishes the light to confirm the pick.

Upon completion of all picks, the work indicator will display 'DONE'.

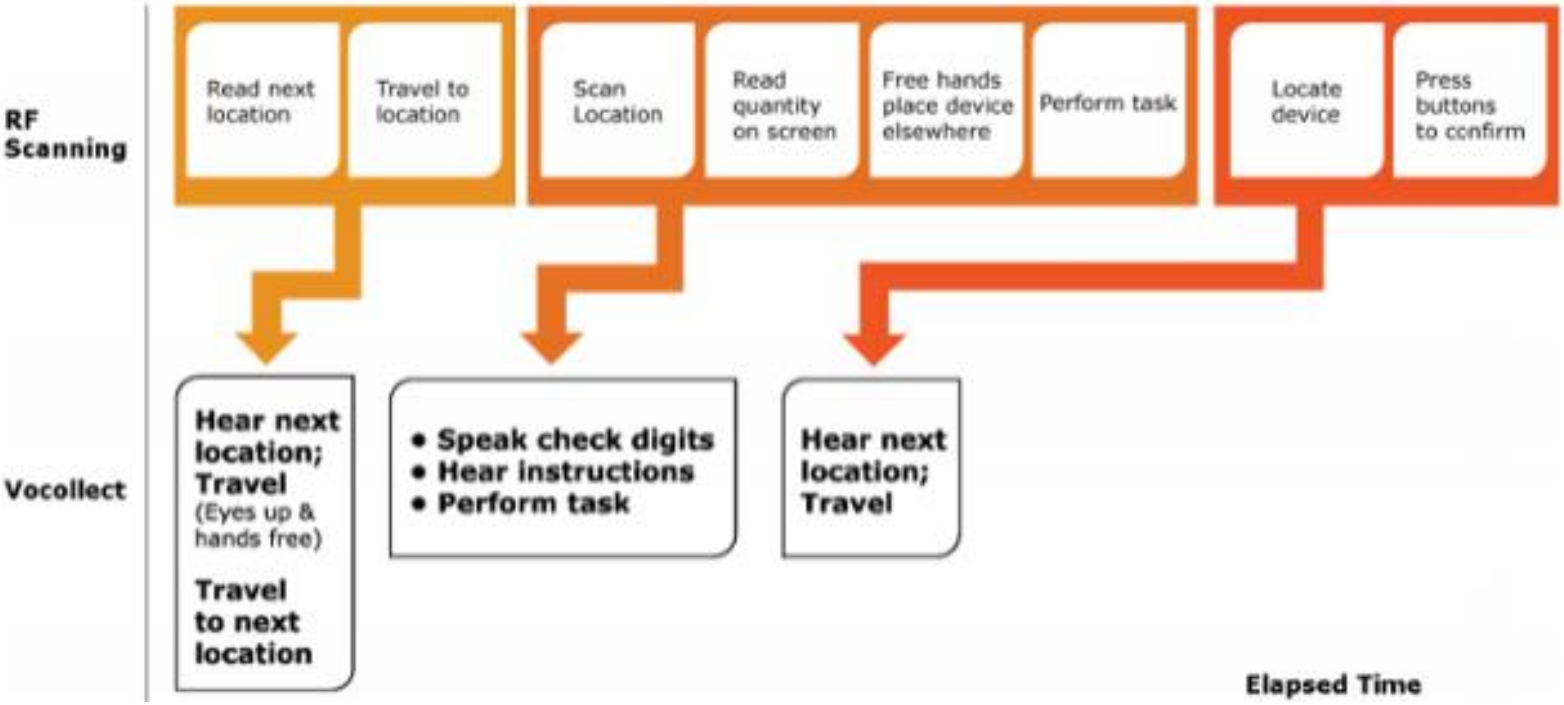
AXAN Synergy

Voice picking

https://www.youtube.com/watch?v=0Zbw4vY5NKU

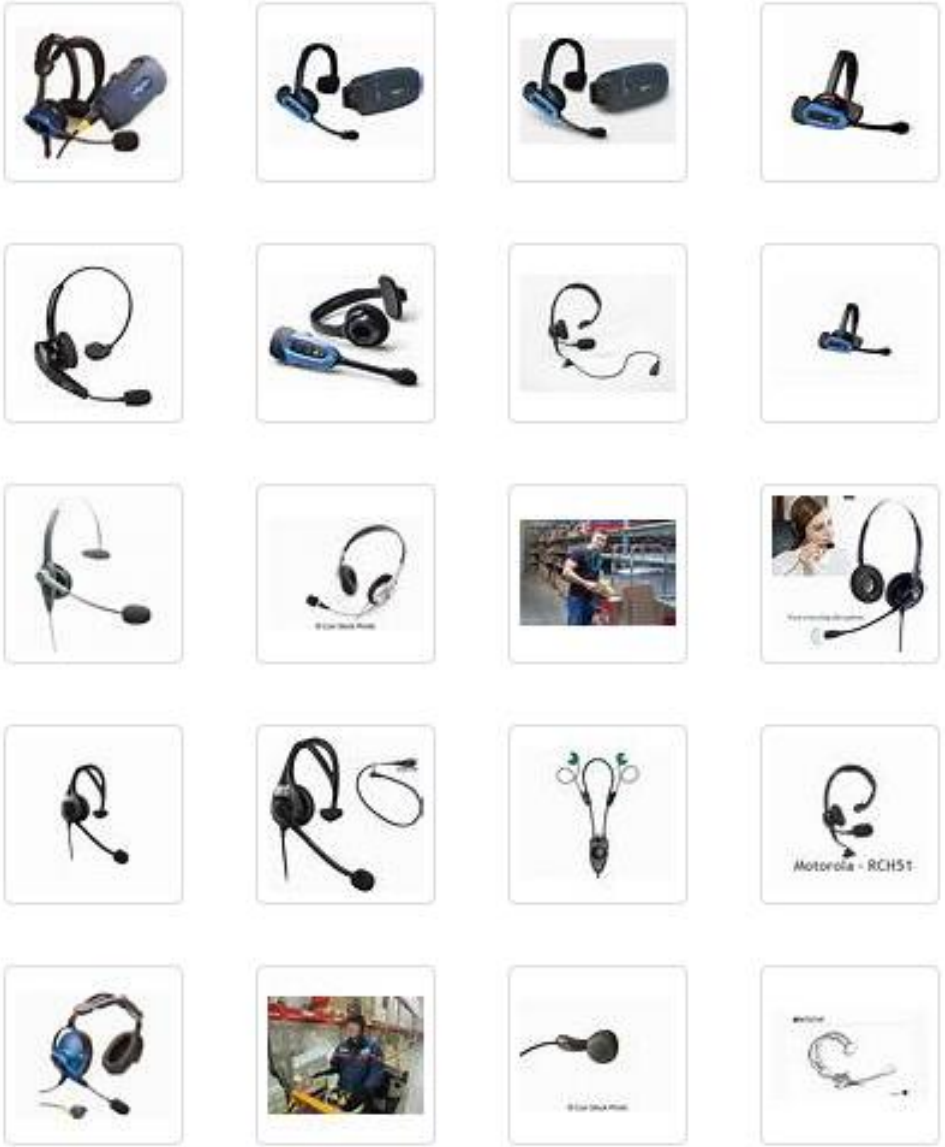
AXAN Synergy

RF picking VS Voice picking



AXAN Synergy

Voice picking headset



Voice picking phonetics orders

Ανανέωση / Ananeosi / Refresh : Refresh and recheck quantity in the location after a refill.

Έξοδος / Exodos / Exit : Exit from the system.

Επόμενη θέση / Epomeni Thesi / Next location : When the picking location is empty the system informs for refill and it give us new location to pick.

Θέση / Thesi / Location : We use this order when we didn't hear clear the location where the system is sending us. So system repeat the location name.

Κλείσιμο εργασίας / Klisimo ergasias / Task close : We use this order to declare that even the fact that the picking list is not finished our pallet is full.

Μηδενισμός / Midenismos / Initialize : We use this word to inform the system that even the system say there is quantity of an item in the location there is not. This order initialize the location.

Πείτε το πάλι / Pite to pali / Repeat : In case we didn't hear what the system say.

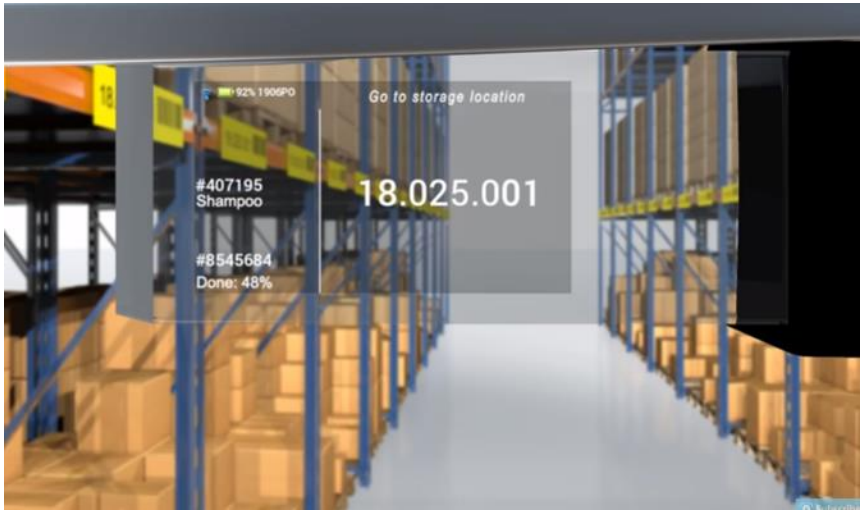
Σπασμένα/ Spasmena / Dameged : In case we pick boxes which are open and some pieces are missing we can pick the box by declaring that and the number of pieces we put in the order.

Υπόλοιπο / Ipolipo / Remaining : Inform us for the number of locations and boxes have left to complete the picking list.

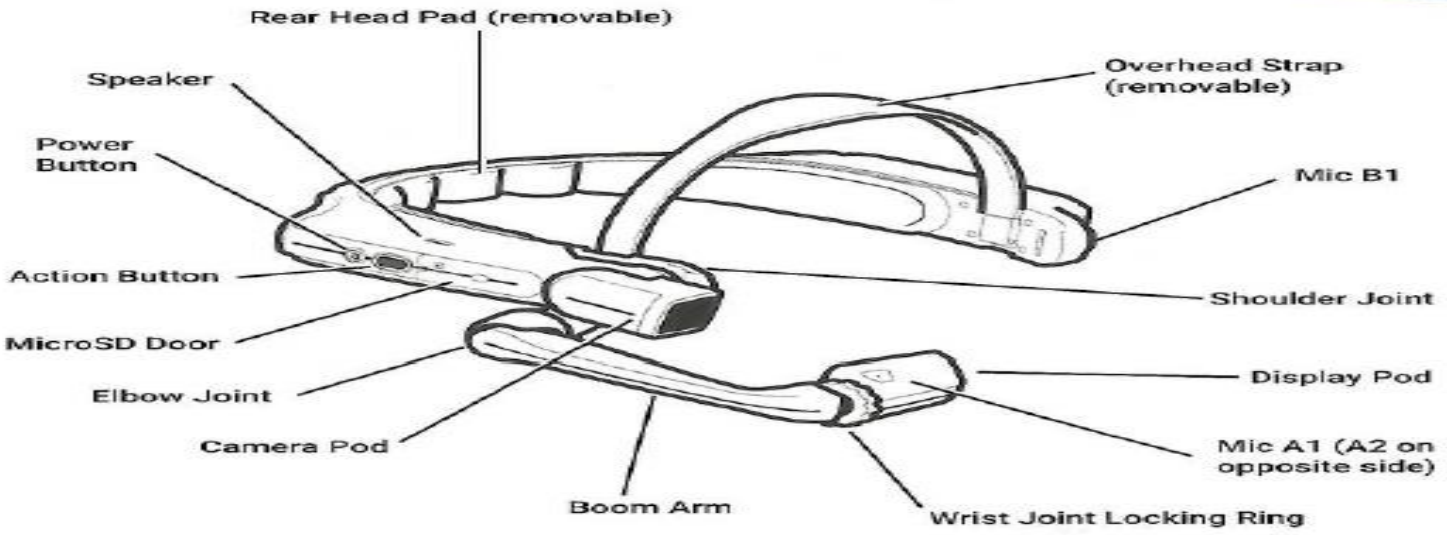
AXAN Synergy

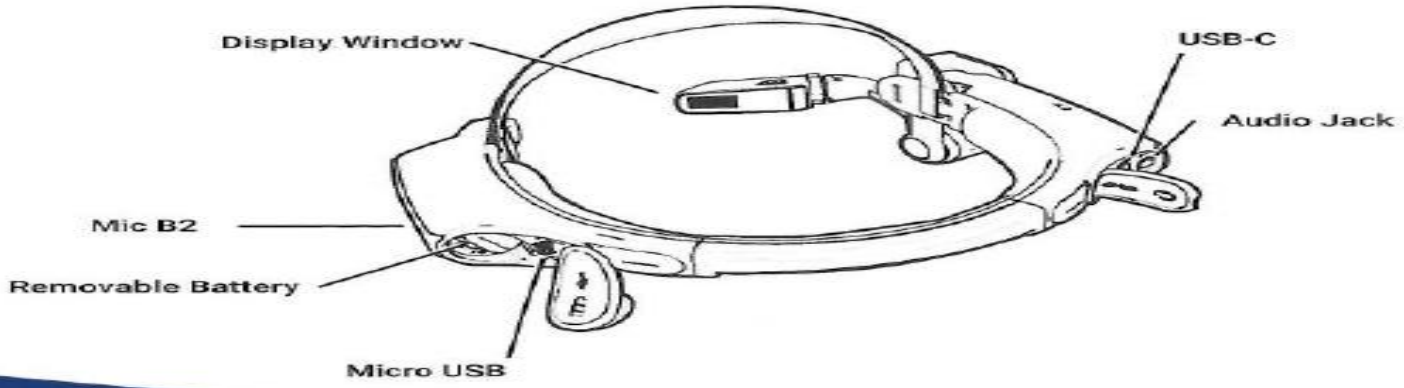
Visual picking

https://www.youtube.com/watch?v=B6zPnVGS0VI



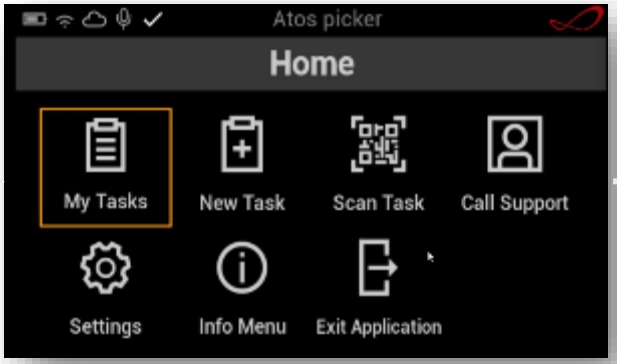
AXAN Synergy

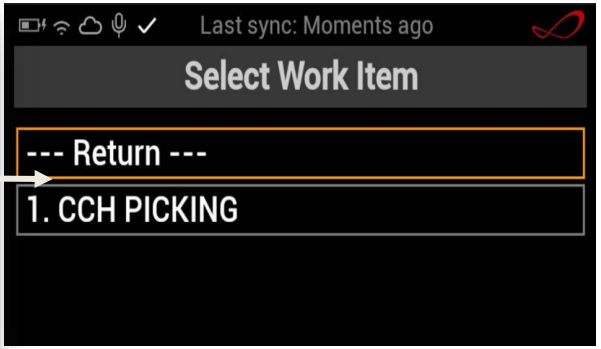


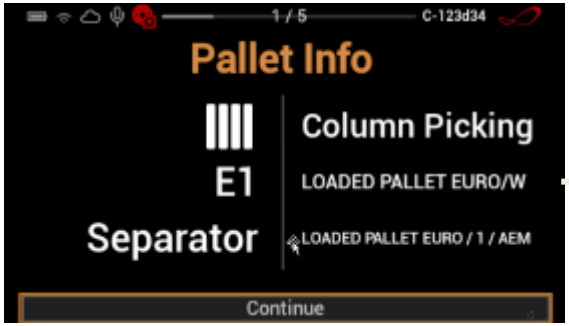


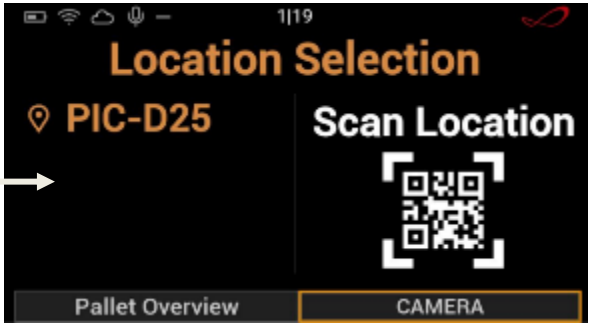
AXAN Synergy

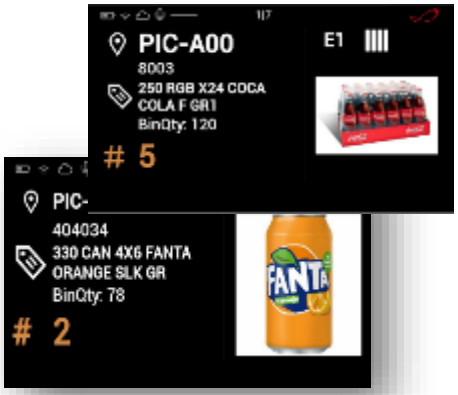
Vision Picking Application - Flow

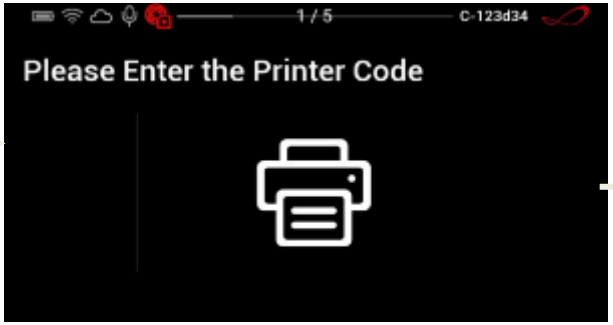












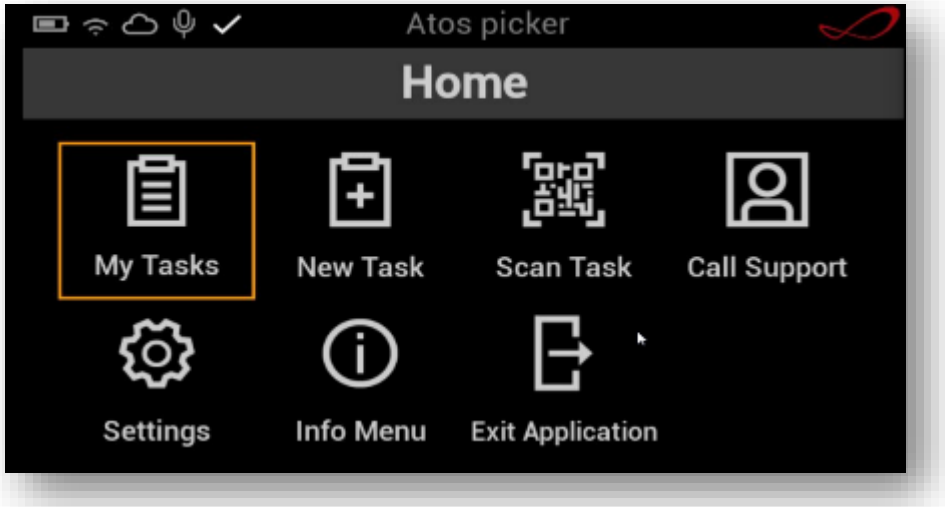
AXAN Synergy

Vision Picking Application - Log On

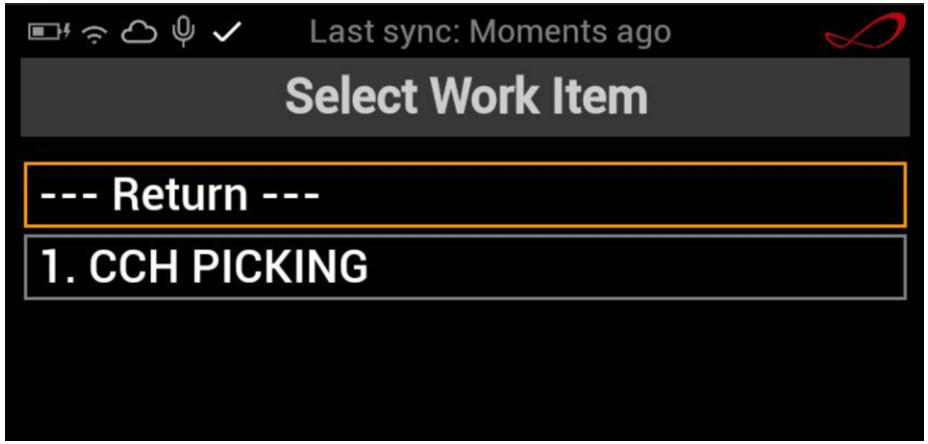
The user logs in by scanning QR code containing his personal credentials.

Vision Picking Application - Start Vision Picking

Voice command “**My Tasks**”



Voice command “**Select one**”

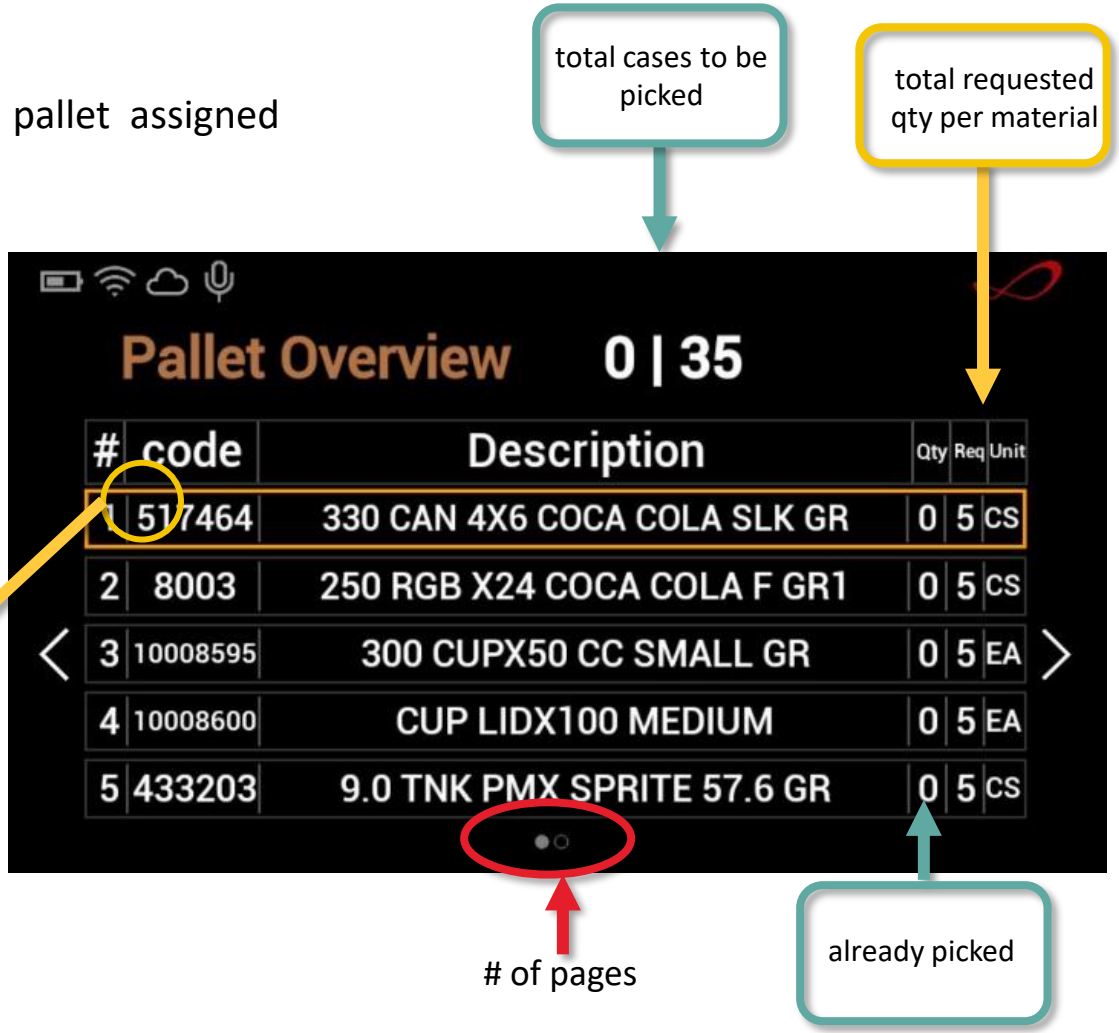


Vision Picking Application – Pallet Overview

Screen shows all materials within a pallet assigned for Vision Picking.

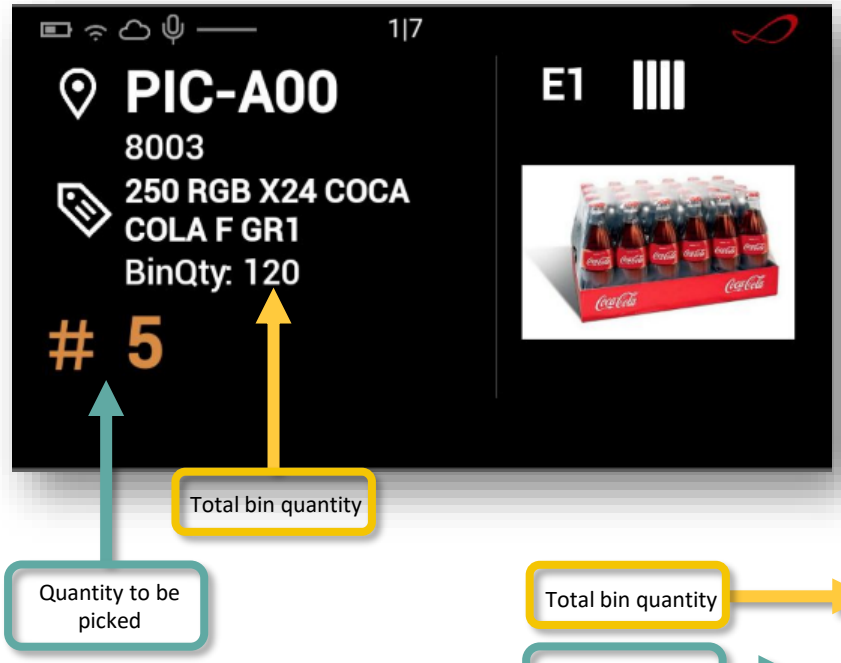
Voice command “Select #”

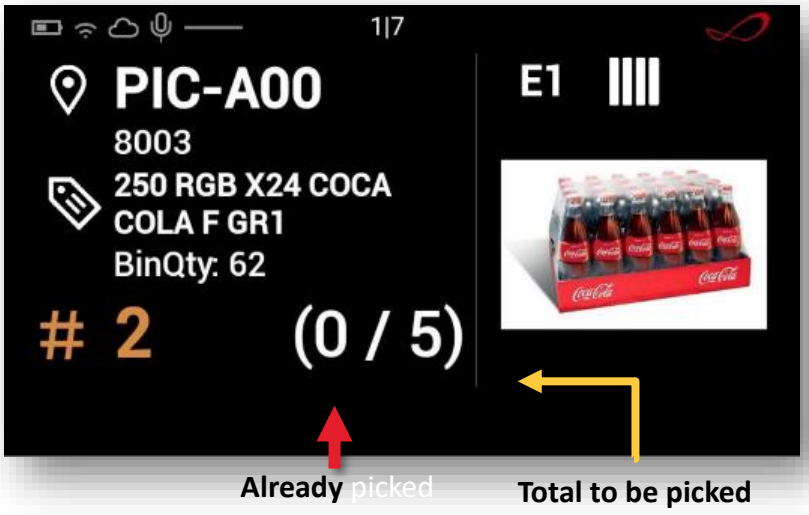
Example:
Voice Command “Select 2”



Vision Picking Application - Picking

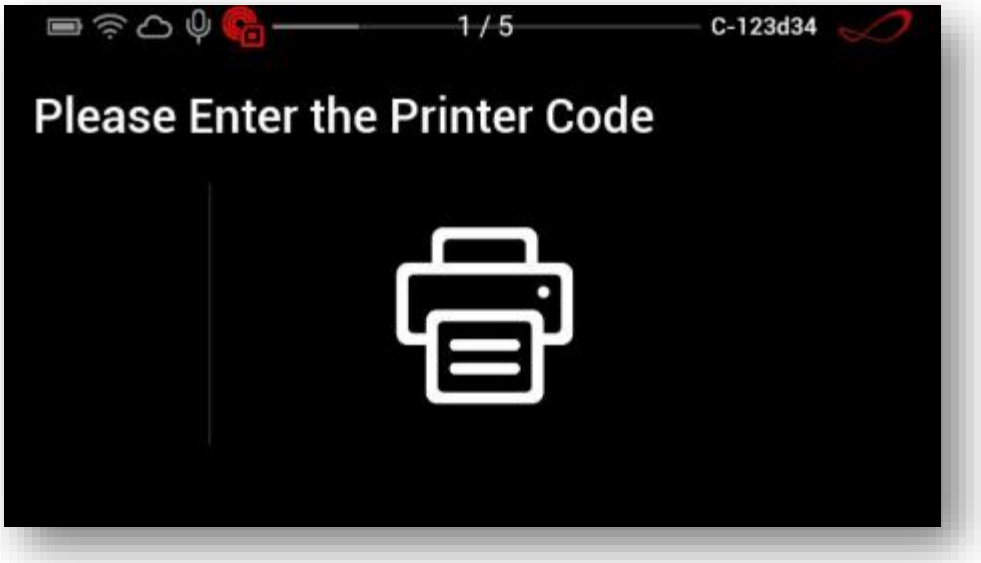
		Selected Bin Location
		Article Details
#		Quantity expected to be picked from the open pallet
(0 / 10)	*shown when active pallet qty could not cover the remaining qty to be picked	(Quantity already picked/ Total Quantity to be picked for that Item)





Vision Picking Application – Print Label

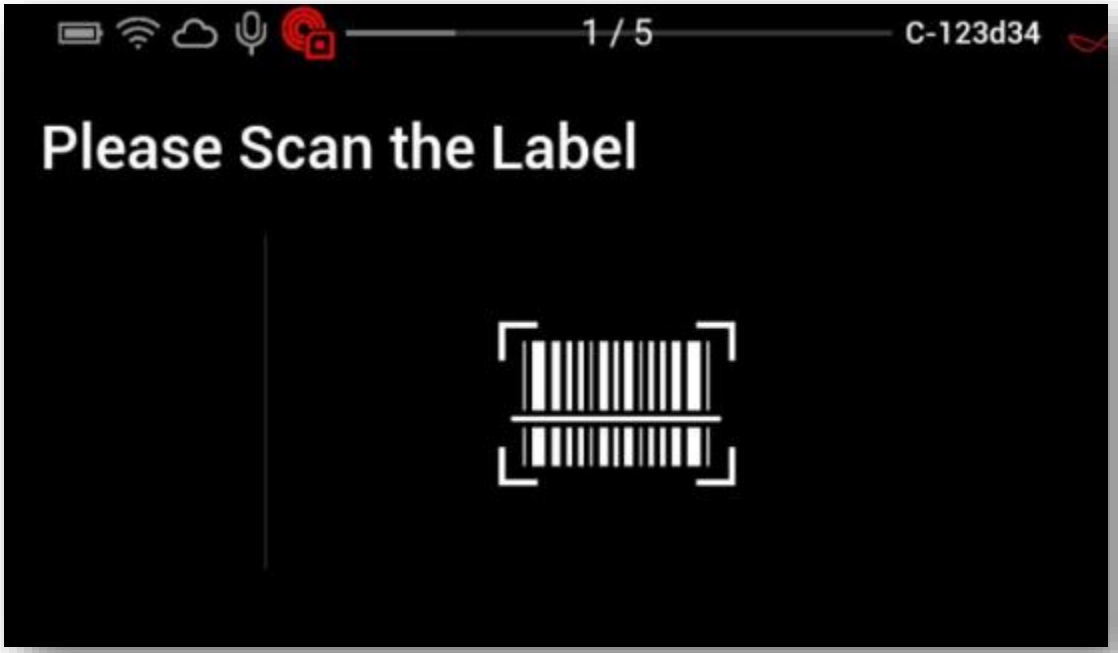
» After all items within a pallet are picked (canceled), user is forced to scan printer QR code.



AXAN Synergy

Vision Picking Application – Print Label

Once the print out is successfully obtained, the picker should scan the SSCC code that is available on the label.



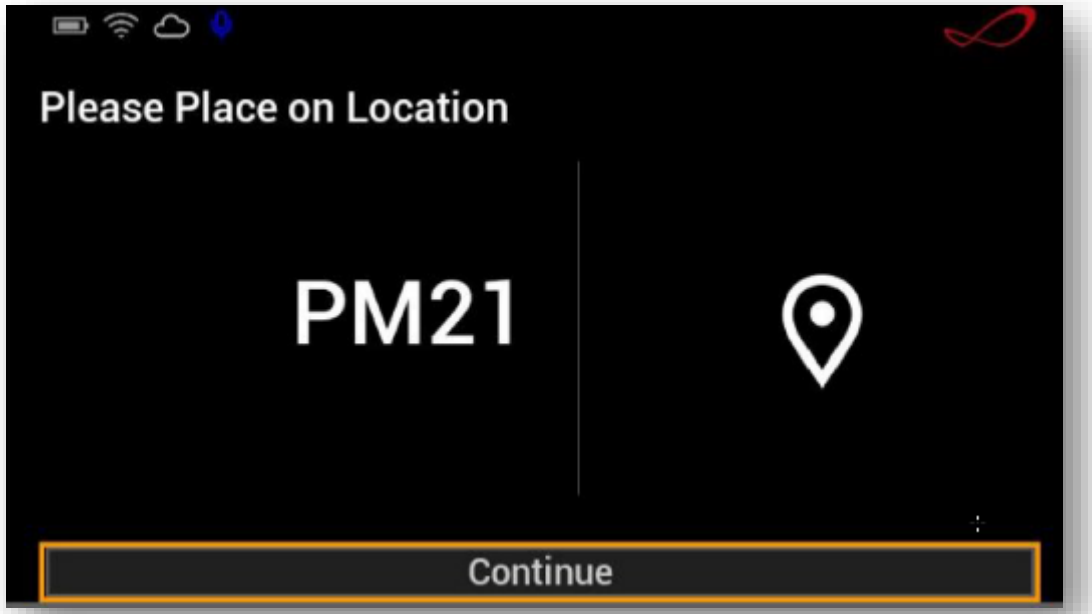
Voice command “**Camera**”

AXAN Synergy

Vision Picking Application – Pre-stage (Loading Ramp) bin

» After scanning the pallet label, Vision Picking application shows pre-stage bin – Loading Ramp where the picker should place the ready pallet.
Once the pallet is placed in the pre-stage bin:

Voice command “**Continue**”



AXAN Synergy

Replenishment

Purpose

Replenishment is the process of refilling picking locations with items.

Example : There is a rack with three compartments (Upper, middle and lower)

When the stock is manually picked by a worker in warehouse, it is always easier to pick it from the lower compartment than picking it from the middle or the upper compartment.

Now consider a scenario that the stock at the lowest compartment is consumed. And there is a new pick request for the stock. The person who would carry the stock now needs to take extra efforts to access the stock at the higher compartments. If this continues then it will be tedious and time consuming.

This is where the replenishment is important.

Whenever the stock in the lower compartment is minimum, we fill the compartment with the stock from middle/upper compartments.

AXAN Synergy

Replenishment

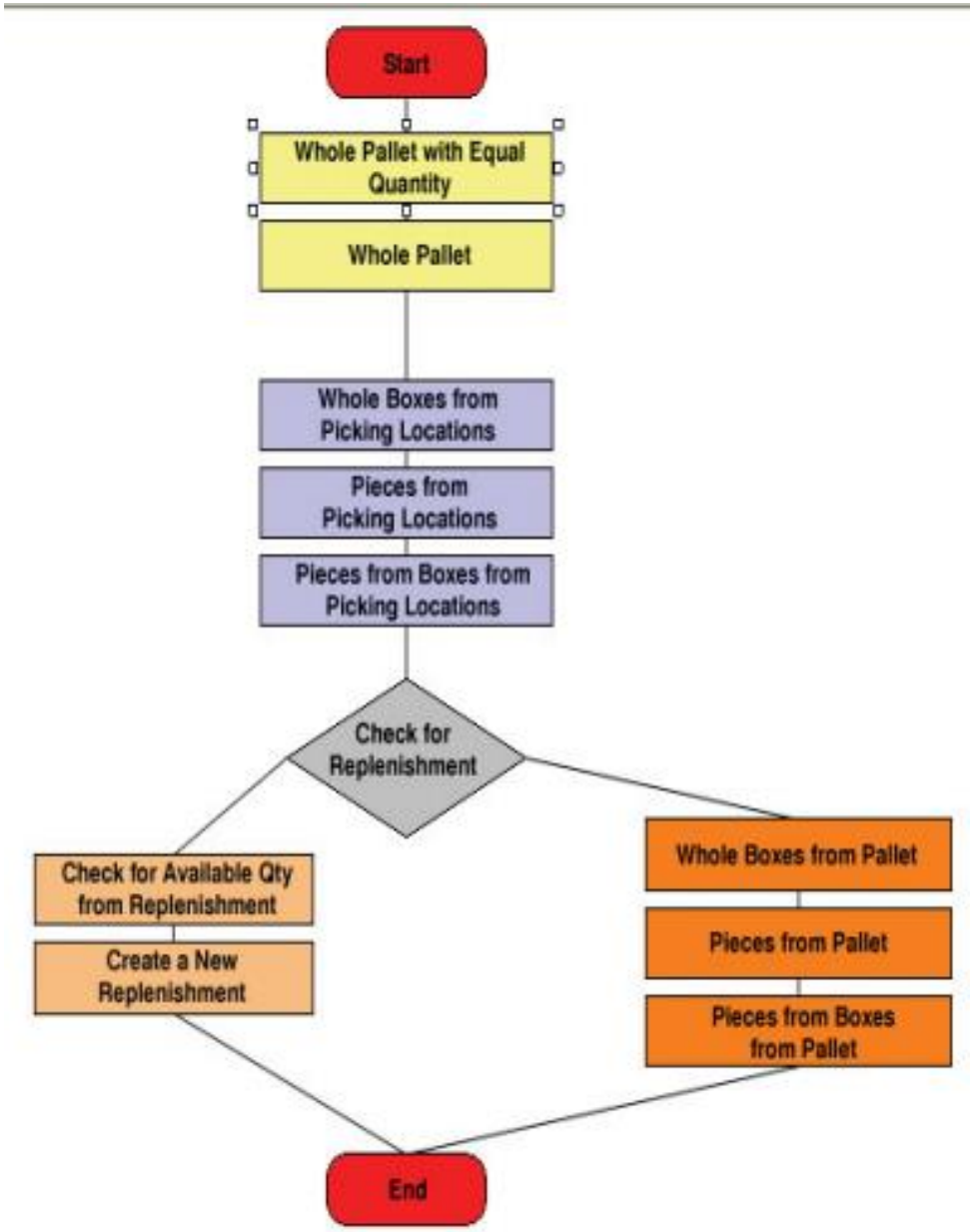
What is the picker doing when a picking location is empty :

1. Skip the task and goes to next location
Warehouse's where the way that the order is palletized is not important.
Minus : When the specific order picking finish we have to return to the locations we skip
Plus : We don't spend time waiting for replenishment

2. Wait for goods arrival.
Warehouse's where the way the order is palletized is important
Minus : We spend time waiting
Plus : We don't return to same location twice.

AXAN Synergy

The picking flow



AXAN Synergy

Packing – Wrapping

- Pallet wrapping

  https://www.youtube.com/watch?v=ZuYQRratfVU

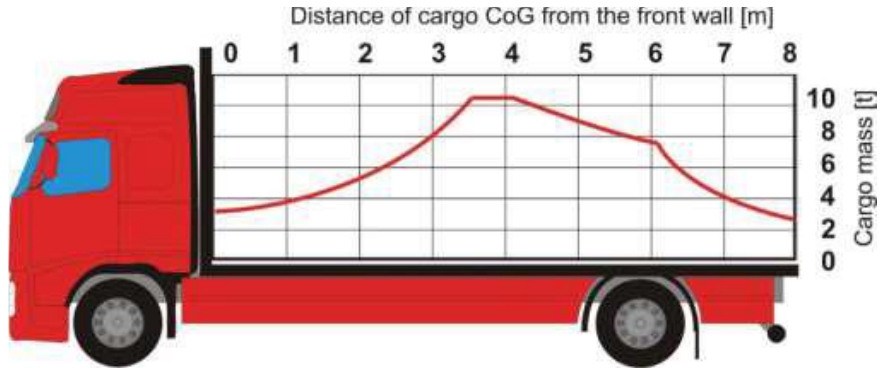
- Order Packing

  Order packing is the warehouse process of consolidating all items in a sales order into an appropriate container and getting it fully prepared for shipment.

- Loading

AXAN Synergy

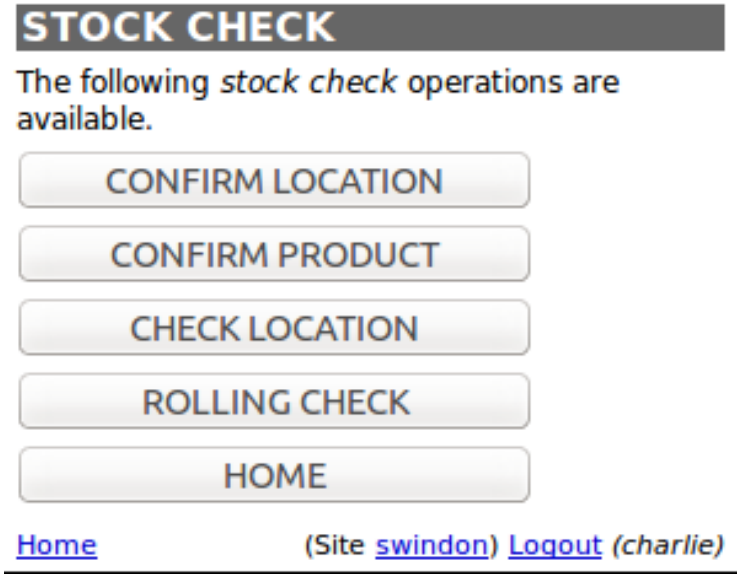
Loading



AXAN Synergy

Other actions

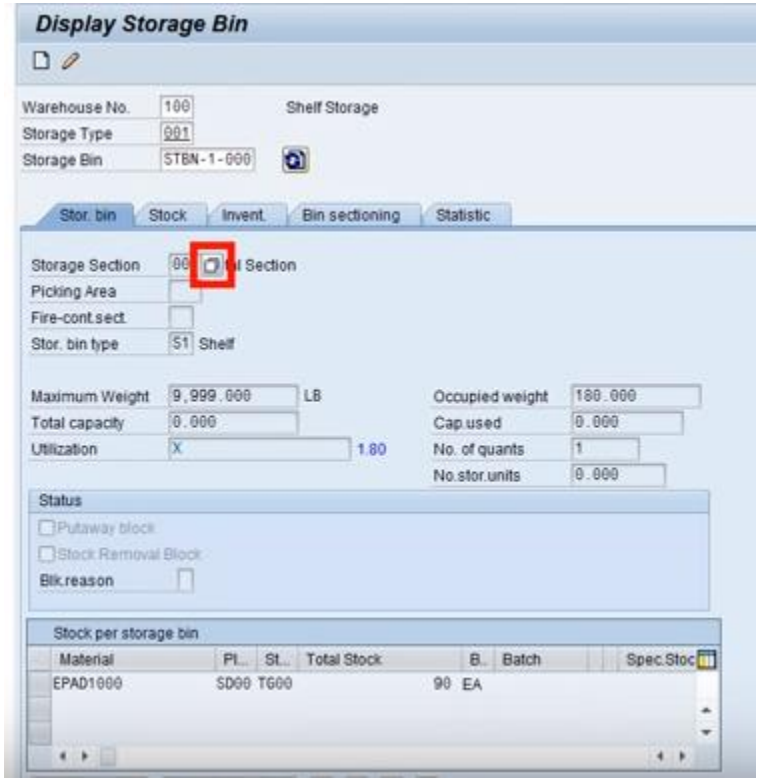
- Location stock check
- Inventory search
- Cycle count
- Moving stock



AXAN Synergy

Location stock check

- Define location
- Physical count
- Act as your instructions say



AXAN Synergy

Inventory search

“Inventory checking" is the physical verification of the quantities and condition of items held in an inventory or warehouse.

- Define Item code (SKU)
- Visit locations
- Physical count
- Act as your instructions say

AXAN Synergy

Cycle and inventory counts

A **cycle count** is an inventory auditing procedure, which falls under inventory management, where a subset or all of inventory, in a specific location or in the whole warehouse, is counted on a specified day.

The purpose of cycle counting is to verify the inventory accuracy and even though it is not an adequate procedure to be used to correct inventory errors, it is an adequate way to identify the root causes of inventory errors.

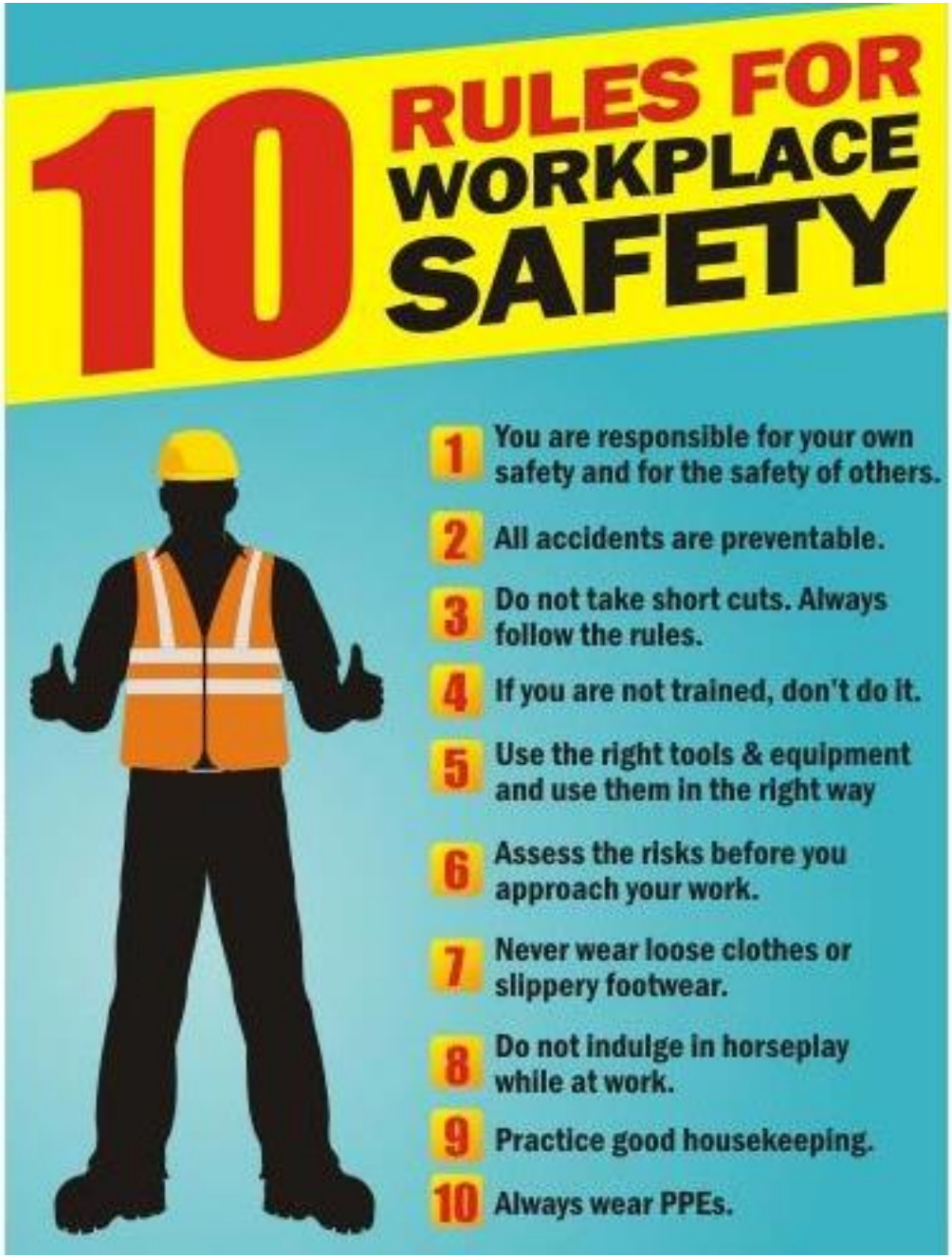
AXAN Synergy

Section 2. Health and Safety

Introduction in Logistics and Supply Chain Management

AXAN Synergy

https://www.youtube.com/watch?v=WHQlylzS1rc



AXAN Synergy

Personal Protection Equipment

Personal protective equipment (PPE) is protective clothing, helmets, goggles, or other garments or equipment designed to protect the wearer's body from injury or infection.

AXAN Synergy

A leading cause of back injury at work is lifting or handling objects incorrectly.

Learning and following the correct method for lifting and handling heavy loads can help prevent injury and avoid back pain.
Check out these safe lifting and handling tips, recommended by the Health and Safety Executive.

Think before you lift

Plan the lift. Where is the load going to be placed? Will help be needed with the load? Is there equipment you could use, such as a hoist, that could help with the lift? Remove obstructions, such as discarded wrapping materials. For long lifts, such as from floor to shoulder height, consider resting the load midway on a table or bench to change your grip on it.

Keep the load close to the waist

Keep the load close to the waist for as long as possible while lifting to reduce the amount of pressure on the back.

Keep the heaviest side of the load next to the body. If closely approaching the load is not possible, try to slide it towards the body before trying to lift it.

Adopt a stable position

Your feet should be apart with 1 leg slightly forward to maintain balance (alongside the load, if it's on the ground). Be prepared to move your feet during the lift to maintain a stable posture. Wearing over-tight clothing or unsuitable footwear, such as high heels or flip flops, may make this difficult.

Ensure a good hold on the load

Where possible, hug the load close to the body. This should help you make a stronger and more solid lift than gripping the load tightly with the hands only.

Do not bend your back when lifting

A slight bending of the back, hips and knees at the start of the lift is preferable to either fully flexing the back (stooping) or fully flexing the hips and knees – in other words, fully squatting.

Do not bend the back any further while lifting

This can happen if the legs begin to straighten before starting to raise the load.

Do not twist when you lift

Avoid twisting the back or leaning sideways, especially while the back is bent. Keep your shoulders level and facing the same direction as the hips. Turning by moving your feet is better than twisting and lifting at the same time.

Look ahead

Keep your head up when handling the load. Look ahead, not down at the load, once it has been held securely.

Move smoothly

Do not jerk or snatch the load as this can make it harder to keep control and increases the risk of injury.

Know your limits

Do not lift or handle more than you can easily manage. There's a difference between what people can lift and what they can safely lift. If you're in doubt, seek advice or get help.

Lower down, then adjust

Put the load down and then adjust. If you need to position the load precisely, put it down first, then slide it into the desired position.

AXAN Synergy

Lines, corridors and routes in the warehouse

Defining Ramps

AXAN Synergy

Lines, corridors and routes in the warehouse

Pallet overflow in picking area

AXAN Synergy

Lines, corridors and routes in the warehouse

Pedestrian route

AXAN Synergy

Lines, corridors and routes in the warehouse

AXAN Synergy

Signing in the warehouse

Workers should be properly aware of safety procedures on the job as well as any potential hazards in the warehouse. Signage available to distribution centers include forklift safety signs, clearance height and capacity signs, quality control signs, safety reminder signs, and more.

Aisle and pole marking signs help forklift drivers navigate around corners and in tight spots without damaging their equipment and the storage racks and shelves.

Improperly labeled and managed warehouses can be a breeding ground for workplace injuries. Signs should never be taken for granted when it comes to workplace safety.

AXAN Synergy

Signing in the warehouse

AXAN Synergy

Signing in the warehouse

AXAN Synergy

Signing in the warehouse