Functional Requirements Document- Inventory Management

Prepared for
Technica

Version: **2.0**

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Table of Content

Table of Contents

Introduction

1.1 Purpose

The Functional Requirements Document (FRD) describes in common terms:

- An overview of the processes comprising each Work stream
- An overview of each sub-process comprising the Work stream
- Major gaps between the business requirements and the functionality supported by the standard Microsoft Dynamics 365 solution
- The problem summary including current business/environment issues
- Proposed technology to support the new or altered business processes
- How implementation of the proposed solution will benefit the users/stakeholders

The FRD is the starting point of the solution and system development and is a collaborative effort between all business and technology stakeholders. The purpose of the Functional Requirements Document (FRD) is to document requirements for the requested system solution.

The objective of the Functional Requirements Document is to provide enhanced documentation for requirements that are a gap or will require a workaround or process change in order to fit the system solution of the client. The need for any modifications is clarified through the FRD. The FRD forms the basis of the subsequent task concerning the system design.

This document focuses on Warehouse & Maintenance requirements.

1.2 Acronyms

Abbreviation	Explanation
FRD	Functional Requirement Document
System	Dynamics 365
D365	Dynamics 365
NC	Non-Conformity
TO	Transfer Oder
PO	Purchase Order

1.3 Inventory management

The Inventory Management module will handle various aspects of inventory control, including stock keeping, material requests, warehouse management, item creation, goods receiving, project reservations, internal delivery orders, stock transactions, and reporting.

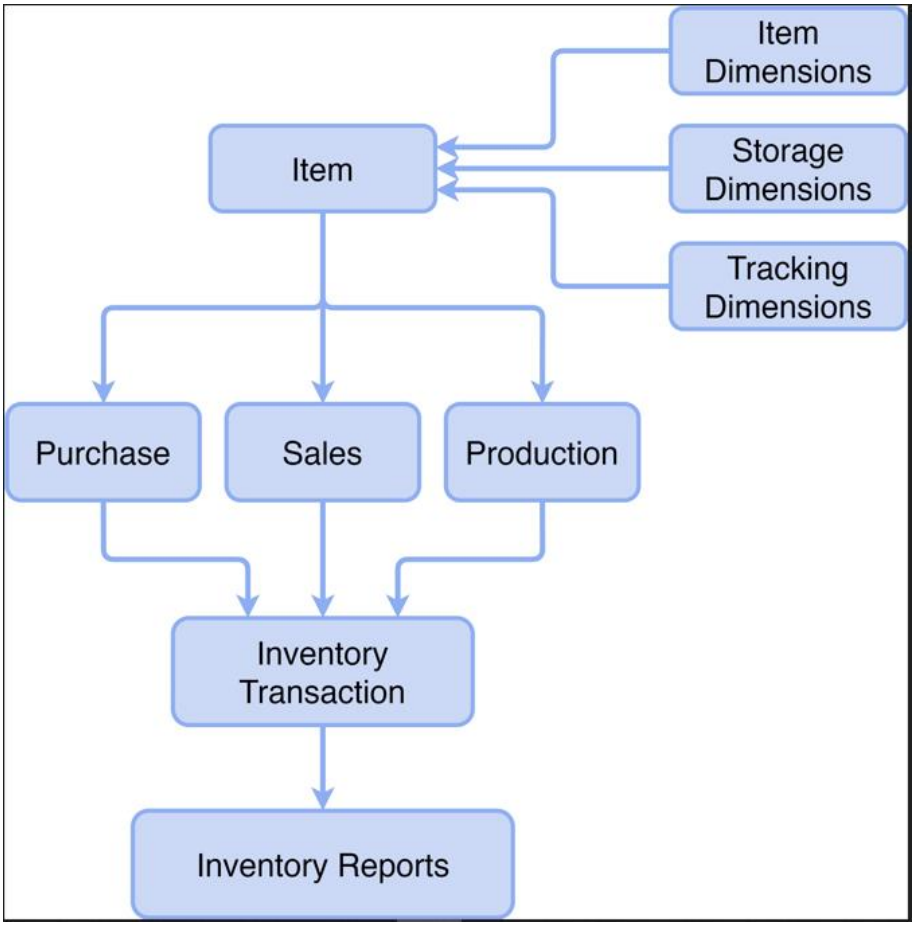


Figure 1 - Inventory management

Product

Technica handles and operate the below type of products:

- Stock items for Spare parts and raw materials
- Finished and semi-finished products
- Service items for non-stock and intangible items
- Product master (Variants size and configuration will be used)

Storage Dimension Groups

Storage Dimension groups determine how items are tracked at the storage level. Technica will store their stock products as per below storage dimensions:

- Site
- Warehouse
- Location
- Inventory Status

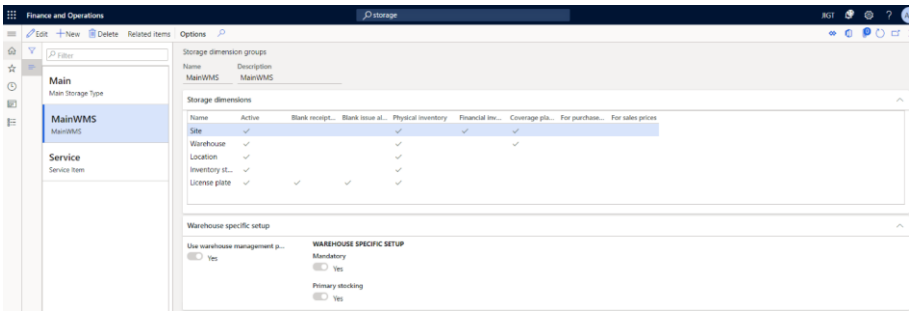


Figure 2 - Storage Dimension Group Setup Page

Some items will be tracked by Site, warehouse and location, and some others would not require Location tracking.

Tracking Dimension Groups

Tracking dimension groups define how items will be tracked during Inbound, outbound and internal stock movements. Different items can have different tracking setup. Technica will adopt the below tracking setup:

- Items are tracked by serial number.
- Items have no tracking.
- No batch tracking is required.

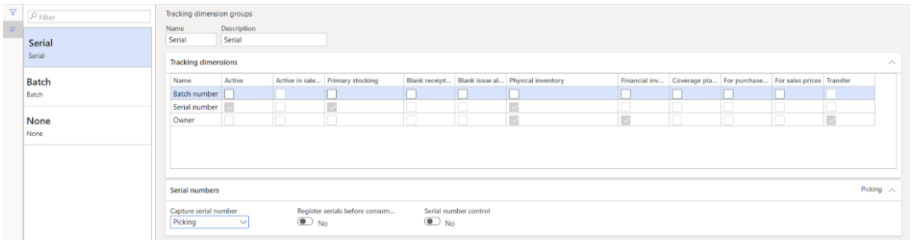


Figure 3 - Tracking Dimension Group Setup page

Product dimension Group

Below are the available product variant that can be used in the system:

- Configuration
- Size
- Color
- Style

The Configuration variant which is related to item attribute will be mainly used, for example we will be creating one conveyor item having several variant configurations. Size might be used as well for tubes to track all tube sizes using one item ID.

Inventory and cost can be also tracked by item variants.

Commented [EA1]: Not Clear! Color? Style? Are these considered as Dimension Groups?

Commented [EK2R1]: D365 has 4 dimensions to be used as variant combinations for items: Configuration, style, color, and size.

Commented [EK3R1]: Configuration (related to item attribute) will be mainly used, for example we will be creating 1 conveyor item having several item variant configurations. Size might be used as well for tubes for example to track all tube sizes using one item ID

Item Model Group

- Technica will follow the WAM (Weighted Avg. Method) item model Group which will define the costing method of the items.
- Standard cost will be applied for finished products.

Category Hierarchy

The Category hierarchy allows the categorization of items in a logical grouping that allows Technica to report on and classify its products. It also allows a lot of control in the workflow engine and allows directing a top node and all its children nodes under one workflow.

Technica will provide the full list during the migration and setup phase.

The Brand and Category of an item are essential to be present in the Hierarchy.

Requirements

ID	Description	Fit/GAP
IN01-001	Define Storage dimension groups	Fit
IN01-002	Define Tracking Dimension groups	Fit
IN01-003	Define Product dimension groups	Fit
IN01-004	Construct Category Hierarchy for items	Fit
IN01-005	Create product variants	Fit

Sites/Warehouses/Locations

Technica has 1 site, multiple warehouses, also it needs to enable the warehouse management feature in D365 FinOps, the warehouses are divided by locations.

The **Warehouse clerk** will be in charge of bringing the local goods to Technica's site, he will then register the goods from the system or from the handheld device which will increase the Total available stock but not the physical available stock.

The stock person afterwards will receive the items on the system when the goods have reached Technica's site. We have the option of directly receiving on the final location or we can generate a work report for the warehouse employees for put away.

1. Lebanon Site Warehouse:
    a. WH Components/Spare Parts (Lebanon):
        i. Location: Mechanical
        ii. Location: Motors
        iii. Location: Cables
        iv. Location: Electrical
        v. Location: Pneumatic
        vi. Location: Wood
        vii. Location: Gaz
        viii. Location: Supplies (Consumables tools, grinding paper, drill bits)
        ix. Location: Samples
        x. Location: Non-Moving items
    b. WH Raw Material:
        i. Location: Mechanical
        ii. Location: Supplies (Consumables tools, grinding paper, drill bits)
        iii. Location: Raw Material
            1. Plates Stainless steel
            2. Tubes Stainless steel
            3. Axe

Commented [EA4]: We need to add location for samples and location for Non-Moving items
We can remove site KSA and site Egypt not needed
Why Spare parts process is included in stock management FRD?

The Warehouse Clerk initiates the process by registering the items on the Device with the actual quantity received; the Put-away location is entered by the user.

Commented [EK5R4]: Locations updated, spare part process to be discussed

Commented [EK6R4]: Warehouse clerk will be in charge of bringing the local goods to Technica, he will register the goods and the stock person will receive the items on the system.

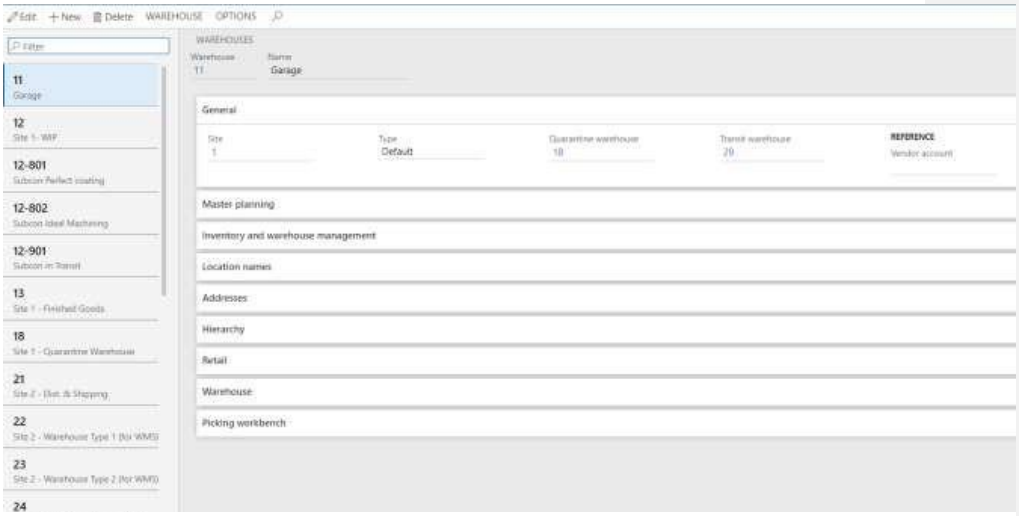


Figure 4 - Warehouse setup

Component stock keeper

The Components Stock Keeper will manage parts, components, and mechanical/electrical items within the inventory.

To-Be Ordering Process

- Anyone in the organization can create a Purchase Requisition (PR) to request materials.
- The PR is submitted for approval.
- Approved PRs are sent to the Store Keeper.
- The Store Keeper checks the availability of requested items and suggests alternatives if necessary.
- If the items are available, a booking is made to reserve the quantity (QTY) for a specific project.
- Reservation of items from PR, reservation is a must from the purchase requisition (Gap).

Commented [EA7]: Ordering process do not match in the Procurement cycle diagram!

Commented [EK8R7]: Will update the cycle in the procurement FRD

To-Be Receiving Process

- Receive Goods
    a. After goods are cleared by logistics, the warehouse receives them. A delivery note from the supplier containing the PO number is required to initiate the receiving process.
    b. PO number from supplier must be mandatory to be provided to avoid confusion of choosing the corresponding PO for the corresponding delivery note.
    c. Reserved goods are linked to the related project.
- Check Quality and Quantity of Parts
    a. Quick quality checking will be used on Device for specific items, the quality control person will only specify whether the item passed or failed the quality control test, we can use later on use the detailed quality check in the system.
    b. Items having failed quality control tests will be automatically received to a non-conformance location.
- Enter Invoice and Close Purchase Order
    a. This step is not applicable in the To-Be process, as Finance handles the purchase order (PO) invoicing.

Commented [EA9]: Goods should be received according to a delivery note from the supplier having the PO number.

Commented [EK10R9]: Added

- Book Received Items on Projects
    a. Items received in the warehouse are booked on the respective projects.

To-Be Process of Material requests for Projects

- Check Availability of Items and Allocation
    - Material requests are made for specific projects.
    - The warehouse checks the reservation status of requested items on the project.
    - Execute movement of items from inventory to the project.
- Prepare Goods Ordered
    - Goods are ordered based on the material requests.
    - This involves picking the required goods from inventory for production.
- Receive Internal Delivery Order (IDO)
    - IDO is the process of picking items from the warehouse for production.
    - Warehouse receives IDO to pick goods and deliver them to Production for execution and processing.
- Warehouse executes full work quantities, and production order phases request picking only for the required goods at a given stage, which is handled in the production route.
- PR can be done manually by the requesters for material items which will be linked to a specific project. Moreover, master planning will be used to automate the process.
- The requester must be specified when running the master planning since several users may request the same item.
- Usually the PM will run the item requirement for a specific project, so he will be considered as the requester of these planned orders.
- Deliver Parts
    - Delivery of the picked goods to production for further processing.
    - The required quantity may differ from the on-hand availability. For example, the required quantity may be 20 cm, but the on-hand availability may be 2 pieces, each measuring 10 cm. All item sizes must be tracked in inventory, item variants will be used to serve this requirement.
    - For Item Splitting, the inventory adjustment journals can be used. For the positive quantity, the correct cost amount must be specified.

Commented [EA11]: Receive IDO delivery order should be under TO-BE process of material request for projects not under TO-BE receiving.

Commented [EK12R11]: IDO Receiving moved to Material requests for projects

Inventory Operations

- Stock Out Transactions
    - Stock out transactions occur when goods are picked from inventory for production.
- Return Items from Factory to Warehouse
    - After the project is completed, the factory returns goods (parts or raw material) back to the warehouse.
    - The return process is initiated from the specific project to the warehouse.
    - There may be a need to switch reservations based on the priority of operations. Existing reservations can be switched to accommodate the required items.
    - The returned items are received in the warehouse, including components (motor) and raw materials.
    - After the picking process in the factory, the items are returned to the warehouse.
    - Quantity and quality checks are performed on the returned items.
    - Stock in transactions is recorded to update the inventory with the returned items.
- Reservation on Item
    - Items can be reserved for specific projects.
- Issue Min/Max Reports
    - Each item is defined with minimum and maximum levels, similar to Out-of-the-Box (OOB) settings.
    - Min/Max reports are generated to facilitate inventory planning and generate a master plan.
- Issue Remaining Items Reports
    - All requests to a project are initiated by a purchase requisition to track the items picked, returned, and actually used on the project.
    - A picking journal can be issued to reserve items for that particular project.
- Issue Consumption Reports

    - Consumption reports are generated as needed to track the items picked on specific projects.
- Check Non-Moving List for Equivalent Items
    - Slow-moving items are identified and defined at the item level.
    - The non-moving list provides information on slow-moving items and includes the last transaction date per inventory transaction.
- Advise Requesters to Use Equivalent or Slow-Moving Parts When Needed
    - Requesters are advised to use equivalent or slow-moving parts as alternatives when appropriate.
- Assist in Spot Checks
    - Spot checks are conducted every two weeks to ensure inventory accuracy.
    - Yearly inventory counts are performed annually.
    - The system should provide assistance during spot checks and yearly inventory processes. Stock count process to be used.
- Organize Parts Received on Shelves
    - Efficient organization and arrangement of received parts on the warehouse shelves are essential for easy access and inventory management.
- Check All Items Picked on a Certain Project
    - The system should allow for checking all items that have been picked for a specific project, providing visibility into the items used.
- Check Non-Moving List for Equivalent Items
    - A non-moving list should be generated to identify items that are slow-moving.
    - Slow-moving items are defined at the item level and are flagged based on their last transaction date per inventory transaction.
- Order Replenishment Purchase Requisitions
    - Purchase requisitions should be generated for ordering replenishment of inventory items when stock levels reach predefined thresholds or as needed to maintain adequate inventory levels.

Requirements

ID	Description	Fit/GAP

IN02-001	Item Reservation from PR	Gap
IN02-002	Assign Project on PR or PO	Fit
IN02-003	Generate Work report for employees	Fit
IN02-004	Item reservation on Transfer Order	Fit
IN02-005	Item Requirement and reservation on Projects	Fit
IN02-006	Consumption report on Projects	Fit
IN02-007	Stock count journal	Fit

Raw Materials Stock Keeper

- Receiving Drawing Material Requests
    - Material requests are made based on the drawing requirements.
    - Picking of raw material follows specific procedures and considerations.
        - Picking of Raw Material
            - The picking process for raw materials has specific requirements.
            - In some cases, the requested raw material length may exceed the actual length needed for the project.
            - The warehouse provides more than the requested length, expecting the return of the remaining piece for use in other projects.
        - Return of Remaining Pieces
            - The warehouse follows up with the factory to track the consumption of raw materials for each project.
            - The warehouse registers on paper the usage of each raw material for a specific project, based on the Length * Width (in square meters) calculation.
            - Adjustment entries are made to reduce the stock accordingly.
        - Checking Lengths and Dimensions
            - The warehouse checks the lengths and dimensions of the raw materials if available.
        - Checking Availability in Used Parts
            - The warehouse checks the availability of used parts, which may be suitable for certain requirements.
            - In some cases, the warehouse may suggest or pick an alternative item instead of the one specified in the Bill of Materials (BOM).
- Deliver Requested Goods
    - The warehouse delivers the goods that have been requested.
- Add Delivered Quantity to Materials Delivery Form
    - The quantity delivered is recorded in the Materials Delivery Form.

- Receive Returned Items
    - Returned items, such as sheets, are received by the warehouse.
    - The warehouse records the consumed quantities and the project for which they were used.
    - The lengths of the returned items are checked.
    - Quantities used are added to the form.
- Tracking Linear Meter
    - The warehouse tracks smaller pieces of the same item, even when the original raw material is in the form of a 6-meter pipe.
    - This tracking allows for an accurate understanding of the quantity of the same item available in different lengths.
- Tracking Scrap Pieces
    - The warehouse wants to track scrap pieces.
- Receive Internal Delivery Order (IDO)
    - The warehouse receives the internal delivery order, which involves picking items for production.
- Assist in Yearly Inventory
    - The system should provide assistance during the yearly inventory process.
- Issue Min/Max Report
    - Min/Max reports are generated to help with inventory planning.

Requirements

ID	Description	Fit/GAP
IN03-001	Meterial delivery form	Gap
IN03-002	Configure UOM for Square meters	Fit
IN03-003	Item Movement between locations	Fit
IN03-004	Transfer order between Warehouses	Fit
IN03-005	Configure alternative items in BOM	Fit
IN03-006	Negative adjustment for scrapped items	Fit

IN03-007	Transfer scrapped items to a specific warehouse for tracking	Fit
IN03-008	Issue Min/Max report	Fit
IN03-009	Item splitting without inventory adjustment	Gap

Head of Stock Operations

The Head of Stock oversees the overall management and operations of the stock department.

- Receiving Materials Requests
    - The stock department receives materials requests from various sources.
- Check Items Availability
    - The availability of items in the stock is checked to fulfil the requested materials.
- Forward Materials Requests
    - Materials requests are forwarded to the appropriate personnel or departments for further processing.
- Book Items Available on Projects
    - Items that are available in stock are booked and reserved for specific projects.
- Check Quality and Quantity of Parts
    - Upon receiving goods, the stock department performs quality checks to ensure the received parts meet the required standards.
    - The quantity of received parts is also verified to match the order or request.
    - Quality management module will not be used to avoid long cycles.
- Approve Stock Purchase Requisitions
    - The Head of Stock approves stock purchase requisitions to initiate the procurement process.
- Approve New Items Created
    - The Head of Stock reviews and approves the creation of new items in the stock system.
- Issue Stock Level Report
    - Stock level reports are generated to provide an overview of the current stock levels.
- Issue Consumption Reports
    - Consumption reports are generated to track the usage of stock items over a specified period.
- Follow-Up with Other Departments on Non-Moving Items Transactions

    - The stock department collaborates with other departments to track and manage non-moving items and their transactions.
- Scrap Management
    - The stock department manages the handling and disposal of scrap items in compliance with relevant procedures and regulations.
- Set Stock Objectives
    - The Head of Stock establishes objectives and goals for the stock department, aligning them with the overall business objectives.
- Set Daily Tasks for Store Keepers
    - Daily tasks and assignments are provided to store keepers to ensure smooth operations and efficient stock management.
- Daily Follow-Up for All Stock Transactions (Double Check)
    - The stock department conducts daily follow-ups and double-checks on all stock transactions to ensure accuracy and integrity of data and processes.
- For newly created items, Engineers can create items, but an assigned person must check and approve if the item has all its details created correctly and if this item does not exist in the system to avoid duplication.
- Attributes must be recorded on items to facilitate item searching. The users can still search on any attribute inside the description of the item.
- The newly created item cannot be used until it has been approved by the responsible person.

Requirements

ID	Description	Fit/GAP
IN04-001	Bulk Receiving from multiple POs	Fit
IN04-002	Workflow approval on Item	Gap
IN04-003	On hand list report	Fit
IN04-004	Inventory aging report	Fit
IN04-005	Slow moving Items report	Fit
IN04-006	Negative adjustment for scrapped items	Fit

Commented [EA13]: What does that mean? Why it's a GAP?

Commented [EK14R13]: There is no workflow for item creation by default in the system, but we can customize one

Commented [EK15R13]: Attributes must be recorded on items. A specific person must be assigned to approve the items newly created.

IN04-007	Configure Task management for daily/Monthly operations	Fit

WMS Device

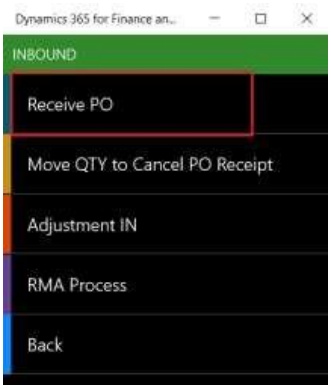
Process

Technica needs to receive items through WMS, also the Worker will receive the PO according to his permissions in warehouses.

Implementation will be covering the Receiving and Put/Away steps:

Purchase Order is by now already created by the supply chain and the warehouse manager is expecting it:

- Once Purchase order arrives to the receiving area, the goods are unloaded to the RECV location and then Put-Away to the BULK location
- The Warehouse Clerk initiates the process by registering the items on the Device with the actual quantity received; the Put-away location is entered by the user.



Requirements

ID	Description	Fit/GAP
W001	Receive PO in WMS	Fit
W002	Receive PO in BO for trade items	Fit
W003	Users will receive PO according to persmission per warehouse	Fit

Transfer order between warehouses

Transfer Order Shipment Processing

1. Transfer order will be created on Dynamics 365 from back office
2. The stock keeper reserves the quantity as per priority
3. In case need to use the WMS
    i. The warehouse manager releases it to warehouse, only available quantities will be released towarehouse (so only available quantities will be created as work)
    ii. The stock clerk will print the License Plate (which is generated automatically); the Printed license plate can be put on the goods being transferred; this will allow the receivingto be done by License plate for the whole load.
    iii. When transfer order is released to warehouse, system will create all the needed work.
    iv. Stock will be picked as per below:
        1. Picking on device will be done according to location specified by the system (in caseitem not available on shelf, worker can override the picking location)
        2. Picking work will have two pick/put actions, pick from zone location put in Delivery location (by worker X) then picking from delivery location to bay-door (by worker y)System will ask the worker to confirm:
        3. Location
        4. Item Number
        5. Items quantities
    v. One work per Transfer Order Issue will be created which include all the related order items and another work will be created for the Transfer Order Receipt; each work will have a pick/put action to be executed.
    vi. Confirm transfer shipment is done by stock keeper.

Transfer Order Receive

Technica can receive the Transfer order from back office directly or through WMS:

1. Transfer receiving will follow the License Plate Receiving and Put-Away, where works will be done:
    a. One work for the LP Receiving Items and Put-Away. Put-Away location will be specifiedby the worker.
    b. Put-Away will be done without product confirmation or scanning.

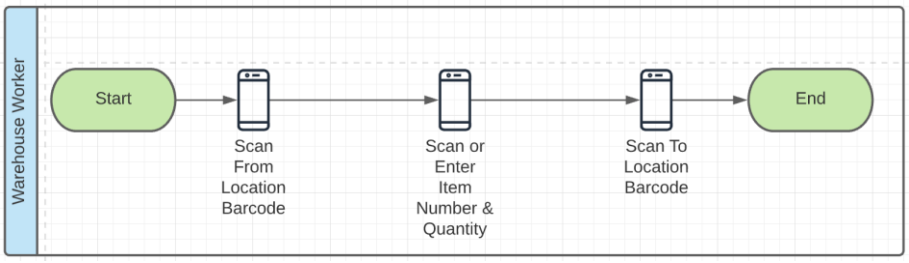
2. Storekeeper would do the confirm receiving

Requirements

ID	Description	Fit/Gap
TO0001	Create a Transfer Order	Fit
TO0002	Workflow in Transfer Order	Gap
TO0003	Ship Transfer order	Fit
TO0004	Receive Transfer order	FIT

Item Movement Within Warehouse

Process



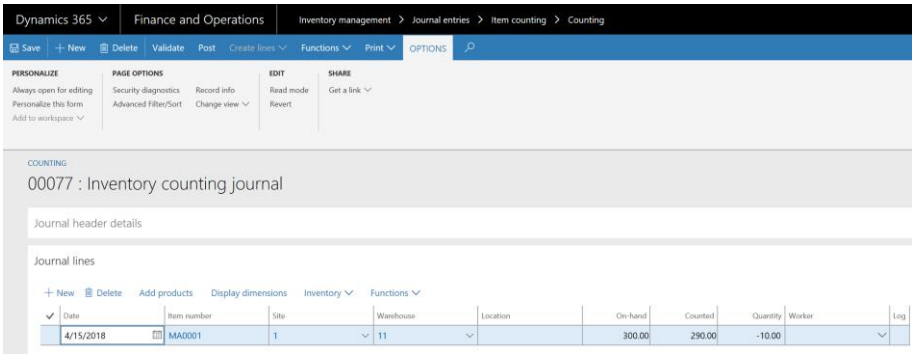
- When needed, warehouse worker logs into the mobile device.
- He scans the Location Barcode to pick the product from.
- He scans or enters the product number and quantity.
- He scans the Location Barcode to put the product at.
- Accordingly, the system would move the product and quantity from one location to another under the same warehouse.

Warehouse Stock Count

Process

The Counting journal inside Dynamics 365 lets you calculate the current on-hand inventory level that is recorded for a group of items, and then post the actual physical count to make the adjustments necessary to reconcile their differences.

When a physical inventory is counted, a counting batch is run, and lines are generated in the counting journal for the items that are included in the count. The counting journal shows the on-hand quantity that is currently posted in the *On-hand* field (he has the option to hide on-hand quantity on counting list report) and provides the *Counted* field for the user to manually enter the actual physical count for the line items. When the *Counted* field is populated by the user, the *Quantity* field is auto-populated with the appropriate adjustment quantity. Any differences between the posted quantity and the physical count are a profit or loss and will be posted as such.



Alternatively, Technica can use the Warehouse Mobile to do the counting by warehouse's location.

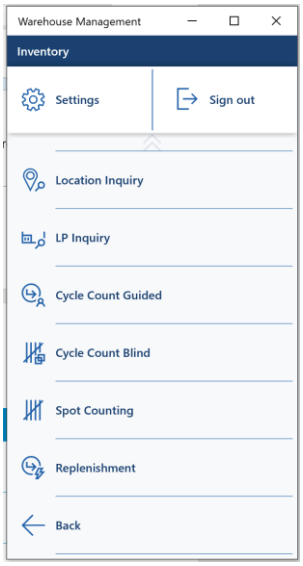


Figure 5 - Stock Count on Mobile

Inventory adjustment

Process

When you use an inventory adjustment journal, you can add cost to an item when you add inventory. The additional cost is automatically posted to a specific general ledger account, based on the setup of the item group posting profile. Use this inventory journal type to update gains and losses to inventory quantities when the item should keep its default general ledger offset account. When you post an inventory adjustment journal, an inventory receipt or issue is posted, the inventory values are changed, and ledger transactions are created.

Technica will enable Inventory journal approval workflow.