



Business, Functional and Technical Requirements Specification

Warehouse Management System

June 2020

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1. Introduction

The objective of this document to list the main business and technical requirements of a future WMS platform that helps in warehouses' end-to-end operations automation.

2. Business Context Information

Yosh Hospitality LLC manages and operates three warehouse locations. M1 being a warehouse with a footprint of 2,517 sqm, M2 with a footprint of 7,076 sqm and M3 with a footprint of 1,800 sqm. Each of these Warehouses are located in different areas as listed in the table below.

No. of Warehouse (3)	Location	Area in SQM	Volume in CBM	Type of Items Managed	No. of References Managed	No. of Workers	No. of internal warehouse staff who will be interacting with the solution
M1	Abu Dhabi	2,517	3,446	Furniture, Home Décor, Home Furnishings Home Appliances,	0		0
M2	Abu Dhabi	7,076	13,098	Furniture, Home Décor, Home Furnishings Home Appliances	96,275	37	16
M3	Al Ain (2 Nos.)	1,800	1,863	Furniture, Home Décor, Home Furnishings Home Appliances	27,626	3	1
Total		11,393	18,407		123,901	40	17

- **M2** is considered as the main warehouse complex that most of the activity takes place. This warehouse complex is broken down into eleven warehouses in the one location and currently stores approximately 96,000 items.
- **M3** is located in Al Ain, and this complex is broken down into three warehouses in this location.
- **M1** is located in Abu Dhabi, and considered as an “overflow” facility for M2.

Definitions

- Task: assigning task to warehouse team for inbound outbound service requests and projects' requests etc.
- Device: we need to use WMS on iPad, Laptop or other suitable devices recommended by the IT vendor.
- Device group: assign Device Groups according to the users' job responsibilities.
- Material category: Item Category and sub-category.
- Issue requests: internal requests for issuance of various operational supplies by Senior Warehouse Assistant.
- Project Request: Special Project Request from Client for their client location including moving items from one client location to another, performing item inventory inside the client's location and other jobs as instructed by clients.

- Inbound request: Client/Client Representative's Request for picking items from client location and transfer to warehouse for storage.
- Shipment order placed from abroad by client: WMS should enable receiving shipments from abroad delivered by freight forwarding agents in our warehouse.
- Outbound request: Client/Client Representative's Request through WMS for picking items from warehouse and transfer to Client location.
- Daily checklists of warehouse: Daily checklist of condition of ACs temperature, humidity, status of lights and condition of racks and floors etc.
- Daily checklists of forklift: Daily checklist on the condition of forklift and its workability.
- Daily checklists of vehicles: Daily checklist on the condition of trucks and other vehicles' workability.
- Third party contractors' documents: Uploading and archiving of third party contractors' documents in WMS including job completion reports.
- Delivery orders: when items are delivered from one client location to another or suppliers deliver items to warehouse for final delivery to client location or we pick up items from supplier's location, taking fine quality photos from WMS hand-held device and directly deliver to client location.
- Purchase orders: not related to warehouse as Purchase Orders are in the domain of Accounts.
- Receiving Order: receive Supplier's items ordered by clients, procurement and warehouse department)
- Blind Receiving Process: items picked from properties in bulk without doing inventory there pending final inventory at warehouse.
- Inbound inventory: checking of Inbound Items thoroughly and store in warehouse locations.
- Outbound inventory: verifying the stored items before sending to client location.
- Items: Clients' items received for storage.
- CBM (Cubic Meters): calculate items volume and warehouse storage volume in Cubic Meters.
- PPE request: internal Request by Senior Warehouse Assistant for issuance of PPE for warehouse staff.
- Packing material request: internal Request by Senior Warehouse Assistant for issuance of packing material for warehouse.

Business processes

In summary the set of business processes and sub-processes that the solution should automate are:

- **W1. Warehouse Planning & Management**
 - *W1.1 Warehouse Space Management*
 - *W1.2 Warehouse Workforce Management*
- **I1. Warehouse Inbound Workflow**
 - *I1.1 Client Request for Client Location Pickup*
 - *I1.2 Unloading / Receiving*
 - *I1.3 Inventory Process*
 - *I1.4 Storage / Location function*
 - *I1.5 Inventory Posting to System*

- **T1. Internal Warehouse Workflow**
 - o *T1.1 Inventory Reconciliation Procedure*
 - o *T1.2 Item Disposal Procedure*
 - o *T1.3 Internal Warehouse Transfer*
- **O1. Warehouse Outbound Workflow**
 - o *O1.1 Client Request for Pickup from Warehouse*
 - o *O1.2 Loading and Dispatching*
 - o *O1.3 Inventory Posting to System*
- **F1. WMS Finance Management**
 - o *F1.1 Operational Reporting*
 - o *F1.2 Information Management (dashboard, KPIs, etc.)*
 - o *F1.2 Client Invoicing*

And the **roles** of the different users that will need to interact with the solution are:

- Operations Director
- Warehouse Manager
- Warehouse Supervisor
- Database & Operations Supervisor
- Inventory Database Administrator
- Senior WH Assistant / WH Assistants
- Office Assistant
- Porters
- Forklift Operators
- Drivers
- Administrative Assistant

Brief description of each sub-process, activities and roles

ID	Business Process	
W1	Warehouse Planning	
	ID	Business Sub-process
	W1.1	Warehouse Space Management
	W1.2	Warehouse Workforce Management



ID	Business Process	
I1	Warehouse Inbound Process	
	ID	Business Sub-process
	I1.1	Client Request for Pickup from Client Location <ul style="list-style-type: none"> • Warehouse supervisor <ul style="list-style-type: none"> ○ Coordinate with client representative. ○ Assign team for the Operation. • Warehouse Assistance <ul style="list-style-type: none"> ○ Coordinate with ground staff in Client Location. • Porter <ul style="list-style-type: none"> ○ Packing and loading to the truck. • Driver <ul style="list-style-type: none"> ○ Ship to warehouse.
	I1.2	Unloading/ Receiving <ul style="list-style-type: none"> • Senior Warehouse Assistant / Warehouse Assistant <ul style="list-style-type: none"> ○ Safe unloading and assigning area for inventory. ○ Check items and receive/ unloaded in good manner • Porter <ul style="list-style-type: none"> ○ Safe unloading and keep in Inventory area. • Forklift Driver <ul style="list-style-type: none"> ○ Safe unloading and keep in Inventory area.
	I1.3	Inventory Process <ul style="list-style-type: none"> • Senior Warehouse Assistant / Warehouse Assistant <ul style="list-style-type: none"> ○ Inventory each item (quantity, weight, dimensions, Condition and brand name (if any)). ○ Photographing and Photo editing of items through system. ○ Barcode Label Printing. ○ Upload to the system. • Porter <ul style="list-style-type: none"> ○ Pack the item in good manner.
	I1.4	Storage / Location function <ul style="list-style-type: none"> • Senior Warehouse Assistant



		<ul style="list-style-type: none"> ○ <i>Rechecks Inventory.</i> ○ <i>Locates the item on the system assigned location.</i> • Porter <ul style="list-style-type: none"> ○ <i>Locate the item.</i> • Forklift Driver <ul style="list-style-type: none"> ○ <i>Locate the item.</i>
	I1.5	Inventory Posting to the System <ul style="list-style-type: none"> • Inventory Data Admin <ul style="list-style-type: none"> ○ <i>Verifies all drafted inventory.</i> ○ <i>Confirms all inventory standards followed.</i> ○ <i>Confirms the standard quality of photos.</i> ○ <i>Assigns the category for each item.</i> ○ <i>Posts all the drafted inventory into the system.</i> • Data Base Supervisor <ul style="list-style-type: none"> ○ <i>Approves & verifies all the inbound Inventory.</i>

ID	Business Process	
T1	Internal Warehouse Workflow	
	ID	Business Sub-process
	T1.1	Inventory Reconciliation Procedure <ul style="list-style-type: none"> • Warehouse supervisor <ul style="list-style-type: none"> ○ <i>Assign team for the Operation.</i> • Database Supervisor <ul style="list-style-type: none"> ○ <i>Generates inventory data sheets rack-wise.</i> • Inventory Data Admin <ul style="list-style-type: none"> ○ <i>Updates Item details in the system if any changes.</i> • Warehouse Assistance <ul style="list-style-type: none"> ○ <i>Checks physically items quantity. Package Details.</i> ○ <i>Item Condition and designated Location comparing with inventory data sheet.</i> • Porter/Forklift Driver <ul style="list-style-type: none"> ○ <i>Retrieve and put back to Location.</i>



	T1.2	Item Disposal Procedure <ul style="list-style-type: none"> • Database Supervisor/Inventory Data Admin <ul style="list-style-type: none"> ○ Segregating item with Client comment. ○ Preparing IDF (Item Disposal Form) and submit to the client representative. • Warehouse supervisor <ul style="list-style-type: none"> ○ Assigns team for the Operation. • Senior Warehouse Assistant / Warehouse Assistant <ul style="list-style-type: none"> ○ Retrieve all Disposable items from Location and keep in designated area. • Porter/Forklift Driver <ul style="list-style-type: none"> ○ Keep all Disposal item in designated area and load on to the truck.
	T1.3	Internal Warehouse Transfer <ul style="list-style-type: none"> • Warehouse supervisor <ul style="list-style-type: none"> ○ Assigns team for the Operation. • Database Supervisor <ul style="list-style-type: none"> ○ Assigning Warehouse as per Client. • Inventory Data Admin <ul style="list-style-type: none"> ○ Retrieves the item and location details from the system. ○ Transfers and updates items to assigned warehouse. • Senior Warehouse Assistant / Warehouse Assistant <ul style="list-style-type: none"> ○ Retrieve all items from Location and Transfer to assigned location. • Porter/Forklift Driver <ul style="list-style-type: none"> ○ Keep / transfer all items in designated Warehouse.
ID	Business Process	
01	Warehouse Outbound Process	
	ID	Business Sub-process
	01.1	Client Request for Pickup from Warehouse <ul style="list-style-type: none"> • Database Supervisor <ul style="list-style-type: none"> ○ Coordinates with client representative. • Warehouse Supervisor <ul style="list-style-type: none"> ○ Assigns team for the Operation. • Inventory Data Admin <ul style="list-style-type: none"> ○ Retrieves the item and location details from the system. • Senior Warehouse Assistant / Warehouse Assistant

		<ul style="list-style-type: none"> ○ Picking items from the Rack ○ Keep items ready in the dispatching area.
	01.2	Loading and Dispatching <ul style="list-style-type: none"> • Senior Warehouse Assistant / Warehouse Assistant <ul style="list-style-type: none"> ○ Safe loading. ○ Checks items Loaded in good manner. • Porter <ul style="list-style-type: none"> ○ Safe loading in Warehouse and unloading in Client Location. • Forklift Driver <ul style="list-style-type: none"> ○ Safe loading • Driver <ul style="list-style-type: none"> ○ Ships to Client Location
	01.3	Inventory Posting to System <ul style="list-style-type: none"> • Inventory Data Admin <ul style="list-style-type: none"> ○ Updates Outbound inventory in the system ○ Approves & verifies all inbound Inventory.

3. Solution functional requirements

Warehouse Planning & Workforce Management

- The system shall be able to defining warehouses locations in a hierarchical manner (Country, Site, warehouse, chamber, area, etc.)
- The system shall allow the definition of items along with their attributes rules and put away zones, locations etc.
- The system shall allow the definition of material categories and sub-categories and the specification of attribute rules per category, sub-category or material
- The system shall allow the definition of suppliers, client, carriers, etc.
- The system shall allow the definition of device groups
- The system shall allow the assignment of locations, deliveries, issue requests, task request types, categories and sub-categories to mobile device groups.
- The system shall allow the assignment of users to mobile device groups
- The system will allow the configuration of users, groups, roles and permissions
- The system shall be able to groups and assign the teams, such as:
 - Senior WH Assistant
 - WH Assistants

- Warehouse Porters
- Drivers and Vehicle
- Forklift Operator and Equipment
- Office Assistant

for different tasks like Client's Request, project request and reconciliation etc.

- The system will allow the assignment, recording of time and full lifecycle management of tasks.
- The system shall the filling out of daily checklists of Warehouse operations.
- The system shall allow the maintenance of daily checklist of Forklift.
- The system shall allow the maintenance of daily checklist of Vehicle.
- The system shall allow the upload of all third party contractors' documents and job completion reports.

Warehouse Inbound Process

- The system shall allow the recording of Inbound Requests from clients.
- The system will allow Inventory Staff to take HD Photos of each item and also allow editing them.
- The system will allow barcode labelling for all items.
- The system will allow the creation of Delivery Notes against inbound orders and check-in through the system.
- The system will allow the reception of incoming items against delivery notes or inbound requests directly through any mobile, desktop or handheld device.
- The system will allow the moving, put away and pick of items to and from the warehouse locations through the usage of Mobile Application on barcode readable handheld devices and through the workstation application on Laptop.
- Upon reception of a new item, an App will allow users to apply proper validations and barcode and receive materials against pre-defined delivery orders or purchase orders.
- The App will ensure that users capture vital tracking such as ...
 - Item Description
 - Item Dimension in Centimetres
 - Quantity
 - Weight
 - Units
 - Inner Packages
 - Package Details
 - Pack/Case Number
 - Pack/Case Dimension (in Centimetres) (LxWxH)
 - Pallet Number
 - Pallet Dimension (in Centimetres) (LxWxH)
 - Item Category
 - Item Sub Category
 - Brand Name
 - Owner Code
 - Date Received



- Requisition number
 - Requisition Date and Time
 - Requested date/Time of delivery
 - IGP # (Inbound Gate Pass)
 - OGP # (Outbound Gate Pass)
 - Client's Location
 - Project Name
 - Location Inside Client's Place
 - Room Allocation
 - Warehouse Site Name
 - Sub Store Name
 - Sub Store Number
 - Rack Name
 - Item Location (Bin Number)
 - Item Condition
 - Item Condition Details
 - Client's Special Comments
 - Status of Disposal
 - Item Pick up & Delivery Status
 - Other Remarks
- The system shall allow in the put away of Items based on a predefined strategy.
 - The system shall allow the configuration of multiple put away strategies per Item.
 - The system shall allow the reception of items based on an Inbound Request.
 - The system shall allow to define items storage allocation rule (As per client inventory level).
 - The system shall support Blind Receiving process.
 - The system will enable the approval of any inbound shipment and of attached documentation.

Internal Warehouse Workflow

- The system shall allow the approval of inbound and outbound Inventory.
- The system shall allow the approval intra-Warehouse Transfers.
- The system shall allow the approval Warehous-to-Warehouse Transfers.
- The system shall allow the edit and entering of data corrections as per physical check result.
- The system will be able to create, modify and track items by item unique code and include at minimum the following information:
 - Item Description
 - Item Dimension in CM
 - Quantity
 - Units
 - Inner Packages
 - Package Details
 - Pack/Case Number



- Pack/Case Dimension (in centimeters) (LxWxH)
 - Pallet Number
 - Pallet Dimension (in centimeters) (LxWxH)
 - Item Category
 - Item Sub Category
 - Brand Name
 - Owner Code
 - Date Received
 - Requisition number
 - Requisition Date and Time
 - Requested date/Time of delivery
 - IGP # (Inbound Gate Pass)
 - OGP # (Outbound Gate Pass)
 - Client's Location
 - Project Name
 - Location Inside Client's Place
 - Room Allocation
 - Warehouse Site Name
 - Sub Store Name
 - Sub Store Number
 - Rack Name
 - Item Location (Bin Number)
 - Item Condition
 - Item Condition Details
 - Client's Special Comments
 - Status of Disposal
 - Item Pick up & Delivery Status
 - Other Remarks
- The system / App will allow the uploading and editing of HD photos (main product photo and damage photos) and photos to make 3D/360 preview.
 - The system shall be able to allow definition of dynamic attributes.
 - The system shall help in the counting of the occupied space on rack in CBM (Cubic Meters).
 - The system shall help in conducting Cycle Count on the spot.
 - The App will allow to perform a full physical count through hand held device for an area, zone or store using 2 or more separate teams.
 - The system will allow to compare the results of physical counts from 2 teams and identify any discrepancies
 - The system shall help in conducting full physical inventory.
 - The system shall allow the in and out tracking of loaned items.
 - The system shall allow the picking, reserving and shipping of items.
 - The system shall allow the real-time inventory visibility.
 - The system shall provide storage location visibility down to the Bin, Pallet, and carton.



- The system shall allow the utilization of Case ID, Pallet ID, and Rack ID to track all products.
- The app shall allow the printing of barcode labels of the items.
 - Bar-coded labels can be designed by user in system.
 - Bar-coded labels can be printed automatically from the App and Desktop version on user request.
- The system shall allow the relocation of items within the same warehouse or from other Warehouse.
- The system shall allow to track and monitor overall data entry and operation processes status in system.
- The system shall allow to data reconciliation and correction.

Warehouse Outbound Workflow

- The system will allow the user to execute the picking tasks created against Outbound Requests, where the picking tasks represent the items to be issued, required quantities, lots and storage location.
- The system will allow the creation of Outbound Requests.
- The system will allow to load items based on Outbound requests.
- The system will facilitate that picking items from racks for outbound requests
- The system will enable the approval of any outbound shipment and attached documentation
- The system will facilitate the PPE and packing material request and consumption.
- System will enable recording of complete Travel Log of vehicles.
- The system will assist in ensuring that deliveries are reaching the correct location and being accepted by the right person. This module should allow the recipient of item to accept the goods and sign directly on the mobile device provided to delivery drivers. This should be uploaded into the system associated with the correct delivery and kept in the transaction records of the item.
- The system shall manage returns to warehouse and to clients (to identify the barcode label if it is removed at client's location)

4. Solution technical requirements

User management and Security

- The system will allow configuration of user accounts, roles and privileges.
- The system will request authentication based on user and password authentication.
- Users must change the initially assigned login password immediately after the first successful login. Moreover, the initial should never be reused.
- The system will implement **Role-based Access Control (RBAC)** authorization mechanism.

Extensibility / Integration

- The system will provide different mechanisms of integration (API, FTP, ...) to send or receive information from external systems.
- The system will allow extension of functionality through a programming language (eg.: javascript).
- For Warehouse workers the system will integrate with the current corporate user directory for authentication (Active Directory).

Compatibility

- The system **MUST** be deployable on-premises at the data center.
- The system should run on Windows Server 2016 Virtual servers.
- The system Web interface will have to be compatible with the main market browsers: Chrome, Mozilla Firefox, Apple Safari, Microsoft Internet Explorer and Edge.
- The system App interface will be compatible with iOS and Android devices.

Audit

- The minimum safety audit trail events that the solution should generate in production will be:
 - Authentication and access to the system (successful and failed).
 - Changes in user accounts and groups and passwords (successful and failed)
 - Access changes and modifications to the log or audit system (right and wrong)
 - Actions performed with administrator privileges
 - Changes in the privileges associated with each role
- The system should have capabilities for backup and recovery, data management, data retention policies, failover and high availability.

IT Support & Maintenance services

The tasks included in the maintenance service to be offered are as follows:

- Corrective maintenance and functional support of the system and the tools after putting into production to adjust the functionality to the real needs of Yosh Hospitality and address any functional inquiry, respectively.
- User training for all services and applications included in the system.
- Periodic monitoring of the SLAs committed and corrective and evolutionary maintenance requested.