

## Hubbing Inventory Movement Transaction Automation System

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### Abstract

The inventory movements in 3PL are track with 2 different systems, one own by 3PL and one own by Motorola. The inventory movements in 3PL in most case are track using 3PL WMS. Motorola will basically track the 3PL inventory movements and perform system transaction which base on the invoice receive by 3PL and DO issue by 3PL that was send to Motorola by the 3PL. Due to too many manual interaction and transaction also long process cycle time, the process is not efficient and prompt to error. Hubbing Inventory Movement Transaction Tracking Integration System basically link up the two different systems by making use of the EDI use by 3PL WMS. With these, duplicated efforts are eliminated, and inventory tracking become more accurate and efficient.

This paper discusses the design and implementation for hubbing operation and transaction automation by proper system integration between Motorola systems and 3PL WMS system.

### Introduction

Penang has been using external hub since 2002 together with the SOI program. Along the way, improvement project were added in to automate the WMS system in hub and Oracle system

transaction via EDI interfaces. The setup methodology was use in setting up the Hong Kong Hub in year 2004 and currently it is use again in setting up ESG hub in Penang. We will share with you the methodology on how to setup the hubbing module.

### Business Issue / Solution

The inventory movements in 3PL are track with 2 different systems, one own by 3PL and one own by Motorola. The inventory movements in 3PL in most case are track using 3PL WMS. Motorola will basically track the 3PL inventory movements and perform system transaction which base on the invoice receive by 3PL and DO issue by 3PL that was send to Motorola by the 3PL. Due to too many manual interaction and transaction also long process cycle time, the process is not efficient and prompt to error.

Hubbing Inventory Movement Transaction Automation System basically link up the two different systems by making use of the EDI use by 3PL WMS. With these, duplicated efforts are eliminated, and inventory tracking become more accurate and efficient.

### Methodology

#### Step#1: Defining the operation model

supplier and make necessary inventory movement according.

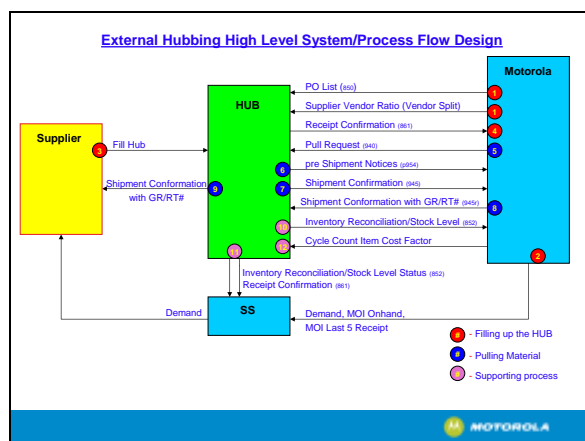


Figure-1

There are 3 major areas here. "Material Planning", "Filling the Hub" and "Material Request and Ship Material to Factory (Motorola)".

## Material Planning

Each week after ERP run, demand requirement is send to suppliers via Schedule Sharing. Suppliers will than base on Schedule Sharing demand to fill up the hub.

### Filling the Hub

Hub will basically receive the material from supplier and feed the information to Motorola in order to manage the inventory which will align with the demand planning within Motorola and Supplier via Schedule Sharing.

### Material Request and Shipment to Factory

Once supplier had filled up the hub according to the demand, Factory will then pull in the material as they required. Factory can pull in the material according to the line requirement from the hub by submitting in they pull request. The pull request will then send to the hub via EDI-940. The material will then pick and pack according to the line request. Upon shipment out to Motorola, hub will send out the shipment confirmation via EDI-945. Motorola will then trigger payment to SOI

## Step#2: Setting Up Operation Process

Once the operation model is been define. Hub provider are call in to work on the detail on actual operation process. Here I will share with you on two major processor. Receiving the material and shipping out the material from hub to factory.

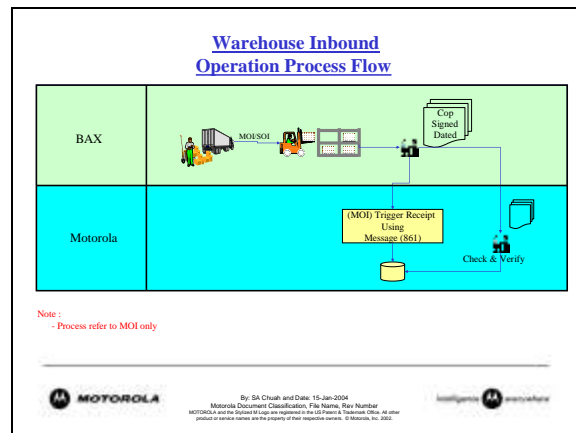


Figure-2

## Receiving

Figure-2 shows the receiving process in hub. As the material are ships from the supplier to the hub. Hub will receive in the material and verify the shipment against Motorola's PO which was downloaded to the hub up-front via EDI-850. Once the material are receive in and post into the warehouse, the hub will send their receiving record via EDI-861. Motorola will download the record and trigger payment to the supplier if the material is purchase in as MOI agreement. With the auto receipt put in place Motorola system, we manage to remove the redundant receiving entry and manage to fully leverage the receiving service provide by 3PL (Another success story in out-sourcing).

### Shipment from hub to Factory

Figure-3 shows the shipment process. Upon receiving the pull request from the factory into hub via EDI-940, hub will allocate and pick and pack the material. Once the material is ship out to the factory, hub will perform shipment confirmation and EDI-945 will be send out from hub to Motorola. Motorola will download the EDI-945 and use that to trigger receipt for SOI item.

The same EDI signal will also be use to trigger subinventory movement from hub to wip-location.

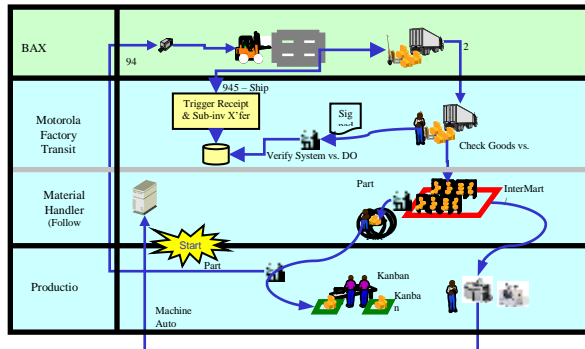


Figure-3

### Step#3: Application Development/ System Setup

Once the actual operation process is sketch out in the drawing board. The next step is to setup the system (Oracle11i Application Setup). SME, and Application Developer are call in to discuss on the development and setup base on the operation process. Simulation and proto run are done by SME together with the developer in order to make some technical decision.

Few automation modules are defined and developments are done by the application developer.

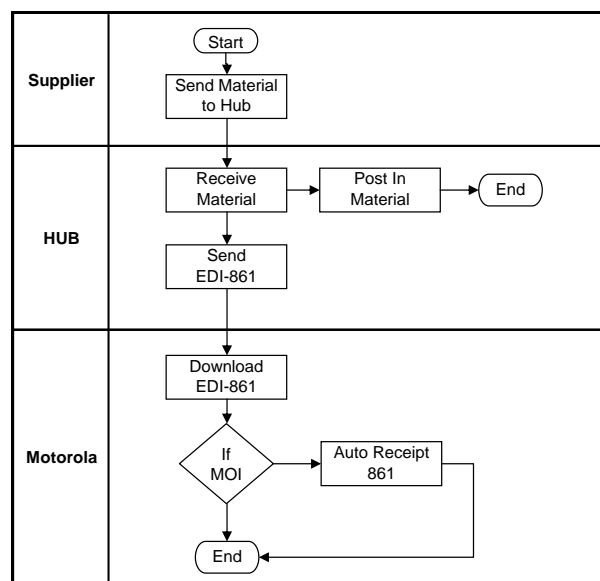


Figure-5

Figure-5 shows the process flow for material receiving. Few application modules were

developed to handle the automation part of this process flow. EDI interface which download the EDI-861 flag-file and decode it into custom database table (Oracle database). Auto Receipt which trigger receipt to pay MOI supplier.

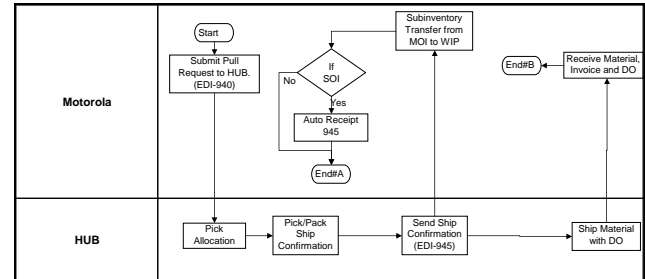


Figure-6

Figure-6 shows the process flow for material request and issuance to Factory. Few application modules were developed to handle the automation part of this process flow. EDI interface which download the EDI-945 flag-file and decode it into custom database table (Oracle database). Auto Receipt which trigger receipt to pay SOI supplier. Auto sub-inventory transfer that move material to correct WIP location in system.

### Conclusion

The Hubbing Inventory Movement Transaction Automation System had been use in Penang for more than 2 years. The setup methodology was deployed to a few sites like Hong Kong Hub and ESG Hub and has been proven as a working model. The next step for this is to extern the concept and methodology to Global Hubbing Network where work need to be done on the next generation of protocol like RossattaNet and Web Method, extended the SOI concept from Hub to Hub concept and provide global inventory visibility as one Motorola.

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