

Analysis Report

Market Kurly

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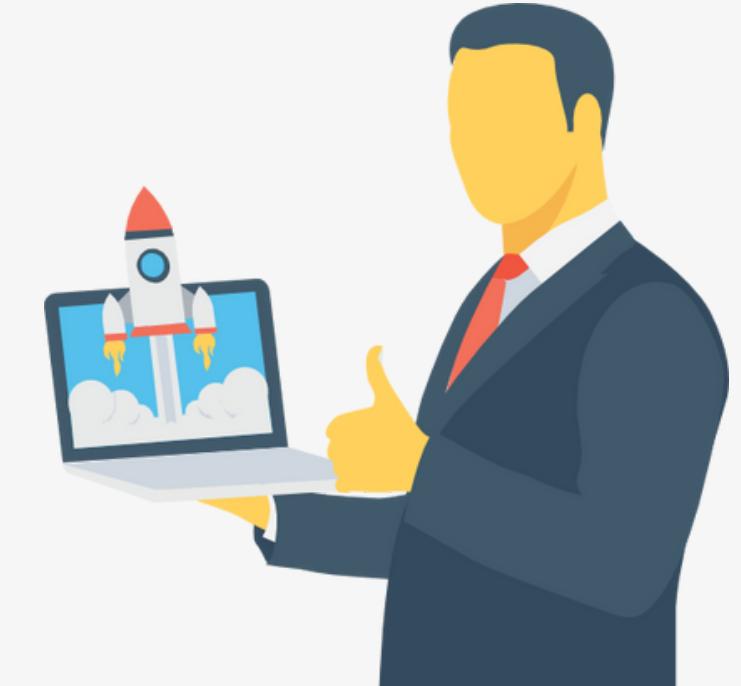
About Market Kurly

- Mid sized company
- Founded in **2015**
- **Online fresh food vendor**
- Rapid growth
 - good product **quality** - Full cold chain system
 - **fast** delivery system - Saetbyeol delivery
 - innovative **logistics** - 데멍이

' Focus on logistic systems '



Organizational Structure



CEO, CFO, CGO, CLO, CTO

Information System

IT department

- **In-house infrastructure (HW) operations**



- Responsible for in-house network
- Server operation and management
- In-house infrastructure & IT asset management

- **External system operations**



- operates the external system
- establishes related policies
- deals with the database

Information System



AWS Cloud

Managing large orders and deliveries

AWS Aurora DB

After customer completes payment through web or app, order is created

Computer System

Order is allocated to general form

General Form

200 Orders per general form

Information System

데멍이 (데이터 물어다주는 명멍이)



1. Accurately **predict demand**
based on past order data



reduce logistics costs and
respond to explosive demand

2. **Send real - time** sales, number of orders,
inventory through 데멍이 every 30 minutes



3. Give specific **guidelines to**
run out of today's products

logistic team can adjust manpower
delivery team can organize dispatch

Business process

Focus on the fast logistics process



Inventory management

- Predict demand accurately
- Prepare necessary products in advance at the logistics center

Inspection and stacking of goods

- Inspect the quality of the products carefully
- Good overall quality are stored in the designated Market Kurly Logistics Center

Picking & Packing

- **cross-docking center** deliver products immediately after classification or repacking not storing
- **DAS** peaking as a whole and distributing by customer

Classification and shipment

- Classify by large area and moved to the factory through automatic routing

Business Process



Business Process

Stock management



Data center



SCM



A/F



SCM



Warehouse

Recognize out of stock

Order products
in advance

Record Accounts
payable

Inspect products

Store in stock

Business Process

Order processing



Analyze Process

Receiving, inspection, and stacking of goods

Inspection for increasing the reliability of quality

by **regular** employees

randomly or fully



Basically 2 times

The product is stacked

Next morning, it is inspected **randomly again**



Analyze Process

Picking and packing

Picking workstation

DAS system

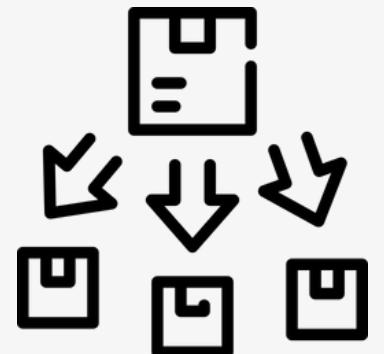
: Digital Assortment System



1. Batch picking

- General Form : the amount of each products in 200 orders, it has the number and location of the items for each category

flexibility and speed ↑



2. Distributing

- Distributed by customers order

Analyze Process

Picking and packing

Packing workstation



3. Primary Packaging

- According to the seasonal packaging method

4. Classify for shipping

- by pallet
- first classified as large areas with alphabets, such as A, B, C, and D
- moved to the factory
- detailed classification according to the shipping details of the delivery drivers

Analyze Process

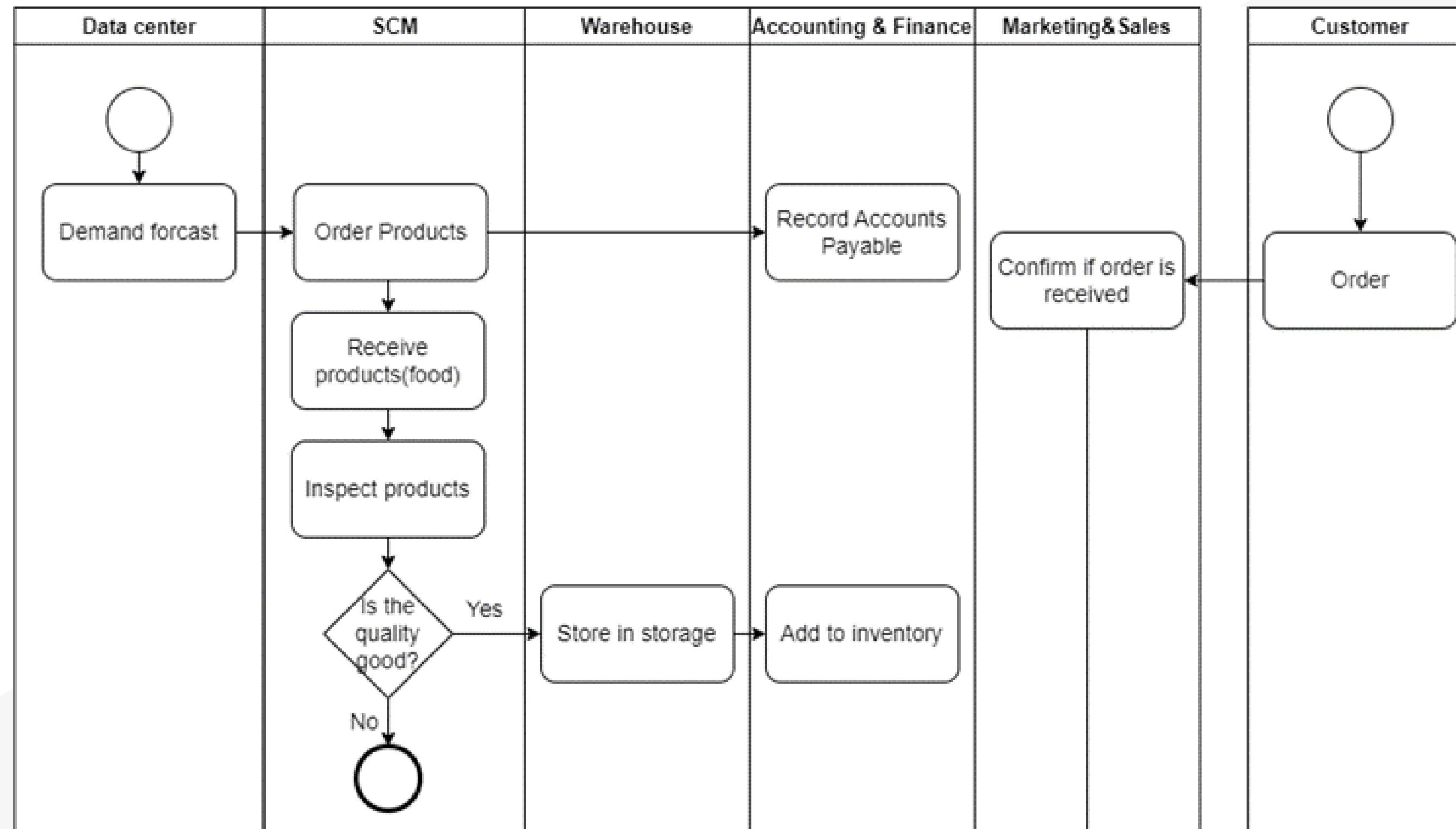
Shipping begins after loading the product into the delivery vehicle

- Fixed 70 - 80 %
- Flexible 20-30% (remained)
- Each driver handles 90 - 120 orders per day

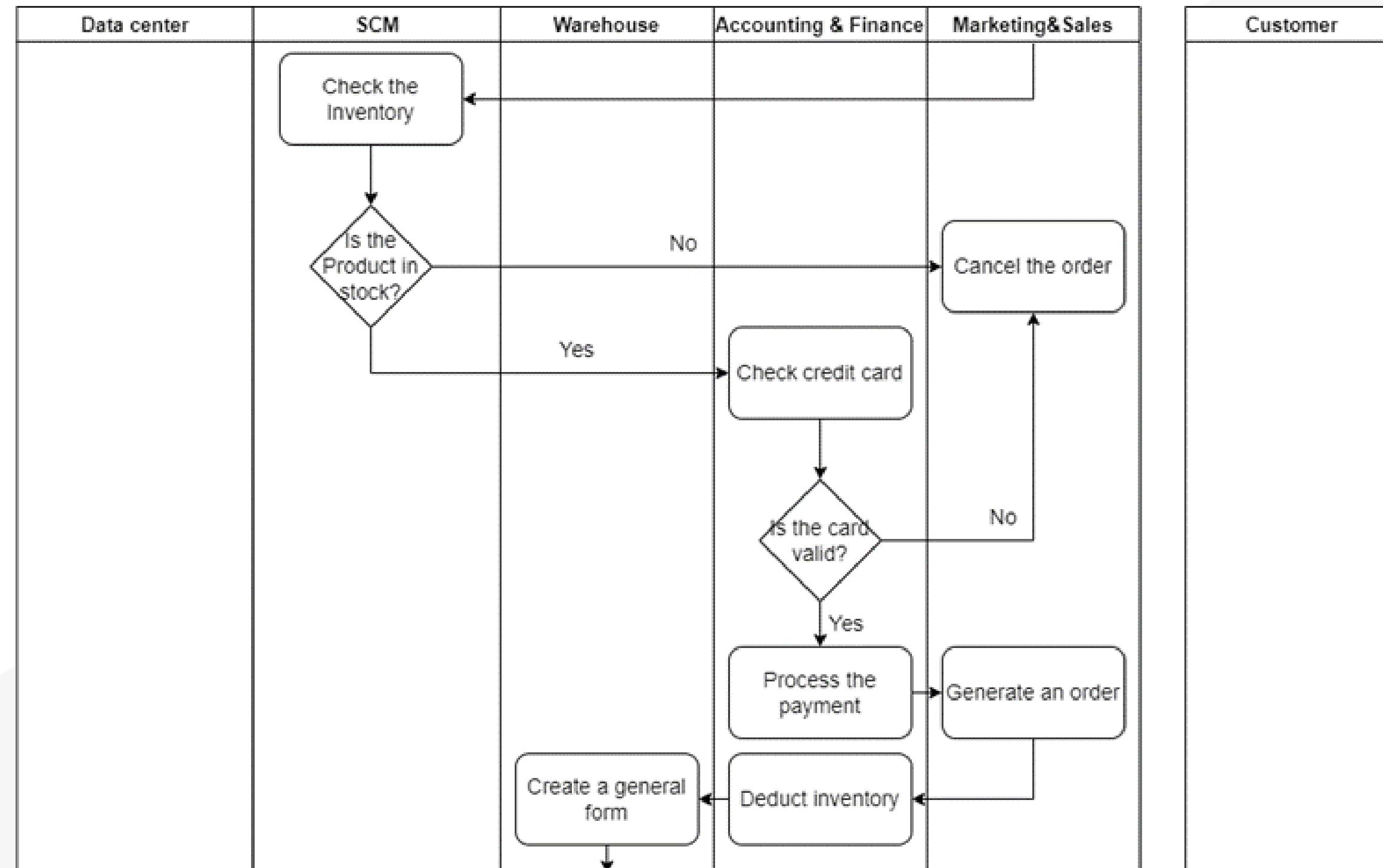
Using real-time data,

- **Logistic team** can adjust manpower in logistics warehouses
- **Delivery team** can flexibly set the placement of delivery drivers and delivery routes every day through

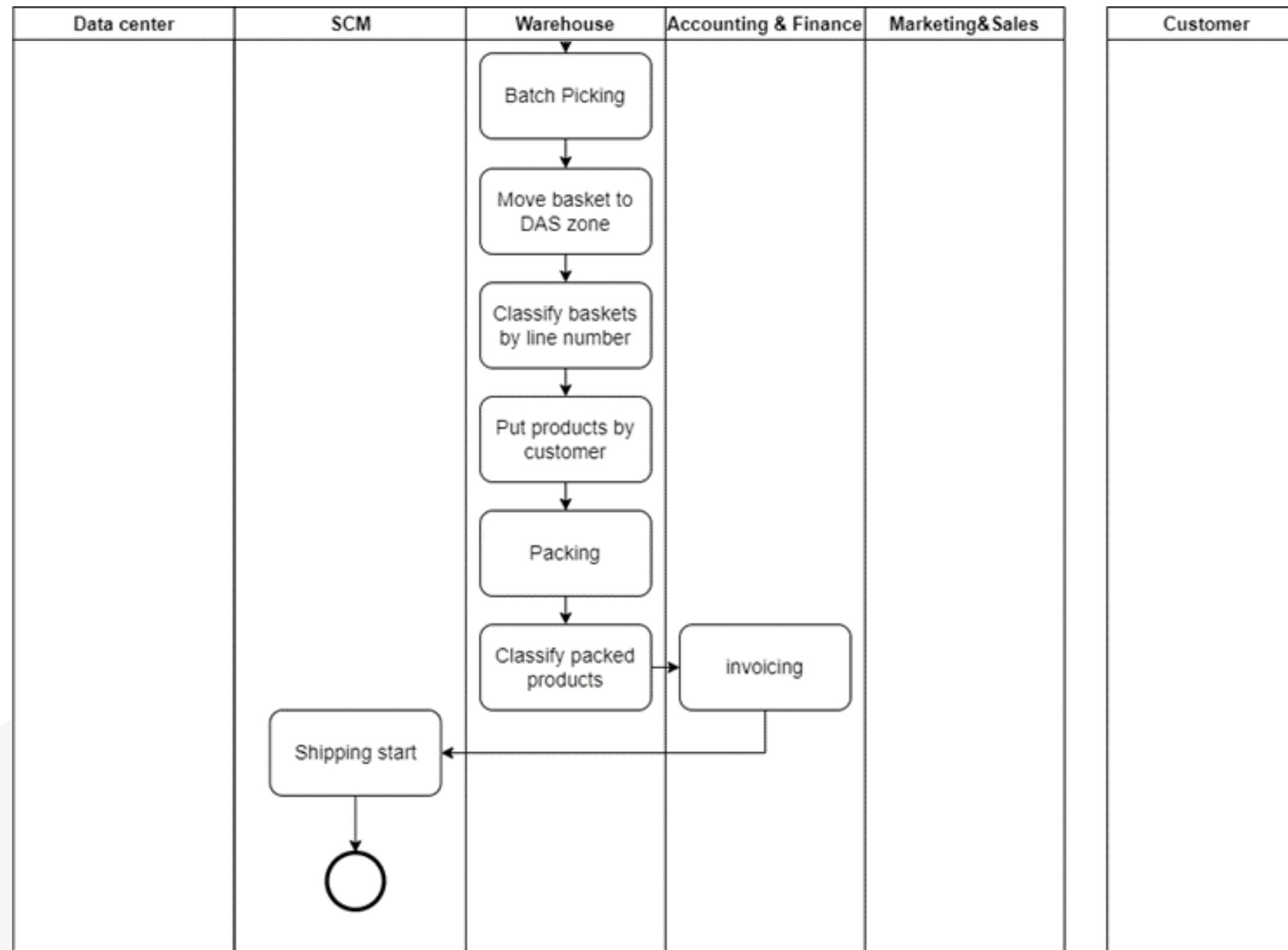
Process map (Current)



Process map (Current)



Process map (Current)



Improve Process

Problem

- Using DAS system, 200 orders are picked at once.
- Assume, if only one order includes only one products.
- Inefficiency may occur during the picking process. Because it takes up the number of orders

For example,

- When consumer orders only one item
- If there are 10 orders for one single item out of 200 orders
- -> Inefficient !

Improve Picking process !

Improve Process

Same as a small checkout counter



Improve efficiency by separating
customers who purchase small quantities

We introduce '**Small zone**' !

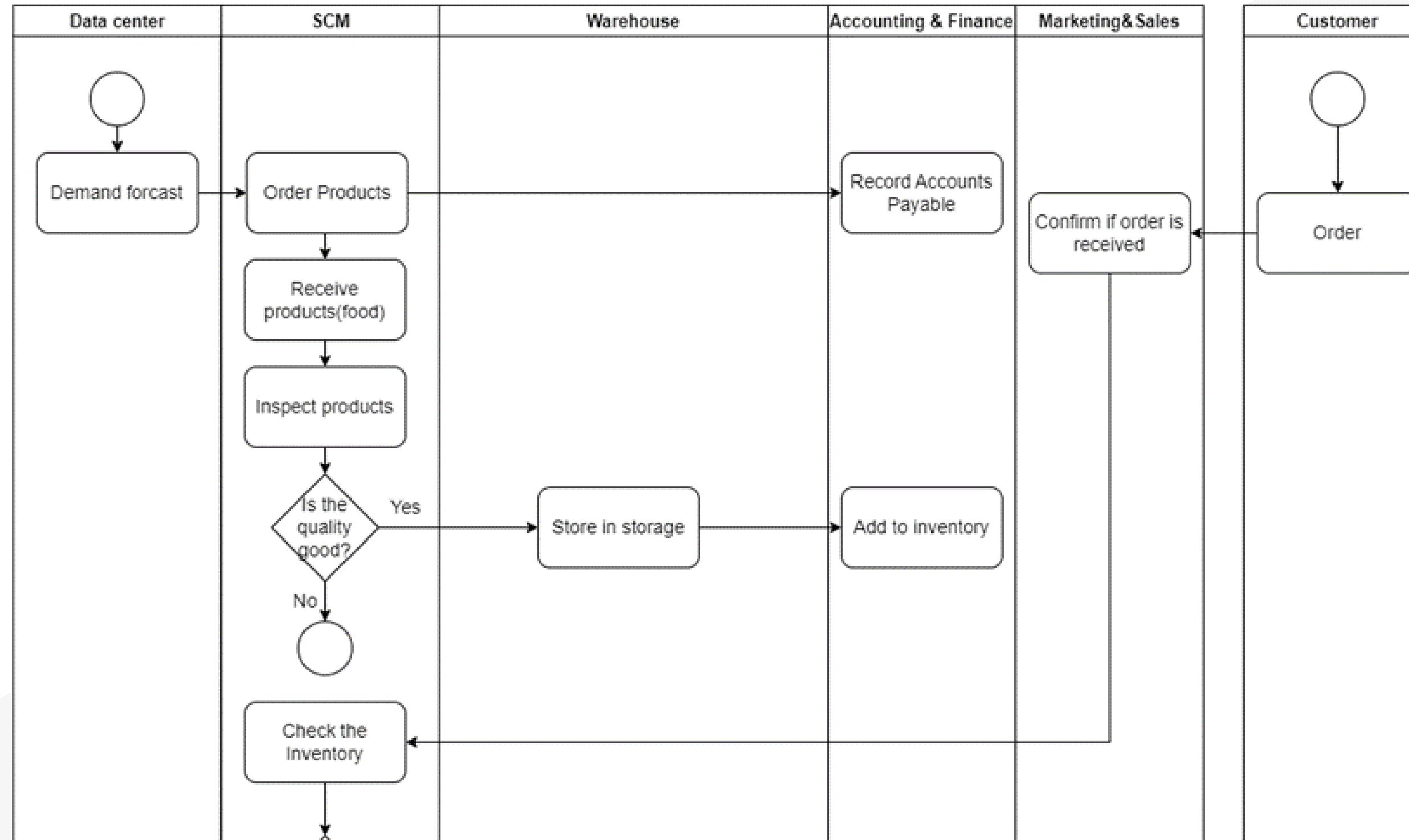
How?

- Handle only one product order
- Picking 20 orders at once
- Deliver to the packing worksiation directly

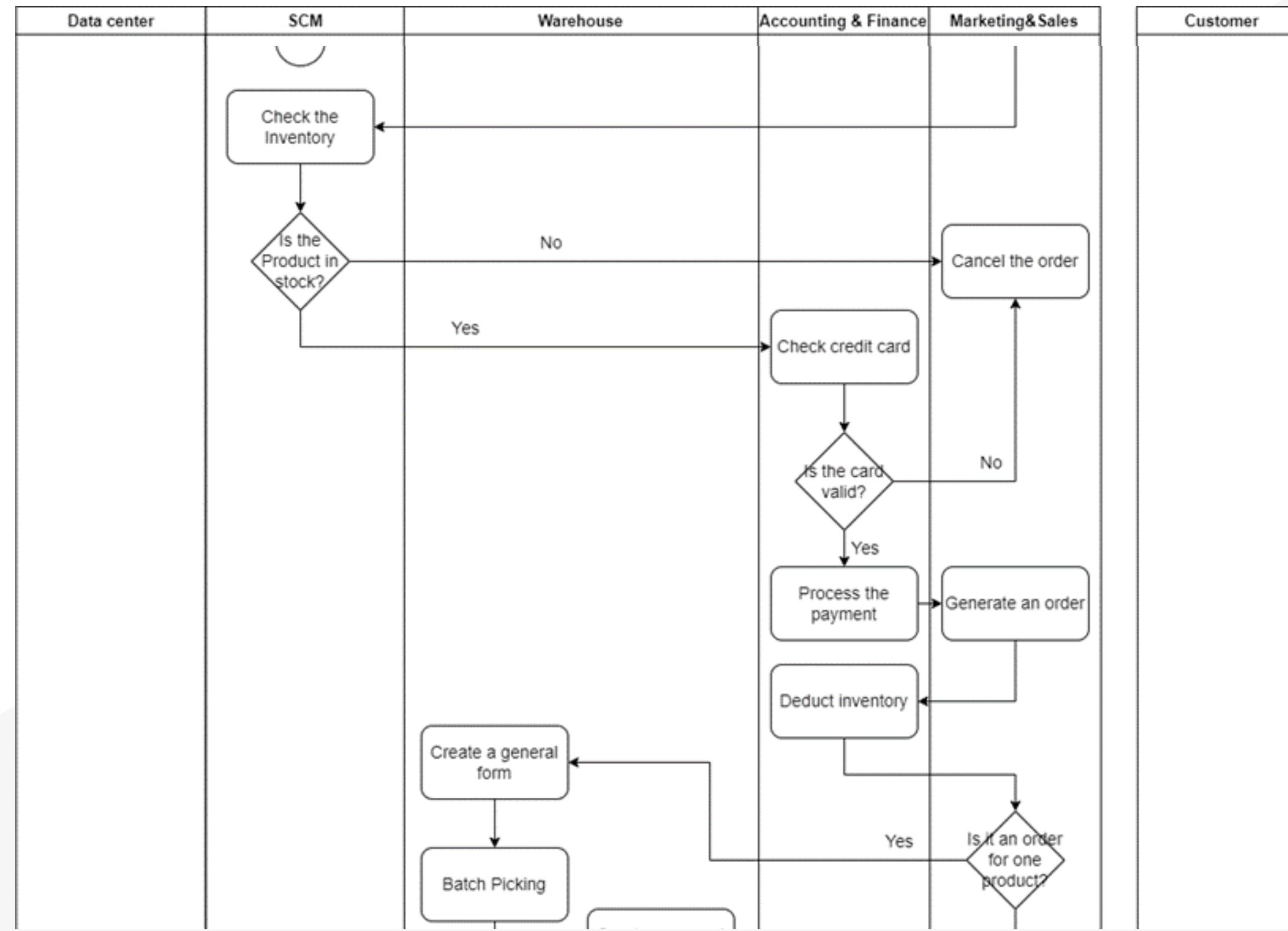
Effect ?

- Reduce sorting time by order
- No need to install new packaging space

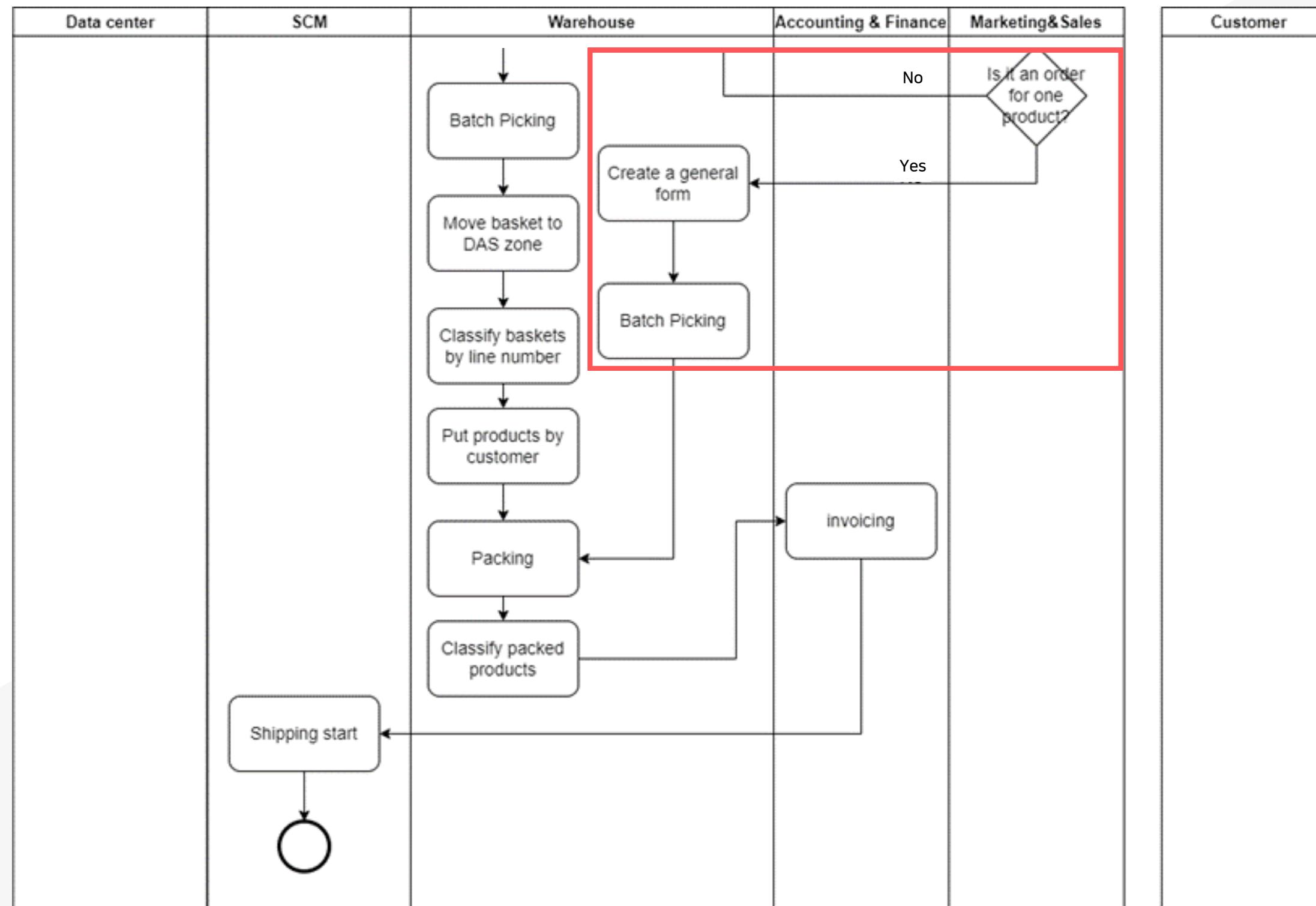
Process map (improved)



Process map (improved)



Process map (improved)



Benefits and ROI

Benefits from running small zone

1. Picking process is faster
2. Processing more orders during the same time
3. Labor costs can be reduced through reducing

total working hours



Benefits and ROI

ROI from running small zone

Market kurly has 130,000 orders per day

Market kurly has 4 logistic centers

One logistic center handles $130,000/4 = 32,500$ products per day

200 orders processed at once in the DAS zone

Assume, in 200 orders (in one general form)

- 10 orders have only one product
- Remained orders have average 5 products

Assume,

- DAS zone employee can handle 20 orders per hour
- Small zone employee can handle 30 orders per hour



Benefits and ROI

Current (only DAS zone)

- $32500 / 200 = 162.5$ general forms made per day
- Distribution center is working 4 pm ~ 1am (total 9 hours)
- $162.5 / 9 = 18.05$ times per hour
- $60 \text{ minutes} / 18.05 \text{ general form} = 3.3 \text{ minutes needed per general form}$
- $32500 / 9 = 3611$ orders handled per hour
- person can handle 20 products per hour in DAS zone
- $3611 / 20 = 180.5$ employees needed per hour

Benefits and ROI

Improvement (DAS zone + small zone)

In small zone,

of orders = # of products

- One product order : $32500/200*10 = 1625$ orders
- 1625 products / 9 hour = 180.5 products handle per hour
- person can handle 30 products per hour in small zone
- $180.5 / 30 = 6$ employees needed per hour in small zone

In DAS zone,

- $32500 - 1625 = 30875$ products
- 30875 products / 9 hour = 3430.5 products handle per hour
- person can handle 20 products per hour in DAS zone
- $3430.5/20 = 171.52777$ employees needed per hour
- $30875/200 = 154.3$ general forms made per day

Benefits and ROI

Compare

Benefits

Reduce general form : $162.5 - 154.3 = 8.2$

8.2 general forms * 3.3 minutes per general form = 27 minutes reduce for operating hours

Saving labor cost = $180.5 * 27/60 * 9160 = \text{744,021 won saving per day}$

Investment : small zone labor cost + space usage cost

small zone do not require installation of special facilities, only need space

small zone labor cost : $6 * 9 * 9160 = \text{494,640 won per day}$

space usage cost (cost of purchasing land) = $50 * 1,100,000 = \text{55,000,000 won}$

This is the land price per pyeong in Gochon-eup, Gimpo (where is the market kurly's warehouse located)

Benefits and ROI

ROI (YEAR 1)

$$\text{Saved labor cost} = \frac{(744,021 * 365)}{(494,640 * 365 + 55,000,000)}$$
$$= 1.153$$

After year 2, There is no land cost, so ROI may be much bigger than year 1



Thank you

