Inventory Management Practice of Fun Sports

IMA Case Competition
XN20211498

Funsports X ?

Strategic Cooperation Conference

Looking for a long-term partner

More open • Be stronger together!

Case Review

Funsport: a small B2C online store that specializes in sense training equipment

Advantages

- **R&D: product differentiation**
- **Marketing: multiple online platforms**

Continuous expansion of scale

- ***Oversold***
- ***Rising costs***
- ***High rate of return***

→ **Problems keep coming up** → **the increase of profit is not significant**

Inventory Management>>Supply Chain

Purchasing management → *Production management* → *Inventory management* → *Sales management*

Information management system

We hope you can:

- ☐ Further analyze inventory management problems and propose solutions
- ☐ Recommend some information management systems

Content

0 Case review

1 Major problems in inventory management

2 Solutions(overall)

- *Supply chain*
- *Firm policies*
- *AIS*

3 Functional needs for the AIS

- *Basic input functions*
- *Intelligent management functions*
- *Information resources sharing functions*

4 Recommendations related to the AIS

- *Options on AIS*
- *Other suggestions*

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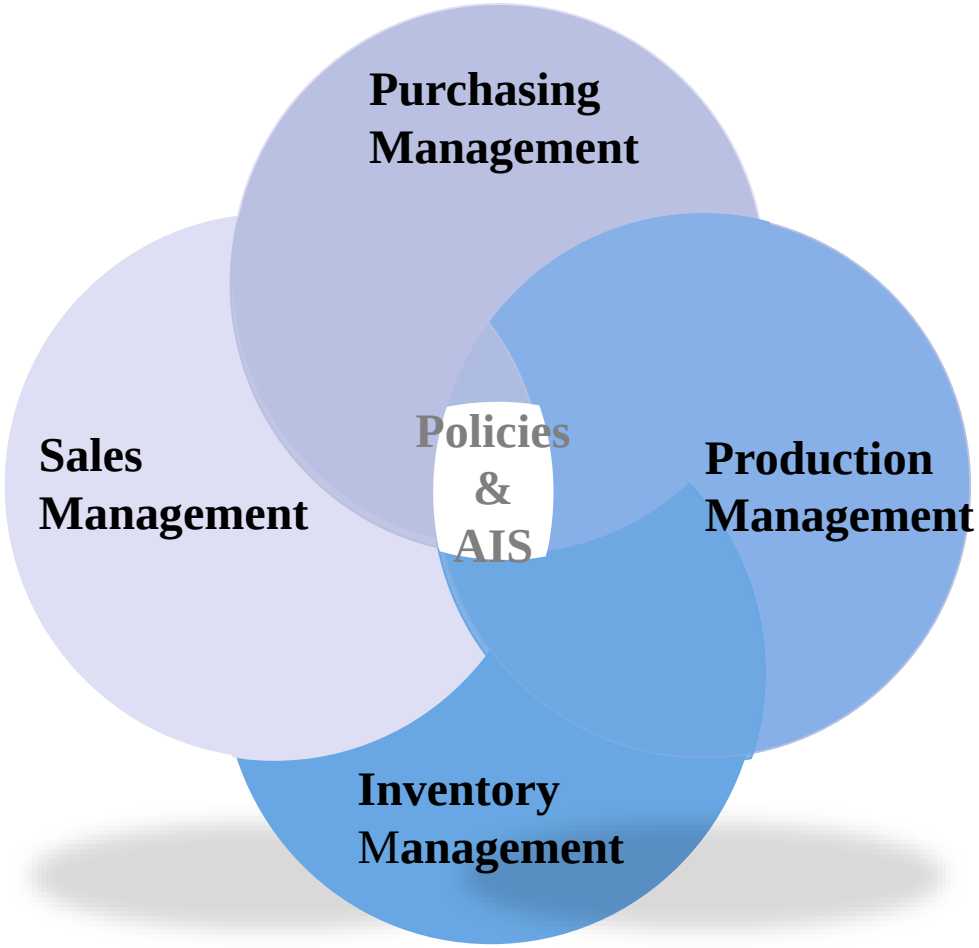
The 1st Level 6 Aspects



The 2nd Level 3 Categories

- ☐ Supply chain
- ☐ Firm policies
- ☐ AIS

Weak supply chain (management) leads to the problems

Suppliers (OEMs) → R&D → Purchasing → Production → Inventory → Sales → Customers

- **Suppliers (OEMs)**
  - Temporal and spatial asynchrony
- **R&D**
  - Unlikely to improve the design
- **Purchasing**
  - Unreasonable purchasing plan
  - Emergency purchasing
- **Production**
  - Poor quality control
  - Poor collaboration
- **Inventory**
  - Time interval
  - Messy warehouse
  - Poor collaboration
  - Unstandardized in(out)bound
- **Sales**
  - Dull of sale
  - Poor collaboration

Source: Case information

Weak supply chain (management) leads to the problems

R&D	Purchasing	Production	Inventory	Sales	Customers
☐ Unlikely to improve the design	☐ Unreasonable purchasing plan ☐ Emergency purchasing	☐ Poor quality control ☐ Poor collaboration	☐ Time interval ☐ Messy warehouse ☐ Poor collaboration ☐ Unstandardized in(out)bound	☐ Dull of sale ☐ Poor collaboration	

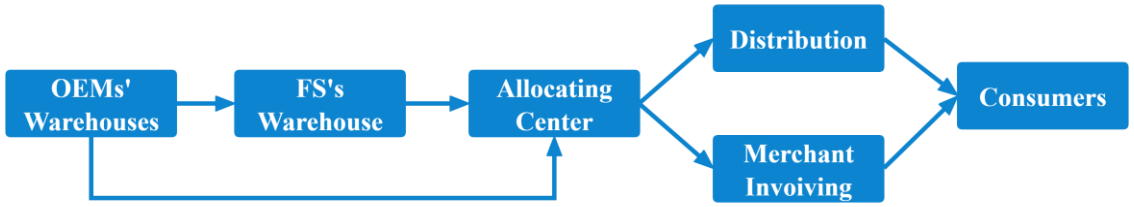
Suppliers（OEMs）

Temporal and spatial asynchrony

Endogenous problem

Large-size products — SOP

Small-size products — FBP



Source: Case information, JD supply chain models

Weak supply chain (management) leads to the problems

Suppliers (OEMs) → Purchasing → Production → Inventory → Sales → Customers

- Temporal and spatial asynchrony

Purchasing
- Unreasonable purchasing plan
- Emergency purchasing

Production
- Poor quality control
- Poor collaboration

Inventory
- Time interval
- Messy warehouse
- Poor collaboration
- Unstandardized in(out)bound

Sales
- Dull of sale
- Poor collaboration

R&D

Unlikely to improve the design

OEM → ✗ Repair information → **R&D** →

1. Identify the issues
2. Determine the causes
3. Set the target
4. Develop possible improved program
5. Choose the best one
6. Implement the program

Source: Case information

Weak supply chain (management) leads to the problems

Suppliers (OEMs)

- Temporal and spatial asynchrony

R&D

- Unlikely to improve the design

Production

- Poor quality control
- Poor collaboration

Inventory

- Time interval
- Messy warehouse
- Poor collaboration
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Sales

- Dull of sale
- Poor collaboration

Customers

Purchasing

- ***Unreasonable purchasing plan***
- ***Emergency purchasing***

Orders

P&I&L Department

Insufficient inventory!

Urgent procurement

OEMs

Source: Case information

Weak supply chain (management) leads to the problems

Suppliers (OEMs)

- Temporal and spatial asynchrony

R&D

- Unlikely to improve the design

Purchasing

- Unreasonable purchasing plan
- Emergency purchasing

Inventory

- Time interval
- Messy warehouse
- Poor collaboration
- Unstandardized in(out)bound

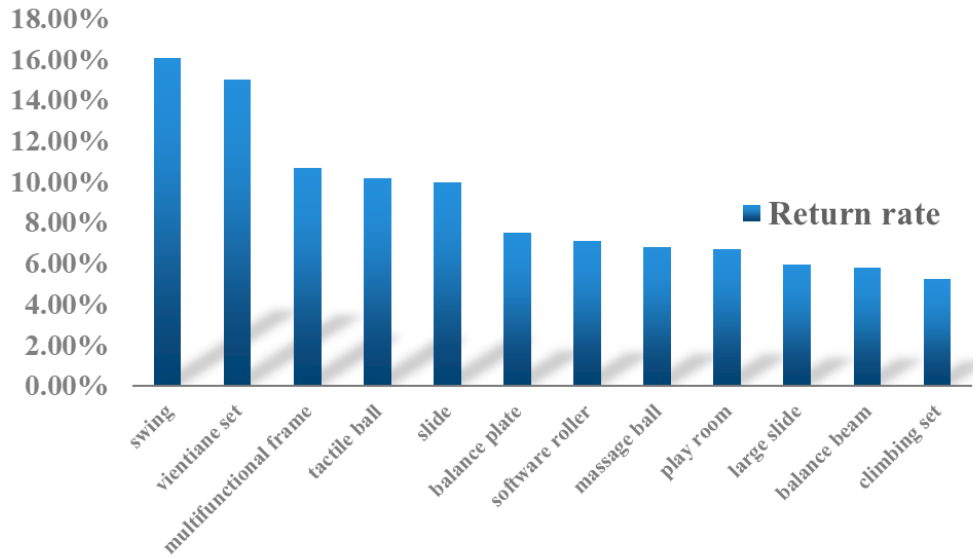
Sales

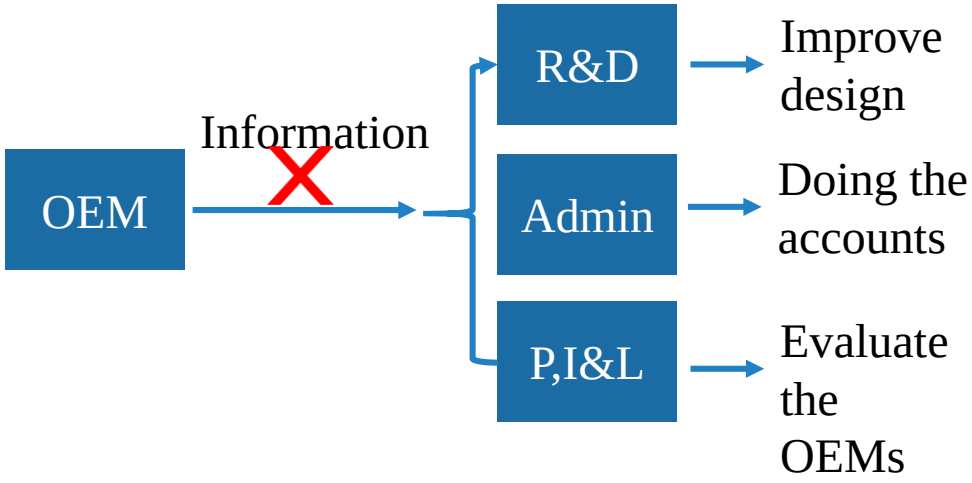
- Dull of sale
- Poor collaboration

Customers

Production

- ***Poor quality control***
- ***Poor collaboration***





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Inventory

- ***Time interval***
- ***Messy warehouse***
- ***Poor collaboration***
- ***Unstandardized inbound and outbound***

Time interval

Inventories are only confirmed **at the end of each month.**

Messy warehouse

No **classification** of inventory

Poor collaboration

Not enough cooperation with Admin, Purchase and Sales departments

Unstandardized inbound and outbound

Lack **professional personnel** and specific procedures

Source: Case information

Weak supply chain (management) leads to the problems

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Sales

- ☐ *Dull of sale*
- ☐ *Poor collaboration*

Dull of sale

Poor **market forecasting** by the sales department led to **oversupply and stagnation**.

Poor communication

There was **no communication** with the inventory department to clear the unsold stock.

Source: Case information

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The blockage of product flow

The blockage of information flow

Weak supply chain

Source: Case information, Stanford Supply Chain Forum

Flawed inventory management due to lack of sound firm policies

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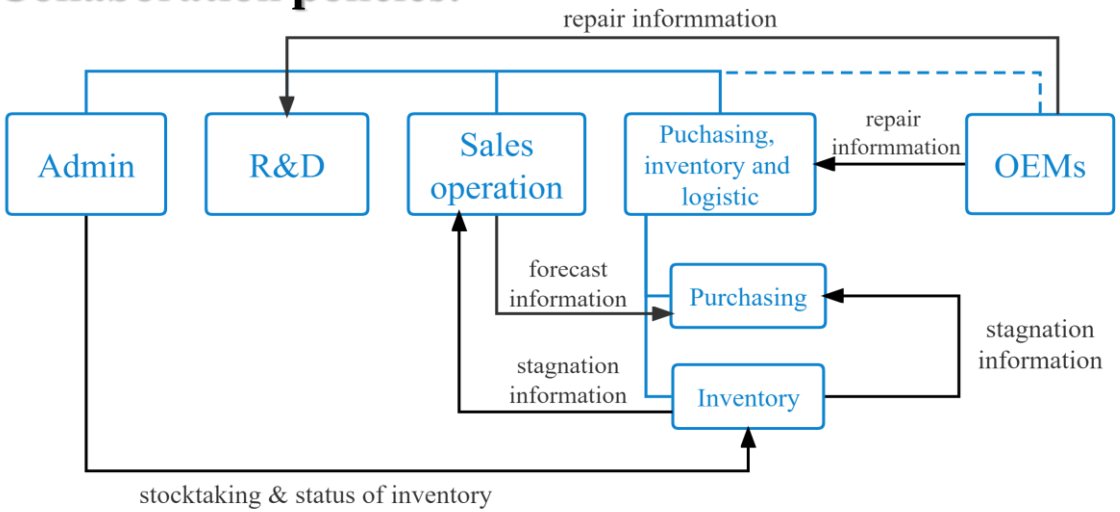
Suppliers (OEMs) → R&D → Purchasing → Production → Inventory → Sales → Customers

SRM | ISCM | CRM

OEM Management Policies

- Q1: How to control the quality of raw material and finished goods?
- Q2: How frequent to reconcile the accounts?
  - *of OEM*
  - *of FS*
- Q3: What is the status of the inventories in OEMs' warehouse?

- **Stocktaking policies:**
  - *for OEM inventories: How & How often?*
  - *for self-owned warehouse inventories: the same*
- **Collaboration policies:**

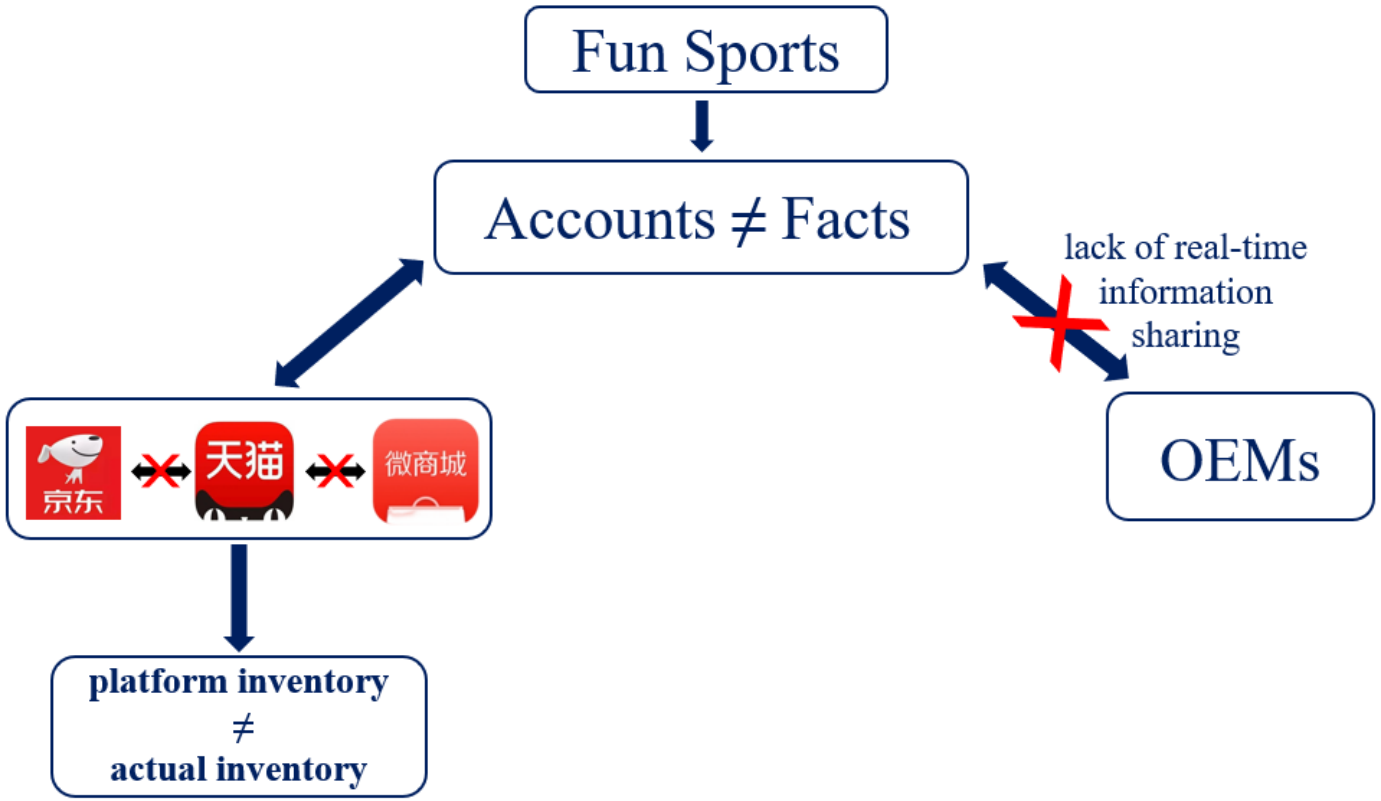


- **Inbound, outbound & warehouse policies:**

Inbound and outbound processes, stacking of goods, product storage cycle

Note1: ISCM-Internal supply chain management
Source: Case information

Information blockage due to lack of AIS



① IF blockage between sales platforms

a. Asynchronous information
b. The virtual inventory setting

② IF blockage between FS' accounts and facts

a. Improper abnormal products reporting
b. No systematical record of inventory conditions

③ IF blockage between OEMs and FS

a. Don't know the quantity of inventories
b. Don't know the status of inventories

Source: Case information

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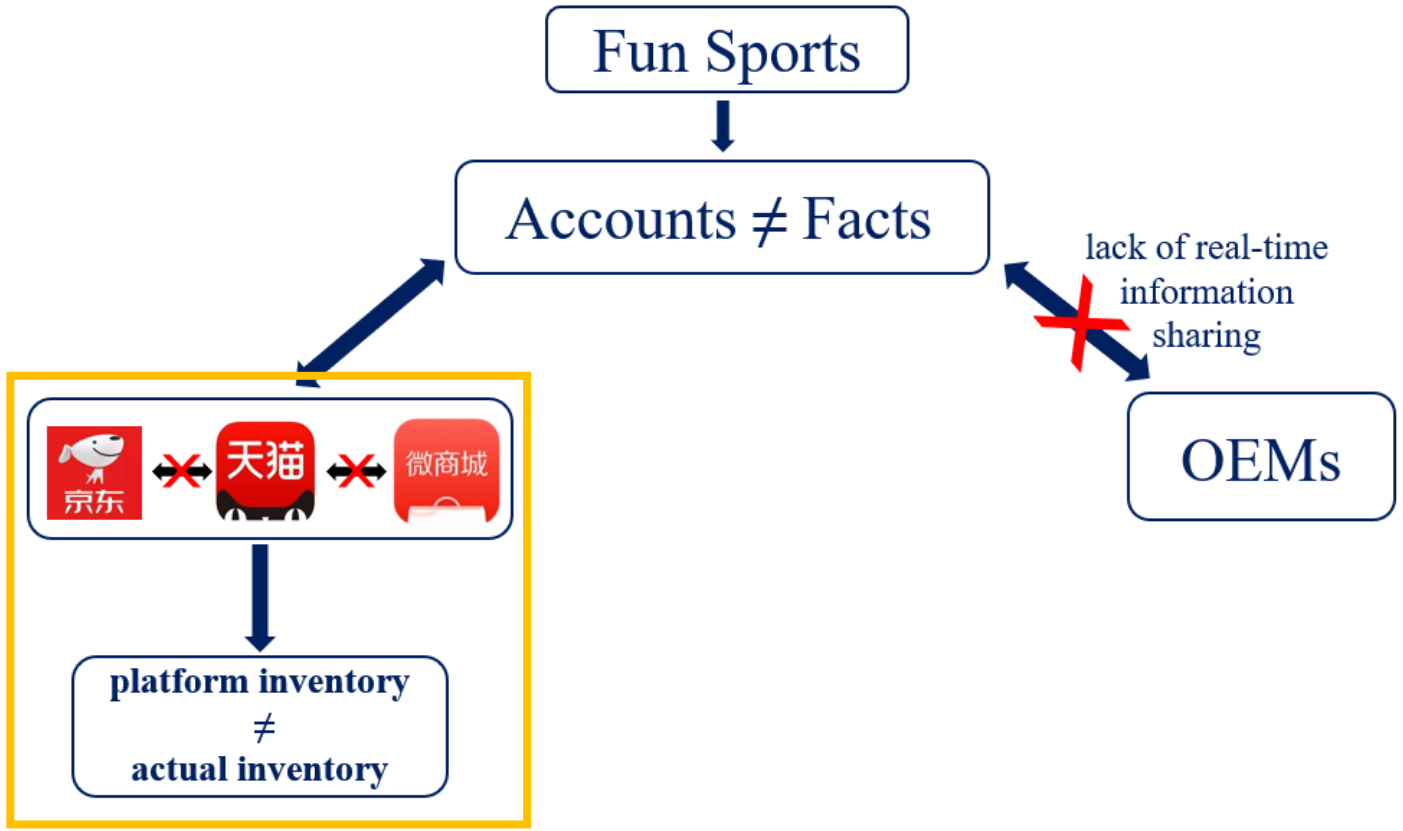

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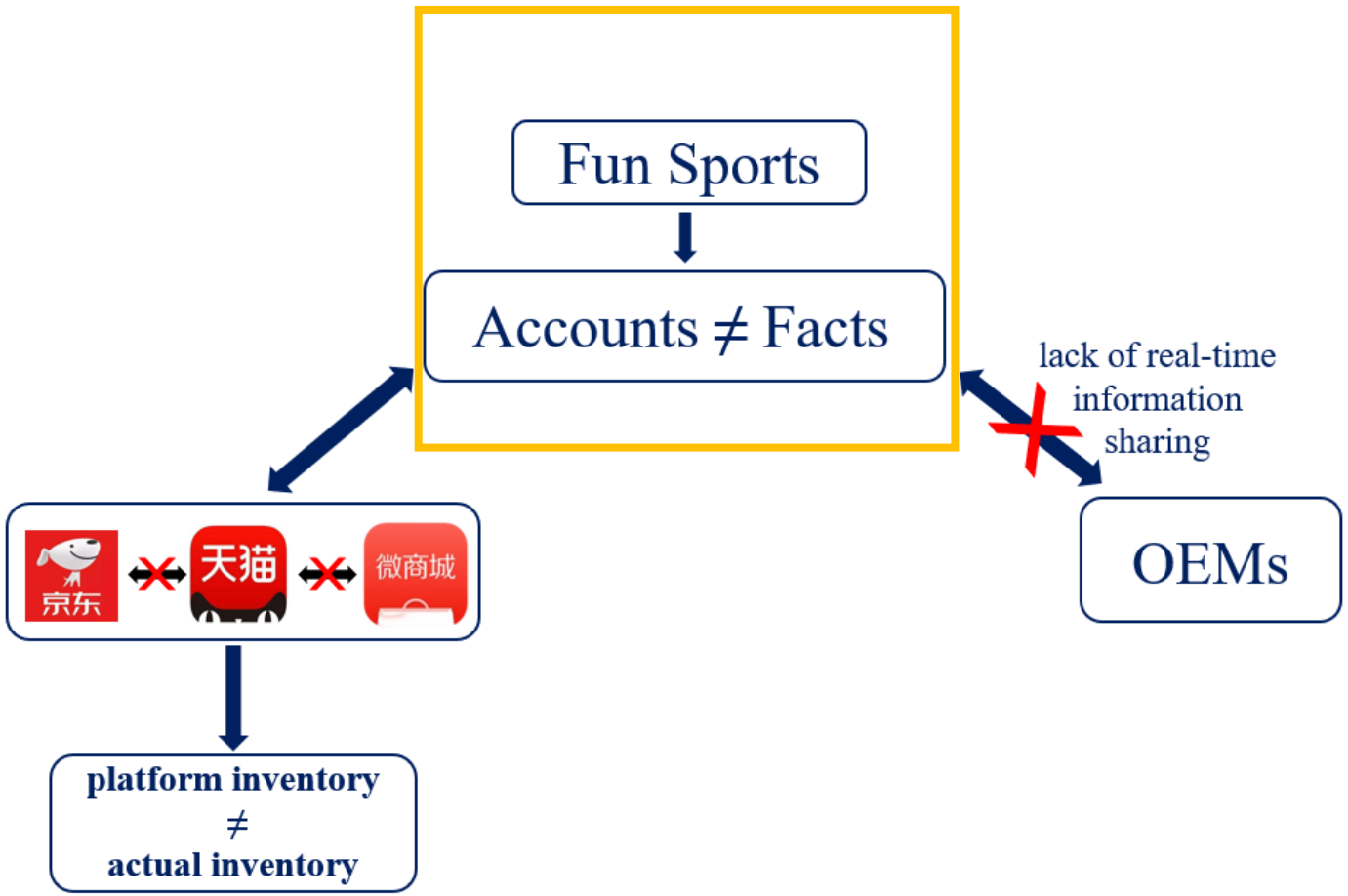

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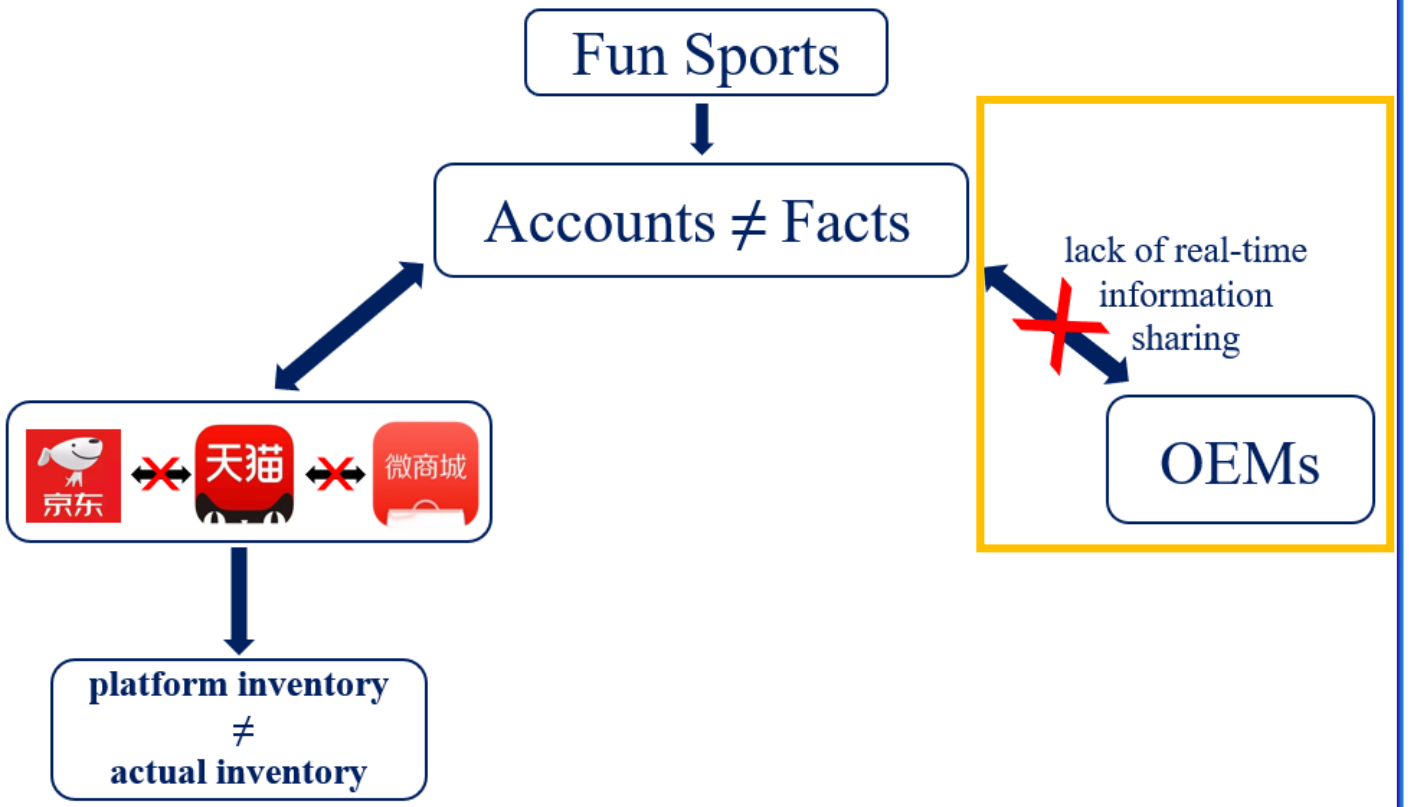

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Overall Solutions

Suppliers（OEMs）	R&D	Purchasing	Production	Inventory	Sales	Customers

- Suppliers Performance Management
- Suppliers Elimination Mechanism

- Follow up maintenance progress

- Safety Stock Warning in AIS

- On-site personnel
- Random sampling inspection
- Monthly evaluation

- Hierarchical Management

- AIS Supply Chain Planning System

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Overall Solutions

R&D → Purchasing → Production → Inventory → Sales → Customers

- **R&D**: Follow up maintenance progress
- **Purchasing**: Safety Stock Warning in AIS
- **Production**: On-site personnel; Random sampling inspection; Monthly evaluation
- **Inventory**: Hierarchical Management
- **Sales**: AIS Supply Chain Planning System

Suppliers（OEMs）

→ **Information Asymmetry**

- Adverse Selection → Supplier Performance Management
- Moral Hazard → Supplier Elimination Mechanism

Overall Solutions

Suppliers (OEMs)

- Suppliers Performance Management
- Suppliers Elimination Mechanism

Purchasing → Production → Inventory → Sales → Customers

- Safety Stock Warning in AIS
- On-site personnel
- Random sampling inspection
- Monthly evaluation
- Hierarchical Management
- AIS Supply Chain Planning System

R&D

Returned Products → OEM

OEM → Quality Check → QC Department → Product status

OEM → Repair → Repair information → R&D

1. Reasons
2. Material Consumption
3. Time Consumption

Overall Solutions

Suppliers (OEMs)

- Suppliers Performance Management
- Suppliers Elimination Mechanism

R&D

- Follow up maintenance progress

Production

- On-site personnel
- Random sampling inspection
- Monthly evaluation

Inventory

- Hierarchical Management

Sales

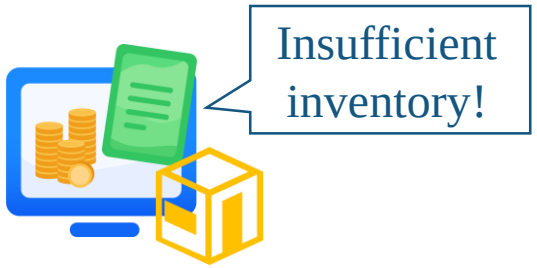
- AIS Supply Chain Planning System

Customers

Purchasing

Safety Stock Warning in AIS

Orders



AIS

advance procurement

OEMs

Overall Solutions

Suppliers (OEMs) → R&D → Purchasing → Inventory → Sales → Customers

- Suppliers Performance Management
- Suppliers Elimination Mechanism
- Follow up maintenance progress
- Safety Stock Warning in AIS
- Hierarchical Management
- AIS Supply Chain Planning System

Production

Quality Management

- On-site personnel → Supervise
- Random sampling inspection → Improve quality
- Monthly evaluation → Evaluate the OEMs

1.Production process
2.Equipment inspection

Overall Solutions

Suppliers (OEMs)	R&D	Purchasing	Production	Sales	Customers
☐ Suppliers Performance Management ☐ Suppliers Elimination Mechanism	☐ Follow up maintenance progress	☐ Safety Stock Warning in AIS	☐ On-site personnel ☐ Random sampling inspection ☐ Monthly evaluation	☐ AIS Supply Chain Planning System	VIP

Inventory

Two Classification Basis

$$\frac{\text{Inventory funds}}{\text{Total capital}} *100\%$$

$$\frac{\text{Monthly sales}}{\text{Total sales}} *100\%$$

ABC classification

A
- ✓ Frequently changed

→ Daily inventory correction
Easy to transport

B C
- ✓ Low turnover rate
- ✓ Large resource occupation

→ Safety and Integrity
Minimum Outbound Quantity

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Overall Solutions

Suppliers (OEMs)	R&D	Purchasing	Production	Inventory	Customers
☐ Suppliers Performance Management ☐ Suppliers Elimination Mechanism	☐ Follow up maintenance progress	☐ Safety Stock Warning in AIS	☐ On-site personnel ☐ Random sampling inspection ☐ Monthly evaluation	☐ Hierarchical Management	

Sales

AIS Supply Chain Planning System

Channels

1. E-commerce platform
2. Sales mode

Predict → **Future Order Volume**

Forecasting Methods

1. Algorithm model
2. Machine learning
3. Moving average method

Overall Solutions

SRM | **ISCM** | **CRM**

1. Supply Chain Partnership Management

- Step 1: Suppliers Classification
- Step 2: Suppliers Performance Management
- Step 3: Suppliers Elimination Mechanism

2. Accounts Match Facts Evaluation & Incentive Mechanism

- Entry accuracy
- Bonus of warehouse supervisor

3. Stocktaking policies

- Counting method
- Inventory contents
- Processing of inventory results

4. Departmental Collaboration

- Department mutual evaluation system
- Department leader meeting system

5. Standard inbound, outbound policies

Overall Solutions

Fiveplus

Suppliers (OEMs) → R&D → Purchasing → Production → Inventory → Sales → Customers

SRM

1. Supply Chain Partnership Management

Step 1: Suppliers Classification

Step 2: Suppliers Performance Management

Quarterly Assessment →
- Product Quality
- Delivery Situation
- Technical Level

Step 3: Suppliers Elimination Mechanism

Poor Assessment Results →
- Reduce
- Suspend
- Eliminate

2-1. Accounts Match Facts Evaluation

$$\text{Entry accuracy} = \frac{\text{Sum(exact number of entries)}}{\text{Sum (number of all checked objects)}} * 100\%$$

2-2. Incentive Mechanism

Conformity Rate of the Account & the Inventory Integrity

↓

Bonus of Warehouse Supervisor

Overall Solutions

Fiveplus

Suppliers (OEMs) → R&D → Purchasing → Production → Inventory → Sales → Customers

ISCM

3. Stocktaking policies

① **Counting method:**

Self-owned warehouse **Periodic counting** ▶ Centralized & Unified ▶ End of each month

OEM warehouse **Cycle counting** — ABC analysis

- Class A **15** days
- Class B **45** days
- Class C **90** days

② **Inventory contents :**

Storage Conditions | Quantity | Quality and Safety

4. Departmental Collaboration

Information Technology ✕ Man-Made Barriers

Department mutual evaluation system

Department leader meeting system

5. Standard inbound, outbound policies

Inbound : Check Before Acceptance → Vouchers & Physical Objects

Outbound :

- Outbound Order
- Product quality inspection
- Express Company's Waybill

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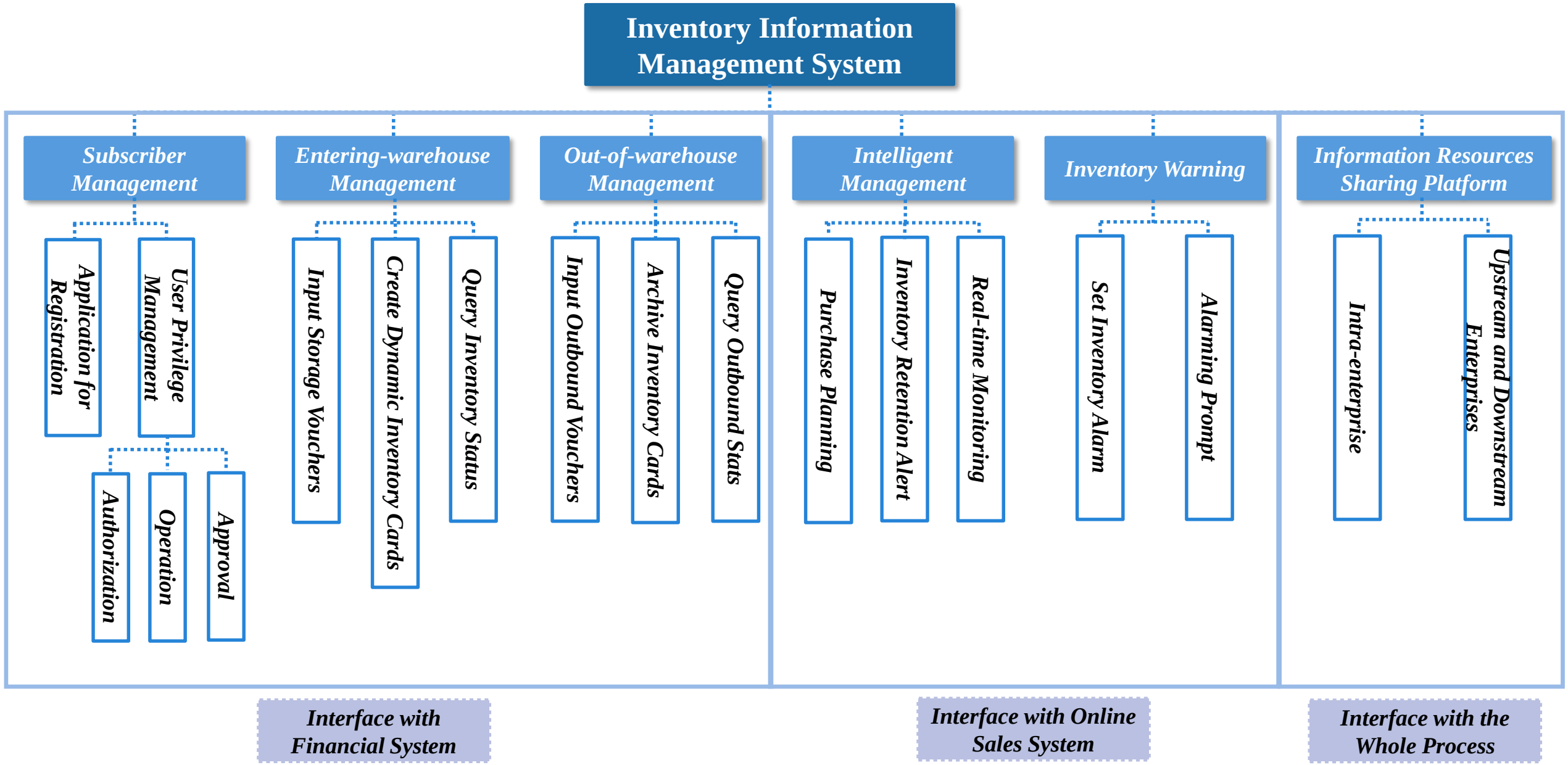
Inventory Information Management System



a. Basic Input Functions

- **Subscriber Management**
  - *Application for Registration*
  - *User Privilege Management*
    - *Authorization*
    - *Operation*
    - *Approval*
- **Entering-warehouse Management**
  - *Input Storage Vouchers*
    - *Commodity Inspection List*
    - *Receipt Document*
    - *Inventory Bar Code*
  - *Create Dynamic Inventory Cards*
    - *Inventory Details*
    - *Inventory Classification*
  - *Query Inventory Status*
    - *Inquire Inventory Cards*
    - *Inquire Existing State*
- **Out-of-warehouse Management**
  - *Input Outbound Vouchers*
  - *Archive Inventory Cards*
  - *Query Outbound Status*

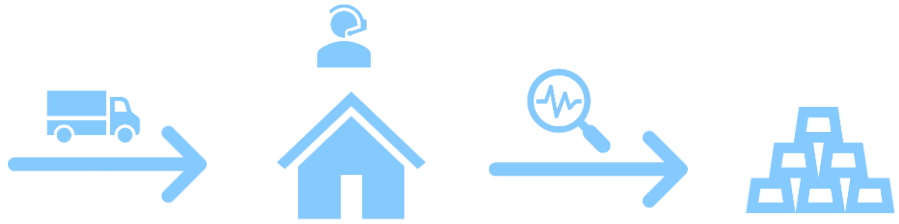
Subscriber Management

Entering-warehouse Management

Out-of-warehouse Management

b. Intelligent Management Functions

- **Intelligent Management**
  - *Purchase Planning*
  - *Real-time Monitoring*
  - *Inventory Retention Alert*
- **Inventory Warning**
  - *Set Inventory Alarm*
  - *Alarming Prompt*

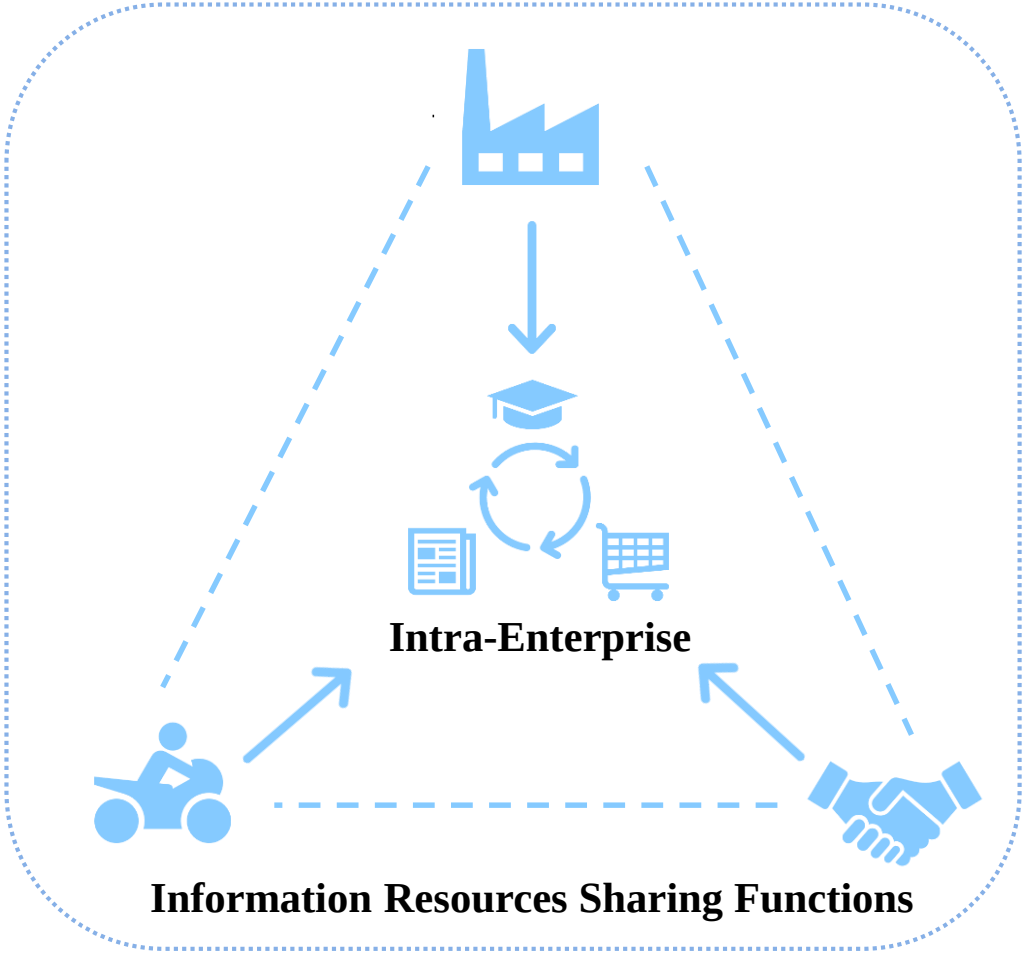


Intelligent Management

Inventory Warning

c. Information Resources Sharing Functions

- **Information Resources Sharing Platform**
  - *Intra-enterprise*
    - *R&D Department*
    - *Accountant*
    - *Purchasing , Inventory and Logistic*
  - *Upstream and Downstream Enterprises*
    - *OEMs*
    - *Courier Company*
    - *Online Sales Platform*



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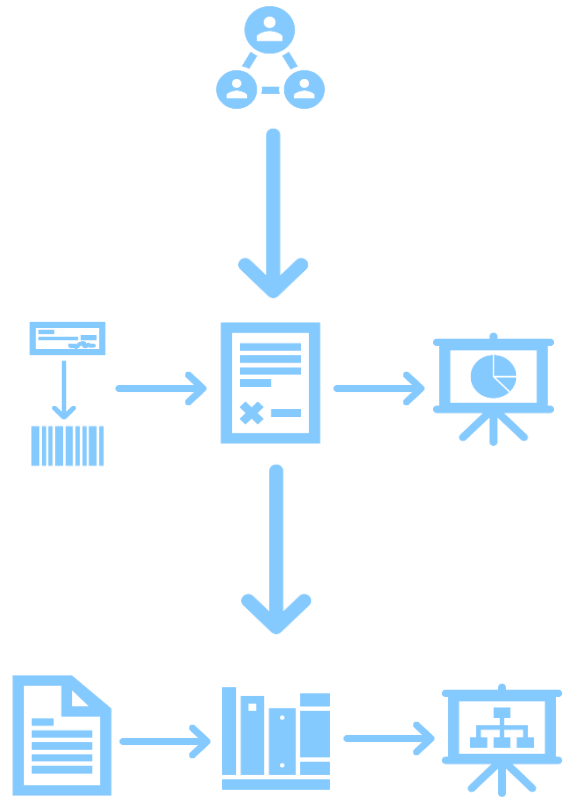
Inventory Information Management System



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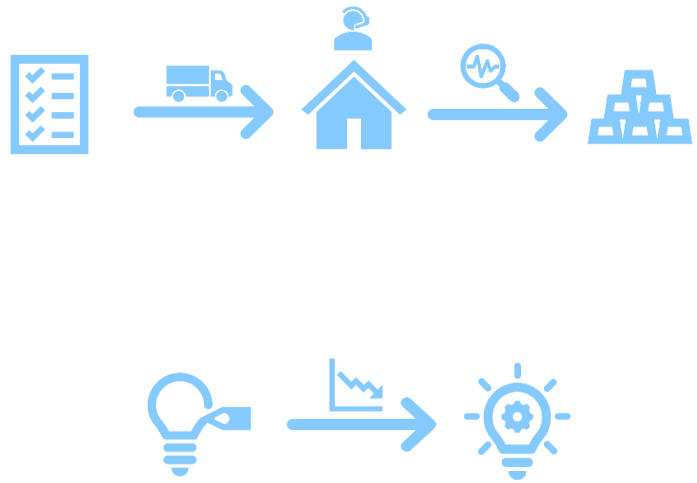
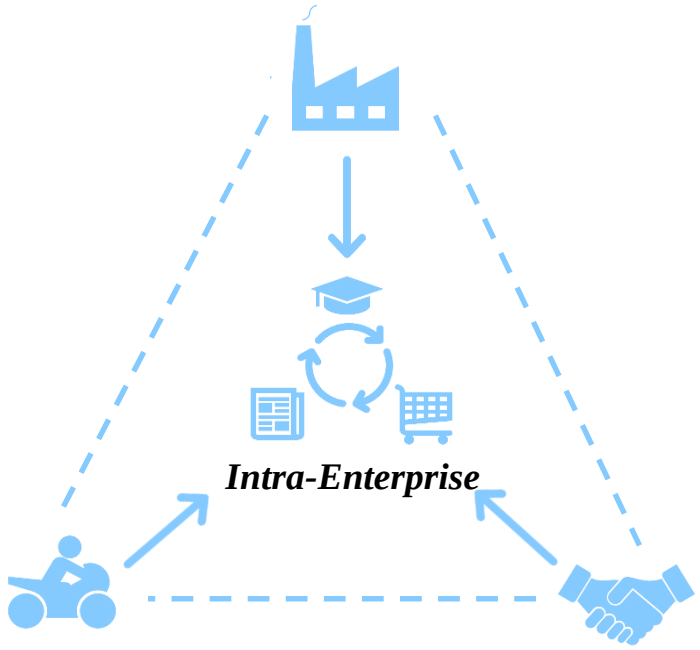


Intelligent Management Functions



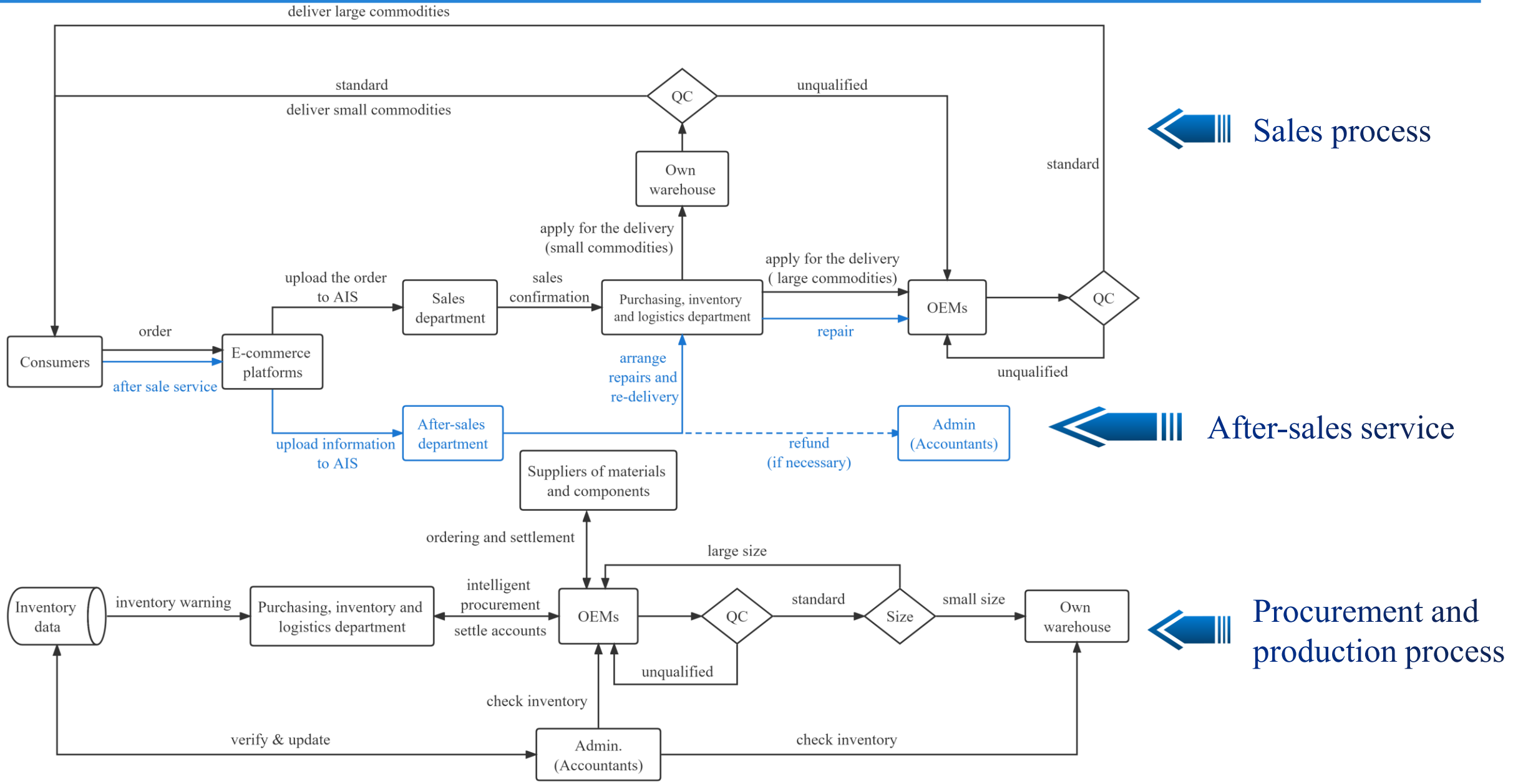
Information Resources Sharing Functions

Interface with Financial System

Interface with Online Sales System

Interface with the Whole Process

Key Business Processes



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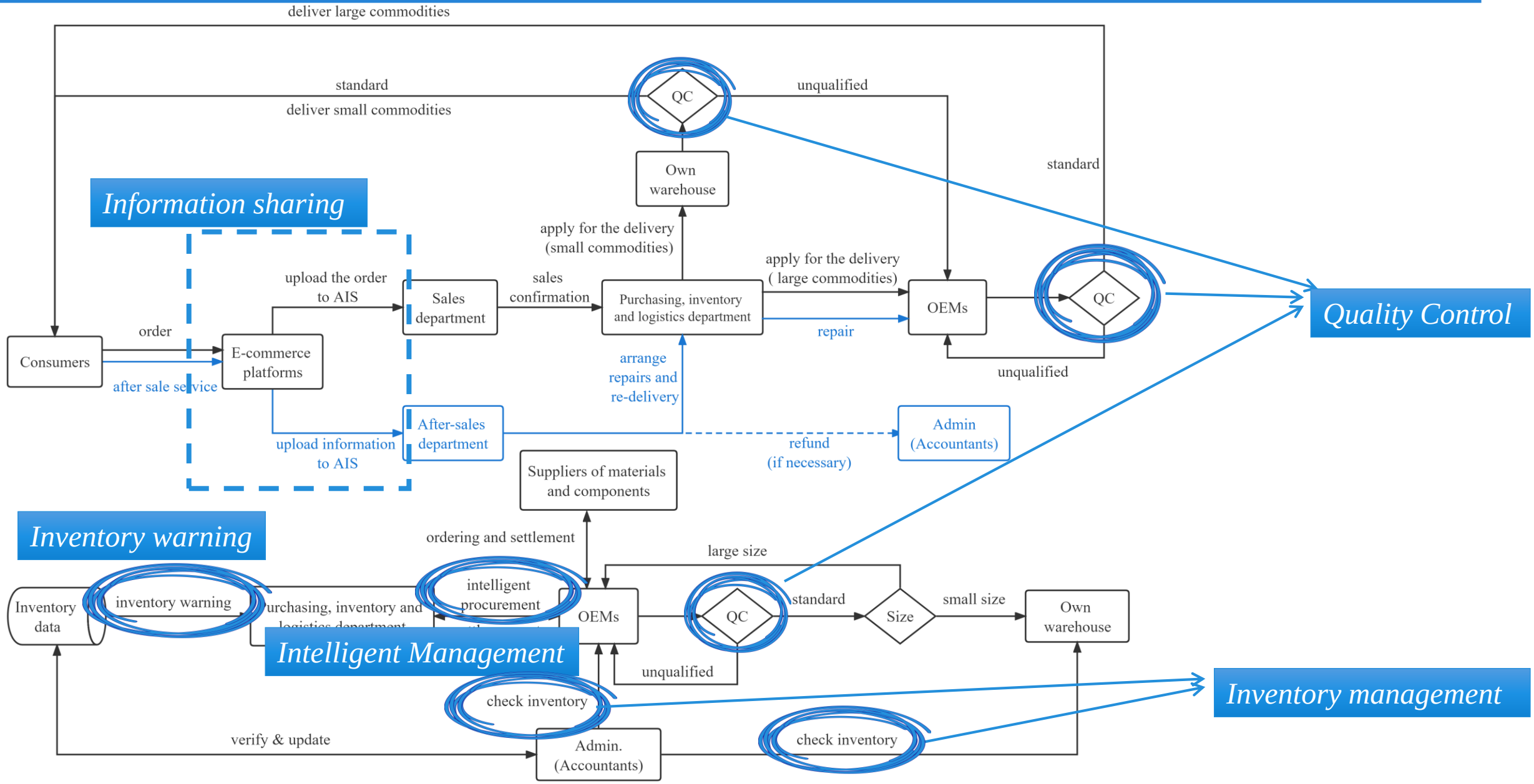

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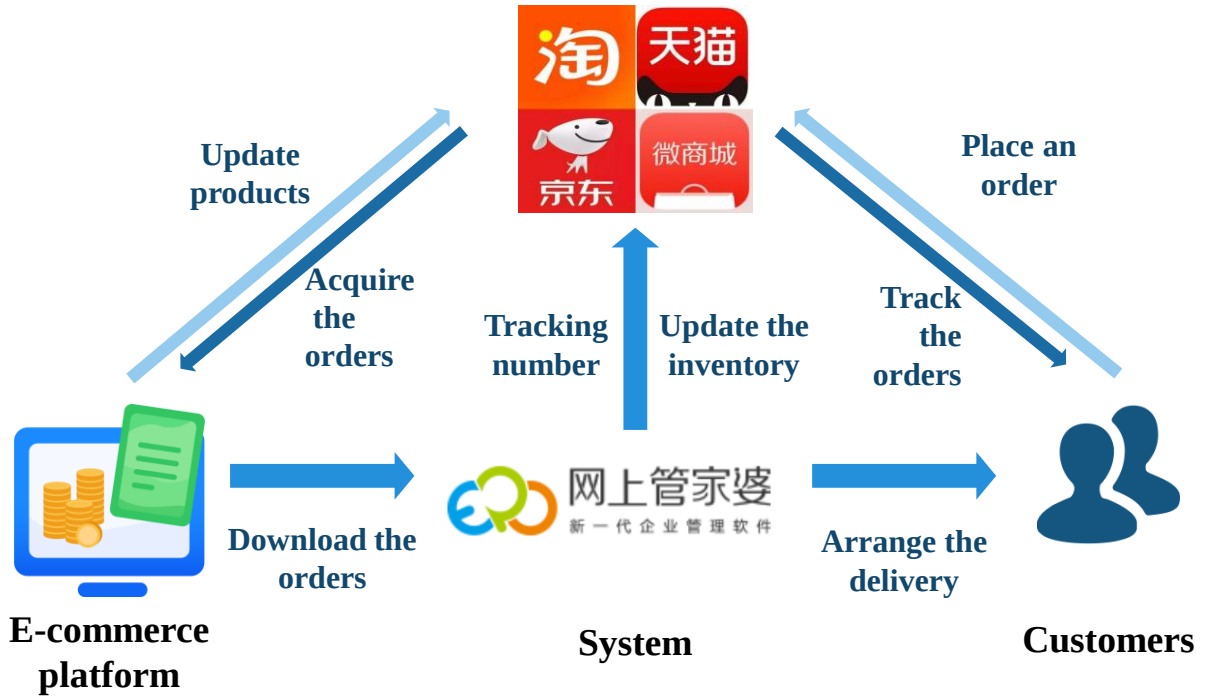
3 Main Options

Options	Option 1 +New system	Option 2 Replace the system	Option 3 Upgrade old system
Software	网上管家婆 新一代企业管理软件	Kingdee | KIS云	智+
Inventory management	✔	✔	✔
Quality control	✔	✔	✔
Intelligent procurement	✔	✔	✔
Data synchronization	✔	✔	✔
Supply chain management	✔	✔	✔
Department collaboration	✔	✔	✔
Financial management		✔	✔
Basic price	at least 6,180 yuan/year (3 online stores & 5 users)	18,000 yuan/year/user	16,240 yuan/year/user

Option 1: Good Accountant + New System

Operation Mode



System Interface

Price

Online stores	Users	Price	Note
3	5 for free (each additional user: +200 yuan/year)	6,180 yuan/year	Available for phone: +580 yuan/year

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Option 2: Replace the System

Price

Module	Price (yuan/year)
General ledger	2,400
Salary management	1,300
Cashier management	1,000
Fixed assets	1,000
Inventory accounting	1,800
Warehouse management	1,700
Purchasing management	1,200
Sales management	1,200
AP/AR	1,700
Production management	2,900
Outsourcing management	1,800
Total	**18,000 yuan/year/user (each additional user: +1,000 yuan/year)**

System Interface

Six bright spots of KIS Cloud

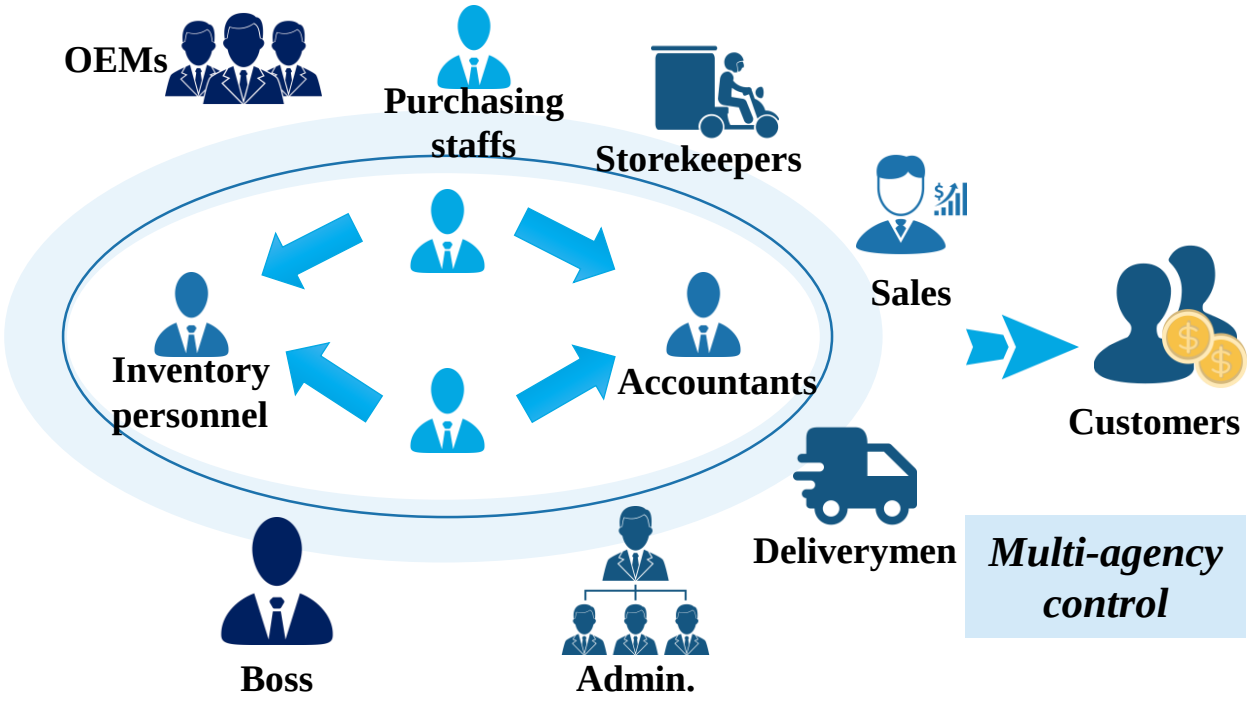
Kingdee | KIS 云

- ✓ Not limited by region or equipment
- ✓ Purchase by module
- ✓ Professional team of Kingdee
- ✓ Easy for regular subscribers of Kingdee
- ✓ Fast delivery
- ✓ Automatic data backup

Option 3: Upgrade the Old System

Design of Zhi+ (Yongyou)

Upstream and downstream synergy



Multi-agency control

Integration of finance and business

- Collaboration of online and offline
- Comprehensive business, financial and tax management
- Synchronize online orders of multiple platforms in real time

Price

Module	Price (yuan/year)
Standard version	5,660
+ E-commerce platform (TB,JD,etc.)	2,980
+ Wechat Mall	4,800
+ Offline store	2,800
Total	**16,240 yuan/year/user (each additional user: +600 yuan/year)**

System Interface

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3 Main Options & 4 Considerations

Options	Option 1 +New system	Option 2 Replace the system	Option 3 Upgrade old system
Software	网上管家婆 新一代企业管理软件	Kingdee | KIS云	智+
Practicality			
High adaptation			
Convenience			
Cost			

Suggest to upgrade the old system!

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Other Suggestions

#1 Try out the new system

Try out the new system to more accurately judge whether it can meet the needs of FS.

#2 Make full use of the resources of e-commerce platforms

Use the data statistics and sales analysis functions of e-commerce platform to assist FS in making business decisions.

Other Suggestions

#1 Try out the new system

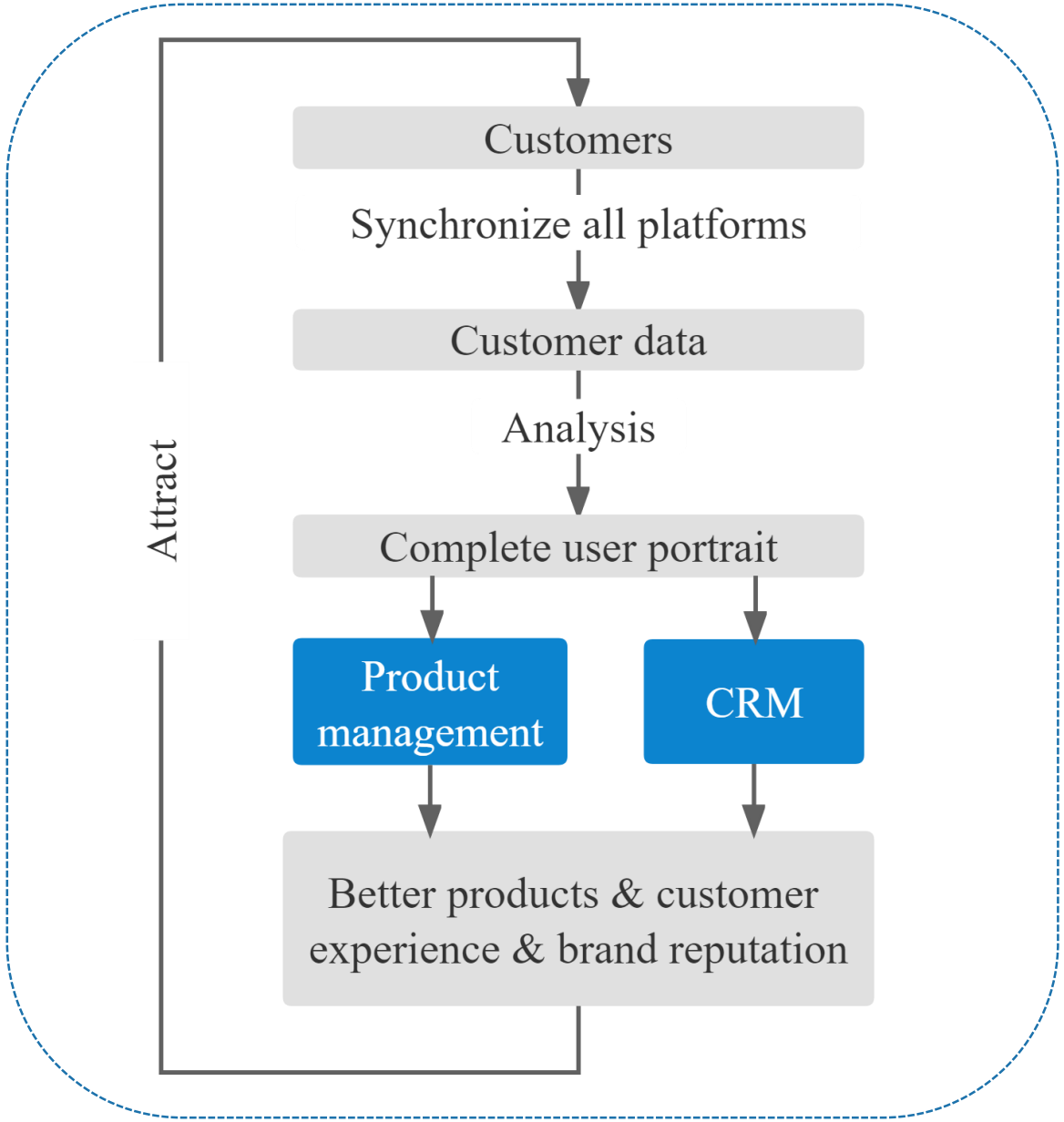
Try out the new system to more accurately judge whether it can meet the needs of FS.

#2 Make full use of the resources of e-commerce platforms

Use the data statistics and sales analysis functions of e-commerce platform to assist FS in making business decisions.

#3 Strengthen customer relationship management (CRM)

By integrating data from all channels, FS can complete user portraits, accurately analyze user needs and optimize customer experience.



Source: Polaris Analysis

Problems in inventory management		*Solution*	*Functional needs for the information system*	*Recommendations related to the information system*
✓*Sales model* ✓*Sales management* ✓*Purchasing management* ✓*Production management* ✓*Inventory management* ✓*Lack of IS*		✓*Sales management* ✓*Purchasing management* ✓*Production management* ✓*Inventory management* ✓*4 Policies*	✓*Basic input section* ✓*Intelligent management section* ✓*Information sharing section*	✓*Key business processes* ✓*Four considerations* ✓*Three main options* ✓*Other Suggestions*
Endogenous	**1.Sales model**: outsourcing	**1.Sales management:** AIS supply chain planning system **2. Purchasing management:** safety stock warning **3.Production management:** a)Accounts match facts evaluation b)Incentive mechanism **4.Inventory management:** hierarchical management	**1.Basic input section** a) Subscriber management b) Inbound management c) Outbound management **2.Intelligent management section** a) Intelligent management b) Inventory warning **3.Information sharing section** a)Intra-enterprise information sharing b)Upstream and downstream information sharing	**1.Key business processes** a)Sales b)After-sales c)Procurement and production **2.Four considerations** a)Practicality b)High adaptation c)Convenience d)Cost **3.Three main options** a)Add a new system b)Replace the old system c)Upgrade the system **4.Other Suggestions** a)Try out the new system b)Make full use of e-commerce platforms c)Strengthen CRM
Blockage of product flow	**2.Sales management:** a) Dull sale b) Department communication **3.Purchasing management:** a) Setting of safety stock **4.Production management:** a) Non uniform documents b) Non standard process **5.Inventory management:** a) Overlong time interval for stocktaking b) Frequent inbound & outbound			
Blockage of Information flow	**6.Lack of sound regulations:** a) Stocktaking regulations b) Standardized process regulations c) Departmental collaboration regulations d) OEM management regulations **7.Lack of IS:** a) Information blockage between platforms b) IB between OEM and FS c) IB between accounts and facts	**5.Policy 1. Departmental Collaboration** department mutual evaluation system and department leader meeting system. **6.Policy 2. Supply Chain Partnership Management:** Step 1: Supplier Classification Step 2: Supplier Performance Management Step 3: Supplier Elimination Mechanism **7.Policy 3. Standard Warehousing and delivery process:** a)Warehousing : check before acceptance b)Outbound **8.Policy 4. stocktaking policies:** a)Counting method b) Inventory contents: c) Processing of inventory results		

Inventory Management Practice of Fun Sports

IMA Business Case Competition
XN20211498

Appendix : Research on AIS

Research work

Consult experts

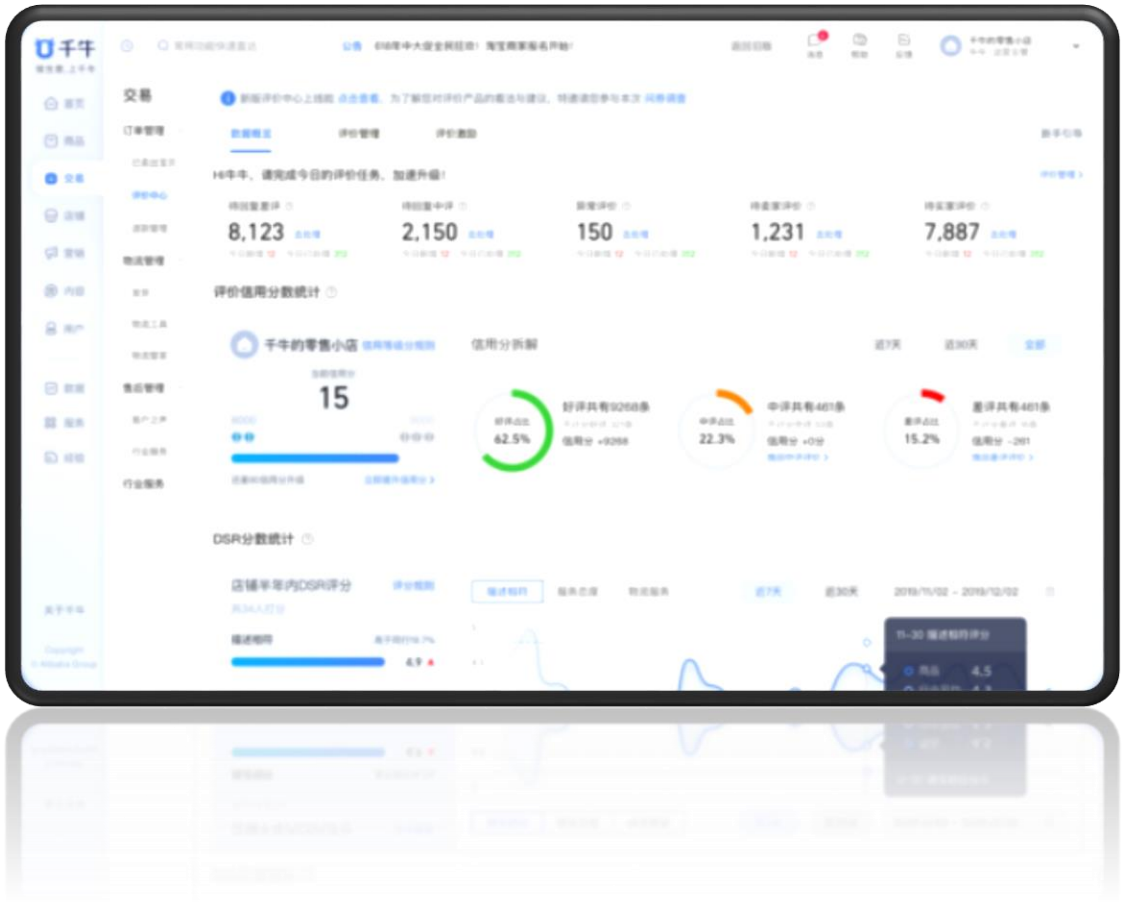
Try out various systems

Fiveplus

1. Real-time warehouse monitoring

Tmall – Qian Niu

- Logistics delivery management
- Real-time display of storage inventory
- Inventory Parameter Setting

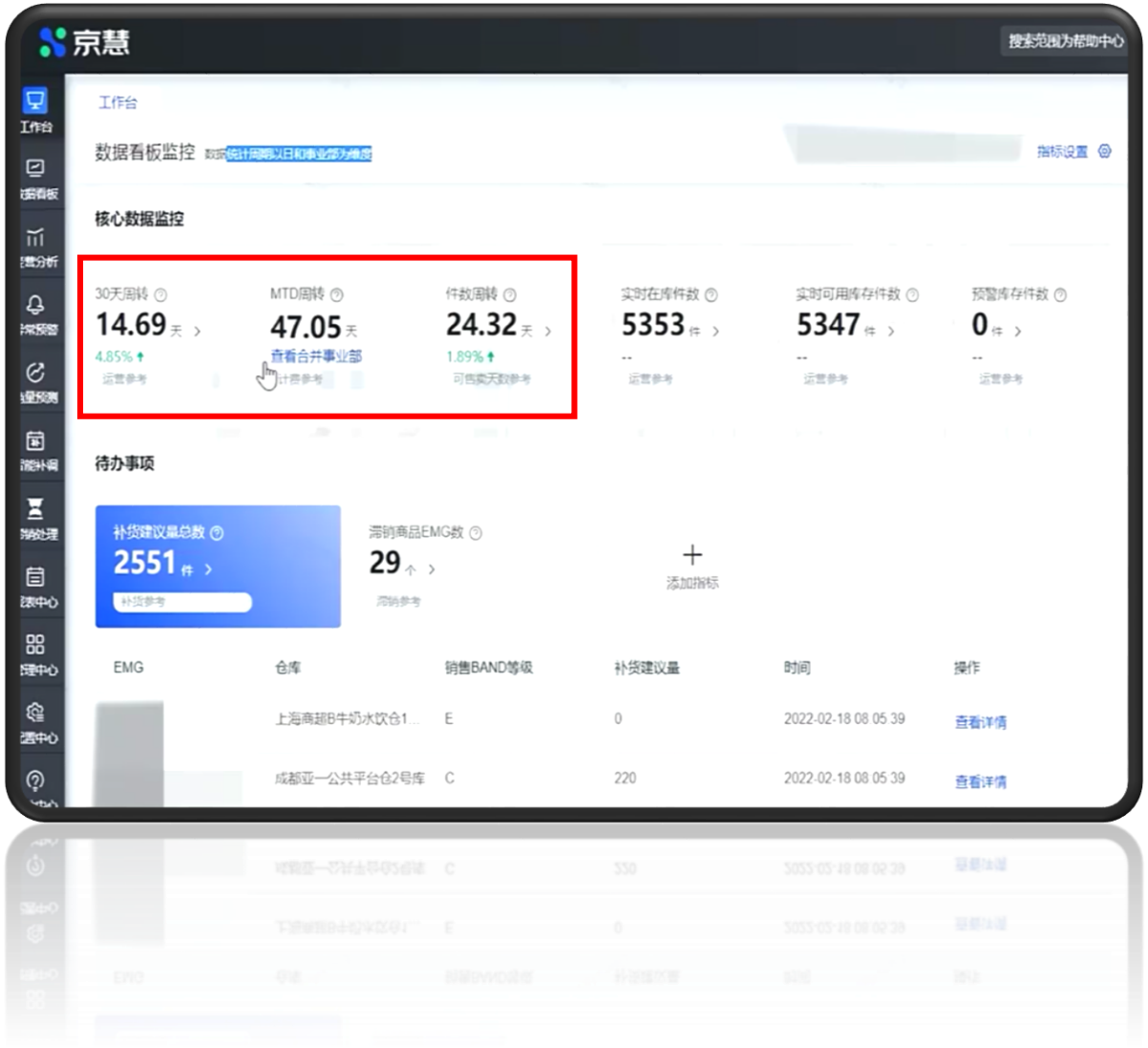


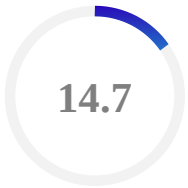
Fiveplus

1. Real-time warehouse monitoring

JD – Jing Hui

- Inventory Snapshot Monitoring
- Real-time inventory monitoring
- Sales outbound monitoring
- Purchase warehouse monitoring





Number of pieces turnover

MTD turnover

30 days turnover

Fiveplus

1. Real-time warehouse monitoring

JD – Jing Hui

14.7

Number of pieces turnover

Replenishment reference

47.1

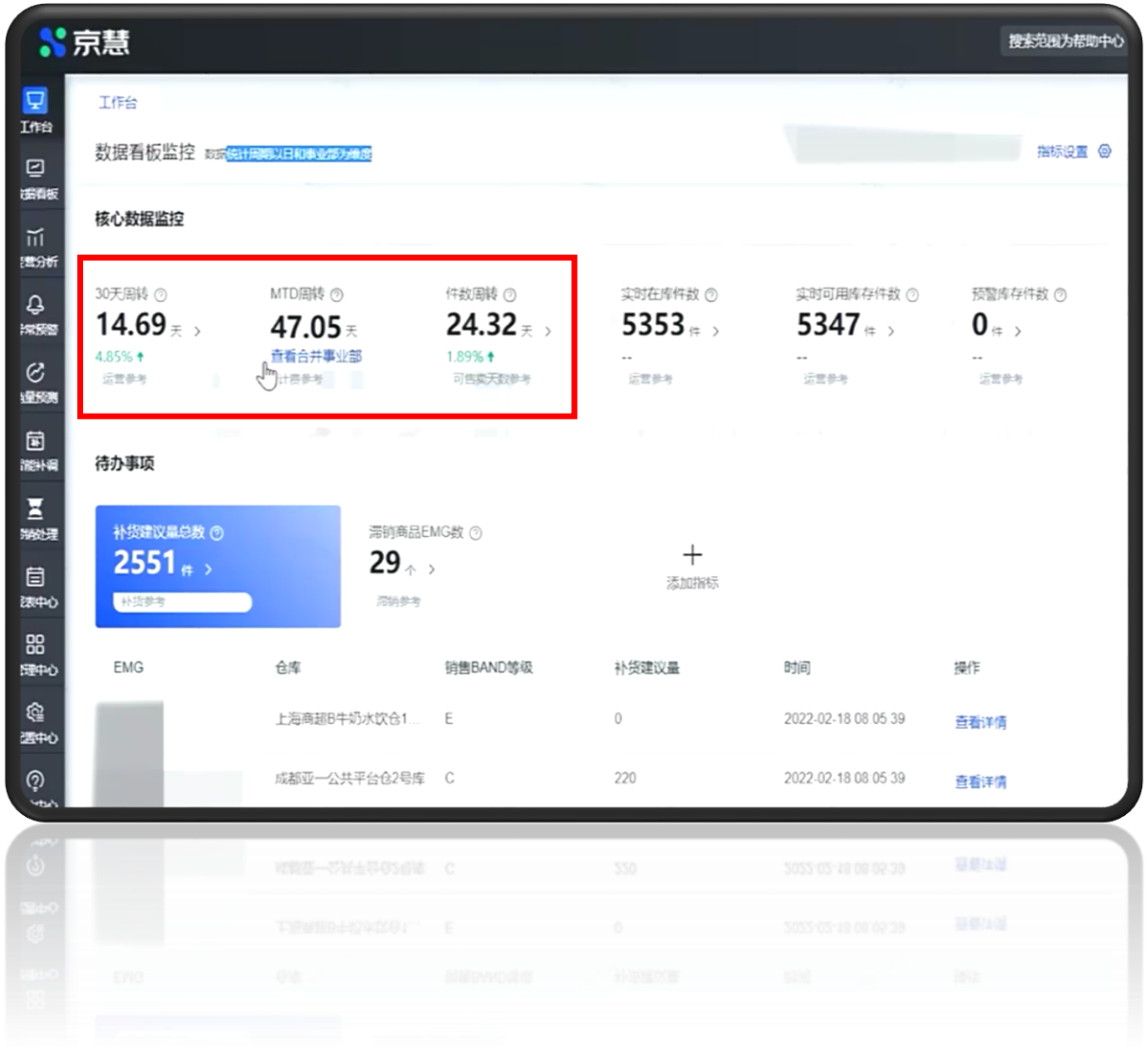
MTD turnover

Accounting basis of logistics storage fee

24.3

30 days turnover

Daily operation level monitoring



2. Logistics service

Tmall – Qian Niu

Multi-level warehouse network service

- Logistics warning
- Logistics service
  - Self-owned transport capacity
  - Exclusive logistics distribution
- Cai Niao warehouse distribution
  - B2B&B2C warehouse distribution services
  - Delivery warehouse trunk transport
  - City distribution services

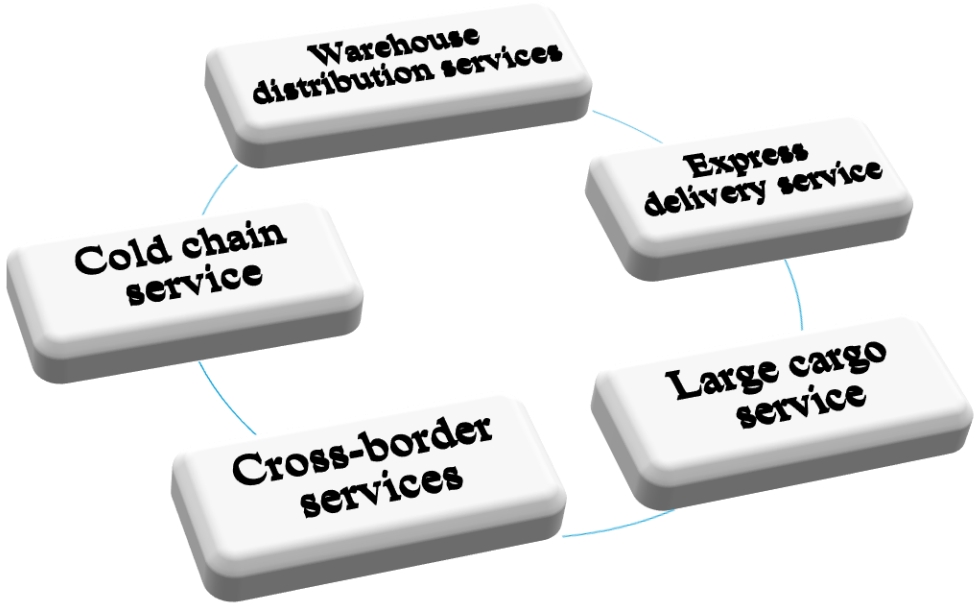
Warehouse network mode → *Multi-level service standard* → *Adapt to multiple sales models*

2. Logistics service

JD – Jing Hui

Integrated logistics solutions

Storage monitoring → *Exception handling* → *Goods delivering*



SOP Warehousing

- Warehousing of single or whole products
- Warehousing in one place or different places
- Flexibly switch the delivery warehouse

Fiveplus

3. Data analysis

Tmall – Qian Niu

- Comprehensive thematic analysis
- Joint analysis
- Conduce to calculate break-even point accurately

Abnormal return rate warning

Commercial cockpit information

Commodity tracking

Thematic Analysis

3. Data analysis

JD – Jing Hui

- Inventory turnover analysis and forecast
- Diagnose the best - selling and poor - selling products
- Specific inventory optimization suggestions

Turnover rate diagnosis

Currently only for small and medium sized goods