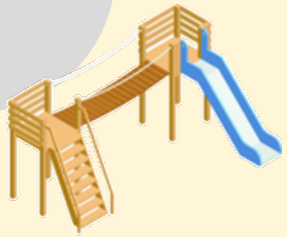


Crack the inventory problem win in informatization

——Research on analysis and optimization of Fun Sports inventory management problems

Team Name：Gryffindor
Team Number：HZ20211344

1 Case background——Event introduction

The chaos of inventory management

2015

Irregular process
Missing system
} **Confusion** of inventory information

Repeatedly returned products

November 2020

The quality of the returned product is defective. I need **a second return.**

The founding of Fun Sports

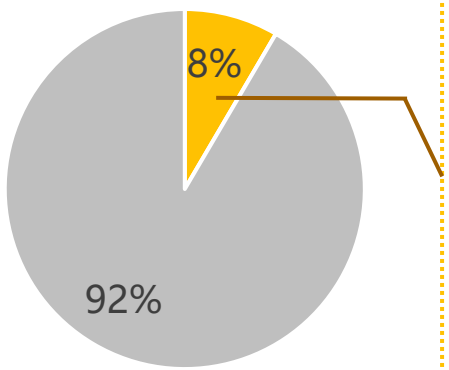
Production mode: OEM

Storage mode:

Large items —stored & shipped→ OEMs

Small items —stored & shipped→ FS

Large fines in "Double 11"



Fines from Tmall

- **¥193,300** in fines
- **8.45%** of net profit of the month

The events that led to the exposure of the problem——

Event 1 Large fines in “Double **11** ”

Event 2 Repeatedly returned products

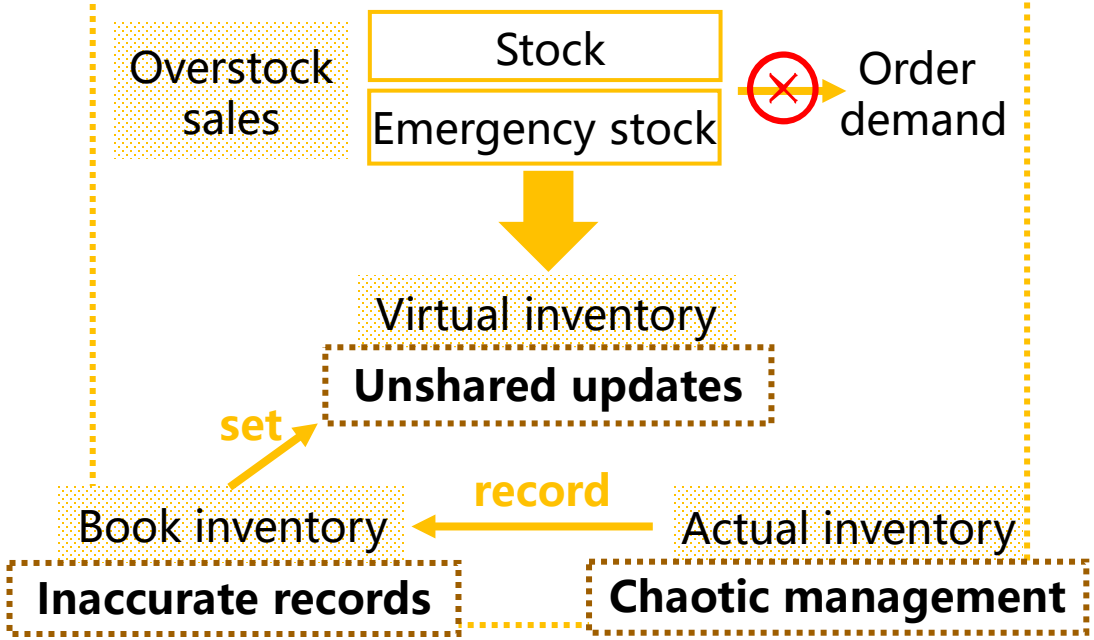
1 Case background——Event analysis

Event 1 Large fines in "Double 11"

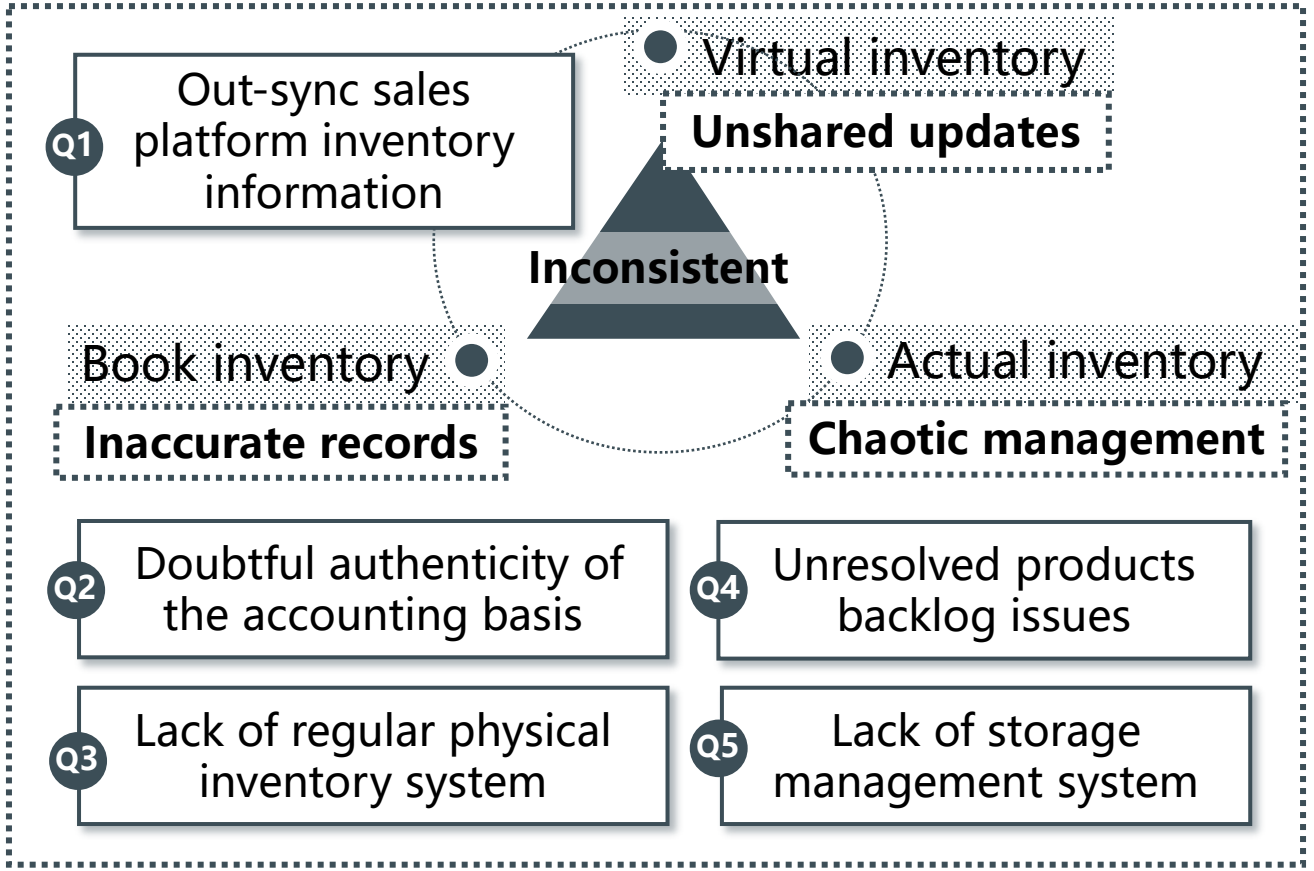
Reason for fine

shipping delay

Deeper reasons



Inventory management problem identification



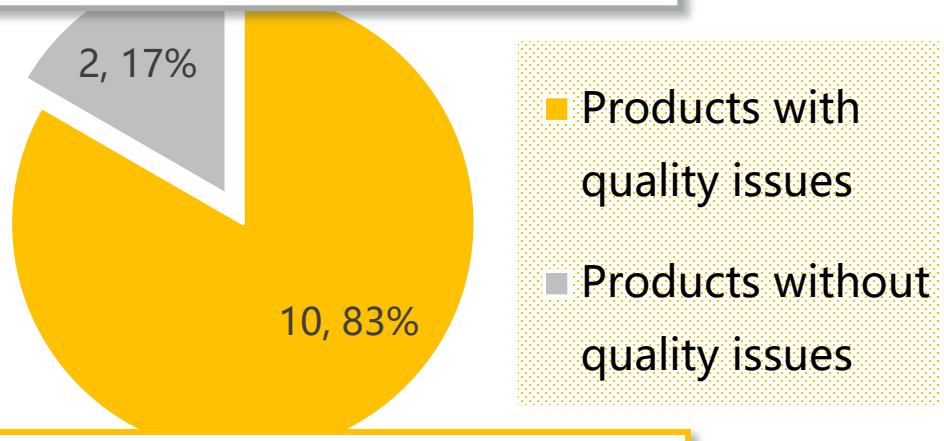
1 Case background——Event analysis

Event 2 Repeatedly returned products

Reason for return

Defective quality of the returned product

Tactile ball & BJ-balance beam



Massage ball, Balance plate, etc

Deeper reason

Chaotic management of returned product

Product quality

Determination ✗

Improvement ✗

unable to evaluate

OEMs management

R & D

unable to feed back

Lack of rework data

Inventory management problem identification

Q1 Missing inventory record of returned products

Q2 Chaotic process of warehousing and repairing returned products

1 Case background——Event analysis

Summary Inventory management problem

- Unshared updates of virtual inventory
  - Out-sync sales platform inventory information
- Inaccurate records of book inventory
  - Doubtful authenticity of the accounting basis
  - Lack of regular physical inventory system
- Chaotic management of actual inventory
  - Unresolved products backlog issues
  - Lack of storage management system

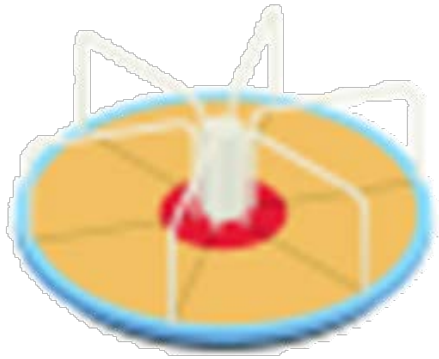
Causes of event 1

- Chaotic management of returned product
  - Missing inventory record of returned products
  - Chaotic process of warehousing and repairing returned products

Causes of event 2

Inventory management problems

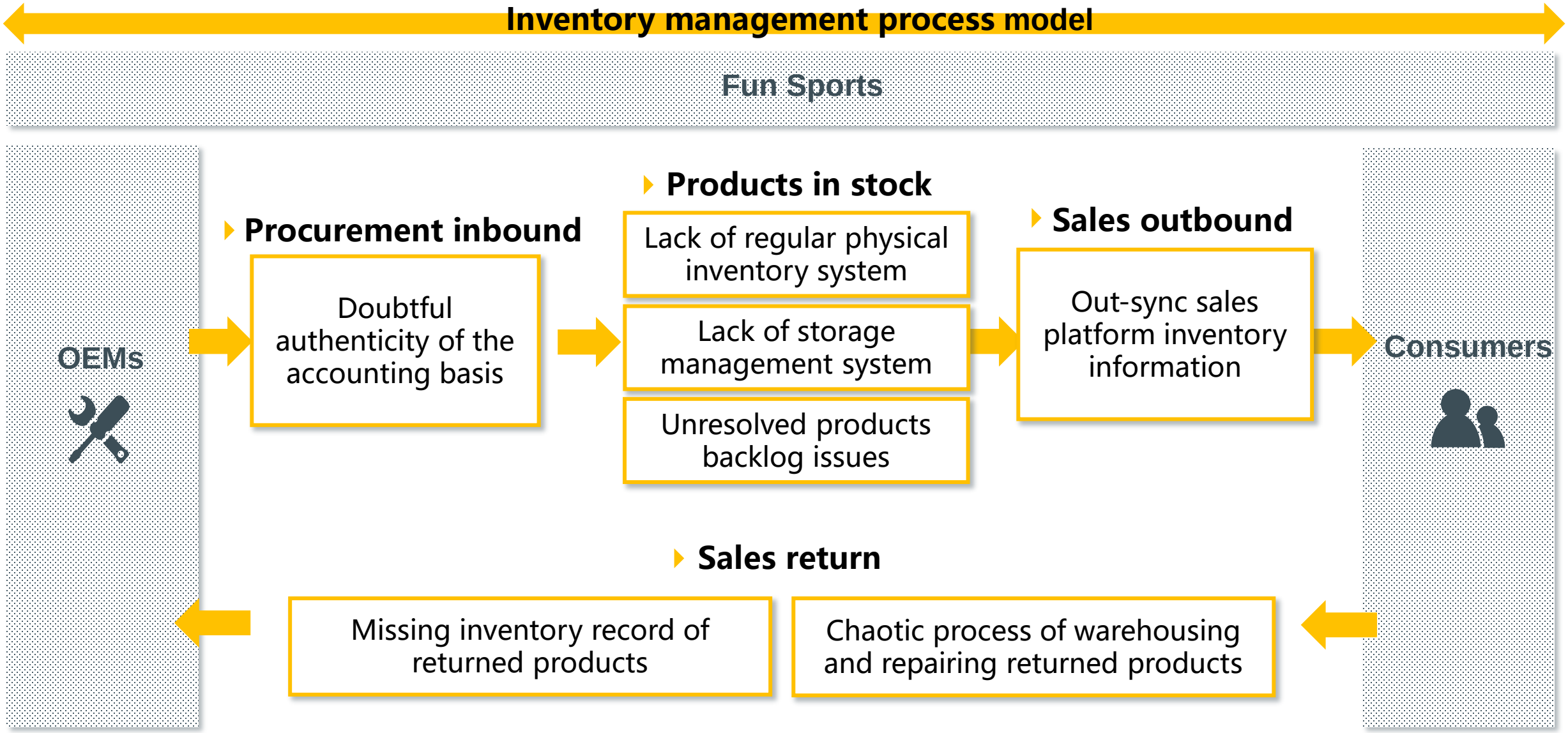
PART
2



Inventory Management Problem Analysis

- Problems of procurement inbound
- Problems of products in stock
- Problems of sales outbound
- Problems of sales return

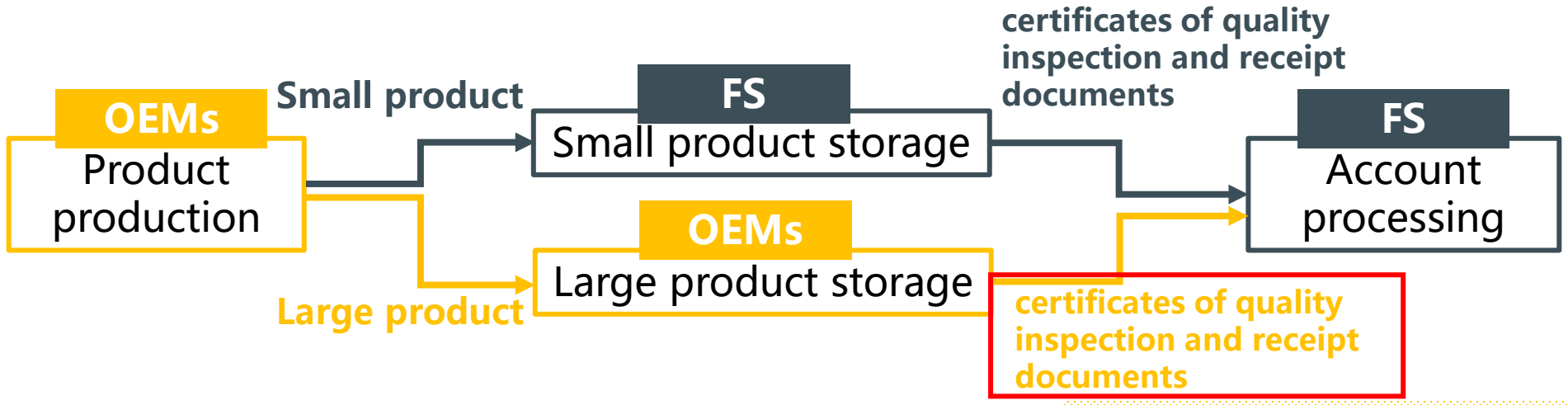
2 Inventory Management Problem Analysis



2 Inventory Management Problem Analysis

Problems of procurement inbound

Doubtful authenticity of the accounting basis



Fun sports didn’ t confirmed and check large product in kind.

Doubts about the authenticity of the inventory

- Is the inbound quantity correct?
- Is the storage time timely?
- Is the inbound quality reliable?

2 Inventory Management Problem Analysis

Problems of products in stock

Lack of regular physical inventory system

Warehouse of OEMs — Scattered storage locations

Warehouse of FS — Frequent sending and receiving of products

↓

Difficult to carry out physical inventory

↓

Doubts about the authenticity of the inventory → Is the quantity in stock correct?

Lack of storage management system

Design ✓ Position distinction

Implement ✗ Storage management system

↓

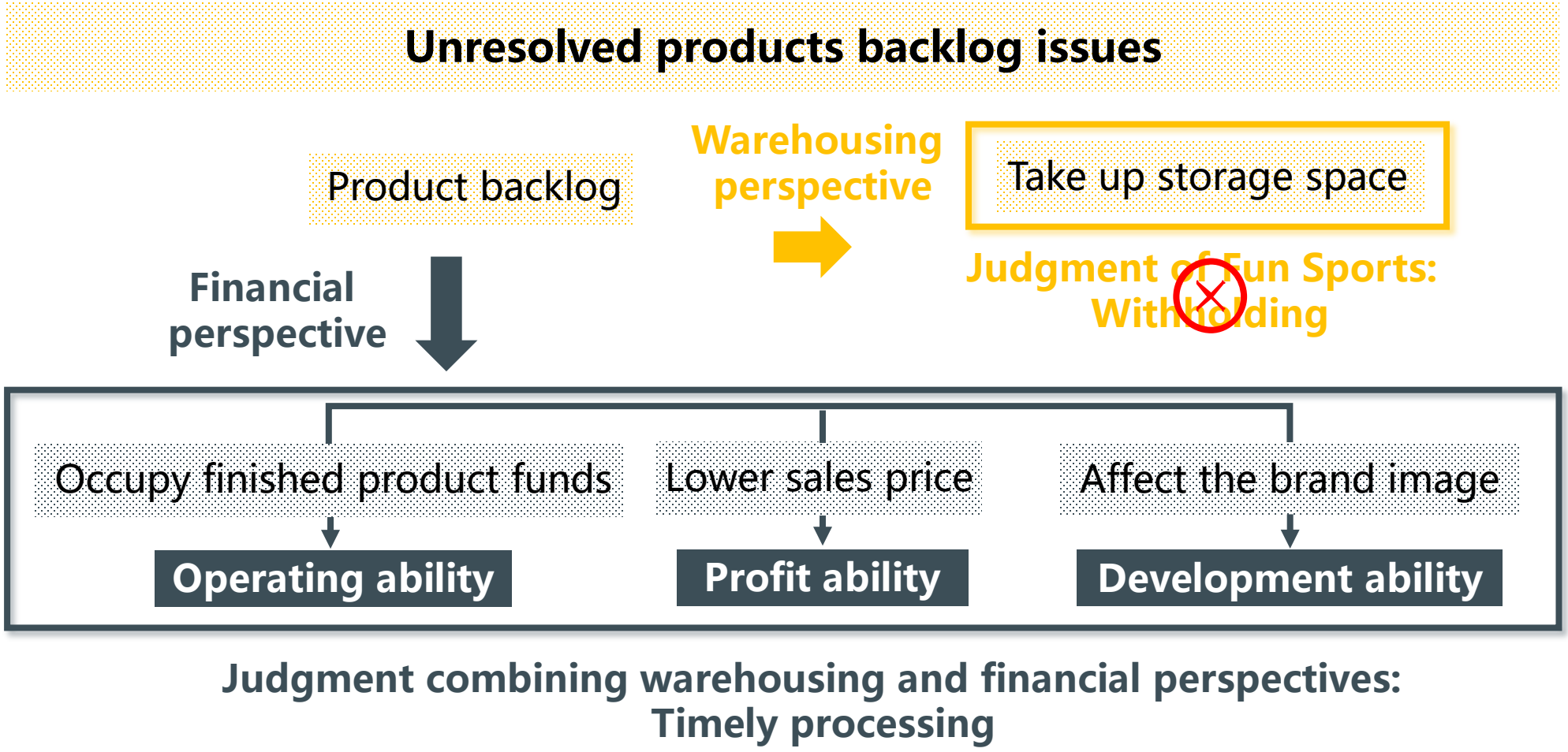
Confusion between normal and defective products

↓

Doubts about the authenticity of the inventory → Is the quality in stock reliable?

2 Inventory Management Problem Analysis

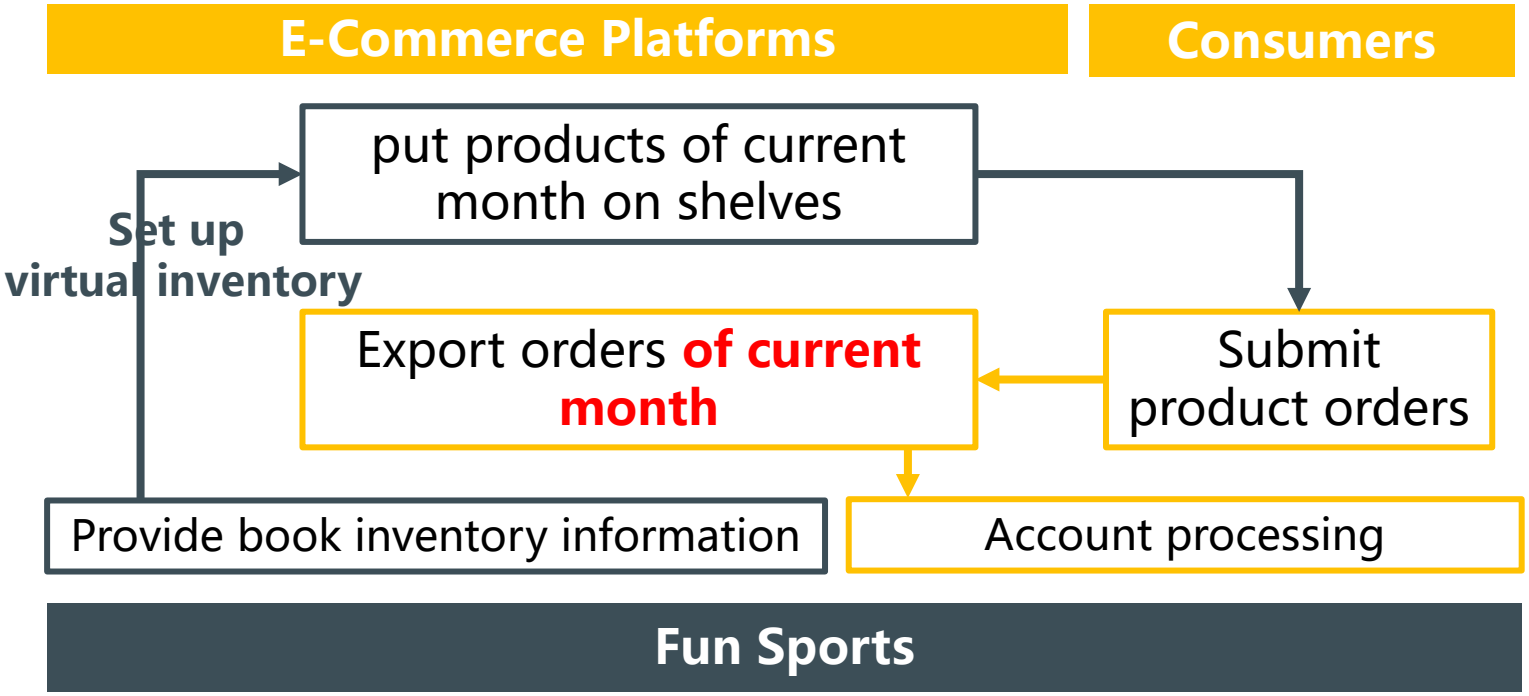
Problems of products in stock



2 Inventory Management Problem Analysis

Problems of sales outbound

Out-sync sales platform inventory information



Total virtual inventory settings for each platform

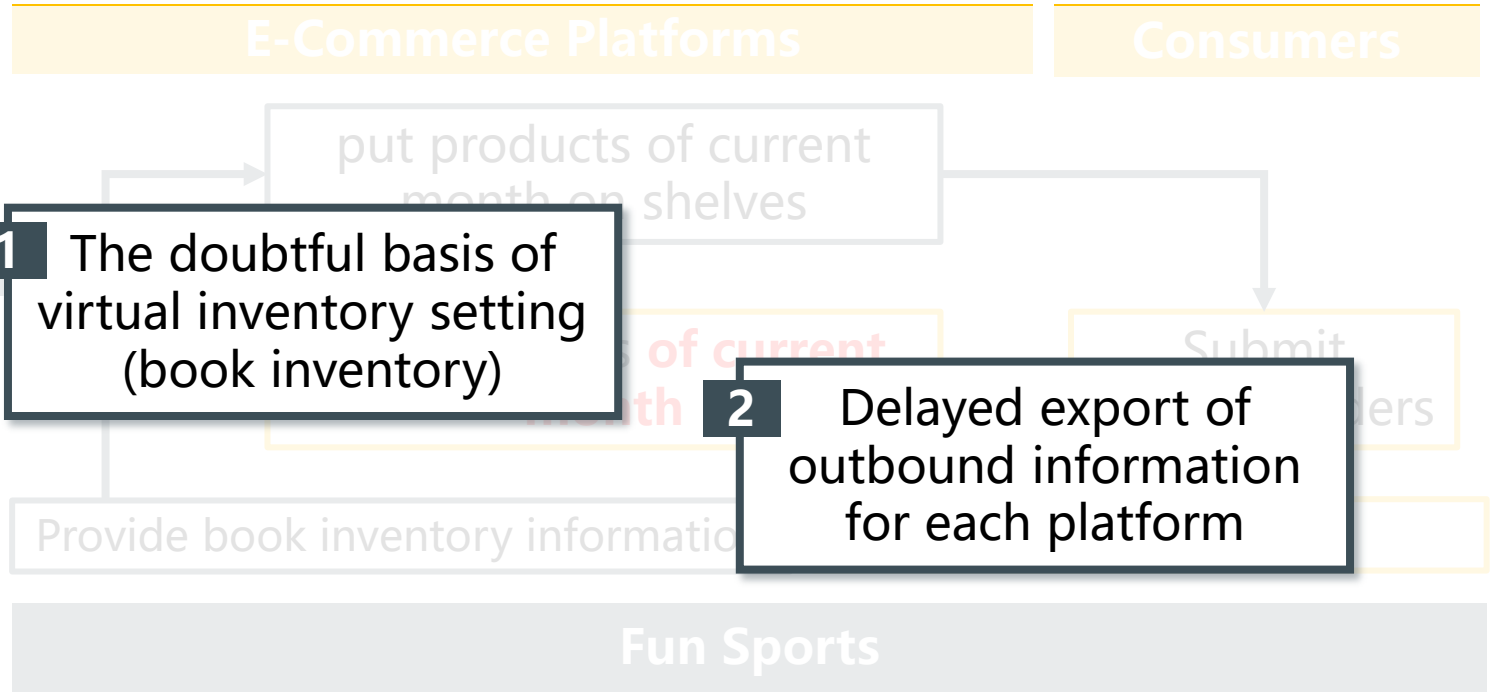
Inconsistent

Actual inventory

2 Inventory Management Problem Analysis

Problems of sales outbound

Out-sync sales platform inventory information



1 The doubtful basis of virtual inventory setting (book inventory)

2 Delayed export of outbound information for each platform

Total virtual inventory settings for each platform

Inconsistent

Actual inventory

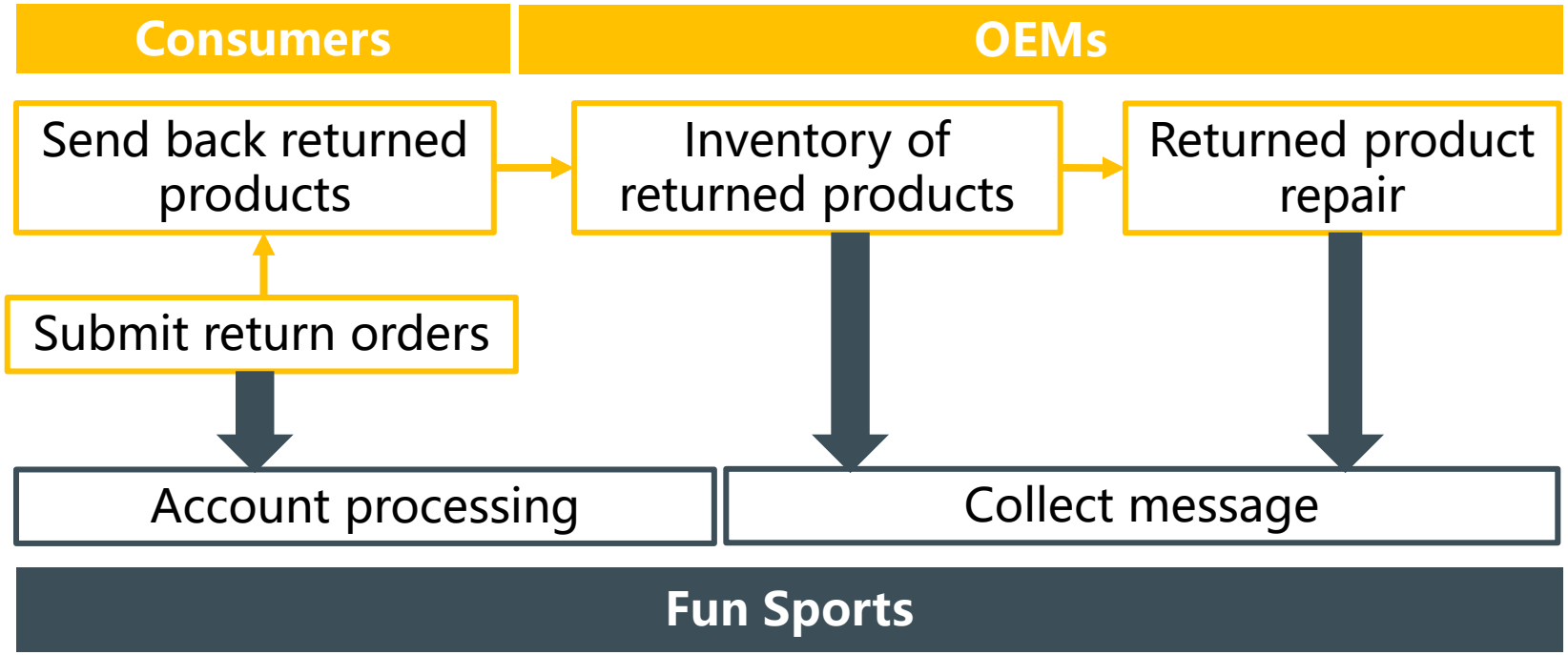
2 Inventory Management Problem Analysis

Problems of sales return

Missing inventory record of returned products

lead to

Chaotic process of warehousing and repairing returned products



Missing 1
Opportunity

Missing 2
No check standard

Missing 3
No regulation

Unaccounted defective products → Parts → Other defective products

2 Inventory Management Problem Analysis

Problems of sales return

Missing inventory record of returned products

lead to

Chaotic process of warehousing and repairing returned products

Missing 1: Lack of accounting for returned products

Missing 2: Lack of quality inspection and records of returned products

Missing 3: Lack of records of time-consuming and material-consuming reworked products

Missing 1
Opportunity

Missing 2
No check standard

Missing 3
No regulation

Unaccounted defective products → Parts → Other defective products

PART
3

Inventory Management Optimization Scheme

- Introduction of Third-party Warehouses
- Introduction of information systems
- Inventory process optimization
- Management system optimization

3 Inventory Management Optimization Scheme

Barcode tracking information

Real-time information update

Real-time indicator analysis

Information System

WMS

ERP+OMS

Optimization ideas

Data & indicators

Optimization

Inventory Process

Guarantee measures

Management System

Management system sharing

Data indicator sharing

Inventory Process

Procurement inbound

Products in stock

Sales outbound

Sales return

Management

Management

Fun Sports

OEMs

Third-party Warehouse

Management System

Internal personnel management system

OEMs Management System

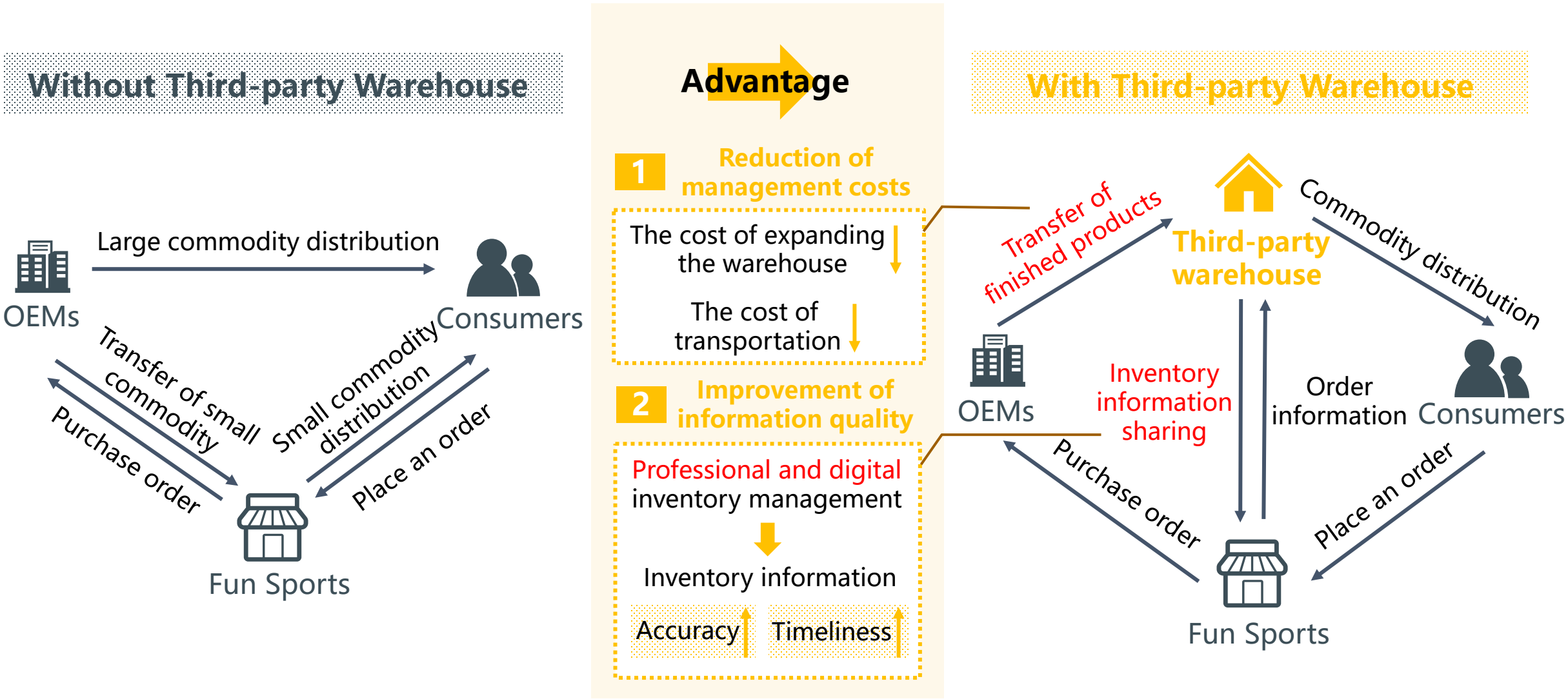
Third-party warehouse management system

The order of introduction of the optimization scheme:

1. Introduction of Third-party Warehouses
2. Introduction of information systems
3. Inventory process optimization
4. Management system optimization

3.1 Introduction of Third-party Warehouses

Optimization of the inventory process by Third-party Warehouses



3.1 Introduction of Third-party Warehouses

Basic requirements for Third-party Warehouses

1 Technical capability

Information system docking

Inbound information	⇒	Purchase order
Storage information	⇐	Return order
Outbound information	⇓	Sales order

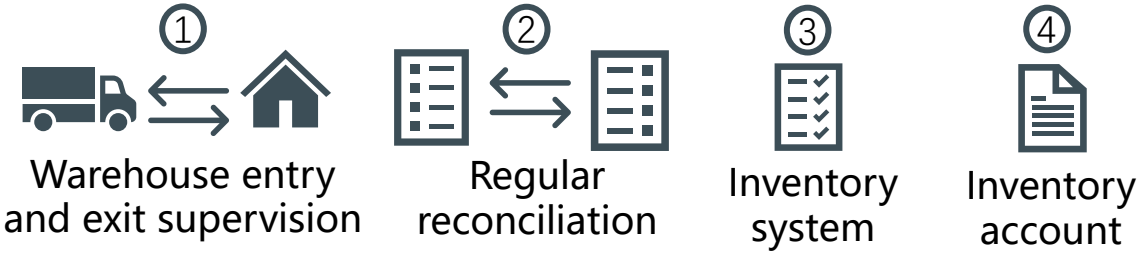
Real time sharing of inventory and order information

2 Business ability

Reputation and reputation	Industry honors
Strategic partnership	Logistics companies and e-commerce platforms
Cases of similar projects	E-commerce project

3 Management level

Information management system



4 Service capability

Insurance services	**Emergency handling** and **insurance compensation** capacity for damage and loss of goods after they arrive at the warehouse
Warehousing service	Provide enough storage space
Value added services	Provide installation, distribution or other services

5 Price level

Compare the price level in the industry

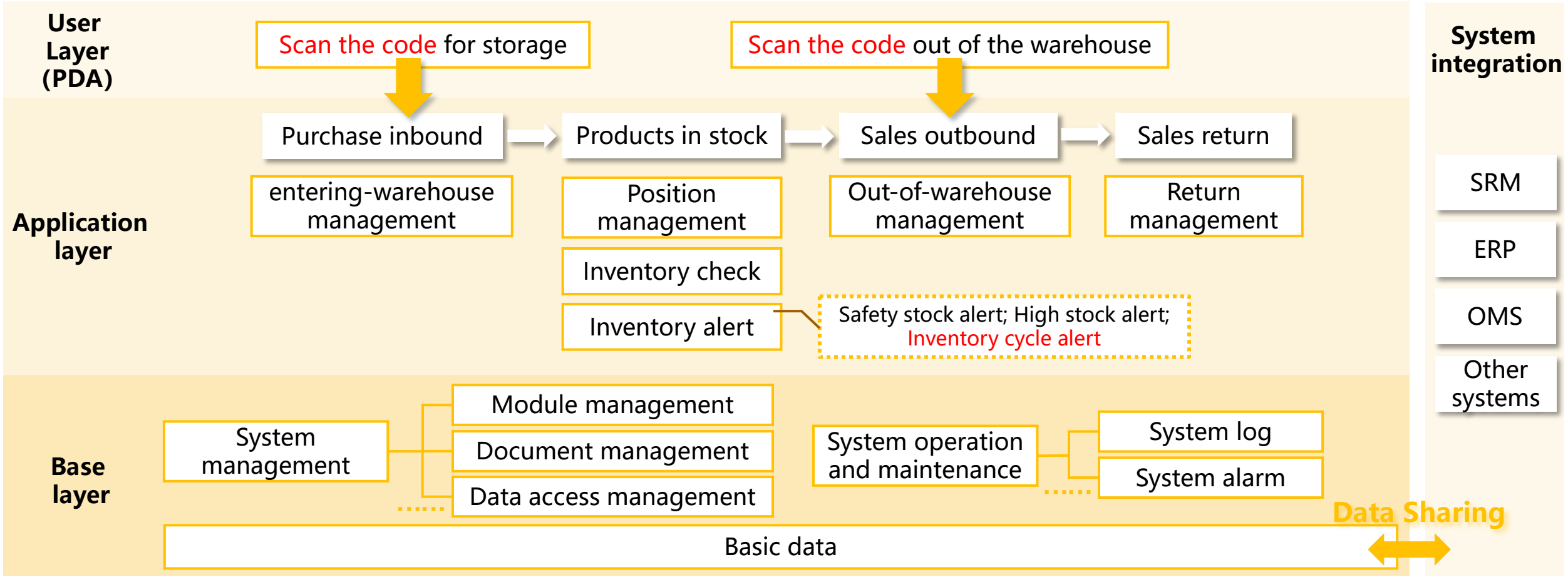
3.2 Introduction of information systems

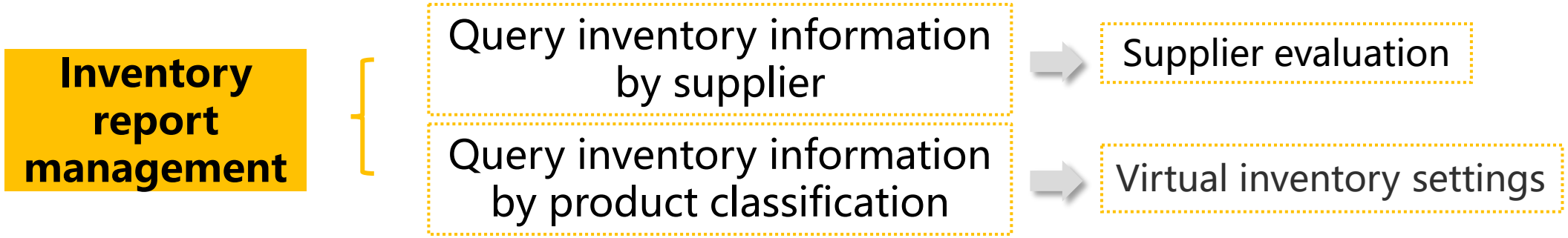
Main functional requirements to systems

Third-party Warehouse

WMS

Accurately **synchronize** **physical inventory** information




Inventory report management
Query inventory information by supplier
Supplier evaluation
Query inventory information by product classification
Virtual inventory settings

3.2 Introduction of information systems

Main functional requirements to systems

Fun Sports **ERP(+OMS)** **Integrate physical inventory, book inventory** and **virtual inventory** information

Application layer

Basic activity

Program management → Purchasing management → Inventory management → Sales management

- Requirements management
- Material file
- Procurement plan management
- Purchase order management
- R&D Department is responsible for updating material information
- Virtual Inventory management
- Physical inventory inquiry
- Sales order management
- Return order management

Auxiliary activity

- Quality management
- Quality inspection task
- Quality inspection results

Payable management
- Purchase orders
- Inbound orders
- Invoices

(Inventory management) Accounting treatment

Receivable management
- Sales orders
- Outbound orders
- Invoices

Cash management

OMS

Update orders in a unified, real-time and accurate manner across platforms

- ✓ Order splitting
- ✓ Order consolidation
- ✓ Order review

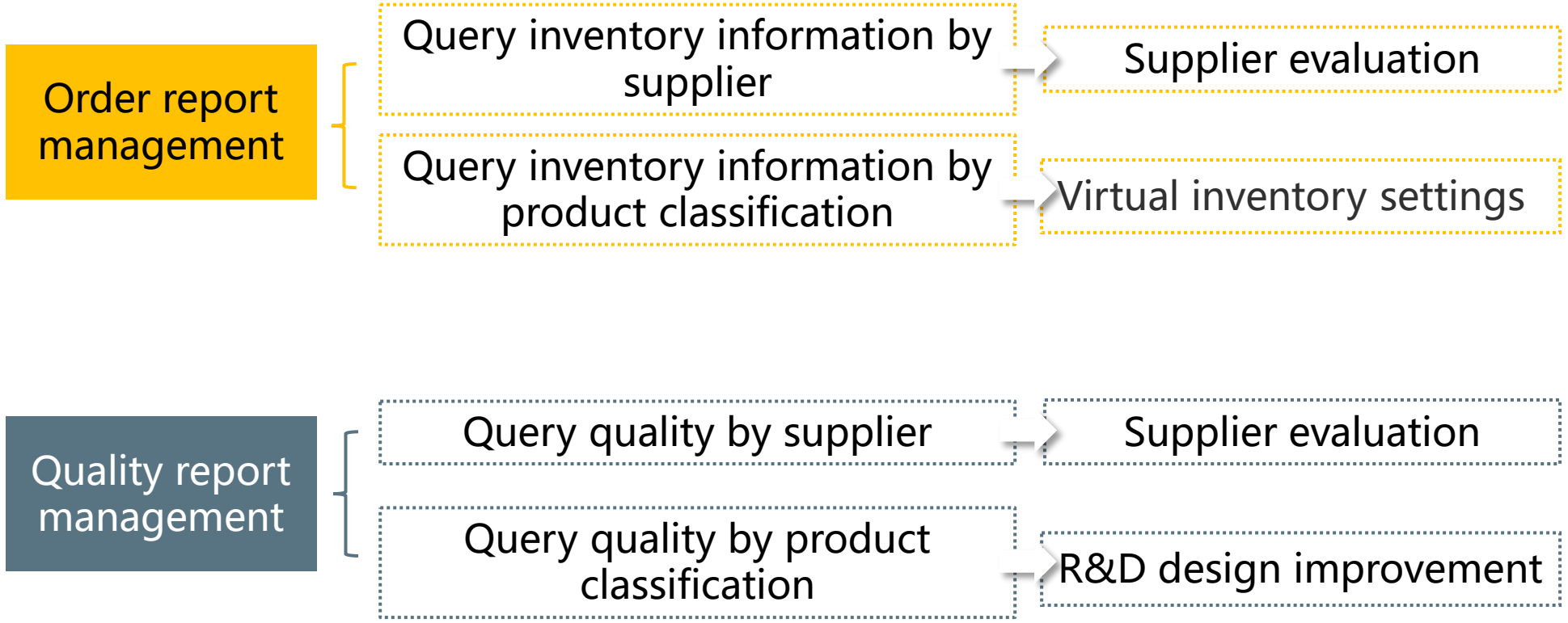
System integration

- SRM
- WMS
- HR management
- Other systems

Base layer

System management | System operation and maintenance | Basic data

Data Sharing


Order report management
Query inventory information by supplier
Supplier evaluation
Query inventory information by product classification
Virtual inventory settings
Quality report management
Query quality by supplier
Supplier evaluation
Query quality by product classification
R&D design improvement

3.2 Introduction of information systems

Main functional requirements to systems

Fun Sports **SRM** **Collaborate** with suppliers to manage procurement information and quality information

Application layer

Order collaboration	**Quality** collaboration	**Financial** collaboration	Supplier management
Purchase plan management	Quality standard management	Invoice management	Access management
Purchase order collaboration	Inspection management	Payment management	Performance evaluation
Purchase contract management		Account reconciliation	Classification management
Delivery collaboration			

System integration

- ERP
- OMS
- WMS
- Other systems

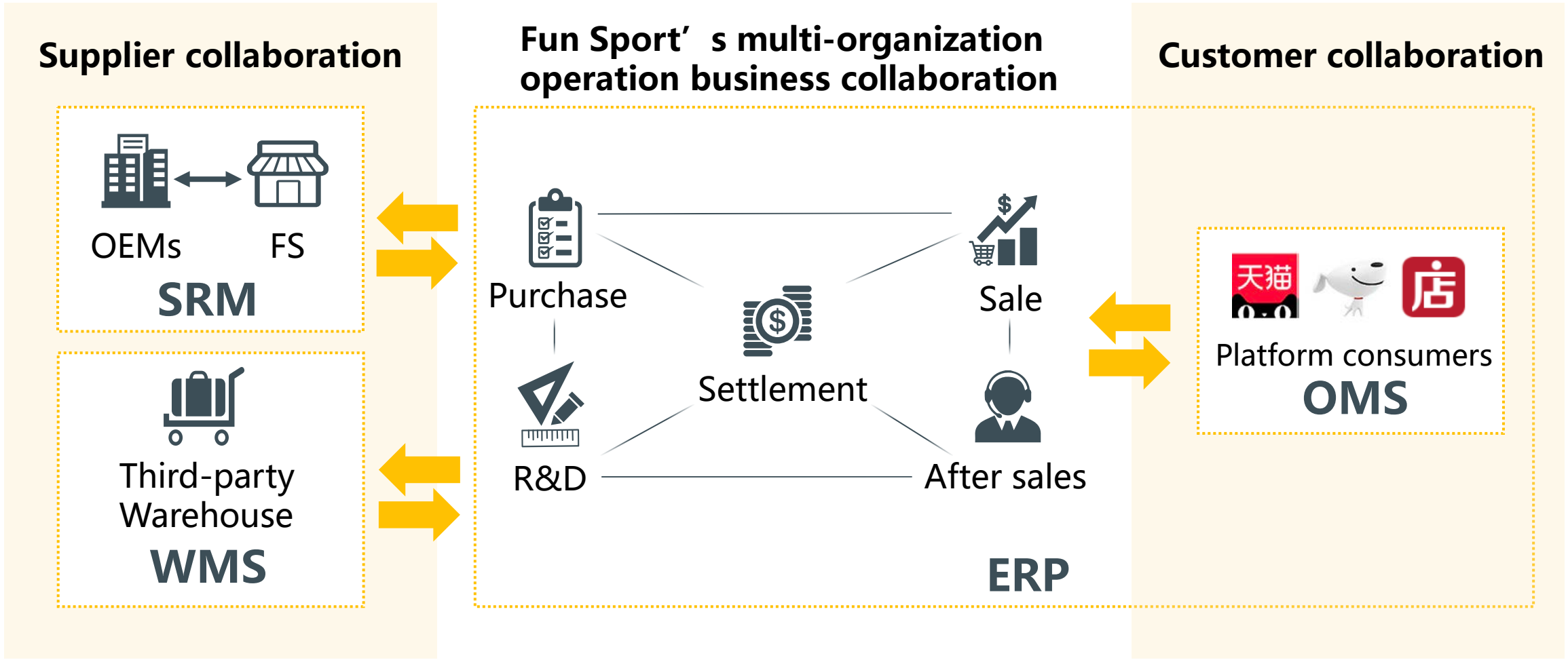
Base layer

System management | System operation and maintenance | Basic data

Data Sharing

3.2 Introduction of information systems

Main functional requirements to systems



3.2 Introduction of information systems

Information system implementation recommendations

Current Plan

Third-party warehouse

WMS

Fun Sports

ERP(+OMS)

Current Situation

1. Insufficient depth of cooperation with OEMs
2. Uneven informatization level of OEMs

Future Plan

OEMs

Fun Sports

SRM

Unattainable SRM main capabilities → **Process and institutional supplements**

SRM

- Procurement collaboration
- Production process management collaboration

→

- **Procurement inbound optimization**
- **OEMs management system**

3.2 Introduction of information systems

Information system implementation recommendations

ERP system comparison

ERP used by general enterprises

	Applicable enterprises	Estimated price
SAP	Large enterprises	Over ten million yuan
用友 (U8) yonyou	SMEs	88,600yuan/year
Kingdee 金蝶	SMEs	67,500yuan/year

ERP suitable for small-scale online stores

System	Main functional requirements	Outstanding function	Price (RMB/year)
Jack yun	√	One stop digitization	55,780
Ju shui tan	√	Intelligent procurement	30,000
Wang dian tong	√	Intelligent warehouse division	29,000

Conclusion: ERP selecting advice → Jackyun

- Functional highlights
- Integrated management
- Rich development experience

3.2 Introduction of information systems

Information system implementation recommendations

ERP system comparison

ERP used by general enterprises

Applicable enterprises	Estimated price
Large enterprises	Over ten million yuan
SMEs	88,600yuan/year
SMEs	67,500yuan/year

- for large enterprises
- high price

Not suitable for Fun Sports

ERP suitable for small-scale online stores

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Ju shui tan	√	Intelligent procurement	30,000
Wang dian tong	√	Intelligent warehouse division	29,000

Conclusion: **ERP selecting advice** → **Jackyun**

- Functional highlights
- Integrated management
- Rich development experience

3.2 Introduction of information systems

Information system implementation recommendations

Reasons for selecting Jackyun ERP system

ERP Functional highlights	Omni channel unified order management Intelligent order processing 、 Refined goods management
	Fast link speed 、 Easily-manipulated process A quickly-automatically-updated SaaS system
ERP Integrated management	Third party cloud warehouse WMS management Digitalization of distribution channels、Business financial integration Enterprise organization digitization
Rich development experience	➢ **433** E-commerce platforms ➢ **203** cloud warehouses, logistics and other platforms

3.2 Introduction of information systems

Information system implementation recommendations

Reasons for selecting Jackyun ERP system

ERP Functional highlights	Omni channel unified order management Intelligent order processing 、 Refined goods management
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Rich development experience	➢ 433 E-commerce platforms ➢ 203 cloud warehouses, logistics and other platforms

HUAWEI 伊利 五粮液 WULIANGYE

3.2 Introduction of information systems

Information system implementation recommendations

Applicability of the system to solve inventory management problems

Function comparison		Jackyun	Good Account of Yonyou
Inventory Management	inbound/ outbound	Seamless third-party warehouse	Out of sync update of inbound/outbound information
	In stock	Accurate location management	Disordered position management
		Intelligent inventory	Lack of periodic inventory
		Priority reminder for temporary goods	Inventory backlog
	Return	Intelligent return and exchange	Missing return information

3.3.1 Procurement inbound optimization

OEMs

Small-size products

OEMs

Large-size products

certificates of quality inspection and receipt documents

certificates of quality inspection and receipt documents

Third-party warehouse

Unified warehousing

Data return

Fun Sports

Accounting Treatment

Deliver goods

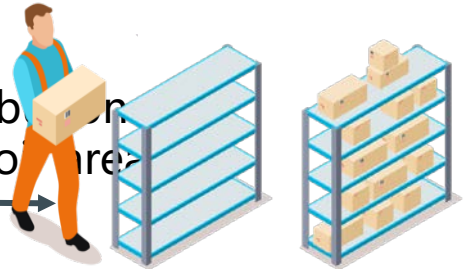
Goods out of the OEMs

Inbound

DP00720211109033

Material receipt notice

Distrib n reservo re



- Scanning by PDA
- Paste product barcode
- A product corresponds to a barcode

Partition storage

Purchase

Receive and launch

Launch on platform

Third-party WMS system

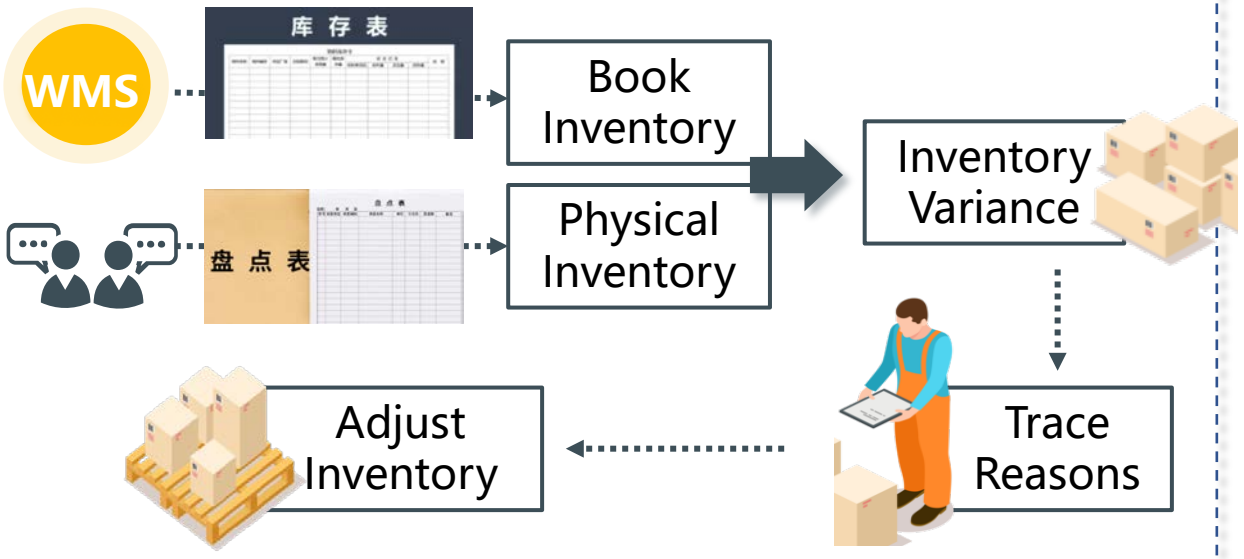
FS ERP system

3.3.2 Products in stock optimization

Product Inventory

1 Product in / out—scanning code

2 Regular inventory

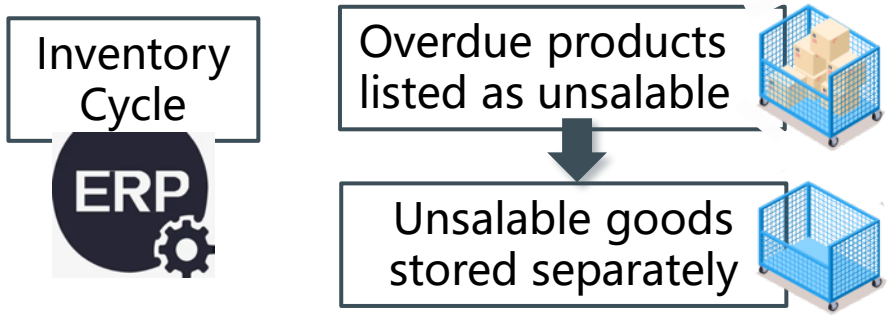


3 Periodic Flight Inventory

4 Cooperative Inventory Per Year

Slow Seller

1 Barcode Tracking Inventory Cycle



2 Promotion Processing

Cut price / Tie-in promotion

Warehouse Stacking Management

1 Normal products / Returned products stacked separately

2 Different batches of products are stacked in different areas

3.3.3 Sales outbound optimization

E-commerce Platform	Fun Sports	Third-party Warehouse
Place Order	Receiving order	Delivery

Order Detail

天猫

Delivery information

店 -1-1-1

For Delivery Delivered

For Delivery Delivered

Update of delivery status and logistics information

Delivery Notice

Total storage

322

321

发货通知单		
型号	数量	地址
CF001-S slide	1	…
CF001-S slide	1	…
…		

Generate delivery notice

出库单			
型号	条码	库区	出库时间
CF001-S slide	CF0012108111	FS231	2022/4/17 16:44
CF001-S slide	CF0012108112	FS231	2022/4/17 16:44

Receive delivery order

Ex-warehouse

货物出库明细		
型号	条码	库区
CF001-S slide	CF0012108111	FS231
CF001-S slide	CF0012108112	FS231
CR005-18 swing	CR0052110090	FS075
CR005-18 swing	CR0052110091	FS075

Goods detail data in PDA

PDA: Scan, store delivery records

Staff: deliver goods

FS ERP System

Third-party WMS system

3.3.4 Sales return optimization

Fun Sports

Return and exchange products

Return notice

Transfer back information

Third-party warehouse

Products inbound

Check information

Inbound

First-time returns

OEMs

Return to repair

Third-party organization

Second-time returns

Respective quality-examination

Return order

Scanning by PDA

Get the corresponding product information

First-time

Second-time

Maintenance

Third party organization

Quality inspection report

FS ERP system

Third-party WMS system

3.3.4 Sales return optimization

Reinspection record sheet			
Product	DK-008 detachable large slide	**Batch**	2022/01/12
Date	2022/1/17	**Quantity**	10
The re-inspection reason： sales return			
The inspection items and results			
Bar code	Date	Test	Result
DK008211109033	2022/1/17 18:26	Instrument test	No quality defects
DK008211017001	2022/1/17 18:30	Instrument test	Triangle plate wear
DK008210823022	2022/1/17 18:33	Instrument test	Triangle plate wear
DK008211109016	2022/1/17 18:37	Instrument test	No quality defects
DK008211107055	2022/1/17 18:40	Instrument test	No quality defects
DK008211109009	2022/1/17 18:45	Instrument test	No quality defects
DK008211109009	2022/1/17 18:50	Instrument test	No quality defects
DK008211129178	2022/1/17 18:53	Instrument test	Broken crossbar
DK008211129035	2022/1/17 18:57	Instrument test	No quality defects
DK008209126010	2022/1/17 19:02	Instrument test	Triangle plate w
.....			

Second-time returns

69271125001

The same barcode as former

Production problems → OEMs → Impose a fine

Designing problems → R&D → Optimal design

Record maintenance data.
Summarize and regularly report to FS

Third-party quality inspection

First-time returns : examine by OEMs

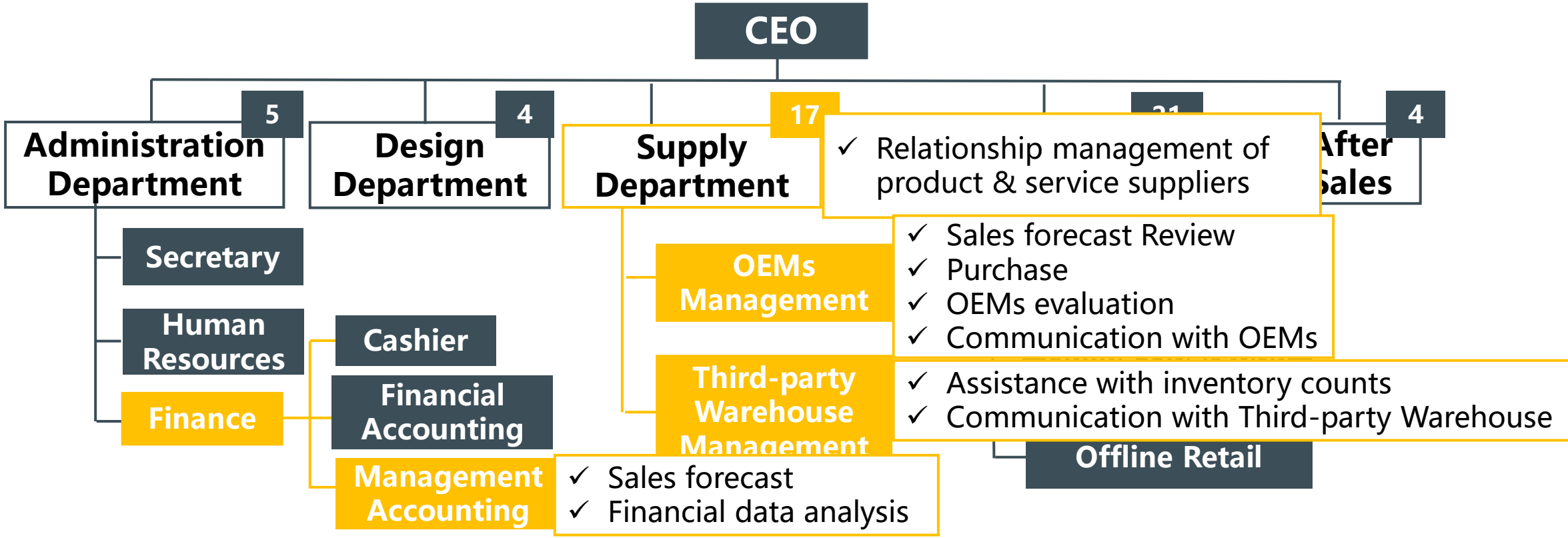
Normal product → Repackaging → **Third-party warehouse**

Re-inbound → **Third-party warehouse**

Defective product → Repair → Maintenance record

3.4.1 Internal personnel management system

Structure Optimization



Internal Control and Supervision Optimization

Daily Management

Internal Audit

Personnel performance assessment

3.4.1 Internal personnel management system

Internal Control and Supervision Optimization

Daily Management

- **Attendance management**
  - Clock in and leave — ERP ☑
- **Regular job rotation**
  - Period — Quarterly
  - Scope — Within department

Internal Audit

Periodical

- Confirm — Bank account details
- Verify — Implementation of contracts
- Track — Consistency of purchase plan and flow

Personnel performance assessment

Separation of working responsibility and audit

Authority contro

Performance assessment

Start

Performance statistics

Countersignature by committee

Pass or not

No

Yes

OEMs Management Group

release of performance

Appeal

Performance committee review

Pass or not

Countersignature by committee

Pass or not

Output perfo appraisal re

Third-party Warehouse Management Group

End

3.4.1 Internal personnel management system

Internal Control and Supervision Optimization

Daily Management

- **Attendance management**
  - Clock in and leave — ERP ☑
- **Regular job rotation**
  - Period: Quarterly
  - Scope: Within department

Internal Audit

Periodical

- Confirm: Bank account details
- Verify: Implementation of contracts

Track: Consistency of purchase plan and flow

Inventory management performance assessment

1. Completion of annual objectives ×50%
2. \+ Usual assessment ×40%
3. \+ Satisfaction assessment ×10%

= Performance assessment 100%

- **Related Indicators**
  - ✓ Inventory turnover
  - ✓ Inventory accuracy
  - ✓ ……

OEMs Management Group

Third-party Warehouse Management Group

3.4.2 OEMs management system

1 Performance evaluation

Establish inspection team

Design/Supply/ Administration Department

Score summary chart

Calculate each score according to weight

Sort by score

Provide basis for supplier classification management

Qualitative assignment

Excellent 95/good 85/mean 70/ passed 60/failed 40

OEMs comprehensive evaluation index and weight table

	Primary index	weight	Secondary index	weight	Total weight
Design Department	Quality	0.4	Qualified rate	0.7	0.28
			Maintenance rate		
Supply Department	Delivery capacity	0.2	Delivery rat		
			Order quantity		
Administration Department	Supply price	0.2	Price advantage	0.7	0.14
			Price reduction ability		
Supply Department	after-sale service	0.2	Action ability		
			Training ability		

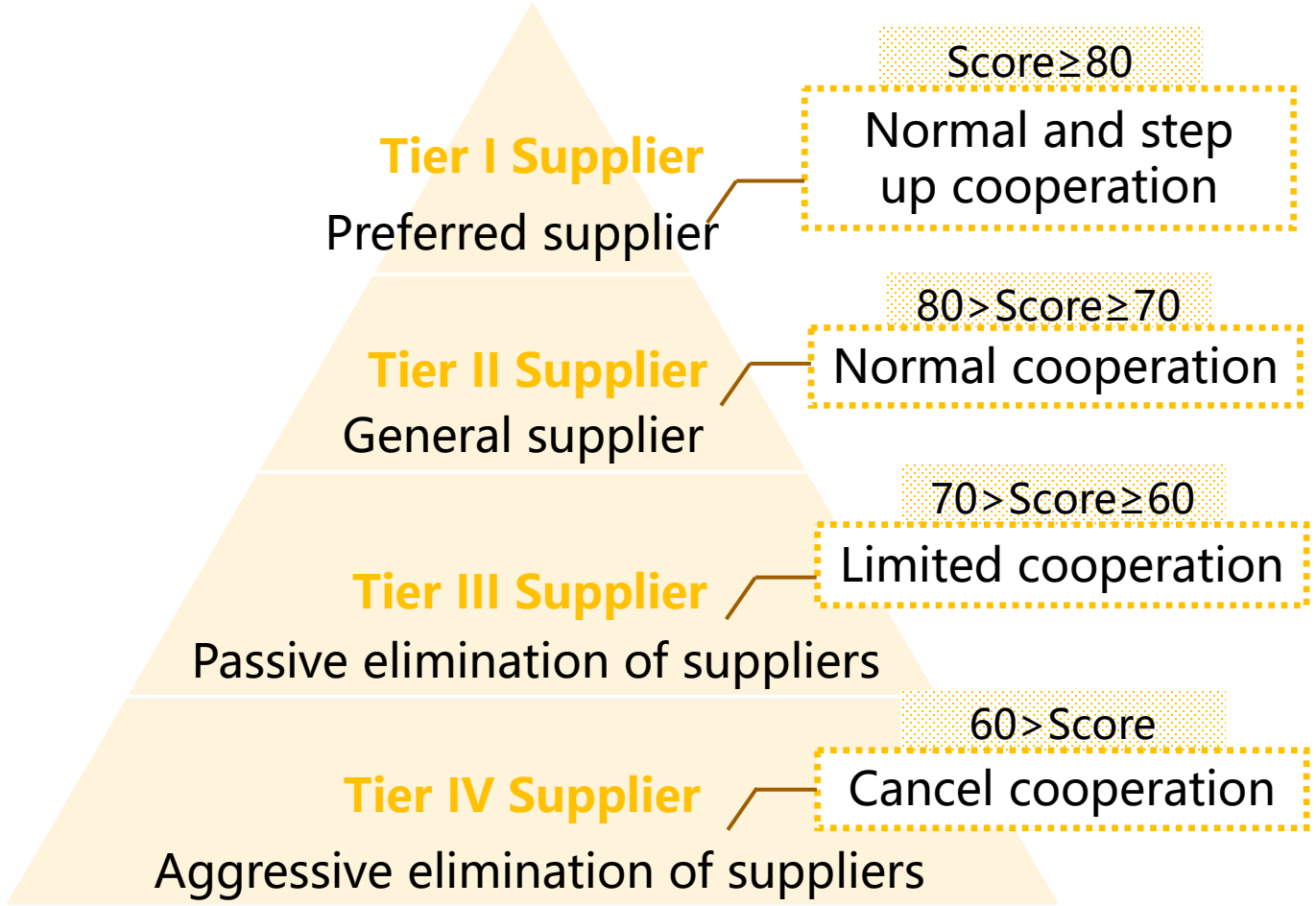
Delivery rate: Delivery type of small products

Action ability： Repai... and

Training ability： Provide technical and training services

3.4.2 OEMs management system

2 Classification management



3 Daily boost cooperation

Flight spot-check

On-site visits to OEMs from time to time

Problem communication

Send rectification notice → Track rectification results

Meet the requirements → Re-evaluate

Does not meet requirements → Keep track / Cancel cooperation

Reward and punishment measures

- ✓ Defective rate
- ✓ Secondary return rate
- ✓ Evaluation score

→

- ✓ Profit sharing
- ✓ Fine

3.4.3 Third-party warehouse management system

Inventory Management System Recommendations

1 Warehousing

Appearance	Unloading	Information return
Quantity	Confirmation	
Damage& pollution		Reception
Shortage& loss		

2 Outbound

Delivery notice

FIFO → ✕ → Penalty

Damage& pollution → Full compensation

3 Storage and inventory

- Paste barcode
- Partition storage
- Monthly inventory
- Spot-check

Consistent: Signature confirmation

Inconsistent: Responsibility determination & Loss coordination

4 Cost settlement

Monthly accounting → End of year settlement

Third-party	Beginning of the month Details	FS: check 3 days	Invoice
Fun Sports	Receipt of invoice	15 days	Remittance

5 Default

Damaged, short or loss		Full refunds
Unqualified storage environment		Penalty: 5% of fee
Delayed shipment	No reason	Penalty: 10% of fee
	Extreme weather& peak season	Negotiation& improvement

3.4.3 Third-party warehouse management system

Third-party warehouse supervision System

❶ Periodic inventory

Goods in and out	→	Scanning code
Accountant & warehouse principal	→	Inventory per month sign & upload into system
Depreciation & scrapping	→	Trace reasons and responsible party

❷ Irregular flight inspection

- **Storage**: Scientific storage of goods
- **Environment**: Clean & safe warehouse
- **System**: Complete monitoring & Alarm system
- **Order**: Work in an orderly & effectively manner
- **Safety**: Regular safety inspection by supervisors

❸ Systems docking between OEMs and third-party warehouse

OEMs **without** ERP wishes

—Strengthen inventory quantity & quality management

OEMs management system | Procurement inbound optimization

OEMs **with** ERP wishes & capacity

—Assist ERP build & connect with third-party warehouse

Delivery collaboration | Rapid collaboration based on receipt and delivery

Summary

Problem Identification

Event 1

Large fines in "Double Eleven

- Unshared updates of virtual inventory
- Inaccurate records of book inventory

Event 2

Repeatedly returned products

- Chaotic management of actual inventory
- Chaotic management of returned product

Inventory management process

Problem Analysis

Procurement inbound	Products in stock	Sales outbound	Sales return
Doubtful authenticity of the accounting basis	Regular physical inventory system	Out-sync sales platform inventory information	Missing inventory record of returned products
	Lack of storage management system		Chaotic process of warehousing and repairing returned products
	Unresolved products backlog issues		

Problem Solved

Procurement inbound optimization	Products in bound optimization	Sales outbound optimization	Sales return optimization

Process implementation subject

	OEMs	Fun Sports	Third-party warehouse
Management System	OEMs management system	Internal personnel management system	Third-party warehouse management system
Information System	SRM (future)	ERP+OMS	WMS

Inventory Process

THANKS!