



**AMBITION**

*Investment Management Department:  
From Creation to Excellence*

HZ20233286

Yang AnQi, Zhang QianQian, He JingYi, Xu ChenHui, Li ShuYi



# *Investment Management Department*



**Succi Yang**  
*Director*



**Noah Li**  
*Senior member*



**Andy Xu**  
*Senior member*



**Eliza Zhang**  
*Junior member*



**Lucy He**  
*Junior member*

# PCI 2024 IMD Seminar

## *Conference Agenda*



**Overview**



**Issue 1 Project Financial Control**



**Issue 2 Working capabilities**



**Summary**

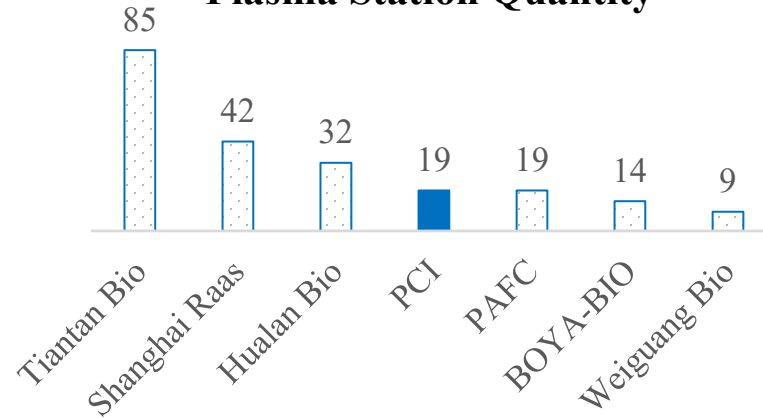


# Company Overview

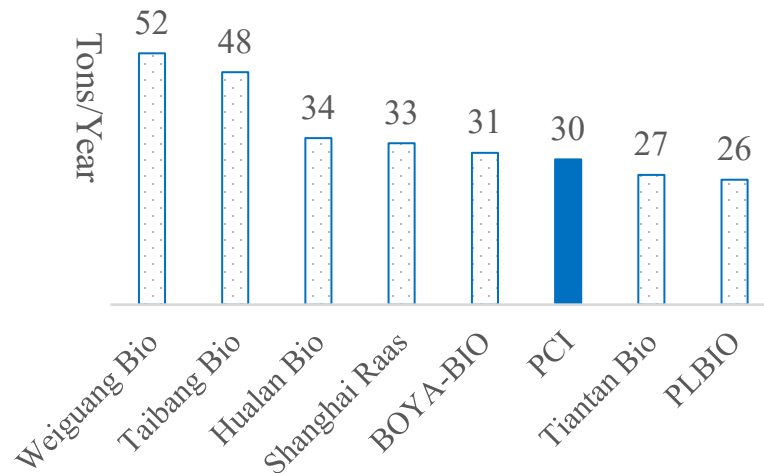


## Supply

### Plasma Station Quantity



### Plasma Collection Volume per Station



## Operations

Specialized

Sophisticated

Distinctive

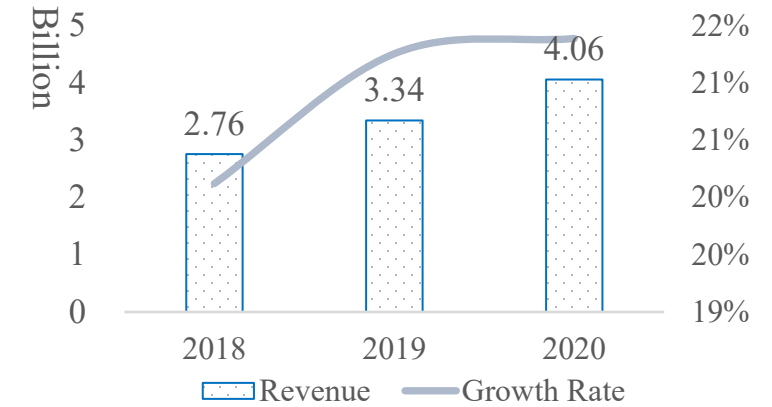
Innovative

### Blood Product Types

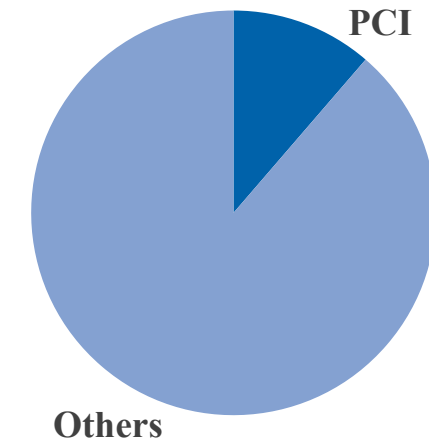
CSL	>20
Tiantan Bio	14
Shanghai Raas	12
Hualan Bio	11
PCI	9

## Marketing & Sales

### Revenue

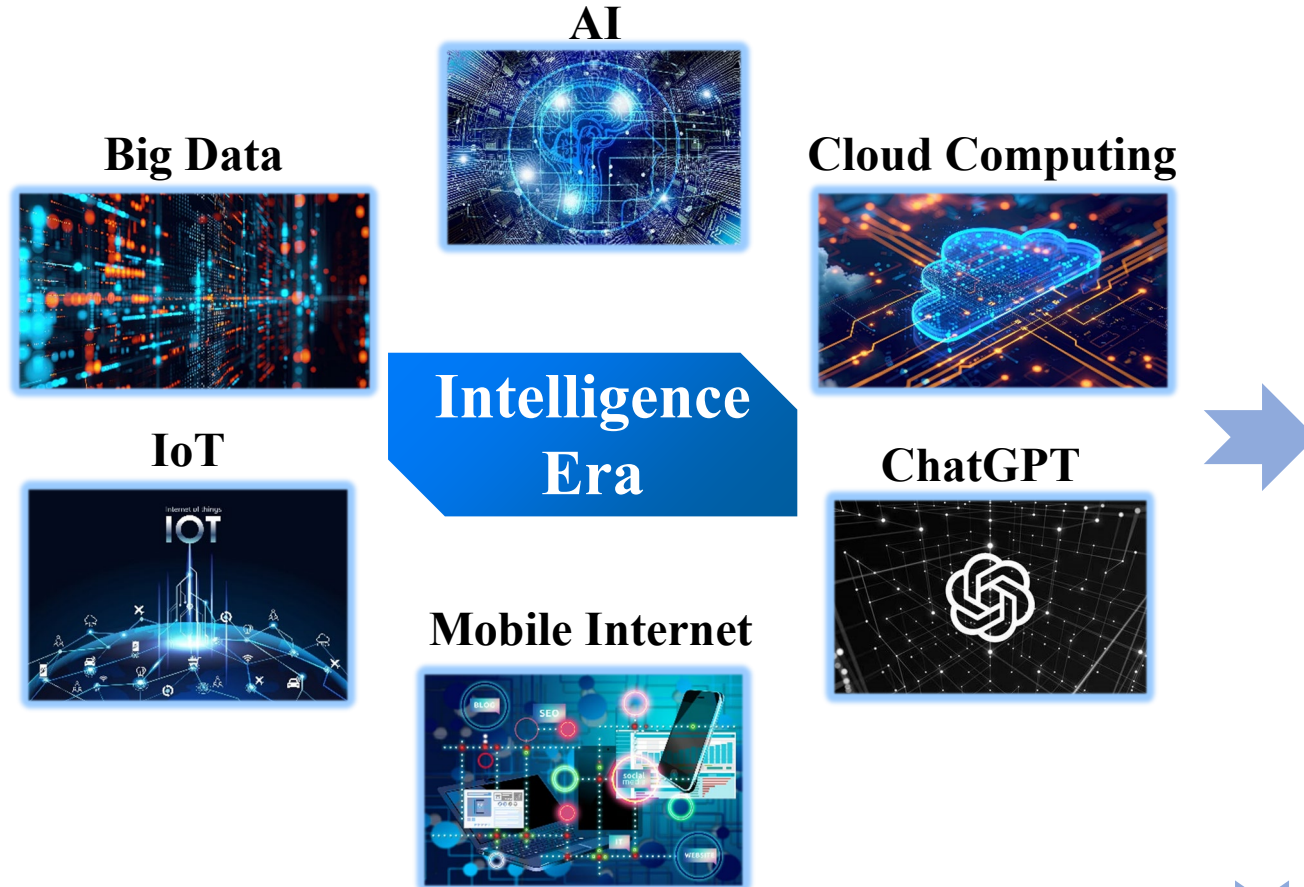


### Market Share





# Technological Revolution Background



## Industrial Upgrading

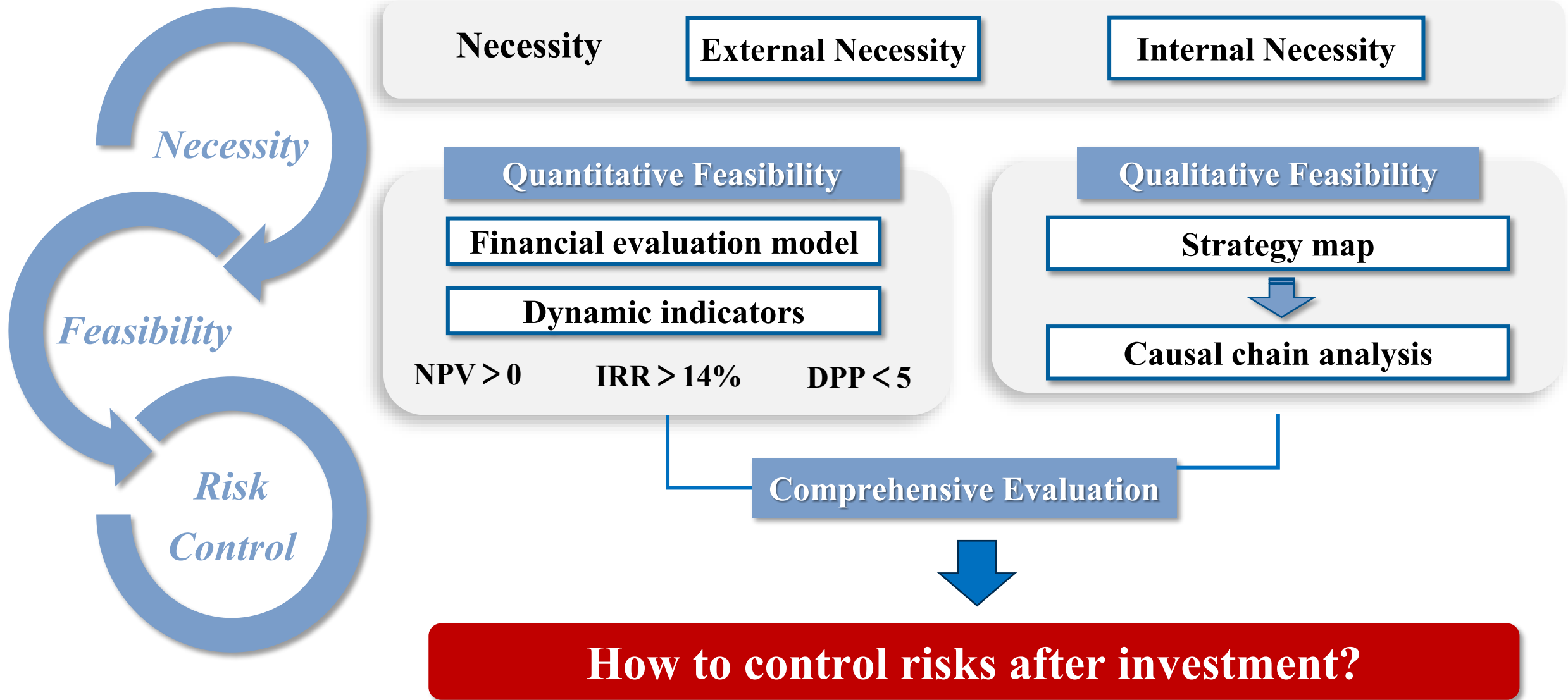
Company	Technology Investment Projects
Tiantan Bio	Yongan high density integrated digital factory project
Hualan Bio	Xinxiang pharmaceutical R&D and intelligent production base project
Taibang Bio	Taian biotechnology park project
Boya Bio	Fuzhou smart factory project
Weiguang Bio	Shenzhen smart factory project



Many smart technology investment projects are about to launch!



# Summary of Pre-investment Experience





# Case of Failure in Project Management



GEELY AUTO

## Meizu Automotive Chip Project

High cost stress

+

Low output



Project failure



## Electric Vehicle Project

Poor risk control

Market risk

Supply risk

Quality risk



Out of expectation

*Histogen*

## HST-001 Project

Lack of capital risk control

Huge R&amp;D costs

Lack of financing

Ineffective R&amp;D



Bankruptcy

**It is not enough to do a good job before investment !**



# *Issue 1*

# *Project Financial Control*

*Identify project lifecycle financial control key points.*

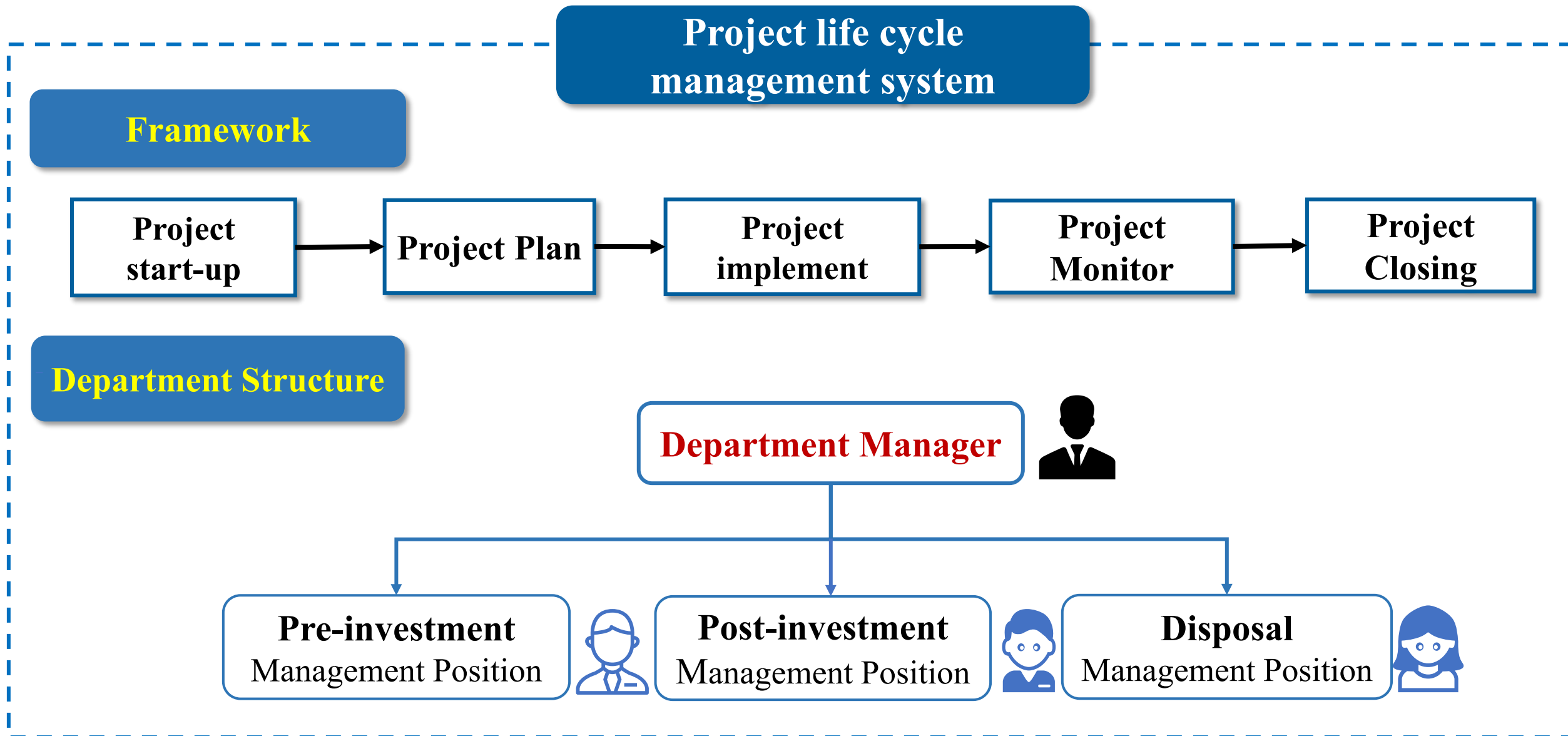
## **Points:**

- 1. Set up investment management department.**
- 2. Construct project lifecycle management system.**
- 3. Identify project financial control key points.**



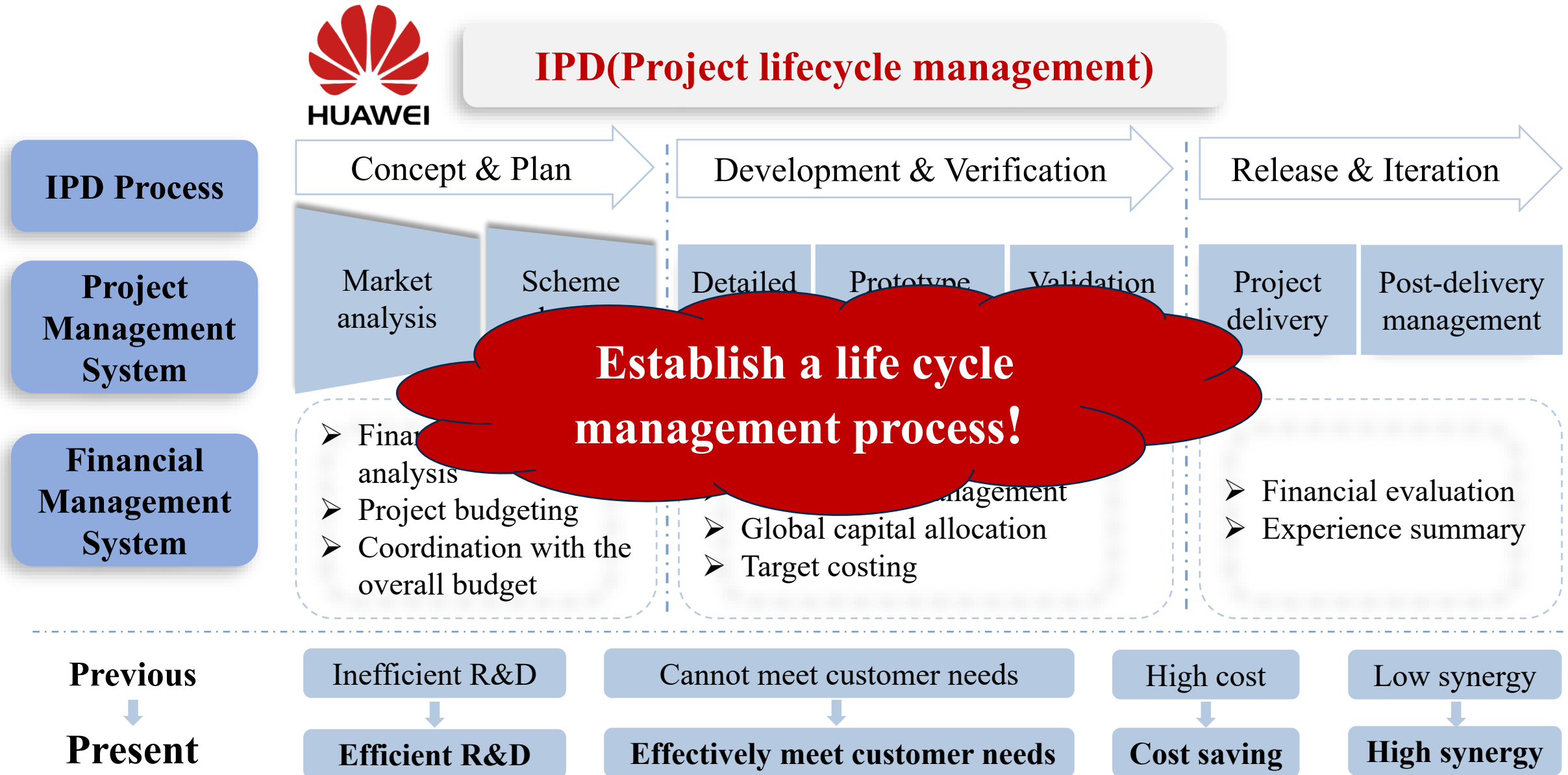


# Project life cycle management system





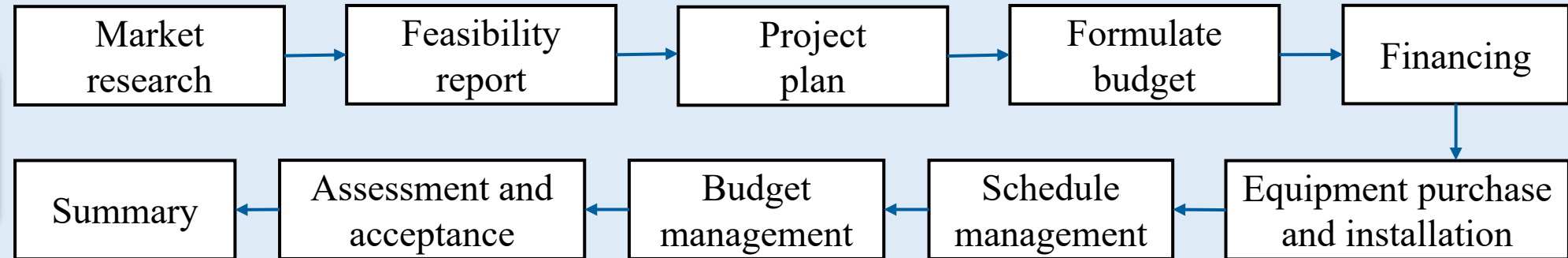
# Benchmarking - Huawei's IPD(Integrated Product Development)



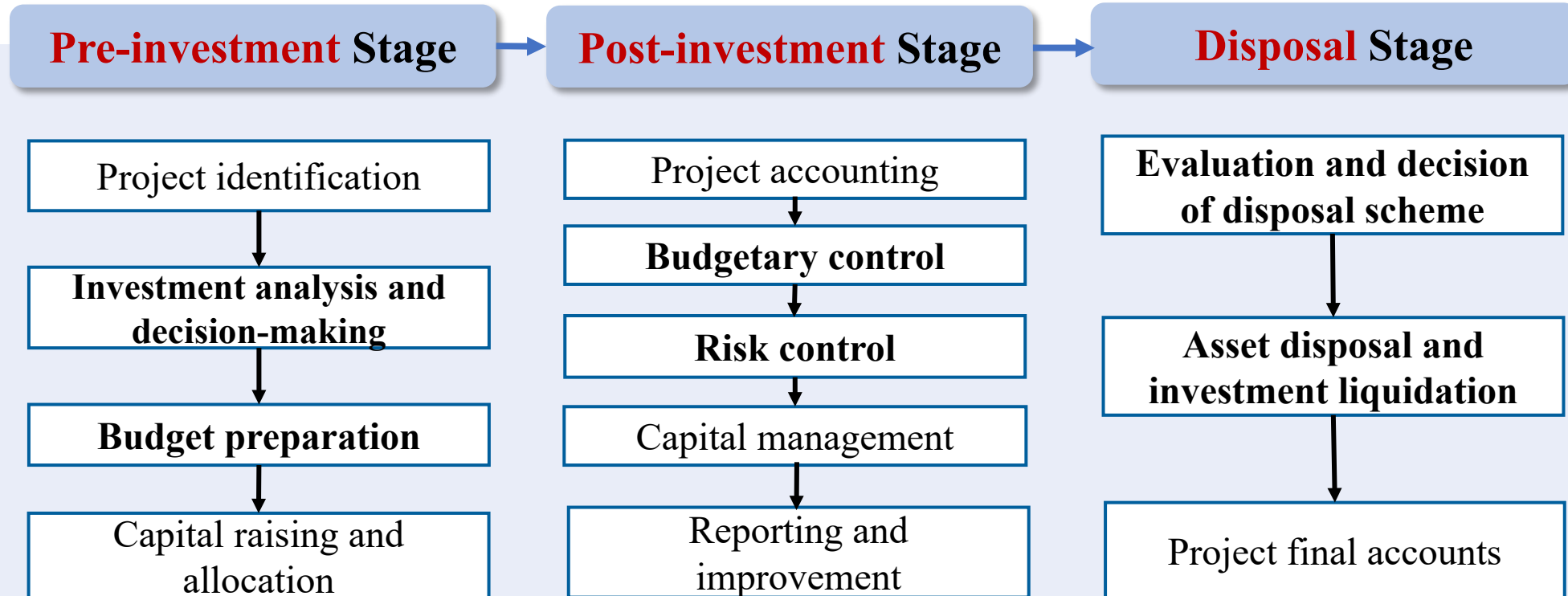


# Specific process of life cycle management

## Project Lifecycle Management Process



## Financial Control Process



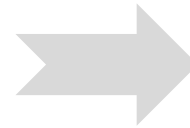
# Pre-investment Stage Control - *Setting of financial control key points*

## Investment analysis and decision-making ✓

- Necessity analysis
- Feasibility analysis
- Preliminary risk assessment

## Budgeting ✓

- Resource planning
- Amount estimation
- Budget formulation
- Review and approve



## Pre-investment analysis of PCI

### Characteristics of blood products industry

- ❑ Strict policies and regulations supervision
- ❑ Fierce industry competition

### Operating characteristics of PCI

- ❑ R&D and production require a lot of capital investment
- ❑ The requirements for equipment and raw materials are higher

# Pre-investment Stage Control- *Investment analysis and decision-making*

## Objectives

- Determine the feasibility of the investment project
- Create maximum return on investment
- Control investment risk



## Potential risks

- Data prediction is not accurate.
- Suppose the conditions change.
- The potential costs and benefits are hard to measure.
- The balance between quantitative and qualitative factors is difficult.



## Resources and support needs

Data analysis tool



Professional support



Business department cooperation



Construction of corresponding process mechanism





# Pre-investment Stage Control- *Investment analysis and decision-making*

## Management and control measures

### Necessity analysis

#### Internal Necessity

- ❑ Consistent with the company's strategy and objectives

#### External Necessity

- ❑ In line with industry trends and company development

### Feasibility analysis

#### Feasibility Assessment

- ❑ Strategic feasibility
- ❑ Financial feasibility
- ❑ Uncertainty analysis
- ❑ Comprehensive decision

### Preliminary risk assessment

#### Identification and assessment

- ❑ Determination of risk factors
- ❑ Assess key risk

#### Make countermeasures

- ❑ Risk management strategy formulation

# Pre-investment Stage Control- *Investment analysis and decision-making*

## Excellent enterprise case



## Smart factory project evaluation

Necessity analysis ✓

Feasibility analysis ✓

Risk control ✓

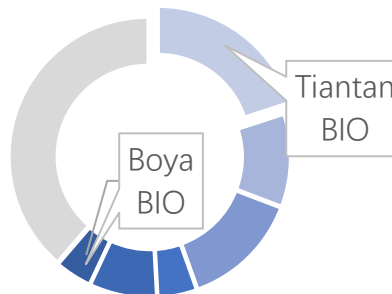
Industry trend

Market demand ↑

Market scale

Over 40 billion

Market share



Strategy feasibility

Integration strategy

Financial feasibility

NPV=1.08billion  
IRR=17.11%  
DPP=13.92

Risk assessment

Sensitive analysis

Risk response

Risk management plan

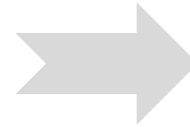
# Post-investment Stage Control - *Setting of financial control key points*

## Risk Control ✓

- Risk identification
- Risk assessment
- Risk response and control
- Risk monitoring and reporting

## Budgetary Control ✓

- Compare actual with budget
- Analyze the causes of differences
- Adjust budget appropriately



## Post-investment analysis of PCI

### Project operation of blood products industry

- ❑ Project compliance risks, Ensure that the project runs legally.
- ❑ Higher technical and quality risks.

### Cash flow management of PCI project

- ❑ The research and development cycle of blood products is long.
- ❑ Product production needs to strictly follow GMP specifications, and **cost control is more critical.**

# Post-investment Stage Control - *Risk control*

## Objectives

- Ensure return on investment
- Ensure progress and quality
- Maintain corporate reputation and brand value.



## Potential risks

- Rapid technological update
- Fierce market competition
- Plasma supply shortage
- Insufficient capacity utilization
- Insufficient funds liquidity



## Resources and support needs

**Audit and Risk Management Committee**



**Advanced digital intelligence technology**

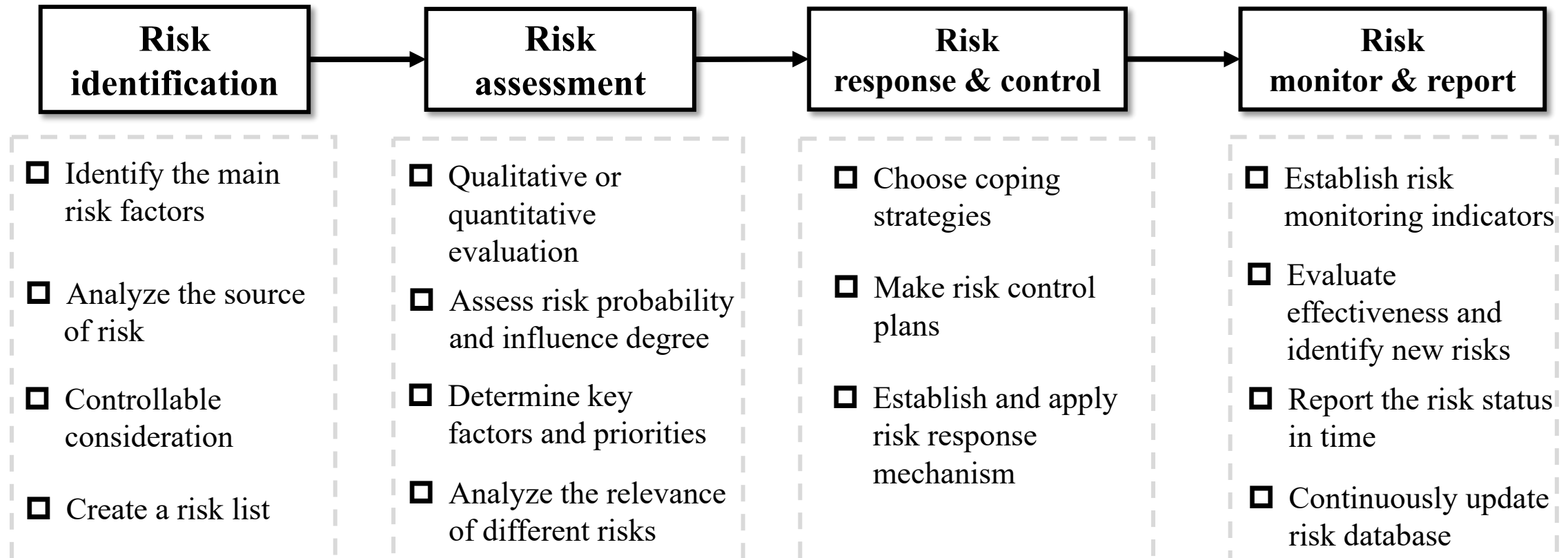


**Comprehensive risk management system**



# Post-investment Stage Control - *Risk control*

## Management and control measures





# Post-investment Stage Control - Risk control

## Excellent enterprise case



### Excellent overall risk management

**Risk  
identification**

**Hazard source  
closed loop**

- Hazard identification planning
- Risk assessment planning
- Risk control planning

**Risk  
assessment**

**Hazard source  
evaluation**

- Assess the probability and impact of risks
- Identify key risk factors and priorities

**Risk  
response & control**

**Risk response  
ability**

- Regularly carry out risk emergency training drills
- Pay attention to project operation risk and continuous management

**Risk  
monitor & report**

**Risk monitoring  
report**

- Regularly monitor the operation of the project to make clear the degree of risk control
- Continuous optimization of reports

# Disposal Stage Control- *Setting of financial control key points*

## Evaluation and decision of disposal scheme

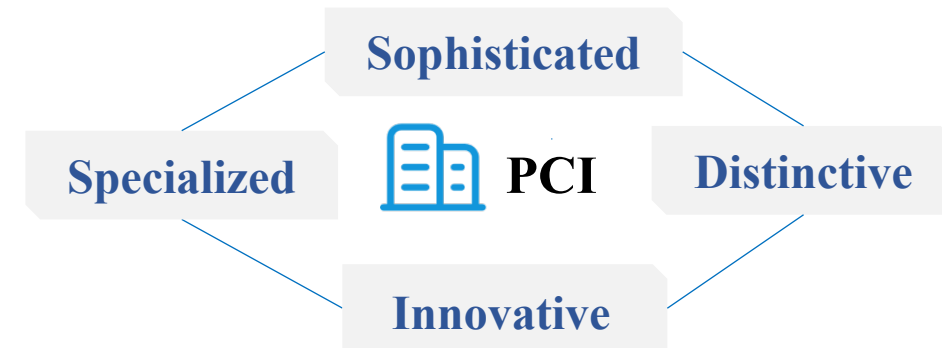
- Asset evaluation
- Formulation of disposal plan
- Plan approval

## Asset Disposal and project settlement

- Asset transfer
- Asset sale
- Asset settlement

## PCI's Strategic requirement

- Unrelated investments



## Industry characteristics

- Strict policy regulation
- review of compliance

**Asset evaluation risk**

**Tax Compliance Risk**

# Disposal Stage Control- *Evaluation and decision of disposal scheme*

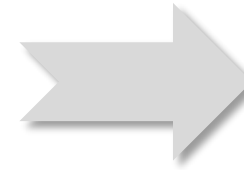
## Objectives

- Maximize the value of assets
- Reduce disposal cost
- Minimize financial risks



## Potential risks

- Underrate asset value
- Violate tax law or no tax saving
- Market uncertainty



## Resources and support needs

Data analysis tool



Market monitoring system



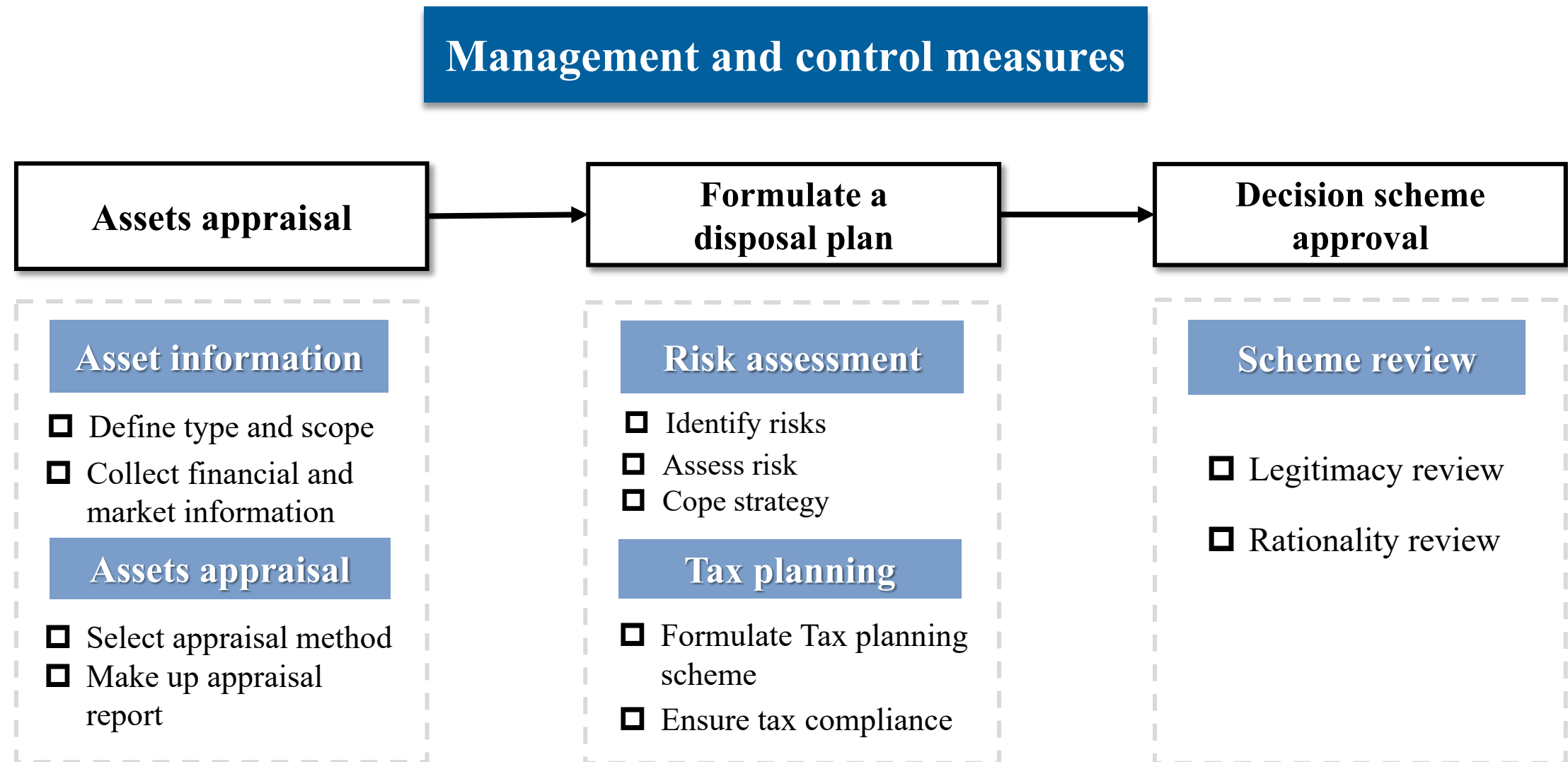
External team compliance review



legal risk prevention mechanism

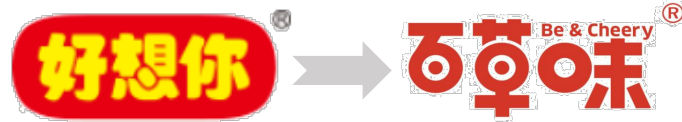


# Disposal Stage Control- *Evaluation and decision of disposal scheme*



# Disposal Stage Control- *Evaluation and decision of disposal scheme*

## Excellent enterprise case



## A successful asset disposal

Assets appraisal ✓

Maximize the value of assets

- Entrust a professional organization



- Make full use of information asymmetry

Formulate a disposal plan ✓

Minimize disposal risk

- Whole process risk control of disposal plan



- Formulate tax planning scheme and tax compliance

Decision scheme approval ✓

Ensure legality and rationality

- Entrust professional institutions to assist in decision-making approval

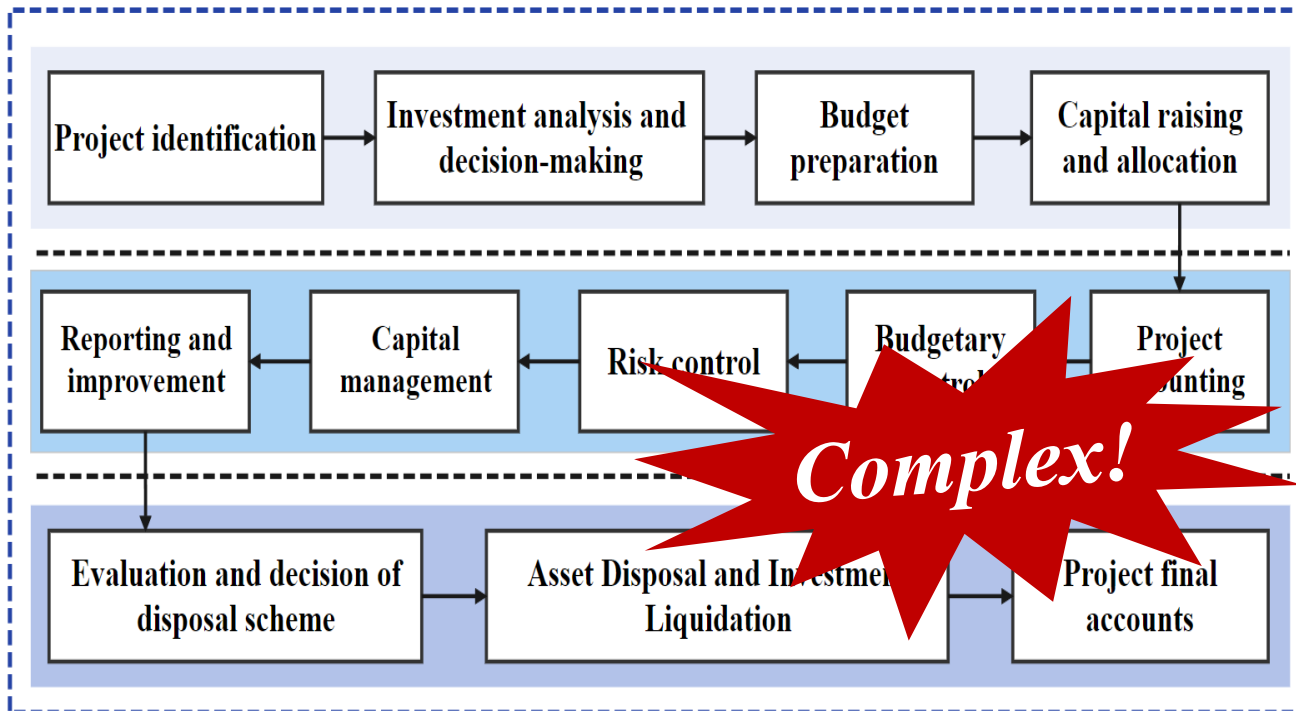


- Ensure legal risk avoidance and legal compliance



# Contradictions and Conflicts - *Needs for various capabilities*

## Financial control process



## Needs for various capabilities



*What should we do ?*

# *Issue 2*

## *Working capabilities*

*Analyze the vital management accounting capabilities and other comprehensive qualities required by employees.*

### **Point:**

- 1. Comprehensive capacities needed in different stages' work.**
- 2. Integrate business and finance.**
- 3. Future career vision.**



# Capability Requirement - *Four capabilities to three key points*

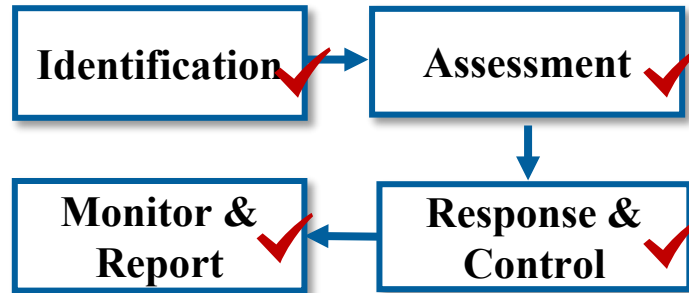
## Pre: Investment analysis and decision-making



### ✓ Capital investment decision making

- Feasibility analysis processes' demand

## Post: Risk control



### ✓ Enterprise risk management

### ✓ Internal control

- Controllable risks is basis for other work

## Disposal: Program evaluation and decision making

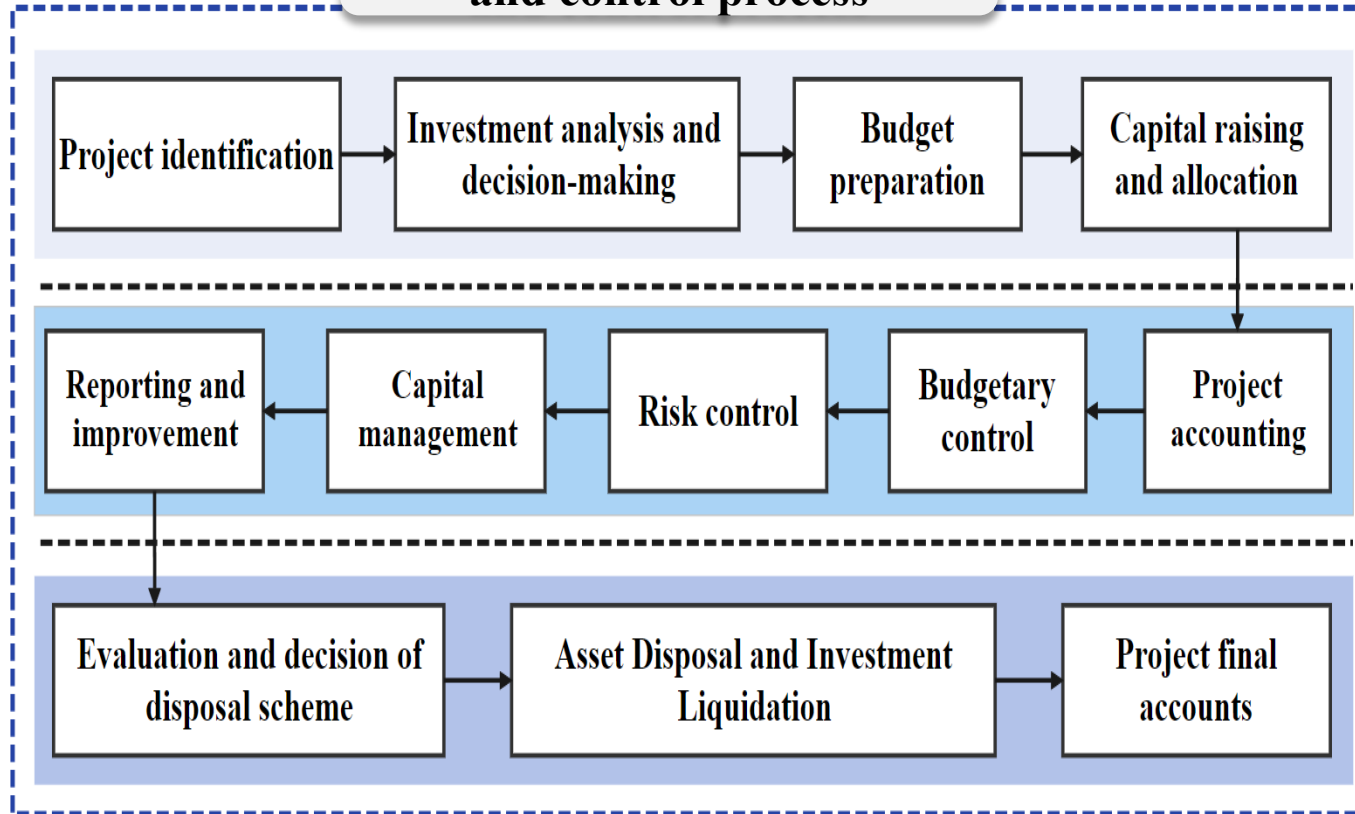


### ✓ Tax compliance and planning

- Tax policy changes rapidly
- Tax preference

# Capability Requirement - *three universal capabilities*

## Whole financial management and control process

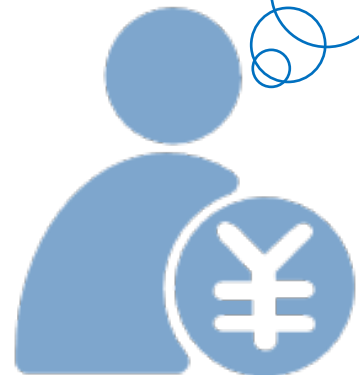


## Universal capabilities

- ✓ **Operational Knowledge**
  - Collaborate with business units
- ✓ **Communication skills**
  - Complex workflow
  - Multiple reporting and communication scenarios
- ✓ **Data visualization**
  - Presentation & reporting scenarios

# Capability Application

**How to put these capabilities  
into practice ?**



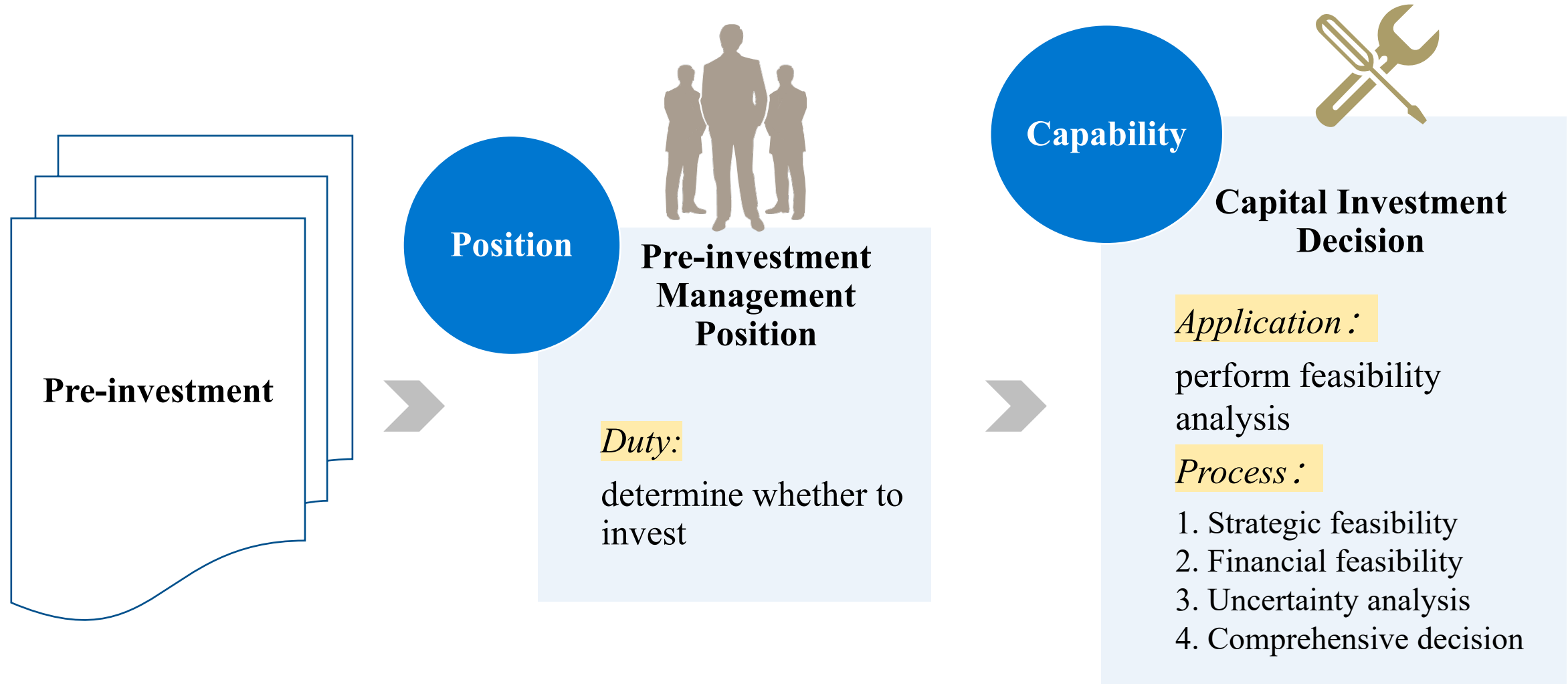




# Capability Application - *Integration of business and finance*



# Integration of Business and Finance - *Capital investment decision capability*



# Capital Investment Decision Capability - *Strategic feasibility analysis*

## Strategic feasibility

Identify the  
qualitative factors

Strategy Map

Determine the  
effect of each factor

## Example: T1 Product Line

Strategic objective

Market share

Customer  
acquisition

- Peculiarity
- quality

Customer  
satisfaction

- price
- Brand equity

Customer  
retention

- service
- partnerships

Customer  
Perspective

Innovation

- Opportunity identification
- R&D investment
- New product launch time

Production

- Cost of quality
- Delivery time
- Waste rate

Postsales  
service

- Customer complaint rate

Law and  
society

- Safety & Health

Internal  
Business  
Perspective

Learning and  
Growth  
Perspective

Human capital

- Employee training

Information capital

- Information system

Organizational capital

- Innovative culture
- Digital corporate culture



# Capital Investment Decision Capability - *Strategic feasibility analysis*

## Strategic feasibility

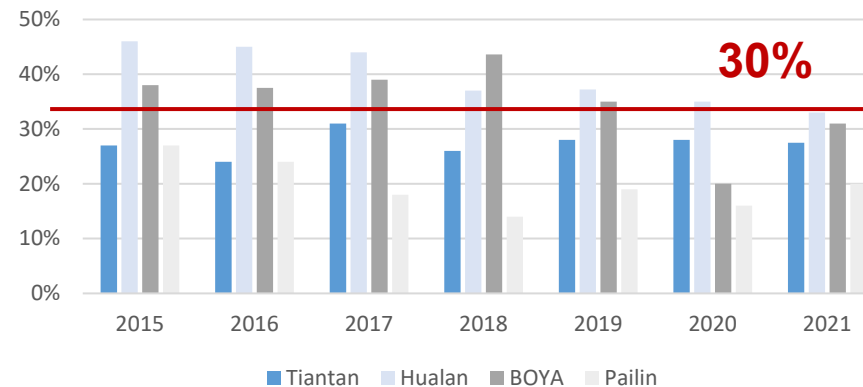
Identify the  
qualitative factors

Determine the  
effect of each factor

Market research;  
Competitor analysis;  
Causal chain analysis;  
.....

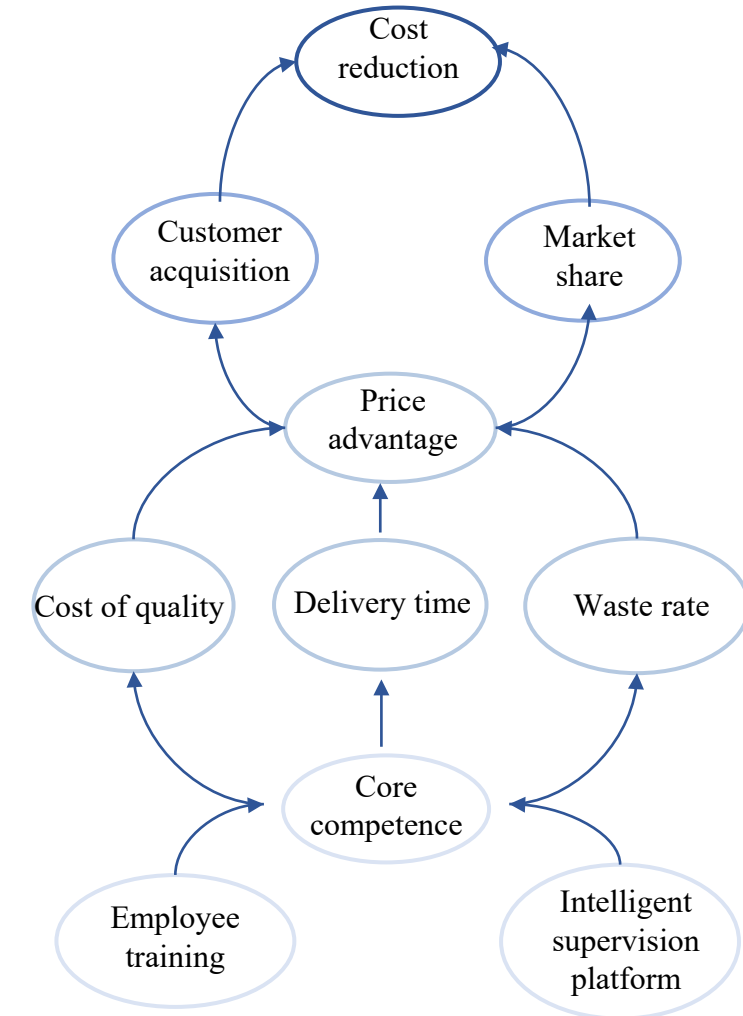
## Example: T1 Product Line

Comparison of net profit rates of blood product enterprises



Big gap in the profitability

Lean Production Strategy !



# Capital Investment Decision Capability - *Financial feasibility analysis*

## Financial feasibility

### Confirm capital expenditure

**Due diligence:  
Choose the best**

### Forecast cash flow

**Market research;  
Historical data;  
Trend analysis;**

Determine the required rate of return

Calculate economic indicators

## Apply

Fundamental Data Statement				
Sort	Item	Data	Instruction	Supplying department
Capital Expenditure	Equipment investment			Procurement and Supply
	Depreciation period (year)			
	Residual value rate			
	Disposal recovery			
Sales	Capacity			Production
	Capacity Utilization			Raw Material
	Product yield			Production
	Price			Marketing
Costs	Materials			Financial
	Utilities			Procurement and Supply
	Transportation costs			HR Dept.
	Operation personnel			
	Maintenance costs	1st year		Production
		2nd year		
		3rd year		
		.....		
Financial index	Energy consumption			Financial
	Value-added tax rate			
	Urban construction and education surcharge rate			
	Enterprise income tax rate			
	Required rate of return			

**Key!  
(Incremental cost)**

# Capital Investment Decision Capability - *Financial feasibility analysis*

## Financial feasibility

### Confirm capital expenditure

**Due diligence:  
Choose the best**

### Forecast cash flow

**Market research;  
Historical data;  
Trend analysis;**

Determine the required rate of return

Calculate economic indicators

## Apply

### Projected Cash Flow Statement

year	Initial period	Operation period	Disposal period
Equipment investment			
Disposal recovery			
Tax credit on disposal recovery			
Depreciation tax credit			
Operating capital			
<b>Investment cash flow</b>			
Sales			
Direct costs			
Indirect costs			
Taxes and fees			
.....			
<b>Operating cash flow</b>			
<b>Total cash flow</b>			

Note the calculation related to tax

**For project with the same (unchanged) sales:  
only forecast cash outflow**

# Capital Investment Decision Capability - *Financial feasibility analysis*

## Financial feasibility

Confirm capital expenditure

Forecast cash flow

Determine the required rate of return

Capital asset pricing model;  
Specially adjusted interest rates

Calculate economic indicators

DCF: NPV; IRR; DPP; ROI;  
Annuity Cash Outflow...

Apply

Discount rate

DCF; Indicator formula

### Indicator Calculation

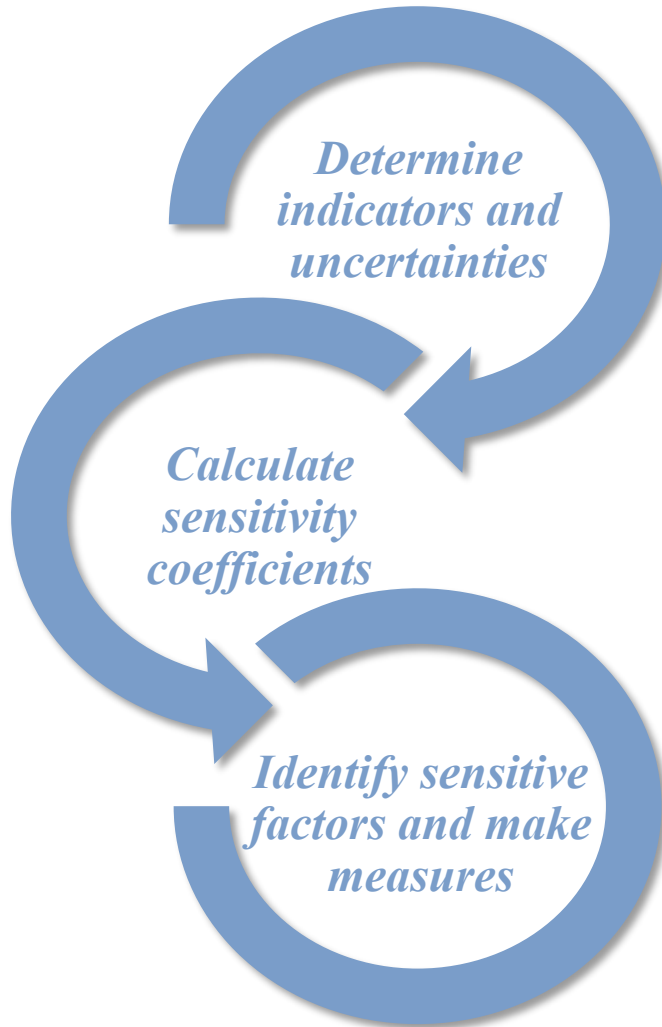
year	Initial period	Operation period	Disposal period
Present value			
Cumulative present value			
<b>Indicator</b>			
NPV			
IRR			
DPP (Dynamic payback period)			
.....			

Sort				Indicator
Less than 3 years				ROI; Static payback period
More than 3 years	Single project			NPV; IRR; DPP
	Investment scale		≡	
			≠	<b>PI; DPP</b>
	Service life		≡	NPV; IRR; DPP
			≠	<b>Annuity Net Cash Flow; Annuity Cash Outflow</b>
	Usage scenario		new	NPV; IRR; DPP
			replace	<b>NPV (Difference analysis)</b>



# Capital Investment Decision Capability - *Uncertainty analysis*

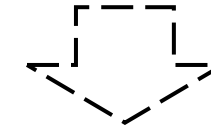
## Uncertainty analysis



## Example: T1 Product Line

**Indicators:** Annuity Net Cash Flow

**Uncertainties:** price; capacity; volume; direct costs; indirect costs; discount rate; project period ...



### Annuity Net Cash Flow

Parameter	Sensitivity coefficient		
Capacity Utilization	1.41	↑	>1
Price	6.92		
Annual cost of plasma	-2.24	↓	Absolute value >1
Auxiliary consumables	-2.24		
Energy consumption	-1.04		

# Capital Investment Decision Capability - *Comprehensive decision*

## Balance?

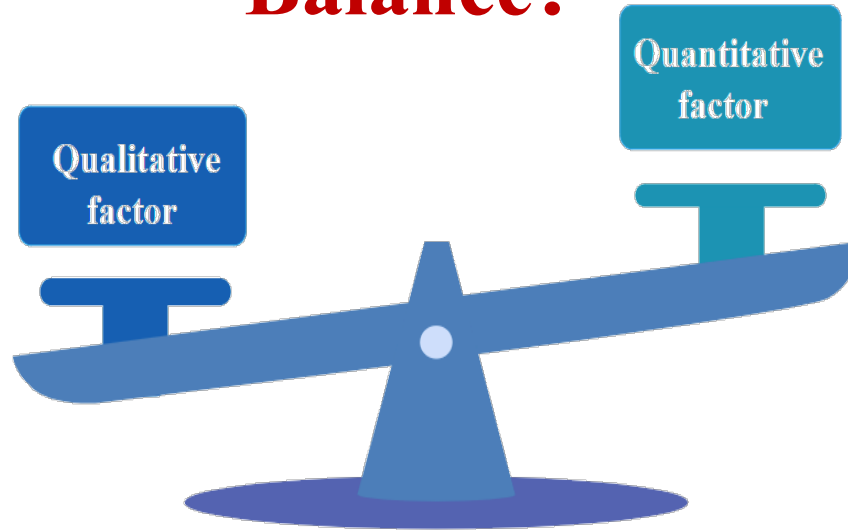


- ✓ Importance ranking
- ✓ Delphi survey
- ✓ Fuzzy analytic hierarchy process

.....

# Capital Investment Decision Capability - *Comprehensive decision*

## Balance?



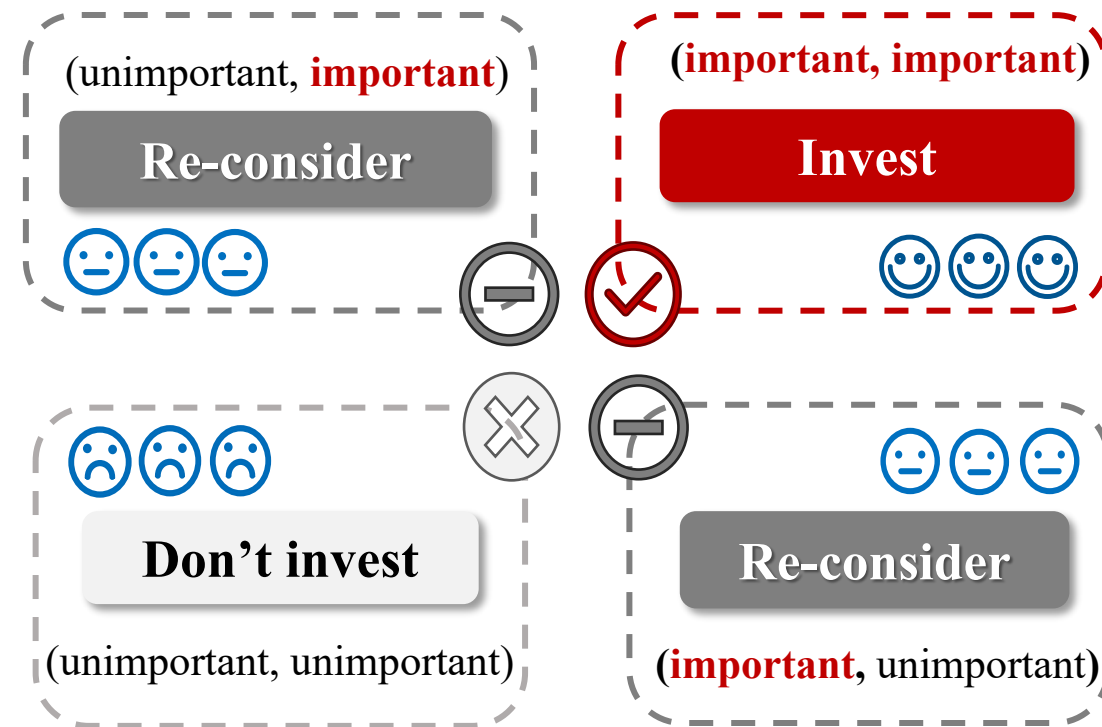
### ✓ Importance ranking

- ✓ Delphi survey
- ✓ Fuzzy analytic hierarchy process

.....

Quantitative  
importance

Apply



Qualitative  
importance

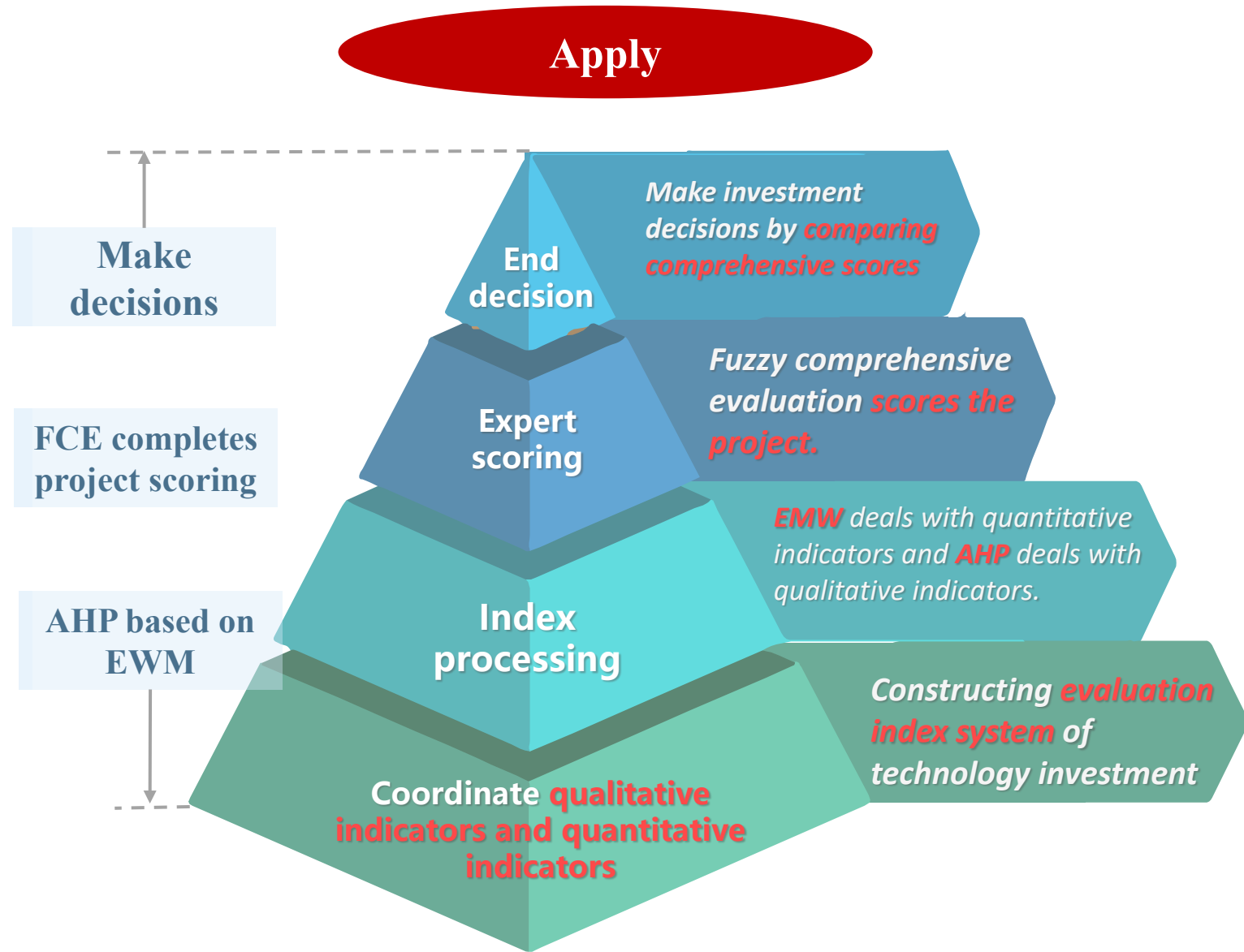
# Capital Investment Decision Capability - *Comprehensive decision*

## Balance?



- ✓ Importance ranking
- ✓ Delphi survey
- ✓ Fuzzy analytic hierarchy process

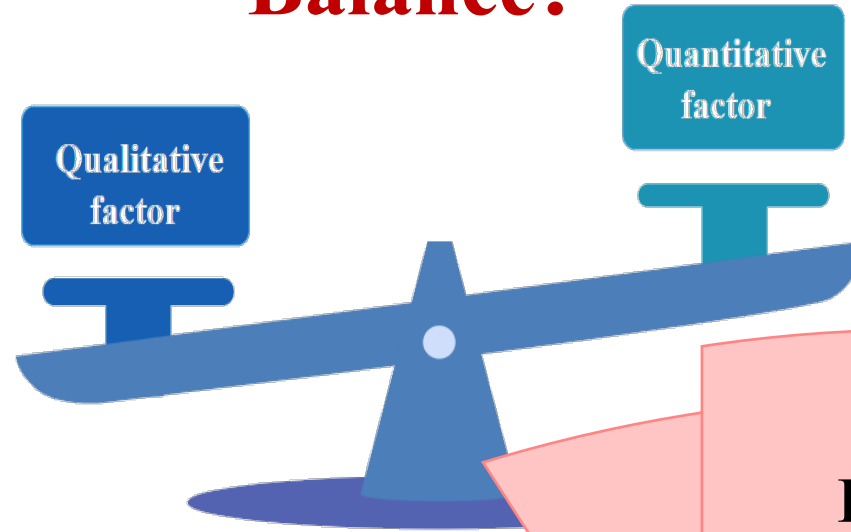
.....





# Capital Investment Decision Capability - *Comprehensive decision*

## Balance?



- ✓ Importance ranking
- ✓ Delphi survey
- ✓ Fuzzy analytic hierarchy process

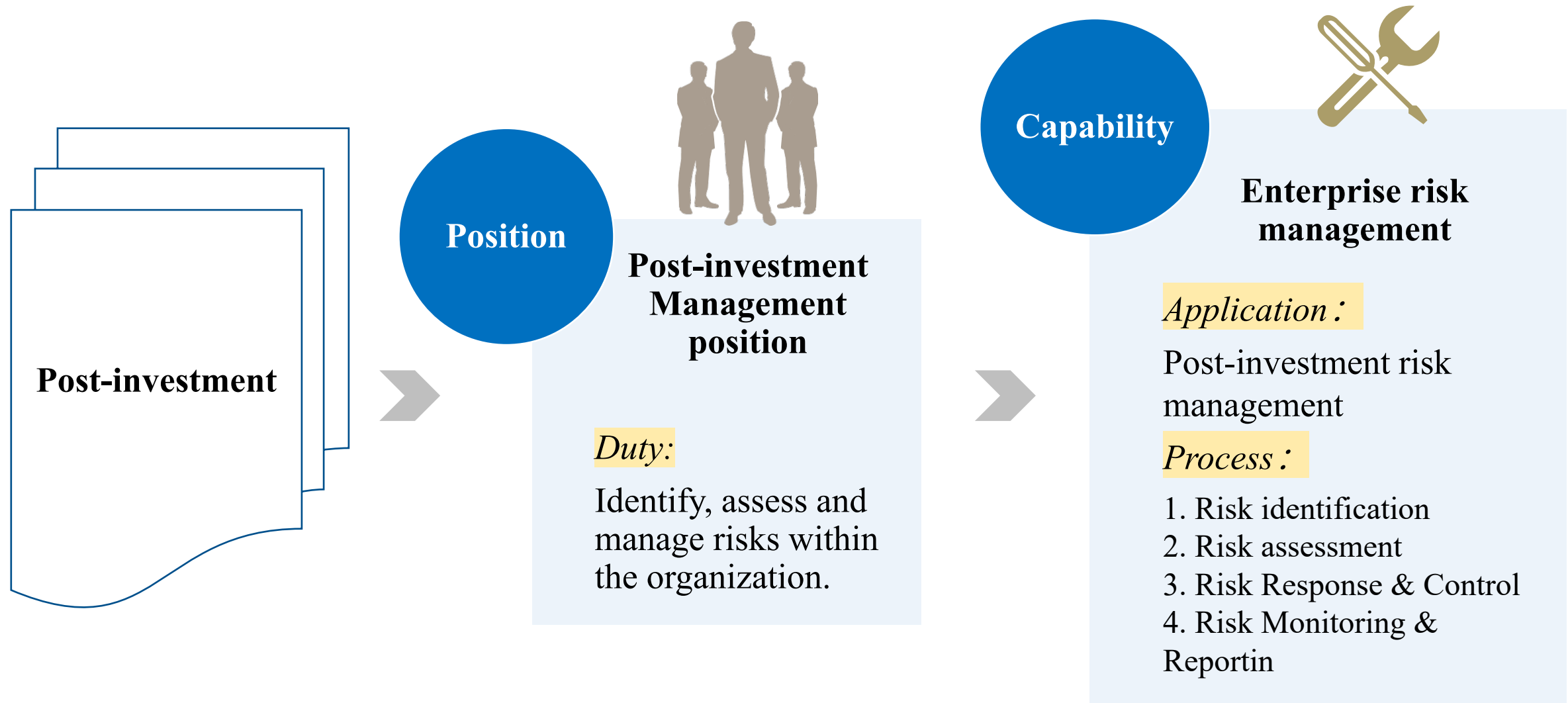
.....

## Invest project-B!

**Apply****Expert: empowerment and scoring****Enterprise management****Expert in blood pharmaceutical industry****Technical team members****Investors and financial analysts****account executive**

		weight	Secondary index	Index property	weight	Comprehensive weight	A	B
Leading and growth			Opportunity identification	Qualitative index	12.11%	3.25%	1.95	2.60
			R&D investment		9.27%	2.49%	1.99	2.49
			.....		.....	.....	.....	
			Market share		31.65%	7.16%	4.29	5.72
			Customer satisfaction		25.88%	5.85%	3.51	4.68
			.....		.....	.....	.....	
			Information system		26.00%	5.30%	3.18	4.24
			Employee training		25.31%	5.16%	3.09	5.16
			.....		.....	.....	.....	.....
Financial	30.15%	NPV	Quantitative index	25.24%	7.61%	4.57	6.09	
		IRR		24.37%	7.35%	5.88	2.94	
		.....		.....	.....	.....		
Comprehensive score							compare	X1 < X2

# Integration of Business and Finance - *Enterprise risk management capability*

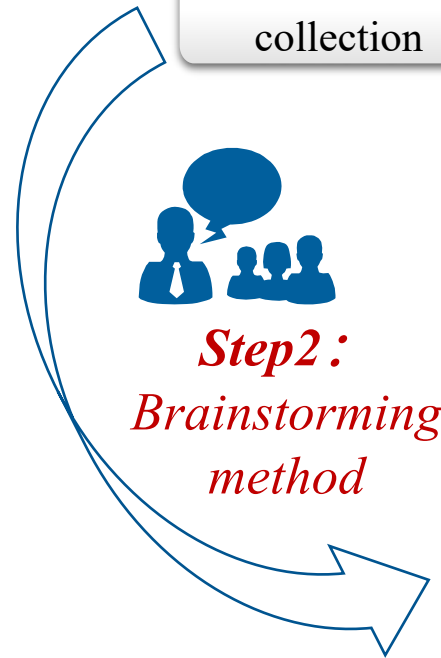




# Risk Identification - *From business processes to risk-checklist*

## Example: ALB Project

### *Step1: Business Process Analysis*



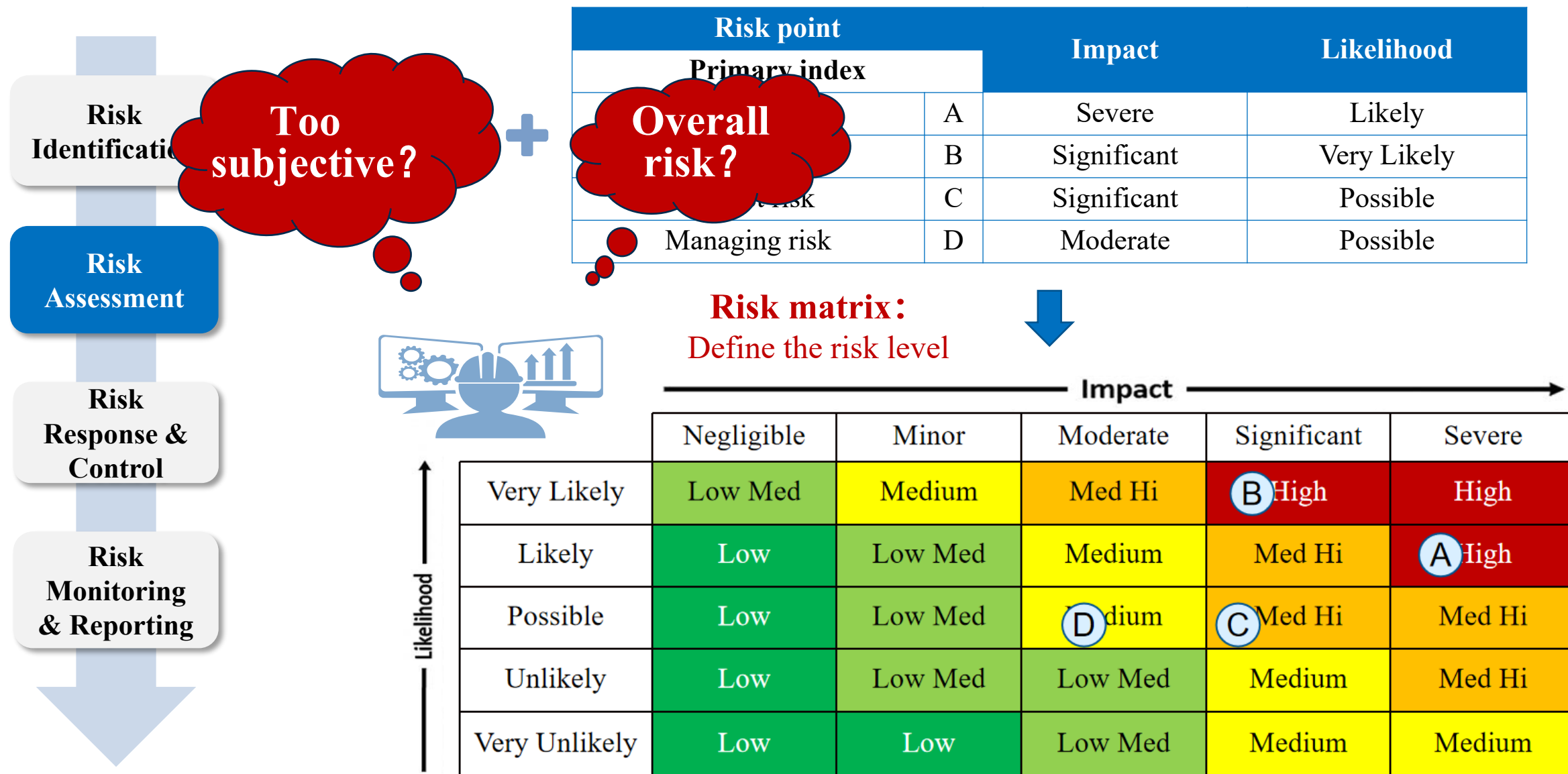
### *Step3: Draw Risk-Checklist*

ALB Project Risk-Checklist					
Risk point				Risk level	Control measure
Primary index		Secondary index			
Regulatory risk	A	Changes in industry regulations	A1		
		Environmental and quality control	A2		
Technical risk	B	Technical compatibility and reliability	B1		
		Technical updates and upgrades	B2		
		Technical disclosure	B3		
Market risk	C	Market demand change	C1		
		Market competition	C2		
		Raw material supply fluctuation	C3		
Management risk	D	Project management and staffing risks	D1		
		Supply chain management	D2		
		Safe production	D3		

**Risk Identification****Risk Assessment****Risk Response & Control****Risk Monitoring & Reporting**



# Risk Assessment - 1. Risk matrix method







# Risk Assessment - 2.1 Grey-DEMATEL assign the weight

Risk  
Identification

Risk  
Assessment

Risk  
Response &  
Control

Risk  
Monitoring  
& Reporting

## Step1: Construct characteristic sequence

Semantic variable	Score	Grey number
No effect	0	[0,0]
Very weak influence	1	[0,0.25]
Weak influence	2	[0.25,0.5]
High influence	3	[0.5,0.75]
Very high impact	4	[0.75,1]

<grey relation matrix>

$$X = \{X'_{ij}\}_{m \times n} = \begin{bmatrix} X'_{11} & X'_{12} & \dots X'_{1n} \\ X'_{21} & X'_{22} & \dots X'_{2n} \\ X'_{m1} & X'_{m2} & \dots X'_{mn} \end{bmatrix}$$

## Step2: Calculate the direct influence matrix

$$X_{ij} = \frac{X'_{ij} - X'_{i \min}}{X'_{i \max} - X'_{i \min}} \quad \Delta_{ij} = |X_0 - X_{ij}|$$

$$\xi_{ij} = \frac{\Delta_{\min} + \rho \Delta_{\max}}{\Delta_{ij} + \rho \Delta_{\max}}$$

## Step 3: Assign the indicators weight

$$P_{ij} = \frac{X_{ij}}{\sum_{j=1}^n X_{ij}} \quad E_i = -\frac{1}{\ln n} \sum_{j=1}^n P_{ij} \ln P_{ij}$$

$$W_i = \frac{1 - E_i}{m - \sum E_i}$$



ALB Project Risk point			
Primary index	weight	Secondary index	weight
A	0.2722	A1	0.1474
		A2	0.1248
		B1	0.1164
B	0.3075	B2	0.1377
		B3	0.0534
		C1	0.0812
C	0.2377	C2	0.0634
		C3	0.0931
		D1	0.0691
D	0.1826	D2	0.0752
		D3	0.0383



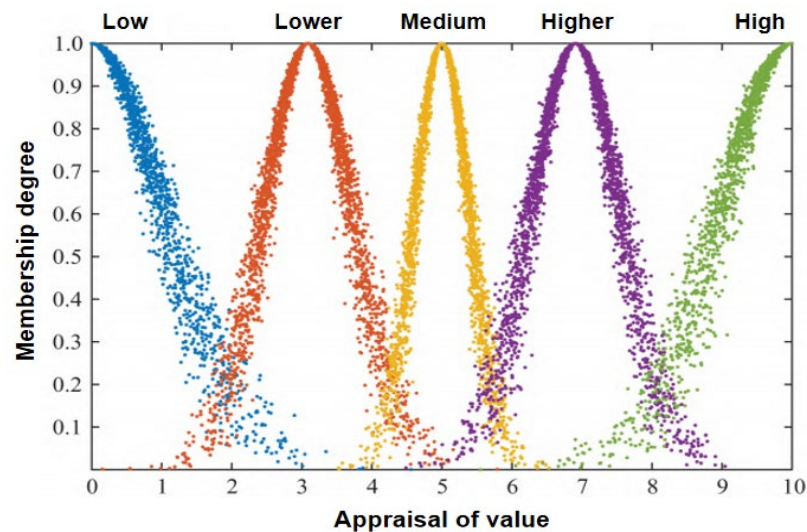
# Risk Assessment - 2.2 Cloud models enable risk visualization

## Step 4: Build a risk assessment cloud model

### Golden section method:

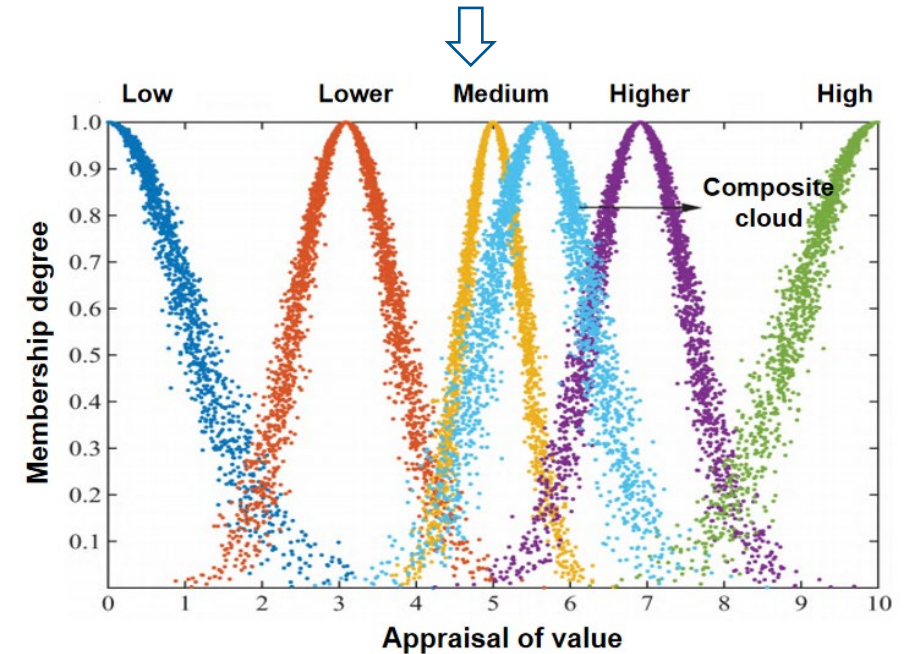
5 visual standard cloud images are generated from the valid argument domain  $x \in [xmin, xmax]$ .

Standard Cloud Digital Features	
Safety level	$C=(Ex,En,He)$
Low risk	(0,1.03,0.13)
Lower risk	(3.09,0.64,0.08)
Medium risk	(5,0.39,0.05)
Higher risk	(6.91,0.64,0.08)
High risk	(10,1.03,0.13)



## Step 5: Create the comprehensive cloud model

Primary Index Assess Cloud Digital Characteristics	
Primary index	$C=(Ex,En,He)$
A	(4.249,0.764,0.148)
B	(5.801,0.815,0.156)
C	(6.339,0.714,0.089)
D	(7.527,0.527,0.122)



Composite cloud digital features ( 5. 6111, 0. 6775, 0. 112)

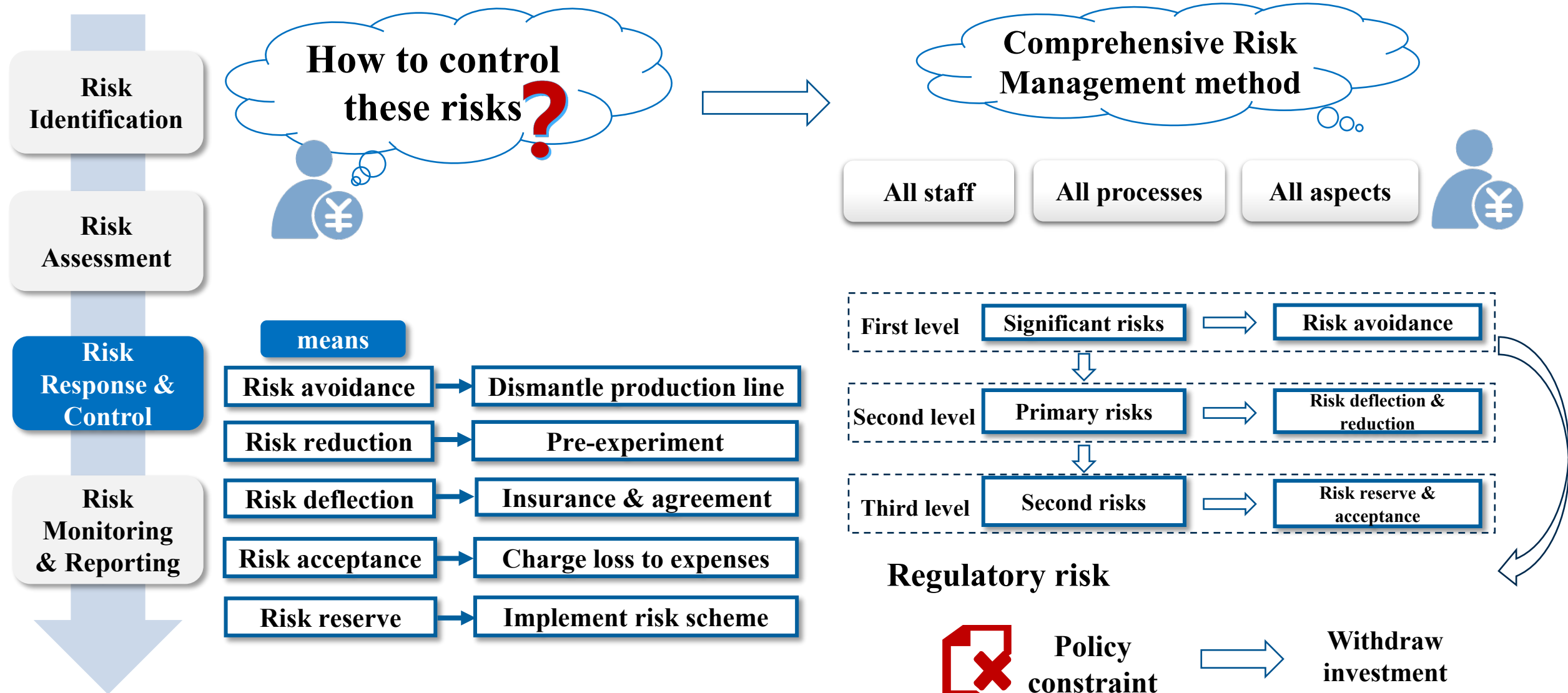
Risk  
Identification

Risk  
Assessment

Risk  
Response &  
Control

Risk  
Monitoring  
& Reporting

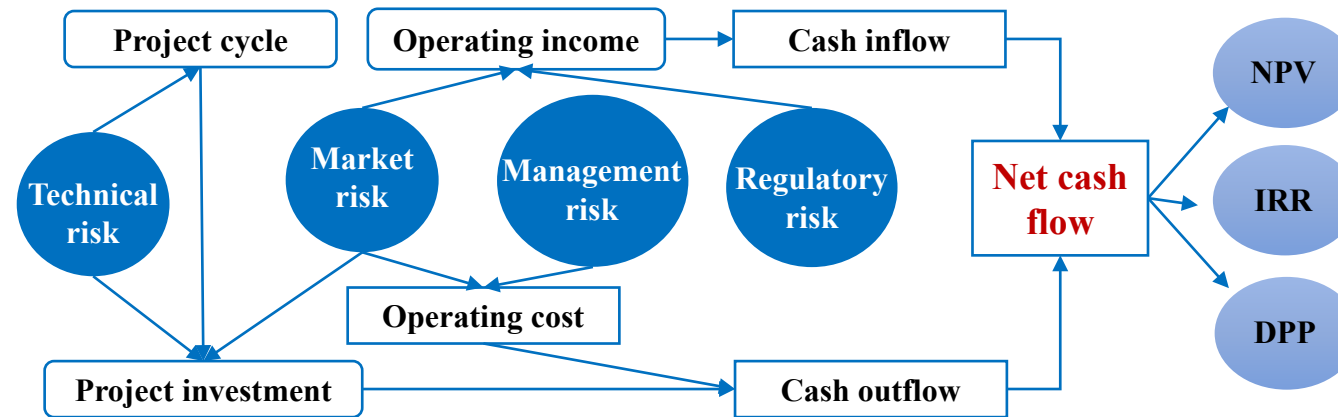
# Risk Response & Control - *Comprehensive risk management method*





# Risk Monitoring & Reporting - Monte Carlo simulation

## Step1: Set financial indicators and influencing factors



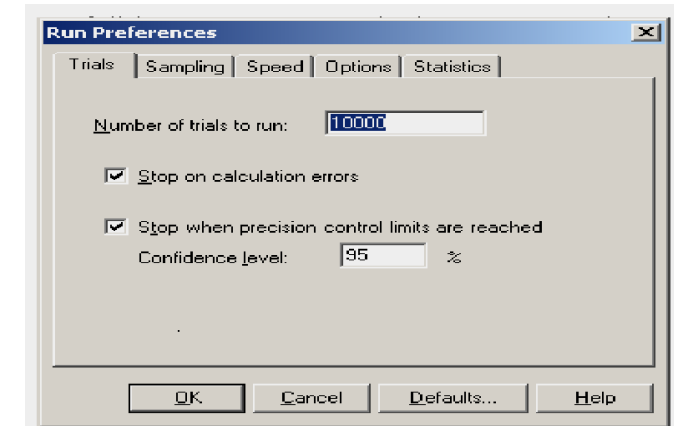
Impact of risk factors on financial indicators



### Summary of risk variables

Deterministic risk variable	Uncertainty risk variable
Discount rate	Investment cost
Project construction period and operation period	Operation and maintenance cost
Government subsidy	Product price
...	...

## Step2: Index simulation



(Crystal Ball11.1.2)

Numbers of trials: 10000

Confidence Level < 95%

## Step3: Set security threshold

Safety threshold	
NPV	> 0
IRR	>= 14%
DPP	< 5

Risk  
Identification

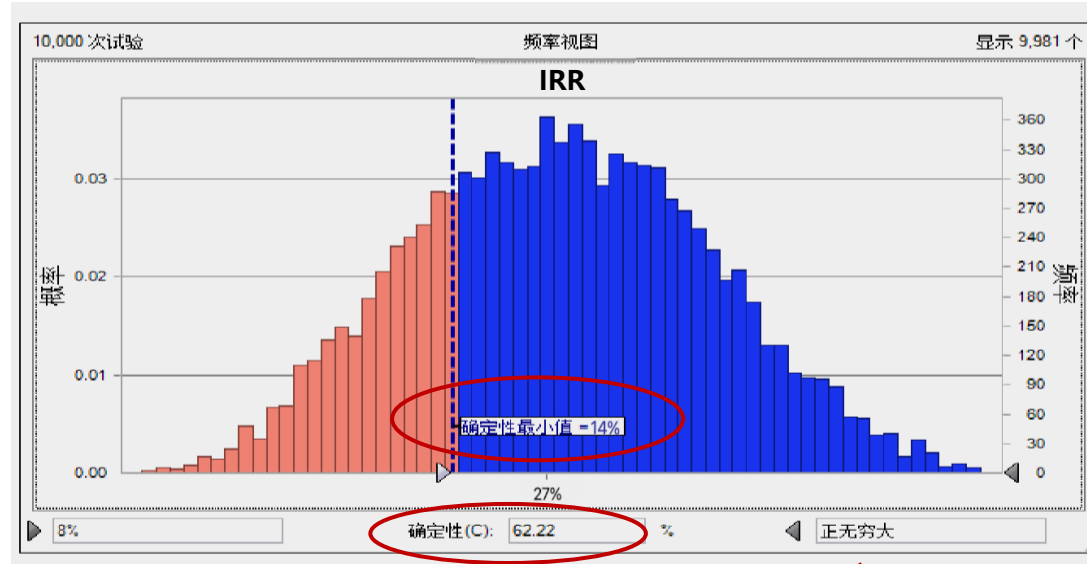
Risk  
Assessment

Risk  
Response &  
Control

Risk  
Monitoring  
& Reporting

# Risk Monitoring & Reporting - Monte Carlo simulation

## Step4: Evaluation



$P(IRR \geq 14\%) = 62.22\%$  **Safe**

IRR	
Number of simulations	10000
Expected value	27%
mid-value	26.2%
Standard deviation	0.14
skewness	0.13
kurtosis	2.69
Coefficient of variation	0.0043
Minimum value	2%
Maximum value	51%

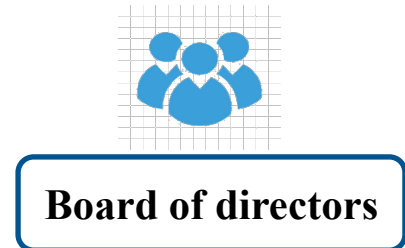
- Small SD.( $\sigma$ ) and COV.
- Good symmetry and concentration

## Step5: Monitoring and reporting



	Expected value	Safety threshold	Risk level
NPV	4825142	$> 0$	Safe
IRR	27%	$\geq 14\%$	Safe
DPP	4.7	$< 5$	Safe

report



Risk Identification

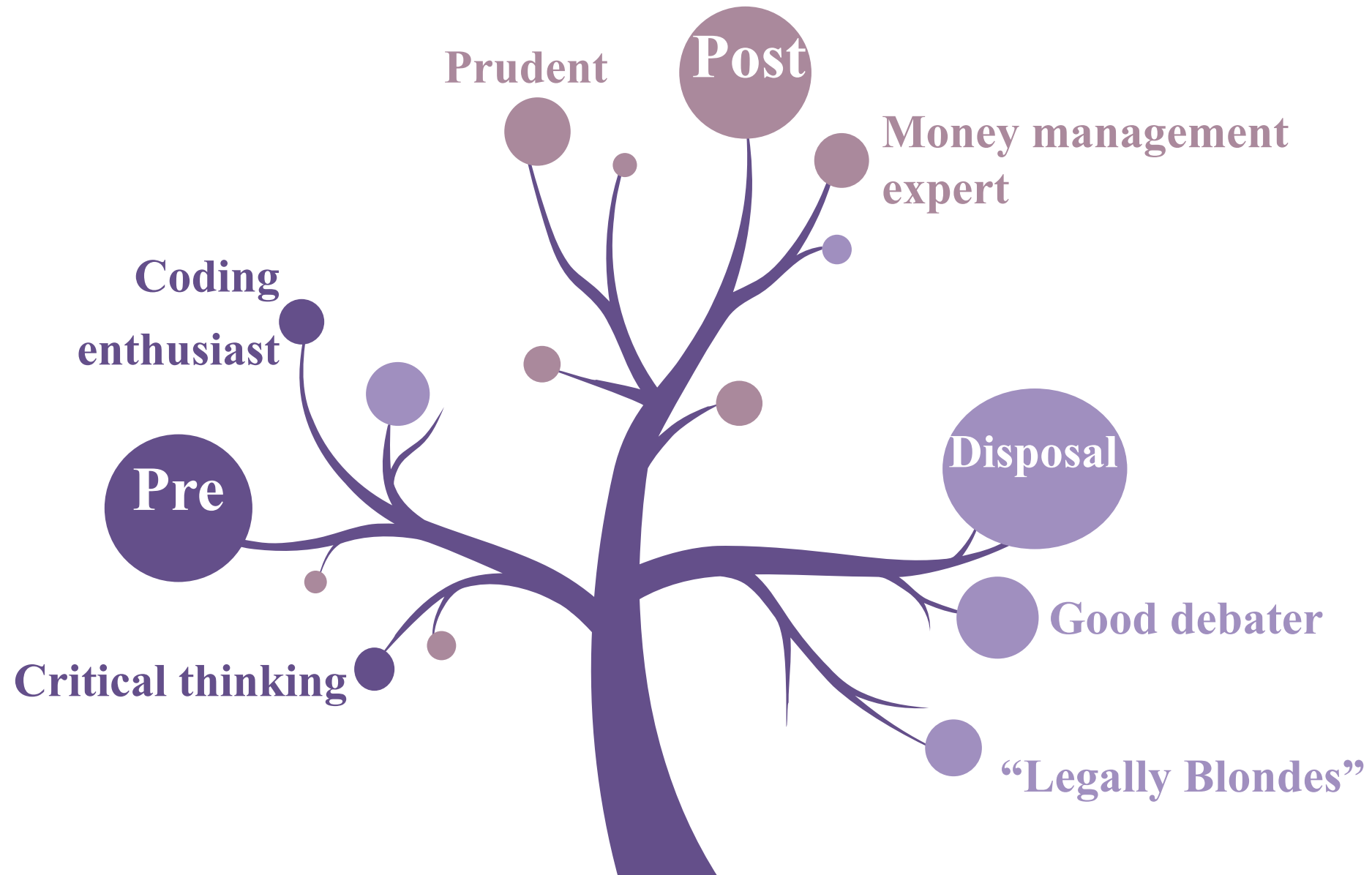
Risk Assessment

Risk Response & Control

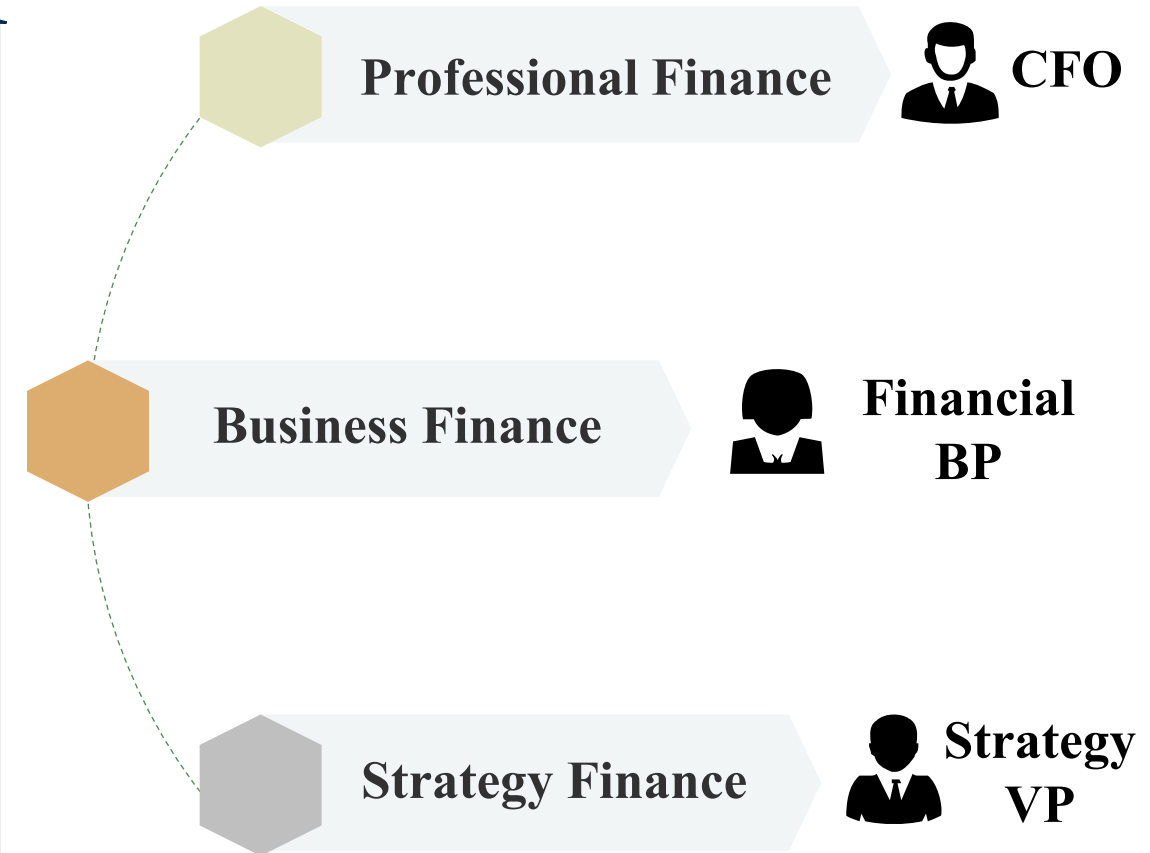
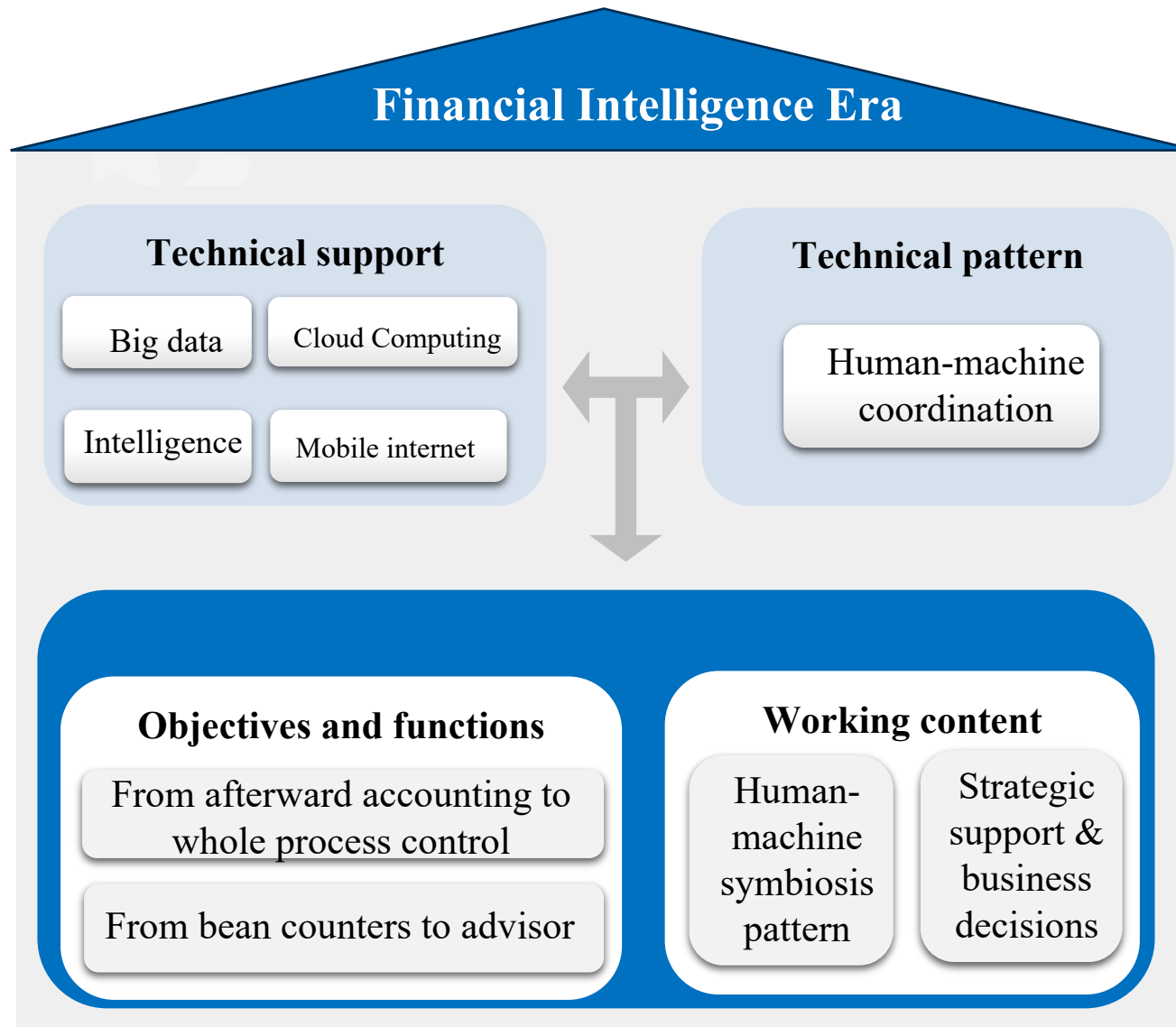
Risk Monitoring & Reporting



# Other Comprehensive Qualities



# Employee Career Path







*Intelligent Investments in Blood,  
Shaping Healthcare's Tomorrow!*





## Summary

## Case Overview

Company overview  
 Technological Revolution Background  
 Summary of Pre-investment Experience  
 Cases of Failure in Project Management

## Issue 1: Project Financial Control

Project life cycle management system  
 Lifecycle Management Framework  
 Investment Management Department Structure

**Benchmark: Huawei's IPD**

Specific process of life cycle management  
 Project Management Process  
 Financial Control Process

Pre-investment Stage Control  
 Investment analysis and decision-making  
 Objectives、Potential risks、Resources and support  
 Management and control measures  
 Necessity analysis→Feasibility analysis→Risk assessment  
 Excellent enterprise case  
 Boya Bio's Smart factory project evaluation

Budgeting

Post-investment Stage Control  
 Risk Control  
 Objectives、Potential risks、Resources and support  
 Management and control measures  
 Risk identification→Risk assessment→Risk response & control→Risk monitor & report  
 Excellent enterprise case  
 Chemo Bio's overall risk management

Budgetary Control

Disposal Stage Control  
 Evaluation and decision of disposal scheme  
 Objectives、Potential risks、Resources and support  
 Management and control measures  
 Assets appraisal→Formulate a disposal plan→Decision scheme approval  
 Excellent enterprise case  
 Haoxiangni's successful asset disposal

Asset Disposal and project settlement

## Issue 2: Working Capabilities

Contradictions and Conflicts  
 Complex financial control process needs for various capabilities

Capability Requirement  
 capabilities to three key points  
 Capital investment decision making、Enterprise risk management、Internal control、Tax compliance and planning

Universal capabilities  
 Operational Knowledge、Communication skills、Data visualization

Integration of business and finance

Capital investment decision capability  
 Scenario  
**T1 Product Line**  
 Strategic feasibility  
 Strategy Map→Causal chain analysis  
 Financial feasibility  
 Forecast cash flow→Determine the required rate of return→Calculate economic indicators  
 Uncertainty analysis  
 Determine indicators and uncertainties→Calculate sensitivity coefficients→Identify sensitive factors  
 Comprehensive decision  
 Importance ranking→Delphi survey→Fuzzy analytic hierarchy process

Enterprise risk management capability  
 Scenario  
**ALB Project Line**  
 Risk identification  
**Total risk management**  
**Expert brainstorming**  
 Identify risk points  
 Risk assessment  
 Risk matrix  
**Grey Correlation and Cloud Model**  
 Risk Response&Control  
 Risk level and countermeasures  
 Risk Monitoring&Reporting  
**Monte Carlo algorithm**  
**The project has less risk and high feasibility.**  
 Digital software  
 Continuous output report

other comprehensive qualities

Future career vision