

IMA Business Case Competition

———— Way to Cost Control, Efficiency Increase
& Sustainable Development

- ❑ Group: Ferryman
- ❑ Number: HD20222604

Case Overview

CleanTech Co. was founded in 2012 to provide PV model (PV junction box and connector) and new need in intelligent junction box has emerged.

Financial Strategic Objectives Set in BOD Second Three-year Plan

Main Work

- Budget Control
- Business Analysis
- Cost Control & Efficiency Increase

Double Sales Revenue in 3 years (CAGR=26%)

ROE of No Less Than 20%

Enter the First Tier of Domestic PV Module Suppliers

Current Problems

- Decline of photovoltaic industry subsidies
- Urgency to accelerate technological innovation
- Pressure of rising costs of production
- Fierce competition



Cost control projects for different departments



Characteristics and management priorities in the stage of technical and product development of R&D



Budget proposal and management of R&D

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3	R&D Stage Management	- Technical Development - Product Development
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Overview of Cost Reduction Strategies of Each Department

1 Calculation of Key Data

Index	Unit Price	Unit Cost	Cost
2021	18.25	14.62	5611
2022	18.615	14.67	7227
Change Rate	2.00%	0.37%	28.80%

- ✓ The company's expenses may increase **28.80%** but the increase is limited compared with the sales revenue and other indicators.
- ✓ The cost of the non-material part of the product cost needs to change **-18.143%**.

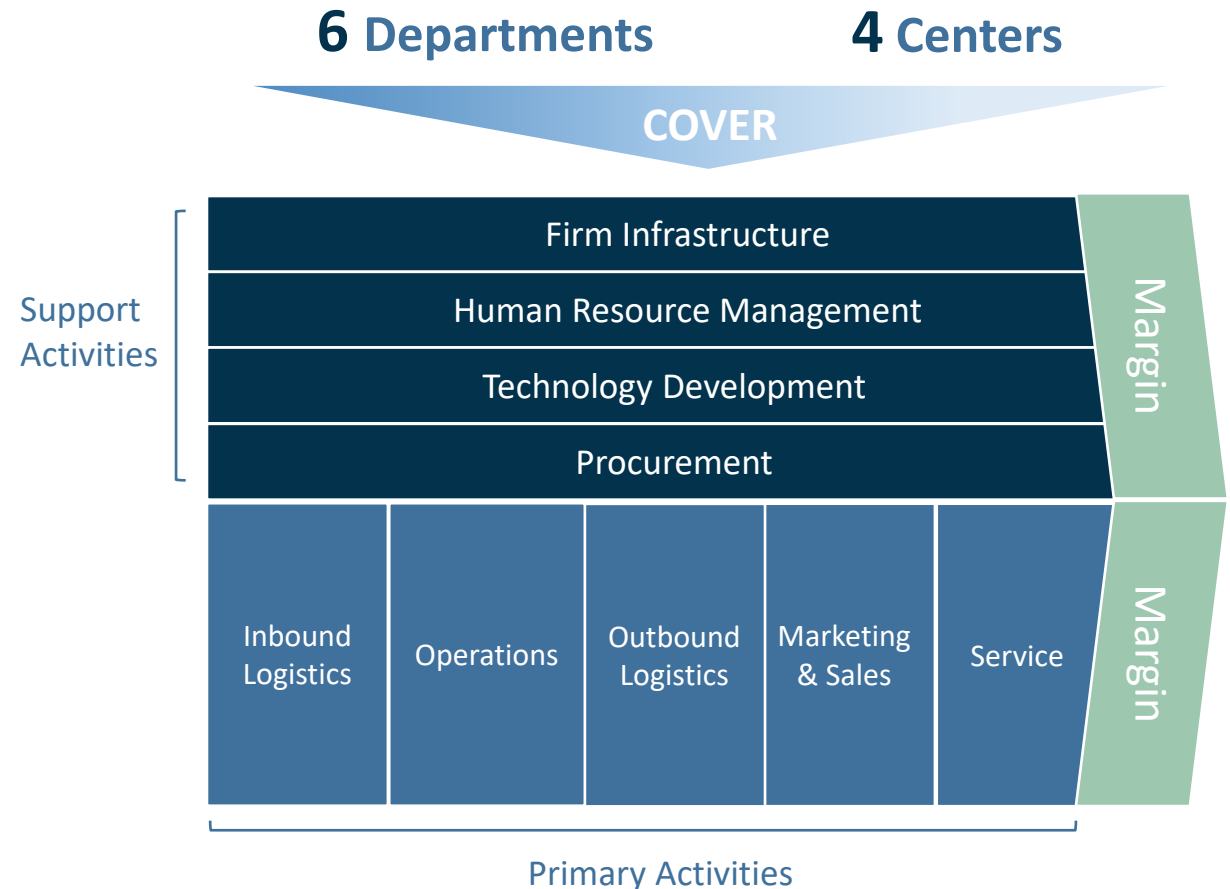
**Control Cost and Increase Efficiency
From 2 Perspectives:**

Company Operating Costs

Non-material Costs

2 Porter Value Chain Model

The value created by an enterprise actually comes from some specific value activities in the enterprise value chain.

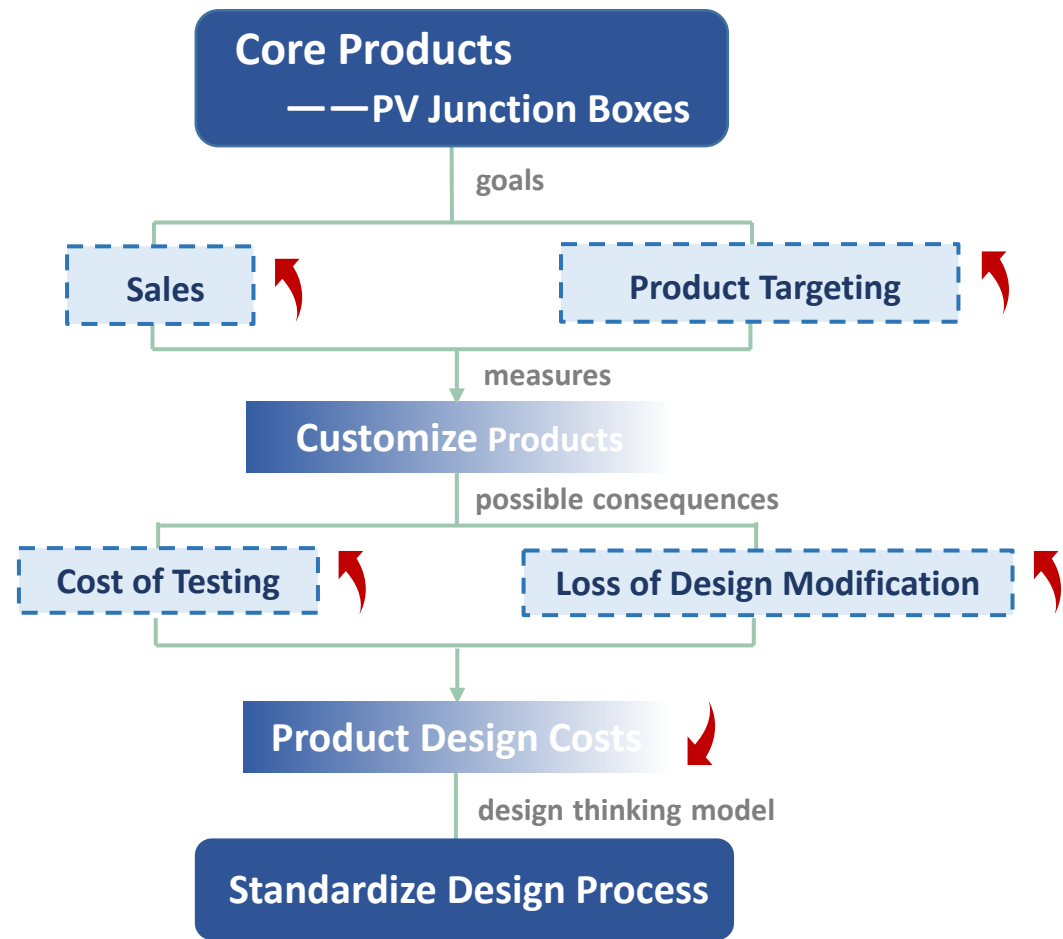


Overview of Cost Reduction Strategies of Each Department

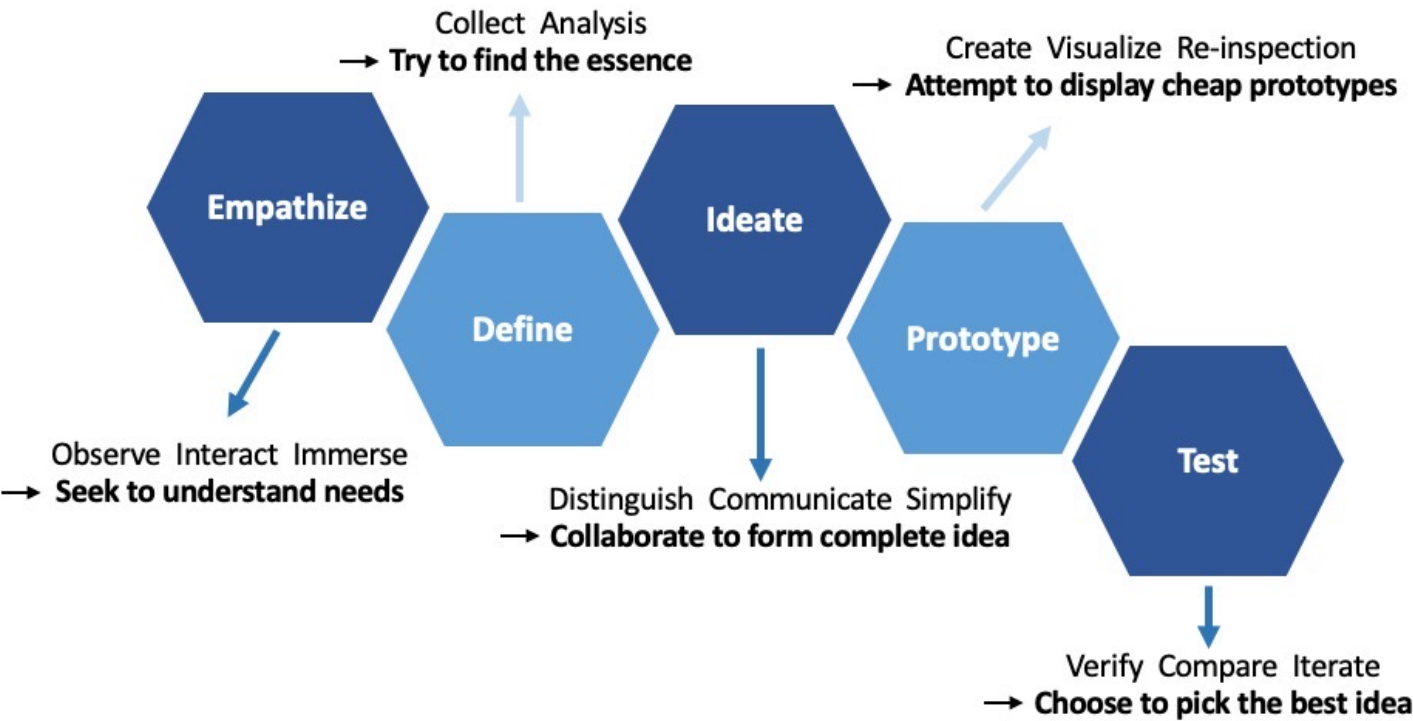
Center	Department	Key Strategies
Technology Center	Production Design Department	· Reduce the complexity of product design process · Focus on customer excitement and customize products according to users’ needs · Strengthen product vertical development, to realize product transformation and upgrading
	Quality Inspection Department	· Implement quality process control strictly to avoid unnecessary loss · Implement standardized production · Strengthen staff professional skills training and improve quality awareness
Quality Center	Equipment Department	· Establish complete equipment maintenance system · Monitor the quality of production equipment regularly to avoid damage
	Purchasing Department	· Avoid information asymmetry to improve purchasing efficiency · Use MRP Model to determine the optimal purchasing time · Employ EOQ Model to determine the optimal purchasing quantity
Supply-chain Center	Warehousing Department	· Establish VMI inventory-management method to make warehousing cost less and improving its efficiency · Concentrate on the attention notes of VMI inventory-management method
	Personnel Department	· Reduce support employee costs by labor outsourcing · Increase the efficiency of core employees in terms of compensation, career advancement, long-term incentives and cultural environment
Personnel Administration Center		

Detailed Strategies for Product Design Department

Focus On Core Products, Standardize the Design Process
& Reduce Subsequent Associated Costs Through Design

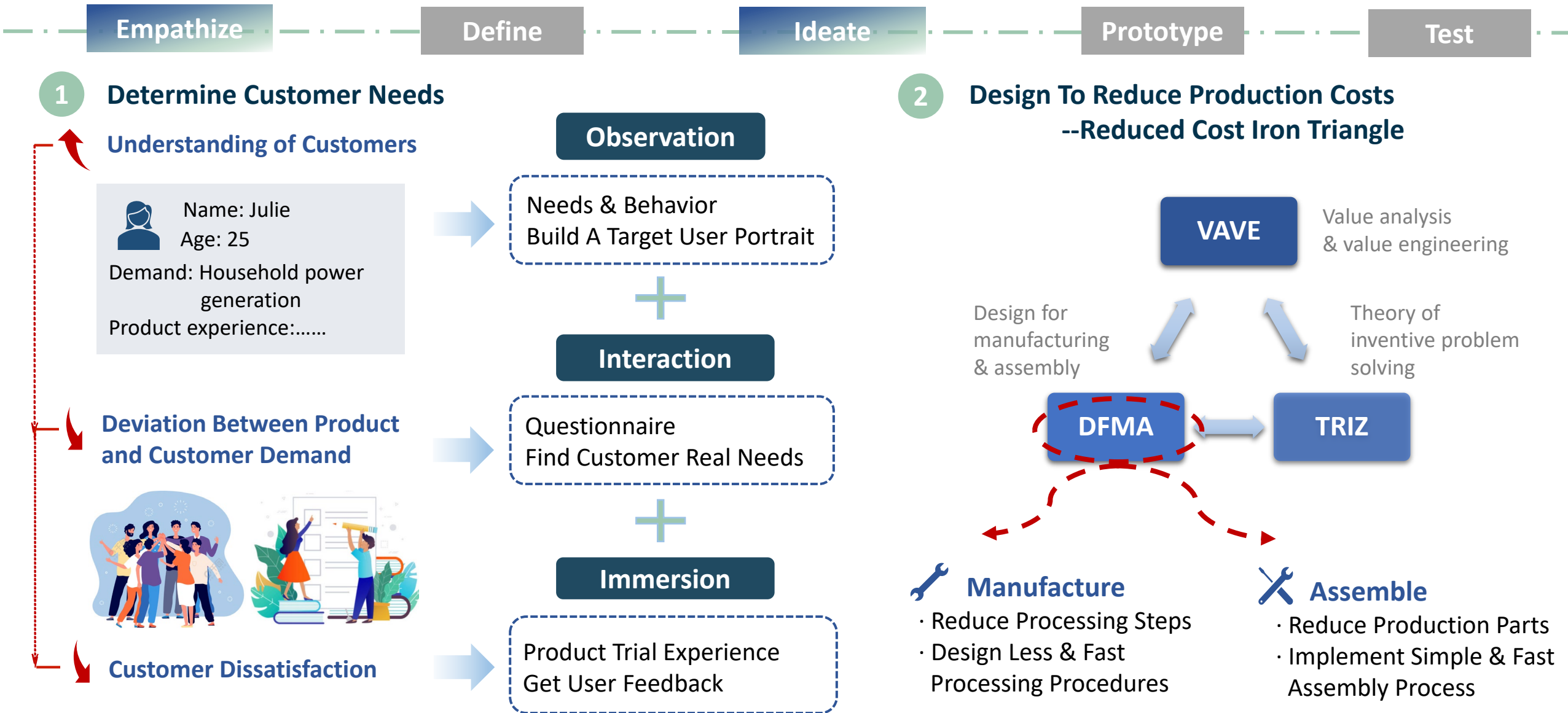


Design Thinking Model of Stanford University



Standardized Product Design Process Can Effectively Reduce
Unnecessary Losses in the Design Process.

Detailed Strategies for Product Design Department



Detailed Strategies for Quality Inspection & Equipment Department

To Reduce Cost, Quality Inspection & Equipment Department Need to Achieve **3 Goals**:

2 REDUCTIONS:
Cost Rate of **Poor Quality**
Rate of **Customer Return**



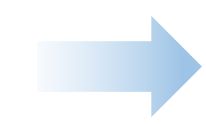
1 IMPROVEMENT:
Rate of **One-time Inspection Qualification**



Reduce the Probability of Device Failure



Equipment Department Needs To



Improve Product Quality

- 1 Implement Quality Process Control Strictly**
Effectively reduce
 - Discard costs
 - Rework man-hour costs
 - Report waste disposal expenses
 - Transportation costs
- 2 Implement Standardized Production**
Effectively reduce
 - Mold opening times & costs
 - Unit cost of production
- 3 Strengthen Staff Professional Skills Training**
Effectively reduce
 - Production error costs

· Establish complete equipment maintenance system
· Monitor quality of production equipment regularly



Extend the Service Life of Production Equipment
Reduce the Maintenance Cost

Detailed Strategies for Purchasing Department

1 Improve Purchasing Efficiency

Establish Strategic Cooperative Relations
Employ Direct Purchasing Channels

CleanTech Co.

Less redundant procedures
Less middlemen

Suppliers

Avoid Information Asymmetry → Improve Purchasing Efficiency

2 Determine Optimal Purchasing Time

MRP Model

Prediction Contract Demand

MPS(Main Production Schedule)

Product Information

MRP(Material Requirement Planning)

Warehousing Information

Optimal Purchasing Time

3 Determine Optimal Purchasing Quantity

Carry Out Preparatory Work

Implement Total Quality Control

Analyze Current System

Decide the Quantity of Purchase

Compare Each Suppliers' Price

Analyze Market Demand

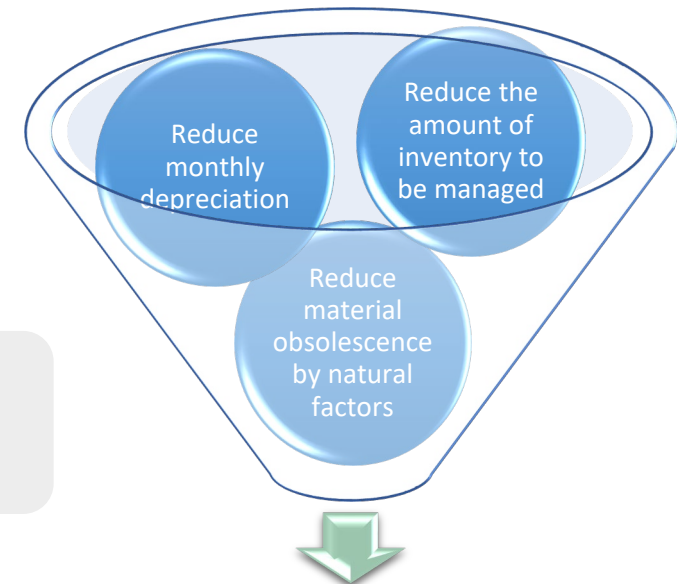
$$EOQ = \sqrt{\frac{2DS}{H}}$$

$$C_T = S \left(\frac{D}{EOQ} \right) + H \left(\frac{EOQ}{2} \right) + PD$$

$$= \sqrt{2DSH} + PD$$

EOQ: Economic order quantity
S: One-time delivery cost
H: Unit maintenance cost

D: Total demand
P: Product unit price
C_T: Total cost



Period Expenses
Non-operating Expenses
Purchasing Costs

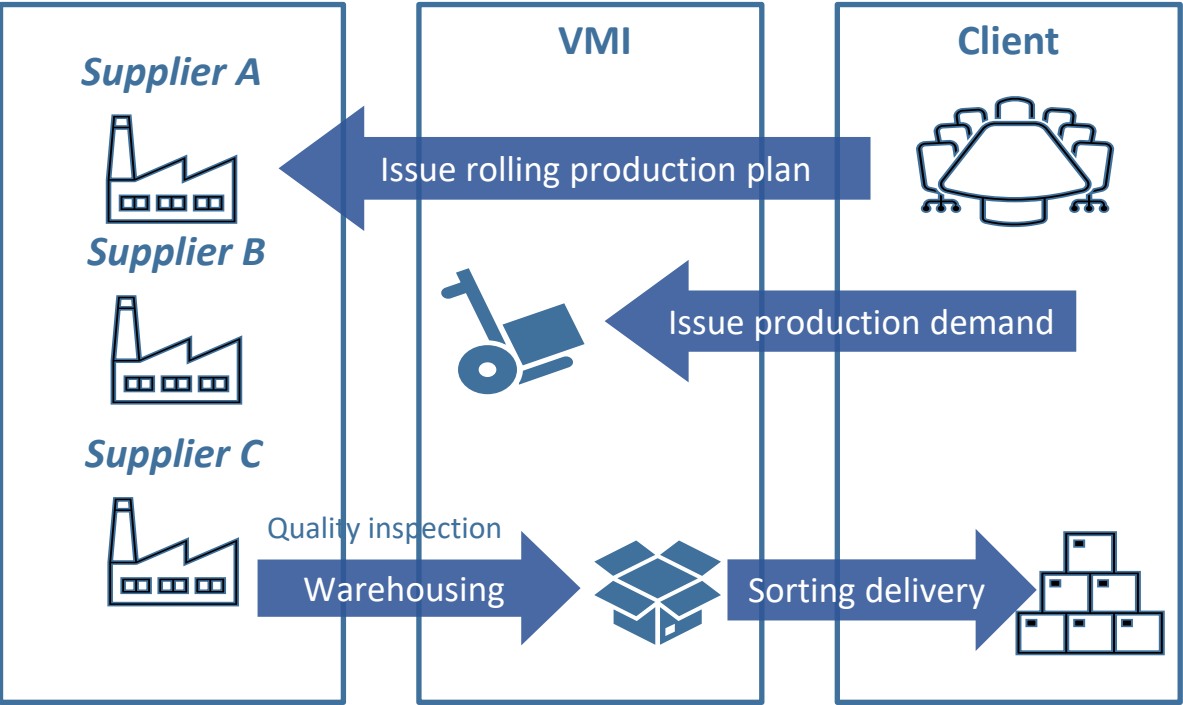
Detailed Strategies for Warehousing Department

■ Manage Inventory in a Costless and Efficient Way
Optimal Inventory-management Method

VMI Inventory-management

Advantages
Attention Notes

VMI Inventory-management



Make Settlement in Accordance with the Agreement

1 Advantages

QR-based ECR-based → Less wasted information
Reduce the cost of warehousing

3 Basic Operating Logic

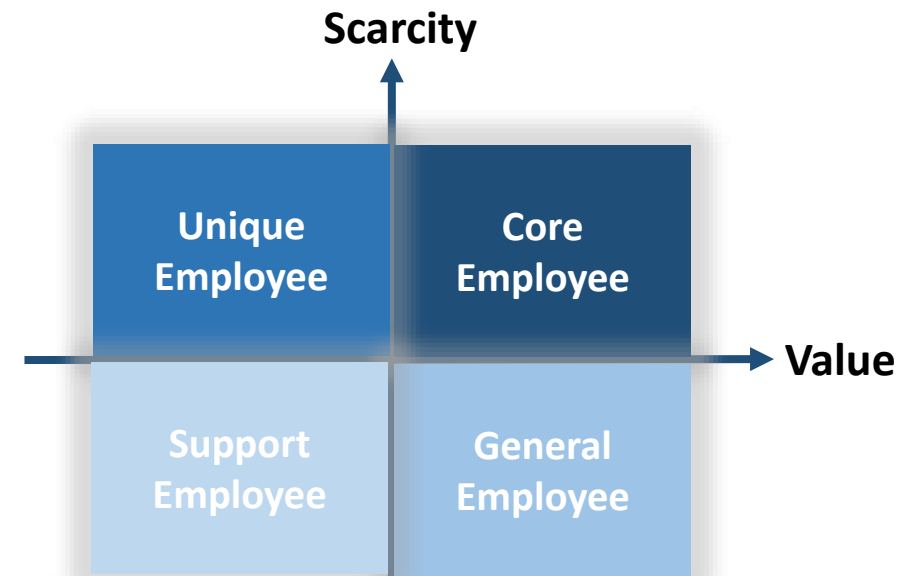
4 key words "RACE" Principle
Rapid Accurate
Costless Enhanced

2 Attention Notes

- CleanTech. needs to trust suppliers and not to interfere with their monitoring of shipments.
- Suppliers need to do more to convince CleanTech. that they can manage their inventory.
- CleanTech. payment time for goods sold by suppliers has been shortened.

Methods	CleanTech Co.	VMI
Cost	●	●
Efficiency	●	●

Detailed Strategies for Personnel Department

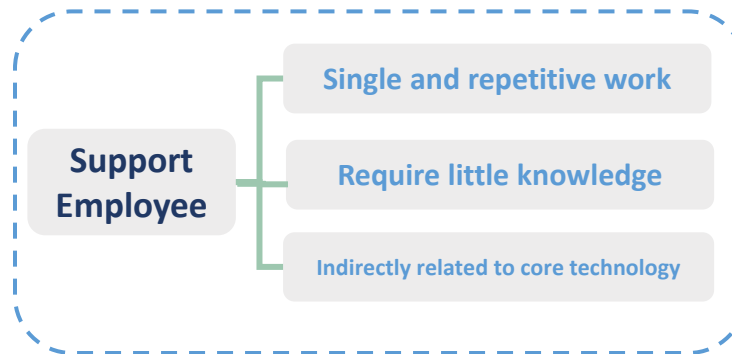


Note

- Value: Whether the knowledge and skills required are directly related to the core competence of the enterprise
- Scarcity: Whether it is easily available in the labor market

Control the Cost of Support Employee
Increase the Efficiency of Core Employee

1 Control the Cost

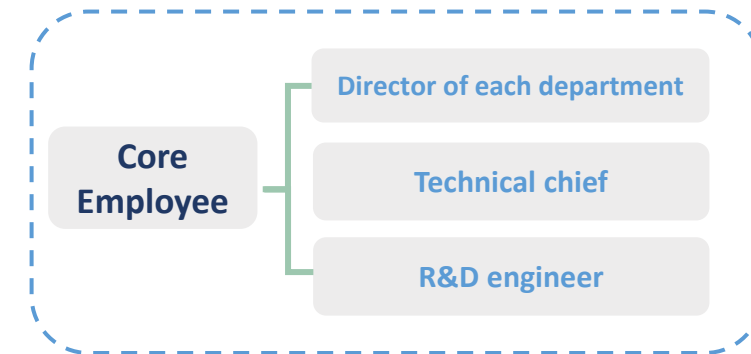


LABOR OUTSOURCING

Advantages

- ✓ Business management is more convenient
- ✓ Effectively reduce business operating costs
- ✓ Effectively avoid labor disputes

2 Increase the Efficiency



Turn Core Employees Into "HUMAN FIXED ASSETS"

Incentives

- ✓ Compensation incentives
- ✓ Multiple career pathways
- ✓ Long-term incentive mechanisms such as equity incentives
- ✓ Strengthen mental motivation

Characteristics of the Two Stages of R&D

Index	Technical Development	Product Development
R&D Objectives	Develop A TECHNOLOGY that provides technical support for product development and strategic leverage of technology	Develop A Product that is realized on the basis of meeting customer requirements, according to the needs of the market or the business plan of the company
R&D Priorities	Meeting the needs of PRODUCT	Meeting the needs of CUSTOMERS
Level of External Communication	Work is carried out relatively independently of other units. Focused on a particular area of scientific knowledge	Coordination and cooperation with other departments, with a high level of external communication
R&D Results	Highly SUBJECTIVE and unpredictable	Relatively OBJECTIVE and predictable

Management Priorities of the Two Stages of R&D

R&D Stages

Pre-planning

Process Control



Indirect Management Technical Development

- ✓ Form a fairly clear product concept
- ✓ Distinguish between the core technology and the necessary technology

- ✓ Emphasize on the flexibility of development
- ✓ Avoid setting too many detailed requirements
- ✓ Check occasionally on the progress of the technical development component and visits by the product manager



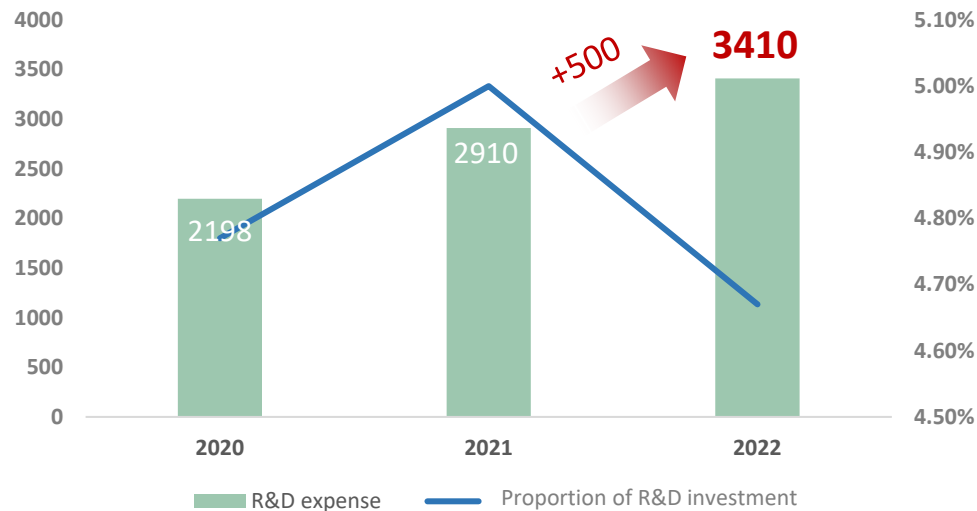
Direct Management Product Development

- ✓ Set stage objectives
- ✓ Form a complete and detailed product R&D plan, which must be completed

- ✓ Confirm the progress of the corresponding phase of development at set points in time
- ✓ Communicate with other departments when problems are encountered and cooperate to solve them

Whether to Approve the R&D Budget

1 Whether the Company Can Afford It?



Even if the R&D budget may be increased by 5 million yuan, the proportion of R&D budget to operating revenue remains at a **relatively stable level**.

Achieve the Overall Budget Target

Control Cost and Increase Efficiency

AFFORDABLE

2 Whether the Extra Investment in R&D Conflicts With Our Way to Cost Control and Efficiency Increase?

If Approve the Improvement of R&D Budget

- The intelligent junction box can increase the sales revenue in the future, promoting the achievement of budgetary objectives.
- The intelligent junction box is the future development direction, which is consistent with corporate sustainable development goals.
- As a high-tech enterprise, increasing investment in R&D can save tax.

If **NOT** Approve the Improvement of R&D Budget

- The company can decrease R&D expenses.
- The future enterprise competitiveness and sustainable development will be negatively influenced.

APPROVE

Risks in R&D Investment

LOW

- With the increasing application of distributed PV system, intelligent junction box attracts more and more attention.
- The market for intelligent junction box is **active and strong**.

LOW

- Current policy environment encourages innovation in photovoltaic industry.
- Although photovoltaic generation enters non-subsidy era, the environment is **supportive** if the company can be innovative.



LOW

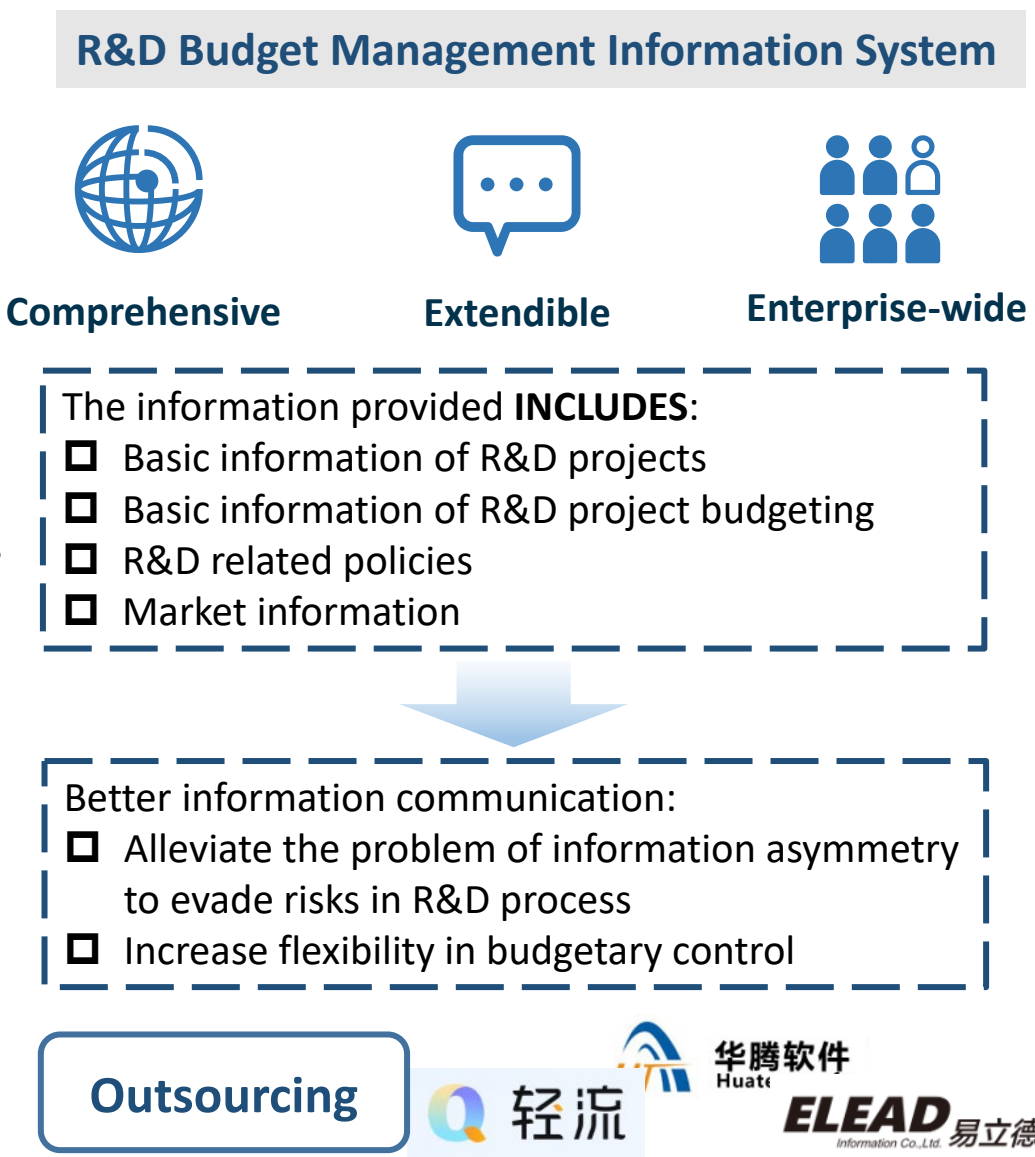
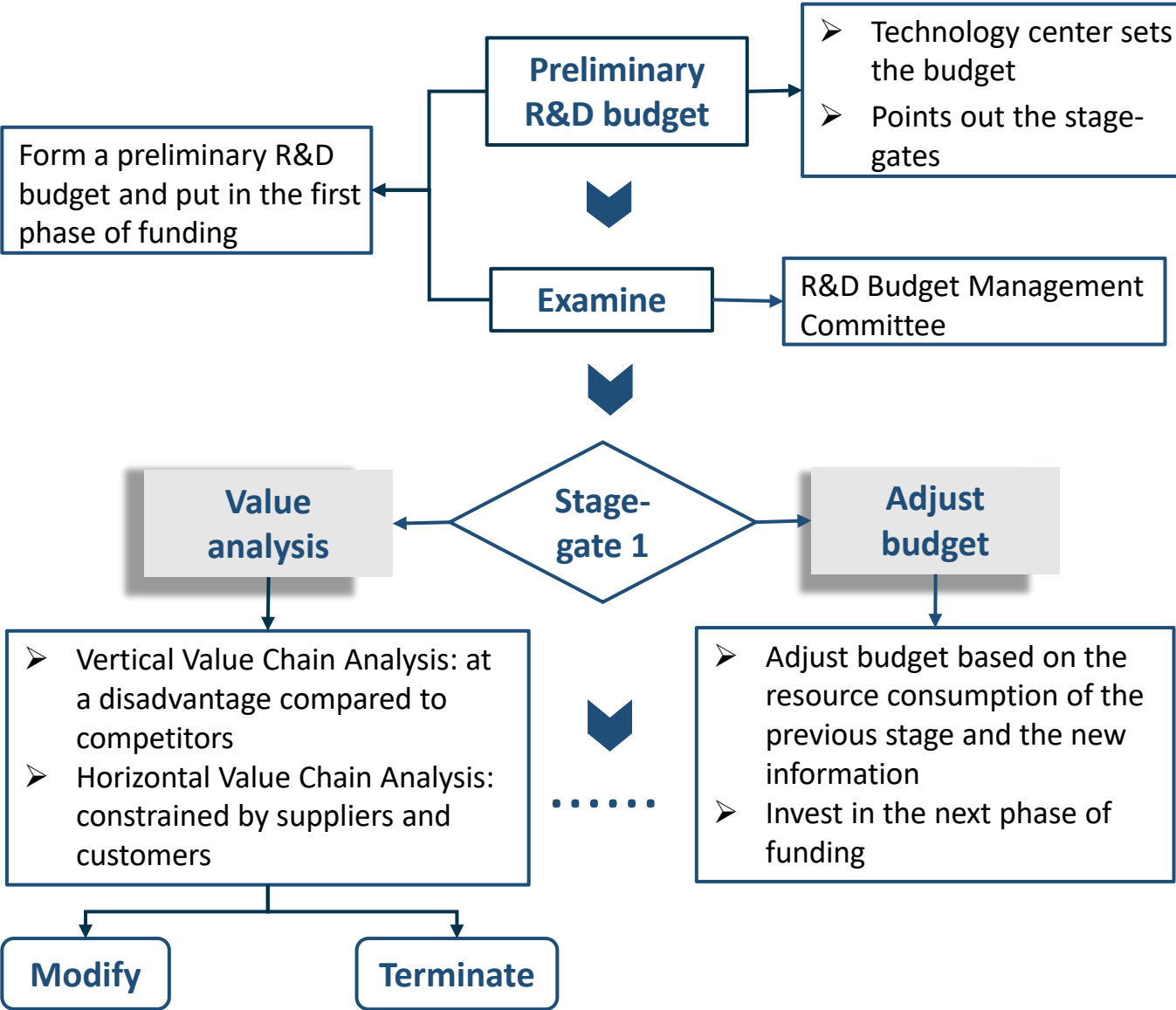
- The R&D department has already conducted a **feasibility study**.
- Conditions for research and development have been met.

HIGH

- We have **NOT** established an effective R&D budget management process.
- Effective measures should be taken to control organization related risk.

Main Risk Lies in Organization Related Risk

Management of R&D Budget >> Stage-Gate Model Based on Value Chain



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