Lecture No. 19: Production Strategy

1.What Is Production Strategy?

2. Constituent of Production Strategy

 Thoughts on Production Strategy Takahiro Fujimoto
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1.What Is Production Strategy?

Business strategy

Corporate strategy (company-wide strategy)

Business strategy (competitive strategy)

Functional strategy (production, marketing, technology, etc.)

Manufacturing strategy --- pattern of decision making with certain <u>consistency</u> regarding to production (consistency on maintenance/enhancement of competitiveness)

Hierarchy Structure of Management Strategy



2. Constituent of Production Strategy

(1) <u>Structural item (hard)</u>

Requiring large investment decision, involving determination by top management

(2) <u>Substructural item (soft)</u>

Steady buildup of small decisions Gradually formed as action pattern of all employees Investment in corporate knowledge/information asset (intangible)

Constituent of Production Strategy

decision of production capacity

factory net work/design

Structural (hard)

selection of production technology

vertical integration

personnel/labor management

purchase/supplier management

production plan/control

quality control

costing, IE, improvement

management organization

Substructural (soft)

Concept of "Strategy": Plan and Pattern

Strategy as plan (vision)

'---- strategy as "what top management says"

Strategy as pattern (action pattern) '---- including "quiet man of action"

total production system with consistency on competition--- which by itself is a "strategy as pattern".

Steps of Establishing Production Strategy



Author making (reference: 'Skinner,W.,Manufacturing : The Formidable Competitive Weapon, John Wiky & Sons') Reference: Takahiro Fujimoto 'Introduction to Production Mmanagement' Nihon Keizai Shimbun, Inc. 2001 (I p347) Structural Production Strategy (1): Decision of Production Capacity

Expansion of production capacity: 2 functions

(1) to fill product customer's demand for product
 (2) signal effect
 (superiority for first-come; believability in
 intimidation; sunk cost)

Lumpiness of capital investment

priority investment type

lagging investment type

in-balance type (application of critical

fracture)

Types of Production Capacity Expansion Strategy (demand growth period)

1. Priority investment type

- O low out-of-stock cost
- **O** quick delivery
- **O** easy share increase
- low capacity-operating rate



2. In-balance type

mid point between 1 and 3



3. Lagging investment type

- high out-of-stock cost
 prone to late delivery
 risk of share decrease
- **D** high capacity-operating rate



Structural Production Strategy (2): Factory Network Strategy

(1)Factory scale and number of factories Optimum scale of factory

economics of scale (short term, medium term, long term, dynamic)

VS.

diseconomics of scale transportation cost recruitment cost organizational regidification confusion in production risk of concentrated production



Takahiro Fujimoto 'Introduction to Production Management' Nihon Keizai Shimbun, Inc. 2001 (I p354 figure.9.6)

Economics of Scale (scale economy)

Concept of Optimum Factory Size (Sherer)



Factory Network of Press-to-Assembly System





USA I

Japan

Takahiro Fujimoto 'Introduction to Production Management' Nihon Keizai Shimbun, Inc. 2001 (I p355 figure.9.8)

Factory location research --- in parallel to new factory plan/business plan

Check points:

distribution of consumption market/material maker, local labor market

transportation method, community, utility environment, preferential measure of local government, and others

Country \rightarrow area \rightarrow local \rightarrow property

Location strategy of new factory (refer to the diagram)

Case: Local North American Factory of Japanese Automobile Maker



Takahiro Fujimoto 'Introduction to Production Management' Nihon Keizai Shimbun, Inc. 2001 (I p357 figure.9.9) Production Base of Japanese-Affiliated Auto Maker in North America (1999)



'Automobile engineering of 1999 Japan' Japan Automobile Manufacturers Association, Inc. Reference: Takahiro Fujimoto 'Introduction to Production Mmanagement' Nihon Keizai Shimbun, Inc. 2001 (I p358)

Midwest: close to center of market and parts industry pool in Detroit



West Cost: cost up due to passing over Rocky Mountains

(3) Specialization of Factory (focus)

Factory specialized by process (process focus) VS. Factory specialized by product (product focus) Factory for whole country (national plant) VS. Plural factories by local region (regional plants) Development factory (close to R&D sector, trial and initial productions)

VS.

Volume production factory (satellite factory; local expansion)

Focus (Specialized) Strategy of Factory





○生産技術の畜植が早い
○工程の重複による非効率が少ない
○規模の経済。高稼働率を維持 しやすい
○生産技術の標準化を促進
○製品別の売れ行きのばらつきを吸収
●市場、技術の変化への対応が遅い
●生産リードタイムが長い
●在庫が多い
●工場間の調整コストが高い

Takahiro Fujimoto 'Introduction to Production Management' Nihon Keizai Shimbun, Inc. 2001 (I p359 figure.9.11)

National Factory and Group of Regional Factories ^{Hayes/Wheelwright} Ch. 4

Locations of plural-factory-network are influenced by the difference in policies on the network building

Network	Strategy	Location		Advantage.	Disadvantage.
1 It surpasses it the factory unt factory in the h reaching critica Afterwards, the is built for the f (center factory	by enhancing il setting up a neartland, and al limit. second factory first time.)	The first factory is built in "Center of gravity" of the market. This is enlarged.	0 • 0	Scale econo It is possible small factor It is pre-er (If the othe place.)	omy. e to reel it to a local ry in the remote place. np as for the rival. r party is a carpenter
2 It sets up a fac another in othe regions instead the first factory (making to netv	tory one after er emphasized of enhancing y. vork)	It thinks about the effect when the factory network is completed, and the factory is distributed to various places.	•	Even power various plac The factory and time-co coordination (There is no Is the first p the other pa	is demonstrated in ses. network is complex onsuming to n. o scale advantage.) move taken away by arty?

(4) Management of Factory NetworkFlow of money

(temporary transfer, dispatch --- from Japan)
 Flow of information/technology/knowledge

 (application/adaptation; reverse transfer back to Japan?)
 Example: home country's factory and local factory --- age of mutual learning



Figure removed due to copyright restrictions

Cost vs. quality Cost vs. lead-time Cost vs. flexibility Among various cost factors (EOQ, etc.) Among various functional factors (controllability vs. ride quality, etc.)

Position of static balance \rightarrow emphasis on tradeoff

VS.

Position of dynamic improvement \rightarrow without premise of tradeoff



Takahiro Fujimoto 'Introduction to Production Management' Nihon Keizai Shimbun, Inc. 2001 (I p367 figure.9.14)

3. Thoughts on Production Strategy

Two points of view (One's superiority to another is up to an industry and times.)

(1) "Loud" view of production strategy

high-powered, active top management, significant decision making

(2) "Steady" view of production strategy

 at a glance, non-strategic action in operation level
 Meticulous buildup in long term → hardly detectable to rival

Was this a strength of Japanese companies ? (Abernathy)

A balance between these two is important.