3 Industry-Structure Analysis

◆Why is one corporation capable of achieving a higher performance than others?

1. Basic Framework of Industry-Structure Analysis

▼Porter, M. (1980). *Competitive Strategy*, Diamond, In.

1.1 Assumption for Industry-Structure Analysis

■SCP Model

"Structure" → "Conduct" → "Performance"

①Market where corporations compete (= market / industry structure)

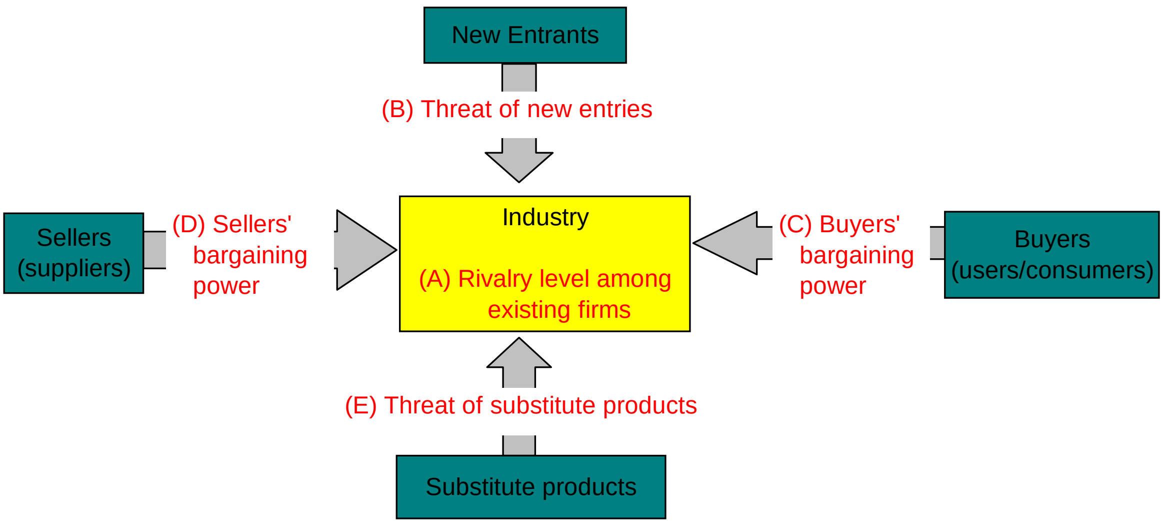
②renders influences over competitive behaviors (= corporate behaviors), and further,

③the performance of the industry as a whole (= performance of the market (corporations)) comes under the influence of the market structure and corporate behaviors .

1.2 Five Competitive Forces

1.2.1 What Five Competitive Forces Signify

■Five Competitive Forces



・Analytical framework by M. Porter (Harvard University)

・Framework to clarify whether or not certain industry is profitable (=average profitability, "industry attractiveness", high/low "profit potential")

1.2.2 Five Competitive Forces and Profit Potential

◇The stronger these competitive forces (represented in A – E) get, the lower a potential average profitability (profit potential) of an particular industry becomes.

	Competitive Forces	Profit Potential
A	Strong rivalry among firms	Low
B	Great threats of new entries	Low
C	Strong bargaining power of buyers	Low
D	Strong bargaining power of suppliers	Low
E	Great threats of substitute products	Low

2. Forces Ruling Intensity Level of Hostile Relationship among Existing Firms

◇A fierce competition among existing firms in intensely hostile relations leads this particular industry to a lowered profit.

〈Eight forces that intensify the hostile relationship among existing firms〉

(1) Many competitors, or their scale and power being at the same level
(2) Low growth rate of the industry
(3) High fixed cost, or a high inventory expense
(4) Impossible product differentiation or no switching cost incurred
(5) Little-by-little expansion of production capacity being not possible.
(6) Existence of competitors with diversified backgrounds.
(7) Industry of high strategic value
(8) High exit barrier

2.1 Competitors

Forces That Intensify Hostile Relationship (1): There are many competitors, or each one's scale and power is at the same level.

→An industry field with many competitors, or the one with a few but which is comprised of firms having the same level of scale or quality/quantity of managerial resources, is likely to tumble into a fierce competition.

◇Indexes to measure the degree of competition: (1) concentration ratio (2) Herfindahl Index

(1) Concentration Ratio:

・Concentration level of the top three firms ("Three-Firm Concentration Ratio"): Sum of the market shares of the top three firms
・This index does not consider the disparity among those top firms.

(2) Herfindahl Index

$$\text{Herfindahl Index} = \Sigma\,(\text{each firm's market share})^2$$

・Marker to indicate “competitors’ multitude” or “parity level of scale/power”
・With Herfindahl Index, even if an upper-level concentration ratio is identical, the figures show a difference in case there are disparities among these firms.

■Relationship between Herfindahl Index and Competition

・Herfindahl Index is small: “Number of competitors is large,” or “They are in the equivalent scale and power”

⇒The smaller Herfindahl Index is, the fiercer the competition is likely to be.

■Example of Herfindahl Index

(Example A)　Case of Firms in Equivalent Scale

	Market Share (%)	Market Share (decimal)	$(\text{Market Share})^2$
1st-Rank Firm	20	0.2	0.04
2nd	20	0.2	0.04
3rd	20	0.2	0.04
4th	20	0.2	0.04
5th	20	0.2	0.04
Total	100	Herfindahl Index = 0.2	

(Example B)　Case of Firms with Disparities in Scale

	Market Share (%)	Market Share (decimal)	$(\text{Market Share})^2$
1st-Rank Firm	80	0.8	0.64
2nd	10	0.1	0.01
3rd	5	0.05	0.0025
4th	3	0.03	0.0009
5th	2	0.02	0.0004
Total	100	Herfindahl Index = 0.6538	

Comparing the example A and B, though the oligopolistic five firms score 100% in the concentration ratio in both cases, the 1st-rank firm has a more monopolistic inclination in the example B than in A, showing a higher Henfindahl Index.

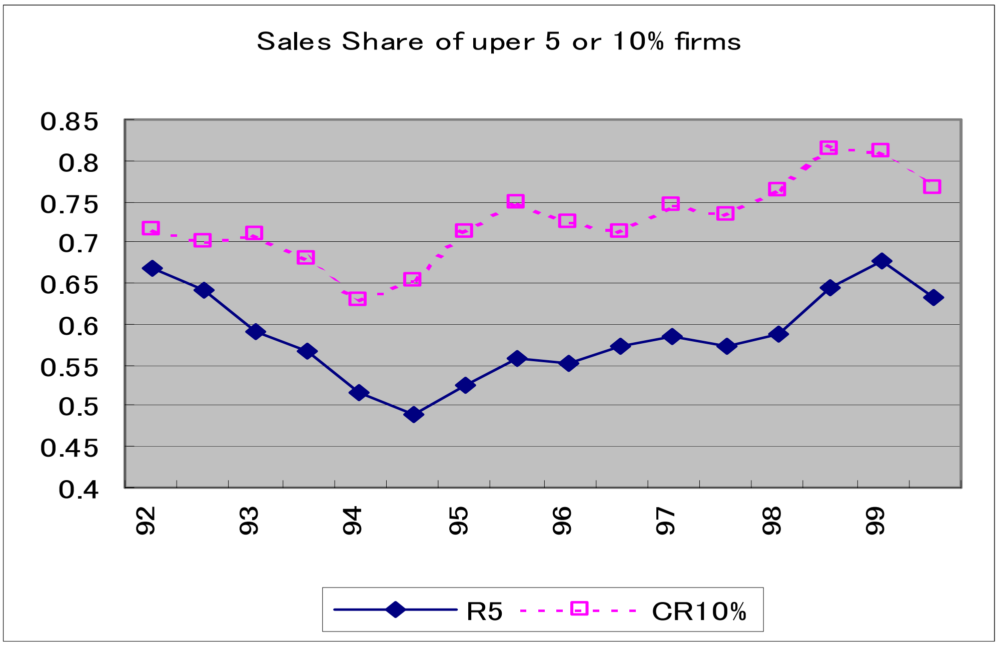
■Market Shares by Industry in 2003　(Source: *Market Share of Fiscal Yr. 2005*, *Nikkei Sangyo Shimbun*)

Passenger Car (domestic new car registration)		Two-Wheel Vehicle (domestic shipment quantity)		Beer (taxed shipment quantity)		DVD Record/Replay Machine (domestic shipment quantity)		Stepper (domestic sales turnover)	
Toyota	0.443	Honda	0.55	Asahi	0.482	Matsushita	0.415	Canon	0.6
Nissan	0.173	Yamaha	0.23	Kirin	0.315	Toshiba	0.178	Nikon	0.355
Honda	0.144	Suzuki	0.189	Sapporo	0.137	Pioneer	0.148	ASML	0.045
Mazda	0.062	Kawasaki	0.0031	Suntory	0.057	Sony	0.141		
Mitsubishi	0.037			Orion	0.009	Sharp	0.098		
Others	0.141					Others	0.02		
Total	1	Total	1	Total	1	Total	1	Total	1
H Index	0.252	H Index	0.392	H Index	0.354	H Index	0.255	H Index	0.488
Top 3 firms	0.76	Top 3 firms	0.969	Top 3 firms	0.934	Top 3 firms	0.741	Top 3 firms	1

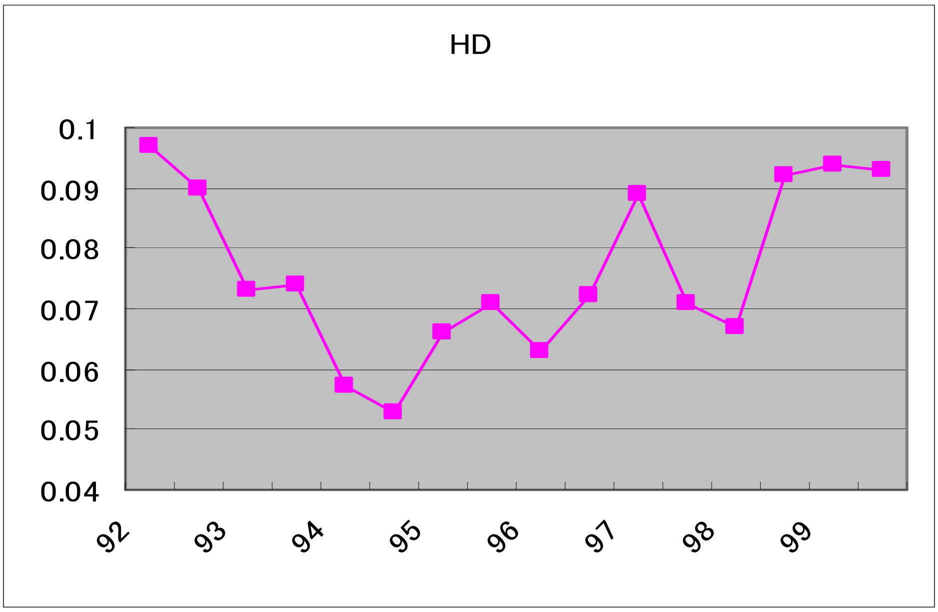
Parcel Home Delivery (No. of units handled)		Copy Machine (domestic shipment quantity)		Detergent (domestic shipment value)		Home TV Game Machine (domestic shipment quantity)		Cellular/Car Phone (cumulative contarcts)	
Yamato Transport	0.335	Canon	0.295	Kao	0.422	SCE	0.8	NTT dokomo	0.563
Sagawa Express	0.31	Richo	0.273	Lion	0.339	Nintendo	0.186	KDDI	0.208
Nippon Express	0.126	Fuji Xerox	0.197	P&G	0.228	Microsoft	0.014	Vodafone	0.184
Fukuyama Transp.	0.099	Sharp	0.116	Others	0.011			Tu-Ka	0.045
Japan Post	0.06	Konica	0.075						
Others	0.07	Others	0.044						
Total	1.000	Total	1.000	Total	1	Total	1	Total	1
H Index	0.238	H Index	0.219	H Index	0.345	H Index	0.675	H Index	0.396
Top 3 firms	0.771	Top 3 firms	0.765	Top 3 firms	0.989	Top 3 firms	1	Top 3 firms	0.955

■Industrial Example 2: Transit of Concentration Degree of Home-TV-Game-Software Sales

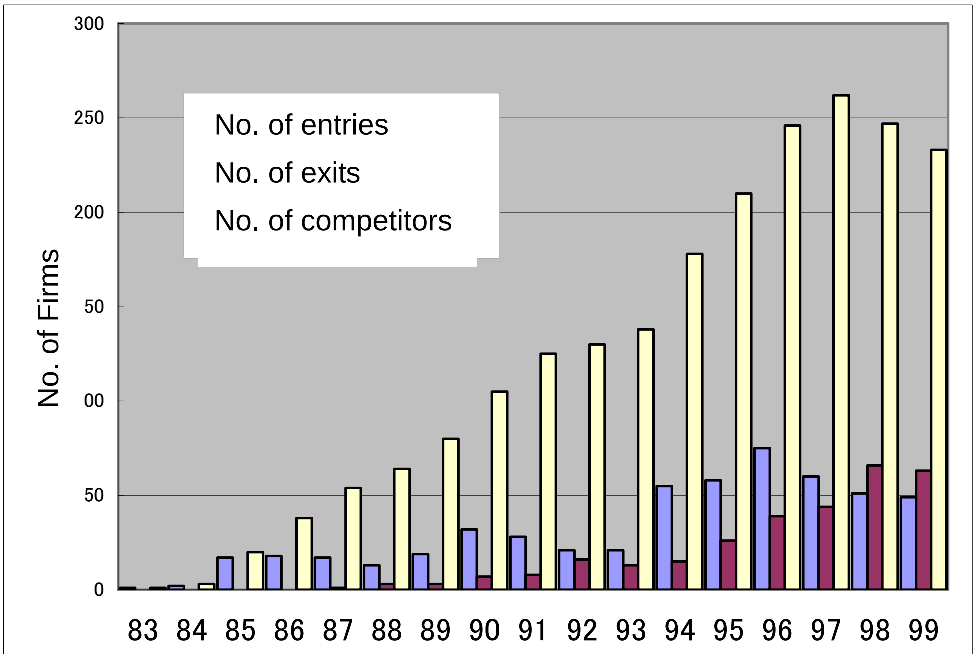
(A) Concentration Ratio on Upper 5 in Sales, or Upper 10-Percent-Share Firms



(B) Herfindahl Index



(C) Entry/Exit of Firms in Game Software Industry



Note: The study covered 17 models of game machines, except for firms which did not introduce any for 2 years of 1998 and '99 that were judged exited.

Data: Drawn from Ambit, *Kogien, 2000 spring ed*., Mainichi Communications

2.2 Industry's Growth Rate

Forces That Intensify Hostile Relationship (2): Industry's growth rate is Low.

◇If the industry as a whole is growing (= high growth rate), one can increase its sales without taking competitors' customers (= moderate competition).

⇔ With a low growth rate, it's a scramble for a slice of pie.

2.3 Fixed Cost/Inventory Cost

Forces That Intensify Hostile Relationship (3): High fixed cost or inventory expense

(1) Fixed Cost

◇Industry which requires massive production facilities

・Corporations want to make an efficient use of their facilities.

→For that purpose, even with a little price discount, they operate at full capacity.

→This results in a fierce price competition.

Examples: steel industry, semiconductor memory industry

(2)Inventory Expense

◇Industry handling products that depreciate in value over time

・As time goes by with holding an inventory, its future commodity value vanishes away.

→Firms try to sell such products even with a big discount.

→Competition grows severe.

Examples: perishable goods' industry, highly fashionable clothing items

2.4 Difficulty in Differentiation

Forces That Intensity Hostile Relationship (4): Product differentiation is not effective, or there is no switching cost to incur.

(1)Differentiation

◇In an industry in which customers consider that there is not much difference in whichever firm's product they purchase, the price competition becomes intensive.

Examples: cement, gold (99.9%), chemical products (bulk category)

(⇔ Products with difference in "brand" such as automobiles)

(2)Switching Cost

◇When it costs little (money, time, etc.) for customers to switch from a brand (product) with which they have familiarized heretofore to another one (product), the price competition becomes furious.

◇Case where the switching cost is "high":

・Customers dislike cost associated with a brand changeover, thus little interest in the switch.

→Long-term purchase of the same brand

Examples: MacOS → Microsoft Windows

Cellular phone; cost to change the phone number (number portability)

◇Case where the switching cost is low:

・Customers rescreen paying attention to prices of products every time they buy replacements.

→Severe price competition

Example: Coca-Cola → Pepsi Cola

2.5 Expansion Unit for Production Capacity

Forces That Intensity Hostile Relationship (5): Production capacity cannot be enlarged by little and little.

◇Upon building an additional production facility in response to an increased demand, there is its minimalist scale (basic unit).

・A “minimalist scale” differs by industry.

◇In case a minimalist scale is large (= no little-by-little expansion), there occurs an “excessive supply capacity” with branching out. (Example: Case of 100 units and 250 units)

→A supply-demand balance becomes disrupted, and a severe competition is likely to happen.

2.6 Character of Competitors

Forces That Intensity Hostile Relationship (6): There are competitors possessing diversified backgrounds.

■Examples: Digital camera industry—Background and share of top-ranking firms

Yr. 1998

Corporation	Background	1998 Market Share (%)
Fuji Photo Film	(photo film)	23.5
Olympus Optical	(camera)	20
Casio Computer	(calculator/watch)	12.8
Seiko Epson	(timepiece/ electronic parts)	10.7
Kodak	(photo film)	10
Others		23
Total		100

Yr. 2003

Corporation	Background	1998 Market Share (%)
Canon	(camera)	16.6
Fuji Photo Film	(photo film)	15
Sony	(AV)	14.6
Casio Computer	(calculator/watch)	13
Olympus Optical	(camera)	12
Others		28.8
Total		100

(Source: *Market Share in Fiscal Yr. 2005, Nikkei Sangyo Shimbun*)

◇In case competitors' core businesses or national origins are different, the competition tends to become intense.

(For, due to the difference in each other's thought, one can hardly predict another's behavior.)

→New industry composed of players with different backgrounds: Most likely to incur bleeding competitions.

2.7 Potential

Forces That Intensity Hostile Relationship (7): The industry has a high strategic value.

◇No competitors withdraw themselves from an industry which they believe to be strategically valuable even if they keep on facing deficits.

→Likely to run into a fierce competition

Example: car battery industry

2.8 Exit Barrier

Forces That Intensity Hostile Relationship (8): High exit barrier

◇Exit barrier: Cost a firm incurs by withdrawing from certain industry

-Specialized facilities: Hard to convert, hard to sell (Example: steel maker's blast furnace)

-Repair parts: Responsibility for own firm's products already sold

-Others

◇In the face of a high exit barrier, the firm tries to stay in that industry, though not much profitable.

→Acute competition possibly to last for a long time

3. Threats of New Entries

◇With a "new entry", the competition intensifies and the industry's profit potential decreases.

◇Without an actual entry, a "high possibility of an entry" alone brings down the profit potential.

For, an existing firm, in order not to let a new entry happen:

-cannot set high prices,

-makes an excessive investment in its brand development, etc.

〈Conditions to let firms outside the industry hold back their entries〉

(1)Structural conditions to make entering firms incur costs (=entry barrier)

(2)Intensity of a counterattack expected to receive from existing firms

3.1 Entry Barrier—Forces Influencing "Threats of New Entries" (1)

■Six Forces to Heighten Entry Barrier

(1)To benefit from economy of scale

◇Economy of scale

・Effect that the larger a production volume (within certain period) becomes, the less the cost per product gets (Same effect applicable to R&D, selling)

◇In an industry in which the economy of scale works, an entrant has to participate with a large scale from the start.

→In this type of industry, a new entry is most likely to be discouraged.

(2)Disadvantage in cost not related to scale

◇Economic effect

・Effect with respect to the cost per unit which goes down at certain rate in proportion to an increase in the cumulative production quantity

●Industries to benefit from economic effect

・"Existing firms": Able to produce cheaper than firms newly entering

・" Firms newly entering": Required to accumulate a long period of experience in production so as to catch up with existing firms

→This sort of industry has a high possibility to discourage a new entry.

◇Others: site location, patent, governmental subsidy, etc.

(3)To require a large-scale operating capital

◇Assumed situational examples (differences from Forces (1) and (2) in the above)

・Industries in which leases or installment payments are customary

-Need for a large amount of operating capital (cash)

-Need for establishing a financial service firm in some instances

→Substantial amount of capital is necessary for entering this kind of industry, hence a limitation on new entrants.

Example: Xerox's leasing business of copy machines

(4)Difficult accessibility to distribution channel

◇Distribution channel

・Space for selling in retail stores (shelf space)

・Sales agencies, etc.

◇If the distribution channel is contained by existing firms, an entry is difficult.

-Case of Tostem

-Ethical pharmaceuticals

(5)High degree of product differentiation

◇If an existing firm has succeeded in differentiating its products, and customers' brand loyalty has been established, then, it is difficult for a new entrant to take these customers away.

(6)Protected by the government measures/law

◇It is difficult to enter into an industry under legal restrictions.

-Home delivery business of Yamato Transport: Transport business license for trucks on regular routes

-Pharmaceutical industry: Application for approval, GMP, GCP, sales restriction

3.2 Expected Intensity of Counterattack—Forces Influencing "Threats of New Entries" (2)

◇When intense counterattacks from exiting firms are expected, it is highly probable for a new firm to stop short of making an entry.

■Three factors to indicate strength of counterattack

(1)Precedent to show that an existing firm has made a crushing counterattack in the past

(2)Abundant managerial resources of existing firms

(3)Low growth rate of the industry

4. Buyer's Bargaining Power

◇Firm P and its buyer firm are in a relationship to scramble for profit

・Buyer: Wanting to get hold of good products/services at lowest possible prices

・Firm P: Wishing to sell at highest possible prices

■Forces influencing "bargaining power" of buyer

(1)Strength of the buyer's power to press his demand to Firm P (=buyer's power)

(2)Strength of the buyer's wish to cut down his purchasing price (=price sensitivity)

4.1 Forces That Strengthen Buyer's Power

(1)<u>Concentration level of the buying group is high, or the buyer's purchase quantity occupies a large share of the seller's (Firm P's) amount of sales.</u>

◆Concentration level of the buying group is high:

・Number of buyers is small, or one firm among buyers is enormously large.

・Herfindahl Index (= Σ (each firm's market share) ^{2}) is high.

◆Buyer's purchase quantity occupies a large share of the seller's amount of sales:

・Example of a concentration ratio of business partners (See the table below)

A's bargaining power with X: Large

A's bargaining power with Y: Small

■Example of Concentration Ratio of Business Partners

		Sellers Side	
Buyers Side		Firm X (ratio of sales)	Firm Y (ratio of sales)
	Partner A	75%	35%
	B	12	30
	C	11	20
	D	2	15
	Total	100	100

(2)Products are standardized and not differentiated. And it takes no switching cost.

◇When a buyer can procure products of the same specs and similar quality from any suppliers, he can choose a variety of suppliers.

◇Furthermore, if there is no switching cost involved, he can freely change partners.

⇒A buyer has a strong bargaining power toward sellers.

Example: Hard disc drive

(3)There is a possibility of an "upstream ruling" by the buyer.

◇Case where the buyer hints that he will stop purchasing from the seller and that he will begin to produce on its own.

→Threat to the seller (= Buyer's bargaining power increases.)

◇But an all-out in-house procurement won't be necessary. (Even a partial switch would largely enhance the bargaining power.)

-Proof of capability to self-manufacture

-Acquisition of the ability to predict manufacturing cost of the seller (Example: Automobile industry)

(⇒"information" as a source of the bargaining power)

(4)Wholesalers and retailers who are buyers can control users' decision-making.

◇Case where "retailers" can exert significant influence over which brand users (ultimate customers) purchase

→Buyers (retailers) have a larger bargaining power than makers (sellers).

Example: Large-scale mass retailers of home electronics

◇Case where "wholesalers" can exercise a decisive impact on products displayed in retailers,

and further, customers have a strong tendency to purchase those displayed there
→Buyers (wholesalers) have a larger bargaining power than makers (sellers).
Example: Water in PET bottles and ice

4.2 Forces That Enhance Buyer's Price Sensitivity

(1) Price of the seller's product occupies a large portion of the buyer's .product cost.

(2)Buyer's profit level is low.
◇Unprofitable firms are desperate to bring down costs.

(3)Product the seller supplies does not render any important distinction to the quality of the buyer's product.
◇With respect to such a key device as one that makes critical difference to the quality of the buyer's end product, the buyer can hardly demand for a price discount in fear of the quality deterioration.

5. Seller's Bargaining Power

◇It is suffice to assume the "inversion" of Buyer's Bargaining Power.

6. Threat of Substitute Product

◇Substitute product: other product (service) which is capable to carry out the same "function" as the relevant product (service) does
◇"What is a substitute product?", is difficult to nail down.
・What is a substitute for (competitor to) the cellular phone?
・What is a substitute for (competitor to) a department store in a city center?

■Substitute to bear watching
(1)Substitute products of which cost-performance ratio is improving rapidly
・Profit potential of an industry facing such substitutes declines fast.

(2)Case where an industry of substitute products is making a big profit
・It is possible for firms in a highly profitable industry to cut down prices drastically.
→This industry's profit potential drops away significantly.

7. Points for Analyzing Industry Structure

(1)Industry structure keeps on changing.
◇While Porter's industry structure analysis is an effective method to analyze a static structure at certain point in time, it must be remembered that an industrial structure is a dynamic being which

always continues to change.

・Changes due to outside forces

・Transformation owing to the firm's voluntary approach

(2)Upon appraising, there should be no adding of plural competitive forces.

◇Regarding competitive forces, there is little significance in doing addition of number of forces to affect "positively" and "negatively" onto the profit potential

→There are cases of some instances when certain forces work in the extreme, other forces' influences are relatively small.

◇Each force ought to be adamantly used as a check list. (Judgmental reference point or ingredient)

◇Each force should be weighed as appropriate so as to make a "comprehensive" judgment.

(3)How to define an "industry"?

◇"Definition of an industry" is necessary in order to use the framework of the industrial analysis.

・Who are sellers? Who are buyers? Who are competitive firms? Where is an industry's boundary?

・Depending on definitions, results of analyses are completely different. (Example: "Camera" and "digital camera")

◇In formulating a strategy, to define an industry for an analysis has become ever more difficult.

(4)Utilization method of the industry analysis

◇Application of the industrial analysis is not limited to merely choosing a profitable industry.

・It shows where to manipulate in order to become profitable.

・It can be used to shed light on points for exercising one's ingenuity.

■