



2005 Porter Prize Winners

● **Single Business Category Winners**

Taiyo Yakuhin Co., Ltd. (Pharmaceutical Manufacturing - Generics)

BANDAI Co., Ltd. (Toys and Games Manufacturing)

● **Division of Multiple-Business Company Category Winners**

Education Business Group, Benesse Corporation (Education)

Engine Measuring Instruments and Systems Division, HORIBA, Ltd.
(Measuring and Analyzing Equipment)

Selection Criteria

The essence of strategy is to do things differently from others. Based on this premise, the Porter Prize recognizes those companies and business units that have chosen to compete in a distinctive way in a particular industry by delivering a unique value proposition, based on innovations in products, processes, and ways of management.

First-stage Selection Criteria

- (1) Superior sustainable profitability within the industry
- (2) Unique/different value proposition
- (3) Strategic continuity over time
- (4) Innovations that enable the strategy

Second-stage Selection Criteria

- (5) Utilization of capital analysis
- (6) Distinctive value chain
- (7) Trade-offs
- (8) Fit across activities

(Note: In the analysis of capital utilization, the key focus will be ROIC (Return on Invested Capital) and ROS (Return on Sales). The following report of the winners includes a comparison of these figures with the industry averages. A positive figure exceeding the industry average indicates the capital utilization of a company or business is better than the industry average. The five-year average for a particular company has been calculated by totaling the numerators for each year, and dividing this figure by the aggregate total of denominators for the same five years. Please note that the derived five-year average is not equal to taking a simple average of the ratios for the five years. The data that is used in calculating the industry average was obtained by carefully selecting companies that allow for a true comparison among those classified as being in the same industry. (The Porter Prize Organizing Committee is grateful to KPMG for its support in providing data and carrying out the analysis for capital utilization during the second-stage selection process.)



Selection Rationale (Recipients are addressed in no particular order):

Taiyo Yakuhin Co., Ltd.

Specialization in generic pharmaceuticals, and building a unique business system to provide a broad range of products at low prices.

In the US, UK and Germany, considered to be advanced countries in medical treatment, generic pharmaceuticals exceed 50% of the total pharmaceutical consumption volume in each country. The generic drug market in Japan is expected to grow, reflecting the increasing need to reduce the cost borne by patients as well as the nation's medical spending, but generics account for only 16% of the total pharmaceutical market in Japan. In terms of growth rate, the total pharmaceutical market is still experiencing double-digit growth while the generic drug market grows at only 2% per annum.

Taiyo Pharmaceutical Industry is the leader in sales among Japan's top three generic drug companies. However, its profitability far exceeds that of competitors.

Unique Value Proposition

The main target customers of Taiyo Pharmaceutical Industry are medical practitioners and small- to medium-sized hospitals. Many of Taiyo's sales agents are relatively small pharmaceutical wholesalers who are strong in covering Taiyo's target customer segments. Independent practitioners and small hospitals tend to develop close personal relationships with wholesalers and maintain those relationships once established. As a result of these close structural ties, customers more readily accept the benefits of generic drugs, especially appreciating the reduction of cost to patients.

The value offered by Taiyo's generic drugs is multi-faceted including low price, ease of handling and administering for medical staff, ease in use and swallowing for patients, access to well-organized relevant medical information, and stable supply.

Prices of generic drugs are generally set at 30% lower than their original drugs based on the charges allowed by the national healthcare insurance reimbursement table. This reflects the fact that generic drugs require much less R&D cost than new drug development. Low price means lower payment by patients (this benefit is especially significant for patients with chronic disease) and also means lower expenditure for the national healthcare budget. However, in order to support the low price and make it financially viable, generic drug manufacturers must run a low-cost operation. Taiyo Pharmaceutical established a low-cost business structure including medical information provision that does not depend on a large number of Medical Representatives (MRs) but leverages high utilization rate of manufacturing facilities and highly focused R&D activities. Thus, Taiyo achieves high profitability despite the low prices set for its products.

The next stumbling block to overcome is ease of handling and taking the medicines. Generic drugs become available 15 to 20 years after the date of new drug approval for the original drugs, and as a result when putting a generic drug on the market, there is room for improvement in the areas of handling and taking the medicine. For example, a pre-filled syringe, that is a syringe



filled with drug solution at the factory, reduces extra steps taken by medical staff in a hospital and improves operational efficiency, and at the same time, the risk of medical malpractice can be reduced as accidents tend to occur by the loss of drug identification when a drug solution is sucked into a syringe in a hospital. Furthermore, in order for the patients to take medicine more easily, pills can be made smaller in size so that they are easy to swallow, or granulated powder medicine can be changed into syrup. Taiyo owns a technology to produce pills that quickly dissolve in the mouth even when taken without water, and it also excels in highly sophisticated production technology for pre-filled syringes.

Taiyo Pharmaceutical has also been successful in removing the fear and anxiety hospitals and medical doctors experience with regard to generic drugs. Research indicates that the major sources of concern regarding generic drug manufacturers generally held by hospitals and doctors are lack of information provided, lack of after sale services including side-effects information, lack of stable supply as a result of not keeping sufficient stock, and lower level of quality. Taiyo succeeded in resolving these issues in its own unique ways.

Unique Value Chain

Research and Development: Taiyo focuses its R&D in the areas of drug product technology and manufacturing technology. For example, in terms of the number of patents applications regarding pills that dissolve in the mouth within one minute even without drinking water, Taiyo ranks fourth after three major pharmaceutical companies (Takeda, Astellas, and Eisai). Taiyo's high level of drug production technology is widely recognized, and Taiyo is often asked to be involved in product development from the early stage of drug product designing by other pharmaceutical companies that plan to outsource manufacturing.

In 2002, Taiyo relocated its research laboratory from the suburbs of Nagoya to the center of the city where access by public transportation is much more convenient. This relocation made it easier for their research staff to commute to the laboratory, and Taiyo became able to hire female laboratory technicians as part-time staff who had been staying at home as housewives, further enabling low-cost drug development.

Product Development and Government Approval Applications: Taiyo has mastered the drug application process and has received the largest number of government approvals a year in the industry since 1996. As a result, Taiyo had 458 drug items approved from their own applications, the largest number in the generic drug industry, which greatly contributes to their broad product offering.

Manufacturing: In the generic drug industry, one of the key factors for success is to reduce manufacturing cost. As Taiyo has pursued a differentiation strategy to become a one-stop shopping site for customers by offering a broad product range, its production facilities have grown to encompass various processes and equipment as the number of its approved drugs has grown. In 1993, Taiyo began building factories to satisfy the FDA's newly established Good Manufacturing Practice (GMP) regulations and has continued to invest in expansion and improvement of manufacturing facilities over the past 12 years in order to ensure sufficient production capacity and high production quality.

Taiyo carries out various activities to reduce its manufacturing cost. First of all, it determines



items and volume to be produced based on aggregated data obtained from its sales agents about actual end user purchases. Since this data is more precise in capturing actual usage than information about Taiyo's sales to its sales agents, Taiyo can avoid accumulation of unnecessary inventory. Furthermore, based on this sales data to final users, Taiyo manufactures the anticipated sales volume for a year in a single production run (as opposed to small-lot production practiced by many other generic drug manufacturers to reduce inventory cost). Although Taiyo's approach increases inventory carrying cost, it reduces total production cost and purchasing cost due to economies of scale. This approach also reduces risk of short supply, fulfilling the manufacturer's responsibility for reliable, stable product supply. Furthermore, continuous manufacturing of tablets in the same size or ampoules with the same solution volume reduces the down time for readjustment and realignment of production lines, which results in better production efficiency. In addition, Taiyo introduced the isolator system which maintains clean air in the production line by glass covers that encase only the manufacturing equipment, rather than the clean room arrangement that requires the whole production room to be isolated. As a result, running cost of the facilities as well as the burden on production staff to wear cumbersome special clean room suits is reduced. Taiyo is the largest user of such isolator systems in Japan.

Because of the smaller market size of generic drugs (about 16% of the total pharmaceutical market in Japan), utilization rate of the production capacity can become an issue. Taiyo solves this issue by performing consignment production for other pharmaceutical companies. It started consignment production as early as 1998, when "outsourcing" was unheard of in the pharmaceutical industry. Taiyo could embark on consignment production mainly because of its highly developed production technology which was well recognized in the industry. Taiyo is strong in various drug production methods that require state-of-the-art technology, including drugs produced by the freeze-dry process and drugs produced in the forms of injection solution, kit aerosol delivery system, and pre-filled syringes. Taiyo's production technology has been honed by consignment production, and its production capacity for pre-filled syringes is the third largest among all pharmaceutical companies in Japan and the largest among generic drug manufacturers.

Marketing and Technical Support: Taiyo Pharmaceutical emphasizes efficient provision of information to doctors and patients but does not have as many MRs as original drug manufacturers. It discloses thorough and detailed information online through its website, supplemented by its medical information call center. As a result, Taiyo needs fewer than 40 MRs to cover all of Japan.

Sales: In the generic drug industry, direct purchase and immediate one-time payment by sales agents is a common practice, but many of the independent sales agents that deal with generic drugs are relatively small (as larger wholesalers are reluctant to deal with generics because of the thinner profit margin associated with generics) and sometimes do not have the financial resources to bear inventory carrying costs.

Most of the sales agents that have distribution contracts with Taiyo Pharmaceutical are also small, with the number of employees between 3 and 60. Similar to what was traditionally done by the "door-to-door medicine vendors of Toyama" where a household was visited periodically by a vendor and given a stock of medicine for which they paid only for drugs consumed



between visits, Taiyo delivers drugs to its sales agents in the volume for the anticipated sales for the coming month based on past sales data, but Taiyo does not bill the agents until they actually sell the inventory to hospitals and doctors. Taiyo has applied for a business model patent for this system which is called the pay-for-sale “inventory guaranty system.” With this system to alleviate financial burden on sales agents, Taiyo has been able to establish a nationwide distribution network of 200 contracted sales agents. This network is solid with little possibility of any of the agents going out of business.

Because they incur no inventory carrying cost and can offer end users Taiyo’s broad product line, most of the sales agents in the network sell only Taiyo’s generic products. As a result, no internal competition with other generic drug manufacturers exists in Taiyo’s distribution network.

As for other types of support to the sales agents, Taiyo provides up-to-date information on-line regarding broad topics of medicine, Taiyo’s products, and healthcare administration, and also provides staff training programs for employees of sales agents.

Shipment and Logistics: Since Taiyo keeps the ownership of the drug inventory held on consignment by the sales agents without charging any fees, it can freely replenish the inventory. As a result, there is no need for cumbersome order placement and processing tasks. By the same token, frequency of inventory replenishing can be reduced to once or twice a month, which leads to a saving and reduction in both manpower and transportation cost.

After Sales Services: Sales data Taiyo collects from its sales agents includes detailed information such as how many of each item was sold to which hospital or drug store. Should an event of unanticipated side effects occur, Taiyo can directly contact the final user immediately without depending on sales agents. (Although this is a responsibility of the pharmaceutical company required by law, it remains a source of uneasiness and anxiety for final users.)

Fit Across Activities

In the generic drug industry, it is important to build a low-cost business structure, but that alone is not enough. Taiyo is successful in overcoming the stumbling blocks in shifting customers from selling original brand drugs to generics by achieving stable supply and offering sufficient information and reliable high quality, all of which are also delivered at low cost.

Taking manufacturing cost reduction as an example, two approaches contribute significantly: Taiyo produces a drug in the volume anticipated to be sold in a year with a single run of the production line, and Taiyo accepts consignment manufacturing orders from other pharmaceutical companies to improve the utilization rate of its manufacturing facilities. The large production runs of the anticipated demand for a year, together with the 1-2 month inventory supply placed with sales agents, also help remove any concerns and uneasiness about possible shortage in supply.

Stock keeping at sales agents is possible because no inventory carrying cost is borne by sales agents but is instead absorbed by Taiyo. This not only contributes to stable supply but also to cost reduction in inventory management and elimination of order processing by Taiyo.

With regard to information supply, Taiyo provides a great deal of information for medical professionals on the Internet which enables dissemination of knowledge at low cost without employing a large number of MRs. Taiyo gains detailed sales information including what drug was sold to which hospitals and doctors as part of its inventory management data, which enables Taiyo to track the users of a particular drug and to directly send alerts and communicate with them in case of newly-found side effects.

As for the last item, quality, Taiyo possesses technologies for difficult pharmaceutical manufacturing processes such as injection solution. Taiyo also actively invests in manufacturing facilities that meet global standards in order to improve manufacturing quality as well as to attract production consignment outsourced by other pharmaceutical companies, which leads to a high rate of manufacturing capacity utilization and low manufacturing cost.

Taiyo's R&D investment is focused on seeking the best tablet design and size for both easy swallowing and handling which helps to enhance their product features and promote acceptance of the shift to generic drugs. This is in line with customer needs in the Japanese generic drug market which is still in the groundbreaking stage. (Please refer to "Activity System Map" attached for more detailed accounts of relationship among these activities.)

Innovations that enable the strategy

- In order to appoint financially weak small to medium drug wholesalers as Taiyo's sales agents, it arranged a system of not billing for the delivered drugs until they are sold to hospitals and pharmacists (pay-for-sale "inventory guaranty system").
- Taiyo produces total anticipated sales volume for the year in one batch, and sequentially produces tablets of the similar form and size for maximum production efficiency.

Continuity of Strategy

Taiyo Pharmaceutical was founded in 1949 as an ethical drug manufacturer to sell powder drugs to pharmacists. In 1961, however, with the introduction of the national healthcare insurance system for the whole population in Japan, sales of ethical drugs shifted from pharmacists to medical institutions. In coping with this change, Taiyo tried to develop new drugs, with some successes, but the company could not expand their sales because of their weak distribution network. Then Taiyo's management made a decision to pursue a strategy to specialize in generic drugs, judging that it took too long for new drug development to recover invested capital. Despite failing in its strategy to become a new drug manufacturer, in trying to develop new drugs Taiyo had built a strong research capability (research scientists were 40% of their total employees) and had accumulated drug manufacturing technology and know-how in the clinical testing process.

In 1993, Taiyo made clear its strategy of specializing in generic drugs. Various capabilities the company had developed and enhanced through new drug development were also important in obtaining government approval for generic drugs. Leveraging these accumulated capabilities, Taiyo has been able to keep the top position in number of approved drugs for a period of close to a decade from 1996 through mid-2005.

After its decision to specialize in generic drugs, Taiyo focused on developing capability for



efficient manufacturing at low cost, building its distribution network and creating an excellent system for information provision. For example, in the area of information provision, Taiyo was the first generic drug manufacturer to provide a portable computer to every MR, enabling them to visit sales agents or hospitals late in the day and go home from there after work without returning to the office to file reports. In 1993, Taiyo further moved ahead and closed down and sold off seven sales offices located in major cities all over Japan, shifting to a SOHO system where MRs were able to work out of their homes instead of commuting to sales offices. Supported by this system, Taiyo currently covers all of Japan with only 40 MRs.

Trade-offs

- Taiyo does not carry out traditional methods of information provision and sales promotion activities that require many MRs.
- Taiyo does not develop new drugs but concentrates their R&D on designing tablets for ease of swallowing and handling.
- In 2002, Taiyo closed its central research laboratory in the suburbs of Nagoya and relocated it to center of the city. This move was to attract and hire female research staff as part-time employees by offering easier access and commuting.

Profitability

Taiyo Pharmaceutical has consistently achieved a higher return on invested capital and return on sales than the mean in the generic drug industry.

Return on Invested Capital (ROIC): Taiyo Yakuhin Co., Ltd.

(Unit: Percentage points)

5-Yr. Avg. Margin Above Industry 13%	Annual Margin Above Industry				
	2000	2001	2002	2003	2004
	-1%	5.4%	14.2%	29.8%	8.3%

(Note: Return on Invested Capital = Operating Profit / (Shareholders Equity + Long-term Debt + Short-term Debt – Cash on hand))

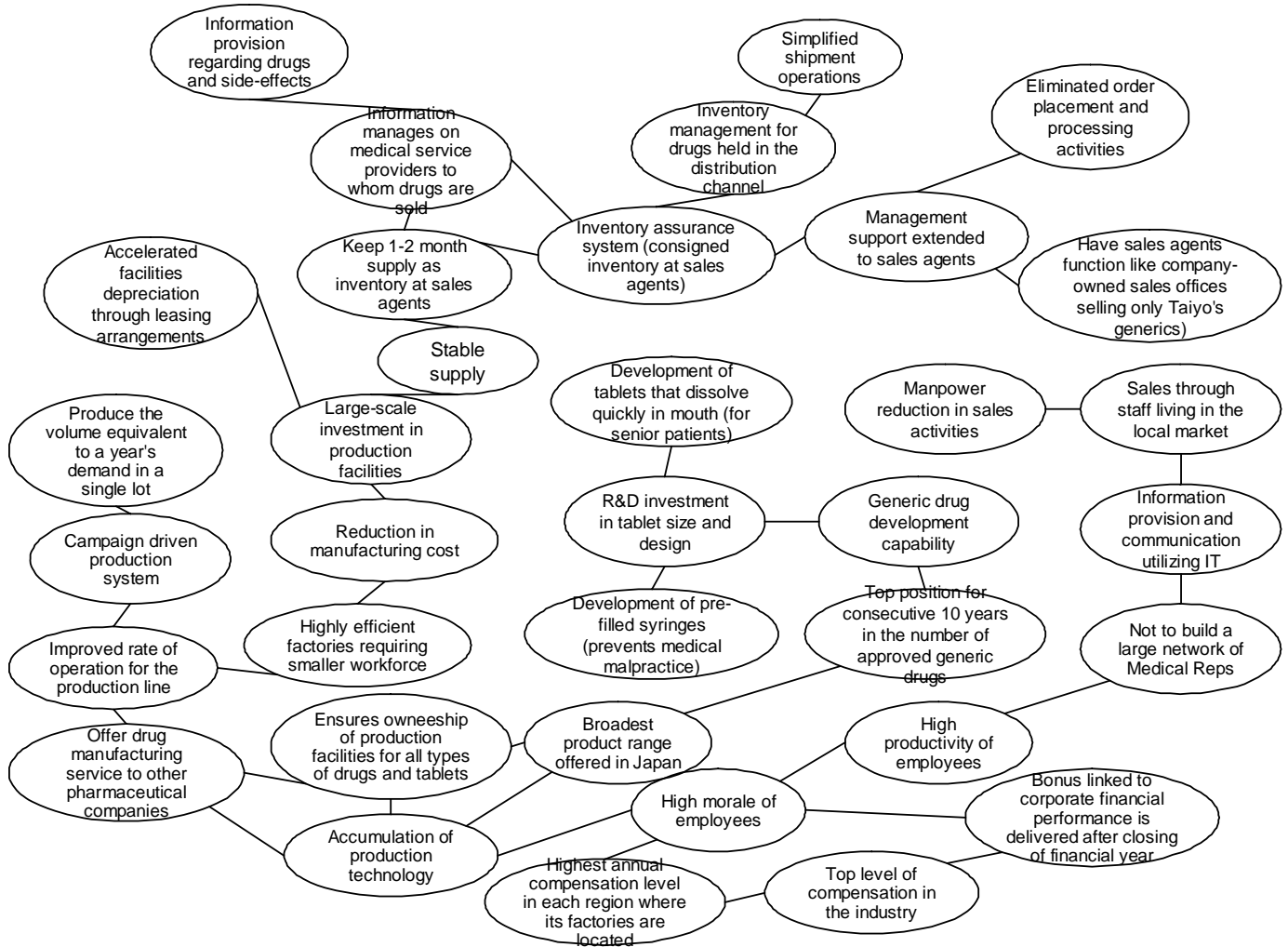
Return on Sales (ROS)

(Unit: Percentage points)

5-Yr. Avg. Margin Above Industry 16.5%	Annual Margin Above Industry				
	2000	2001	2002	2003	2004
	13.9%	13.2%	17.2%	19.4%	15.6%

(Note: Return on Sales = Operating Profit/Sales Revenue)

Activity System Map --- Taiyo Yakuhin Co., Ltd.





Selection Rationale (Recipients are addressed in no particular order):

BANDAI Co., Ltd.

Creation of a unique positioning as “character merchandiser” that perfectly synchronizes with TV programs, and achieving stable profit in the highly volatile character business.

The toy manufacturing industry in Japan faces the dual problems of declining market size and pressure on profit margin due to the decline in population of children and the increasingly strong bargaining power of major toy retailers. Despite this adverse business environment, the character-related business can generate large sales as much as 10 billion yen for a big-hit character. This business, however, can see both sudden drops as well as very rapid growth in sales, and it is important to have the capability to respond to such changes quickly by constantly creating a flow of new characters that will become “hits”. As a result, it is extremely difficult to achieve stable financial results, and many of the toy manufacturers that went into the character business are plagued by big volatility in earnings.

Popular characters that Bandai has marketed include *Gundam*, *Kamen Rider*, *Ultra-Man*, *Go-Rangers*, *Power Rangers*, *Digimon*, *Dragon Ball*, *Sailor Moon*, and *Tamagotchi*, among others.

According to a recent announcement, Bandai will be merged with video game company NAMCO at the end of September 2005 to become a majority-owned subsidiary of a newly merged holding company, NAMCO Bandai Holdings, and the businesses of the two companies will be integrated and reorganized in the near future. As the application to the Porter Prize by Bandai was made prior to this development, our analysis includes the financials for 2000 to 2004 that predates the merger, and Bandai is classified as a “single-business company”.

Unique Value Proposition

Bandai’s main business is merchandising and marketing of character goods, which accounts for 73.6% of its consolidated sales. Character goods are marketed in a wide variety of forms including toys, figurine solid models and small encapsulated figurines to be sold through vending machines or packaged with snack foods, video games, apparel and broad array of personal care products. Bandai holds a big market share of these product categories as proven in 2004 statistics: 88% of character model market (46% of the total model market), 65% of the capsule-toy dispenser market, 35% of card game market, 36.4% of toys packaged with snack foods, and 65% of children’s character apparel market. Half of Bandai’s sales come from so-called “standard” characters that have established popularity and have been supported by fans over the years with a series of renewed models and stories. Because of this stable source of earnings, Bandai can actively invest in new characters where there are many uncertainties.

Bandai’s target customers are children, their parents, and avid collectors in their 20’s through 30’s. Bandai provides customers with a worldview represented by characters portrayed through various products, and the company constantly tries to enhance the consistency of the world of

the character. Through this activity, Bandai fulfills the wish of children “to be always with their favorite character”, while providing their parents with value by allowing them to share the same view of the world with their children. Bandai working together with production companies develops stories and produces TV programs that have become long series of stories such as Ultra Man, Kamen Rider, Gundam and others that are renewed annually. Many such series have a history of close to 30 years, and young parents can now enjoy the same favorite character they loved as children together with their own children.

Character merchandise possesses a value-added ingrained in the products as a worldview and story and thus has the advantage of being less prone to price competition.

Unique Value Chain

Acquisition of Merchandising Rights for a Character: The sources of characters vary from video games (such as PacMan), toys (Tamagotchi), cartoons (Dragon Ball), and TV programs (Ultra Man series). Bandai is particularly good at merchandising and marketing of characters spun out of TV programs.

Rights of a character in a TV program are in most cases held by the program production company, and Bandai has established a strong partnership with many of them. Behind the fact that Bandai has developed many character goods and successfully marketed them are several factors. First, Bandai owns the largest toy wholesaler as a subsidiary (its sales are more than three times those of the number two toy wholesaler) and can introduce various products at a chosen ideal timing. Secondly, Bandai has a proven track record of developing and nurturing many characters through their planning and merchandising. Furthermore, Bandai can closely work together with TV program production companies in developing characters and stories that make it easier to merchandise. Successful merchandising of a character will result in additional royalty income for the production company, while reinforcing the character to gain even more popularity. Bandai also has the capability to develop new characters on its own in-house and turn them into TV programs (25% of Bandai’s consolidated sales are from characters for which Bandai owns the copyrights). Lastly, Bandai maintains a policy to spend a certain budget amount to be invested in sponsoring TV programs for children and has become an important partner for TV stations that face a situation where the number of corporate sponsors for children’s programming is declining.

Development of Character Goods: “Character merchandising that perfectly synchronizes with TV” is a method Bandai developed to simultaneously create a plan for a character, its story, and character goods. Bandai’s merchandise designers participate in the program planning discussion held with the TV program production company and contribute by developing designs for characters and associated items. Through these joint efforts Bandai can synchronize the creation of a character and toy merchandising that is true to the original character design.

Bandai can start product design and development early on as they can share information on a character from the beginning, and as a result, they can introduce the new products precisely at the time when the character appears on the TV program. Furthermore, Bandai is able to accurately reflect a character’s world based on extensive discussion with one of the character’s rights holder, the TV program production company, from the early stages of planning.



Consequently, Bandai can avoid misrepresentation or mismatch of their product with the character's world that are some times pointed out by the character's rights holder and avoid the risk of subsequent delay in product introduction.

From Bandai's success in character merchandising, the character rights holder can gain significant royalty income, and this relationship become a "win-win" if both parties cooperate and join their efforts.

Sales Promotion for Character Goods: Bandai sponsors many TV programs for children, and commercials for its character products are run during the program while the audience is still immersed in the world of the character. Because of the wide variety of products Bandai offers through a broad array of distribution routes including toy stores, major home appliance store chains, game shops, department stores, and apparel shops, active TV program sponsoring and exposure through commercials makes a strong impact. A wide variety both in products and distribution channels also contributes to higher exposure of Bandai's characters and helps promote sales.

Bandai owns Japan's largest toy wholesaler as a subsidiary through which it gathers a vast amount of data and captures sales trends of toys marketed by Bandai and other competitors. Bandai adjusts its marketing activities and plans based on this information. Bandai's broad product line includes a wide range of price points for characters from as low as 100 yen for a pack of a toy with snacks to 10,000 yen for a hand-painted figurine. Bandai carefully decides its product lineup and launch schedule.

Supply-Chain Management: In order to maintain freshness and keep children interested, most of the TV programs for children are generally terminated after one year. This results in an end to heavy exposure of characters in the program, making inventory management extremely important. Bandai capitalizes on retail sales information gained real-time from its subsidiary toy wholesaler and quickly takes measures in adjusting shipments or beefing up sales promotion to reduce excess inventory.

Fit Across Activities

Bandai's activities have excellent fit to reinforce one another. The company's broad product range enhances efficiency in TV program sponsorship and airing of TV commercials, while the sponsoring activity and capability in managing a broad product range merchandising business make it easy to obtain character merchandising rights. Close working relationships and adjustments in a character and its story developments improve the quality and scheduling of merchandising, while excellent merchandising strengthen the character and TV program.

Bandai delegates much authority to its Merchandising Division but at the same time carries out very good coordination and adjustments among activities. This coordination is done both vertically (from obtaining character merchandising rights, product development, product distribution, marketing, through supply-chain management of products) and horizontally (from packaged snacks with toys, figurines, video games, to apparel) handled by the Product Divisions. An organization unit named "Media Division" plays this activity coordination role. The Media Division is involved in every step of a range of activities including obtaining character merchandising rights, launching of a new character and TV program start-up, promotion of



merchandising from the viewpoint of the copyright holder, and negotiation with the copyright holder on behalf of Product Division in the group. The Media Division manages and is also responsible for business profitability of each character. (Please refer to “Activity System Map” attached for more detailed accounts of relationship among these activities.)

Innovations that Enable the Strategy

- Bandai closely synchronizes TV program planning and character merchandising.
- Bandai develops new distribution channels and creates new product formats that best fit each of the new channels.
 - When the prevalent pricing of toys sold through toy vending machines was 20 yen, Bandai introduced a 100-yen machine to market its character toys.
 - While there already existed a market for a packaged snack with a toy piece added, Bandai reversed the concept to a character toy with a snack added.

Continuity of the Strategy

Bandai’s strategy of character merchandising can be traced back to its origin in early 1970’s when Poppy, a toy manufacturer which was later acquired and merged with Bandai, introduced and marketed a toy belt worn by a TV series hero, Kamen Rider. The Kamen Rider program was sponsored by Poppy, and the belt was battery-powered to light up and make noise as it did in the story. Bandai has accumulated experience in character merchandising starting from series animation TV shows with robots as main characters including Mazinger Z and the Great Mazinger in 1973, followed by the Ranger series in 1975 (including Go-Rangers and Power Rangers), and Ultra Man and Gundam in late 1970’s.

About a decade ago Bandai’s strategy evolved from just sponsoring TV shows and producing full-scale replica toys to the strategy of “Merchandising fully synchronized with TV show development” where Bandai works with TV show production companies from the planning stage, simultaneously developing a character, its story and associated products. In order to implement this evolved strategy, Bandai reorganized to create a system to develop producer resources. It also tightened profit management of each character and its products and established management processes to limit the breadth of product offerings to avoid excessive proliferation.

Trade-offs

- Since Bandai’s main target customers are children, Bandai neither enters a business that may destroy children’s dreams or the world of a character, nor develops and markets a character that engages in such activities. For example, it never engages in the gambling business (although there are gambling machines using characters licensed by other copyright holders or merchandisers in pachinko parlors) or sexually oriented businesses.
- Character merchandising is a highly uncertain business where success depends on whether a character becomes a hit or not. Therefore, it is necessary to endure and continue investing regardless of the short-term results. An example of such investment is the sponsoring cost for children’s TV shows. Also, at Bandai investments in high risk projects are not abruptly cut just to meet short term profit targets.



Profitability

Bandai achieves higher than the industry mean in both return on invested capital and return on sales.

Return on Invested Capital (ROIC): BANDAI Co., Ltd.

(Unit: Percentage points)

5-Yr. Avg. Margin Above Industry 11.2%	Annual Margin Above Industry				
	2000	2001	2002	2003	2004
	-2.4%	5.4%	16%	23.2%	9.4%

(Note: Return on Invested Capital = Operating Profit / (Shareholders Equity + Long-term Debt + Short-term Debt – Cash on hand)

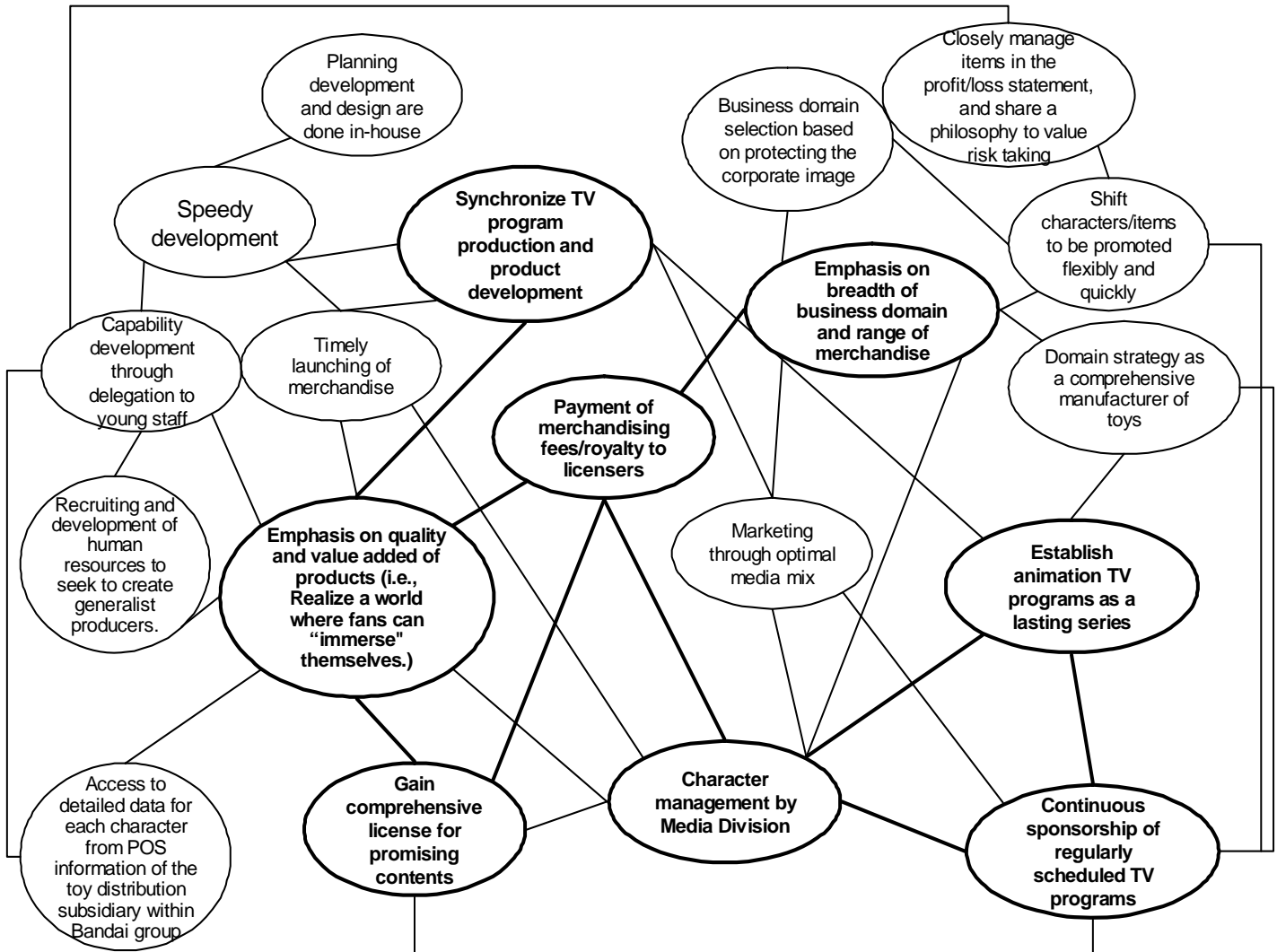
Return on Sales (ROS)

(Unit: Percentage points)

5-Yr. Avg. Margin Above Industry 5.7%	Annual Margin Above Industry				
	2000	2001	2002	2003	2004
	0.9%	4.4%	7.7%	6.0%	3.6%

(Note: Return on Sales = Operating Profit/Sales Revenue)

Activity System Map --- BANDAI Co., Ltd.





Selection Rationale (Recipients are addressed in no particular order): Education Business Group, Benesse Corporation

Educational support not only in preparation for entrance examinations but also in everyday study at home for children and students in a broad age range from 6 months old to high school seniors, achieving high customer satisfaction via individually-tailored correspondence course services while offering reasonable prices. As a result, Benesse has gained remarkable customer support.

Benesse offers 19 correspondence courses in total, with the brands “*Kodomo Challenge*” (Kids Challenge) for infants from age six months to pre-school age, and “*Shinken Zemi*” (Advance Study Seminar) for students from elementary school through senior high school.

The educational services industry has been facing a greatly changed business environment due to the decline in child population and changes and diversification in the educational curriculum in the past several years. The Education Business Group in Benesse Corporation (Benesse hereafter) has been successful in offering individualized education services at reasonable prices by specializing in correspondence courses and devising and building unique activity systems. Benesse’s approach transcends the traditional tradeoff between standardized mass education in a classroom setting and individualized instruction for a few students at high prices. The total number of students in correspondence courses offered by Benesse is approximately 4,010,000 (as of April 2005, up 4.7% from a year earlier), which represent one fifth of Japan’s total pre-college age population (from newborn infants through 18 years olds). Benesse also enjoys a very high re-signing rate of students, both when students move up a grade (e.g., from first grade to second grade in the elementary school) and when students move from one school level to the next (e.g., from elementary school to junior high school).

Unique Value Proposition

The value Benesse offers derives from supporting students at home with everyday study. As opposed to a focus on preparation for entrance examinations, Benesse provides continuous support to children from six months of age through graduation from senior high school.

Benesse provides information for students to assess which high schools and colleges to apply for, but it does not stop there. Benesse tries to raise awareness about future careers beyond education in schools by offering career information and counseling opportunities for students of every age from elementary school, junior high school and senior high school. Beyond offering teaching materials in every subject, Benesse provides information to assess and choose schools and conducts nationwide scholastic aptitude tests. Benesse offers students a package of services to think about their future and set goals, to study and gain capabilities and to assess their level of achievement. In other words, the company supports processes for students to become self-sufficient in considering and planning their future based on their goals, to improve their knowledge and capabilities, to objectively assess their achievement and to make further efforts to grow their capabilities or adjust their future course.



Although Benesse's study support is based on the common learning needs at each grade level, it customizes support for each individual student. Contents of the teaching materials sent monthly to each student are organized and adjusted based on the textbook used in the school, progress of what is taught at the school, and development level of each individual student. When a student sends back answer sheets to Benesse, the "*aka-pen sensei*" (literally "red-pen teachers") writes individualized feedback in red on the sheets which are returned to students. This feedback is not limited to indication of correct or wrong answers and scores but also gives advice about effective study methods when students write about their concerns regarding study methods, or a conflict between study and sports activities, etc.

Capitalizing on its sheer size with one in every five students enrolled and the consequent extensive national network of students, Benesse provides excellent information both in quality and quantity to member students. Its communication includes not only aptitude score diagnosis and projection on passing entrance examinations but also extensive school information (both senior high schools and colleges/universities) as graduates of Benesse's "*Shinken Zemi*" program introduce life at different schools, describe their experience in preparing for entrance examinations, and give specific advice gained from experience.

Furthermore, Benesse's services are offered at reasonable prices, which is a prerequisite to be a continuous supporter of everyday study (if price settings were high, most students would only be able to enroll for the short period of time limited to preparation for entrance examinations). The monthly fee for "*Kodomo Challenge*" is only 1,487 yen per month, "*Shogaku Koza*" or Elementary Studies costs in the range of 2,431 yen to 4,472 yen (depending on the grade), "*Chugaku Koza*" or Junior High School Studies costs 4,982 yen, and fees for "*Koko Koza*" or Senior High School Studies are 7,211 yen per month (as of 2005).

Unique Value Chain

Teaching Material Development, Scoring, and Preparing Feedback: Benesse's study support is customized to the individual needs of each student. This is made possible by combining Benesse's abundant teaching materials with its IT system technology. Benesse has numerous teaching materials developed and accumulated over the years. Taking an example for freshmen in high school, there are 2,000 different lessons for English and 1,400 for mathematics to choose from. Benesse has an automated system to select the best combination of teaching materials for a student based on the textbook used at school, progress in classroom teaching, and schools targeted for application by the student in the future. Teaching materials selected based on these criteria are processed for automated printing and sent to the student on a monthly basis.

The number of copies to be printed for each teaching material can be predicted with high precision based on the fact that the membership continuance rate is very high, and also new customer acquisition can be accurately estimated based on analysis of accumulated past data for responses to TV commercials and direct mailings.

Corrections, instructions, advice and encouragement are hand written as individualized messages by *aka-pen sensei* or "red-pen teachers" on the answer sheets sent in by students, providing a high-touch service. Benesse currently manages 20,000 such "*aka-pen sensei*". Many of these instructors are motivated by the mission of developing children's ability to learn and also by the pleasure of directly communicating with students. Benesse further tries to



enhance their motivation by creating a web site for *aka-pen sensei* to communicate with Benesse's staff as well as one another and also to encourage sharing new ideas for planning teaching materials.

Shipment and Distribution: Teaching materials that come out of the automated printing system are individually packaged and addressed for shipment from Benesse's highly automated distribution center.

Customer Maintenance and Support: Outbound calls are periodically made to students by Benesse's call center staff to inquire if students feel the teaching materials are adequate or face any problems in studying. These efforts to proactively resolve issues faced by customers contribute to Benesse's customer satisfaction.

Benesse also provides a variety of information to member students. For example, "*Zemi Reports*" on life in college described by former member students of "*Shinken Zemi*" are highly appreciated.

Acquiring New Customers: Because of the high subscription continuance rate for Benesse's education services, it is not necessary for Benesse to make a huge investment in new customer acquisition. With this situation as a backdrop, Benesse runs a very efficient customer acquisition operation through well-coordinated activities both by its "Headquarters (HQ) Marketing Division" and its "Regional Marketing and Promotion Division". The HQ Marketing Division carries out nationwide TV commercials and web marketing activities, while the Regional Marketing and Promotion Division carries out region-specific promotions. After potential customer interest is engaged by this synchronized communications mix, direct mail is sent out from the headquarters to achieve highly efficient customer acquisition. Since only these organizational units handle marketing and promotion activities, very few staff are involved.

Research and Development: Correspondence courses are based on the premise that children can study on their own with the teaching material. In order to achieve this, Benesse develops easy-to-read effective teaching material, based not only on survey results of customers regarding teaching materials but also on their accumulated data regarding on what type of questions students tend to make mistakes, obtained from answer sheets sent back from students and from nationwide tests Benesse conducts. Benesse allocates more detailed explanations to areas where students may stumble and constantly improves teaching materials by use of graphics and illustrations, as well as personalizing the speech and written text patterns used by virtual "*Shinken Zemi*" teachers.

Since 1980, Benesse has been carrying out various surveys to understand educational issues. Some of the surveys are repeated every 4 to 5 years, and others are focused on topical issues of the time. Helping Benesse interpret the survey results is its network of scholars specialized in education, including specialists of each subject and researchers of broad academic areas including child rearing and education.

Overall Staff Management: The corporate name Benesse (an artificial word made up of "*bene*" meaning "well" and "*esse*" meaning "being" in Latin) reflects well the company's philosophy, and is shared not only by its full-time corporate staff but part-time staff such as "*aka-pen*



sensei” and former “*Shinken Zemi*” members who contributes college reports. This corporate philosophy clarifies the purpose of the work each staff member carries out and contributes to enhance motivation for each to work with pride and a sense of obligation and psychological reward. As a result of continuous public relations activities, Benesse’s corporate philosophy and posture have now been transmitted to and understood by customers, resulting in improved customer trust and loyalty.

Fit Across Activities

Benesse’s activities are aligned to achieve customized services at a very high level and low cost to customers.

Unlike entrance exam preparatory classes held in commercial classrooms, the correspondence course business does not require hiring well-known (and often very well-paid) instructors. Instead Benesse can hire “aka-pen sensei” from Japan’s large pool of well-educated housewives as part-time staff. As a result, Benesse is able to provide high-touch and high-quality individualized services at a lower cost than in the case of hiring full-time staff. Furthermore, Benesse as a correspondence course provider does not pay classroom rent which is a major expense item for the preparatory class business.

Utilizing its vast accumulated data, Benesse has automated the process of selecting teaching materials fit to each student and the process from printing through packaging and shipment of those materials. Because of the annual subscription system and high continuance rate, there is little risk of building excessive inventory of printed materials.

At its headquarters and regional division, Benesse concentrates on the two key functions of teaching material development and marketing. No marketing staff is allocated in regional offices. Furthermore, due to high continuance rate, Benesse does not spend much on marketing for new customer acquisition. The high continuance rate also contributes to accumulation of information about each customer that enables even more efficient customization. (Please refer to “Activity System Map” attached for more detailed accounts of relationship among these activities.)

Innovations that enable the Strategy

- Strategic concept of continuous study support from newborn infant through age 18.
- Benesse designed and developed a system to utilize housewives as “aka-pen sensei” to deliver high quality individualized services to customers at low cost.
- Benesse built database containing customer information and numerous teaching materials and an automated system for printing and shipping customized teaching materials.

Continuity of Strategy

The core of Benesse’s education business is “*Shinken Zemi*” which was started in 1969 with a service format that is still kept today, with correspondence courses for members enrolled as subscribers (to ensure continuity) and individualized feedback. However, the main target at the time was students studying for entrance examinations.

In 1980, Benesse expanded its target from “students who are studying for entrance exams” to “all children enrolled in the education system”, and consequently their services were also expanded from entrance exam preparations to providing broad information in areas including



future academic course selection and various issues children encounter in all aspects of life. This shift formed the basis for the current strategy.

Furthermore, this change in strategy led to Benesse's review of its total corporate philosophy in 1990. To support everyday study of children is in line with the corporate philosophy announced in 1990 as "Benesse" (a word coined by Benesse by combining words in Latin: "*bene*" meaning "well" and "*esse*" meaning "being or to live"). According to Benesse Corporation, Benesse means "to live well" or "a life style where one fully enjoys life with positive and forward-looking posture". Under this corporate philosophy, Benesse declared that the company "is determined to become a corporation that assists and supports each individual to explore and find a path for his or her life, throughout the areas of 'education, language, life, and welfare'", and furthermore it sets out to "support problem solving and motivation enhancement for infants through senior citizens in their entire life span" as Benesse's corporate mission.

In 2000, Benesse advanced its policy of individual customization one step further by changing its teaching material system from more standardized teaching materials being used for the same grade to an individually tailored selection to be made from thousands of different prepared lessons.

The "Kodomo Challenge" program for pre-school age children also implements the same strategy as "*Shinken Zemi*" strategy for high school students. For example, "*Kodomo Challenge*" focuses on continuity, is priced reasonably, is a correspondence course that does not require a classroom setting, uses picture books and videotape as teaching materials developed to meet specific needs captured by the membership system, and uses high-touch communication (with mothers of the infants). The main difference is that no individualized feedback is given since pre-school children do not need to solve complex problems. Due to the different needs of school age children and pre-school children, the level of customization required in "Kodomo Challenge" is a lot less than for "*Shinken Zemi*".

Benesse recently faced two major changes in its business environment. The first change was the decline in child population, and the second was the revision in the school education policy in Japan. The new teaching guidelines announced in 2002 focused on a policy direction of "creating slack in education" that led to a major reduction of overall classroom hours for traditional teaching in elementary schools and increased hours spent outside the classroom to encourage broader experiences for children. As a result, concerns were raised from a wide spectrum of society, including children and parents, and teaching contents became very much diversified among schools.

In response to this change, Benesse was required to provide even better individualized services with higher effectiveness and reliability, and Benesse made efforts to perfect its existing strategy. Benesse enhanced customization by introducing a new course selection system by level of achievement and progress of each student and broadened the selection by adding new courses to specifically prepare for entrance examinations of several top-notch universities. Benesse also expanded its call center capacity and started to make outgoing calls to students to reinforce high-touch relationship building in addition to written communication by "*aka-pen sensei*." In order to communicate these enhancements of its individualized services, Benesse used TV commercials to create a combined effect with their ongoing direct mailing. As a result



enrollments which had sharply declined after 2002 almost returned to the peak level experienced in 2000.

Trade-offs

- Benesse does not provide education services in a classroom setting, as it would not be possible to render such service at low cost because of high rent for a classroom space in Japan.
- Benesse does not provide face-to-face learning opportunities. (There has been a recent test of setting up small study rooms at homes of “*aka-pen sensei*”. This test, however, is not for giving instruction by a teacher but rather is limited to providing support for elementary school children to build habits of self-study and learning. Furthermore, these study rooms are arranged in homes of “*aka-pen sensei*” and no rent payment is involved.)
- Benesse does not sell textbooks and teaching materials through bookstores which involves high distribution margin as well as difficulty in forecasting for production.

Profitability

Return on invested capital of the Education Business Group, Benesse Corporation has consistently been much higher than the mean of the education service industry, and its return on sales is also better than the industry average.

Return on Invested Capital (ROIC): Education Business Group, Benesse Corporation (Unit: Percentage points)

5-Yr. Avg. Margin Above Industry 79.8%	Annual Margin Above Industry				
	2000	2001	2002	2003	2004
	93.5%	73.2%	47.7%	86.8%	115.6%

(Note: Return on Invested Capital = Operating Profit / (Shareholders Equity + Long-term Debt + Short-term Debt – Cash on hand))

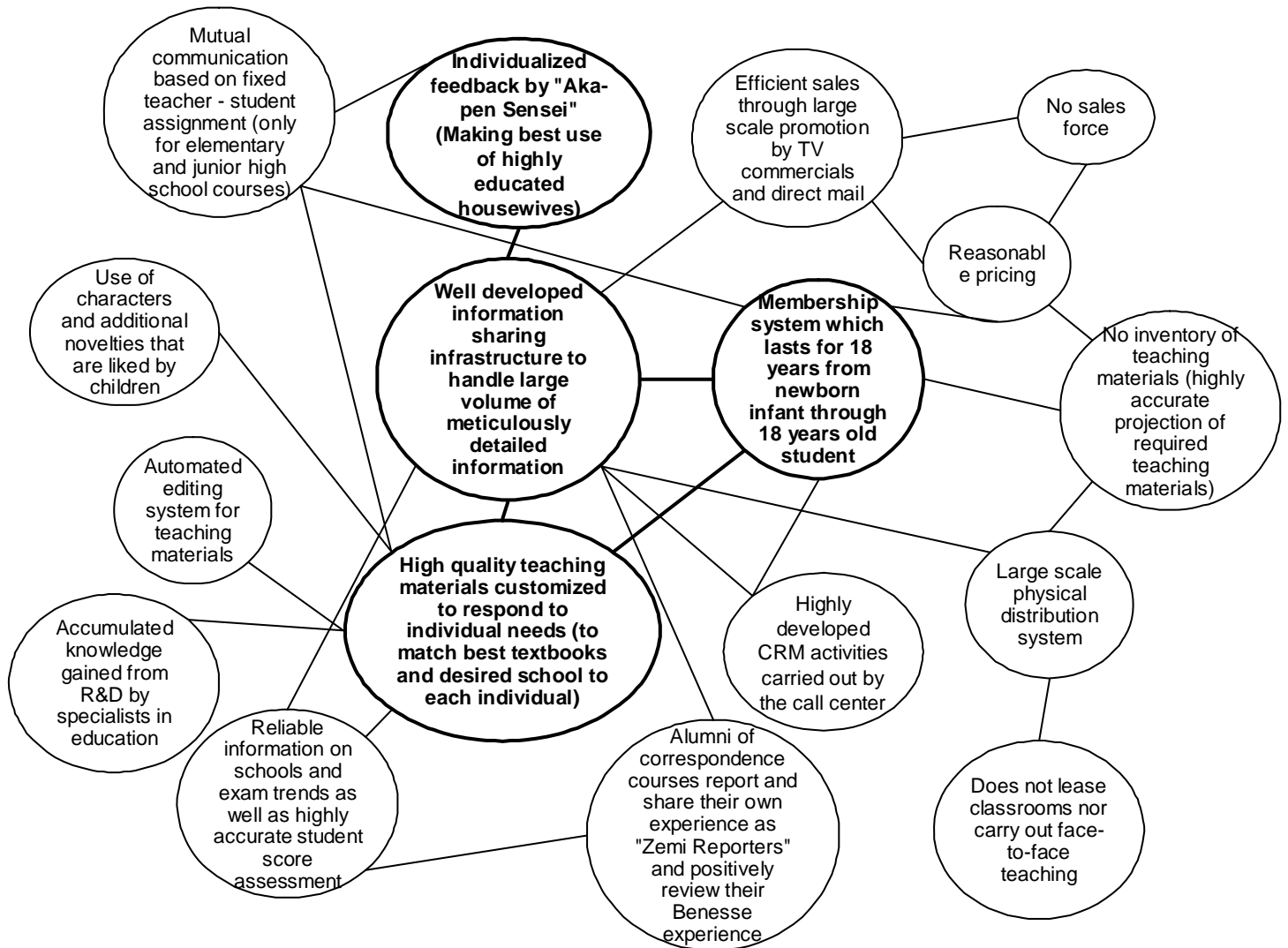
Return on Sales (ROS)

(Unit: Percentage points)

5-Yr. Avg. Margin Above Industry 7.5%	Annual Margin Above Industry				
	2000	2001	2002	2003	2004
	9.8%	9.3%	4.0%	7.5%	8.1%

(Note: Return on Sales = Operating Profit/Sales Revenue)

Activity System Map---Education Business Group, Benesse Corporation





**Selection Rationale (Recipients are addressed in no particular order):
Engine Measurement Systems Division, HORIBA, Ltd.**

Developing and manufacturing the most appropriate system equipment by specializing in engine performance measurement. As a result, the company succeeded in creating a high value-added business covering both measurement equipment and a wide range of laboratory systems.

Customers of the environment measurement equipment market are predominantly government and public organizations and institutions, and supplying equipment to this market is often not so profitable for a manufacturer due to budget constraints faced by the customers. Furthermore, the industry is plagued by chronic severe competition. One of the segments in this market, however, is engine performance measurement equipment and systems that enjoys a relatively favorable market environment. New equipment and systems are needed not only to cope with emission control laws that are often revised for even tougher targets but for automotive manufacturers to differentiate themselves from competitors by developing more efficient engines with lower emissions.

Horiba produces a turnkey system that can analyze and measure components of exhaust gas emitted from engines that is used for laboratory experiments and also in production lines. The company has an overwhelming global market share at 80% for automotive engine measurement systems, and customers include the Environmental Protection Agency in the US that often sets the agenda for global environmental control, other government agencies in the world in charge of emission control, as well as most of the major car, motorcycle and engine manufacturers in the world. Horiba's exhaust gas analyzer systems are also used by numerous car repair and maintenance factories and gas stations that handle periodic testing of cars for approval by the Ministry of Land, Infrastructure and Transport.

Horiba has established an overwhelming 80% market share, and the only remaining major competitor existing today is AVL in Australia. AVL is also an engine manufacturer, and their strength is their capability to offer all measuring equipment associated with engine development, not limited to exhaust gas emission measuring. However, it is abundantly clear that Horiba is the dominant competitor in the emission measurement field, as seen from their global market share figure. There have been new market entrants from among the general measurement equipment manufacturers, but none remained in the market for longer than a few years.

Unique Value Proposition

Horiba specializes in engine measurement system equipment, and because of their dominance with 80% global market share, they can offer system equipment with high performance with lower cost to customers than in cases where customers developed them on their own. At the same time, Horiba customizes its system products to each customer's needs. Since Horiba focuses on engine emission measurement technology, the company can thoroughly respond to customer needs, much better than competitors offering converted general-purpose measuring

equipment.

Horiba offers a fully automated turnkey system that enables various analyses and experiments with exhaust gas. As a result, only one operator is needed to run the system instead of the five operators previously required for conventional equipment, and the system leads to more efficient development, because more reliable experiments can be carried out more frequently with shorter turn-around cycle.

Horiba's service is not limited to automation of a test cell or a system unit of the measurement equipment but has expanded to facility management that controls and manages a number of test cells on-line with special software. Horiba's approach is to include as many activities as possible in the system, so that areas of outsourcing by the customers can be expanded, increasing the value Horiba offers and thus helping grow their business. Horiba's customers meanwhile can achieve even better efficiency in engine development through outsourcing more of their activities to Horiba.

Major customers of Horiba, including car, motorcycle and engine manufacturers, are expanding their business globally and seeking to achieve a common worldwide development process and to share data globally, thus requiring the same performance in measurement results wherever a test is performed. On the other hand, emission control regulations are different in each country, and Horiba needs to set or modify the system to comply with the sampling method (preparatory process before drawing exhaust gas into the analyzer) and data collection functions specified by the regulatory agency of each country. Furthermore, Horiba needs to adjust the system for the different development policies and approaches of each customer. By standardizing its hardware globally and having its developers in Japan, US and Europe work together, Horiba offers a system with globally standardized specifications. Thanks to Horiba's highly efficient product development process based on this global strategy and to Horiba's high quality measurement hardware, a Horiba customer can obtain highly reliable data that it can use throughout its global network. At the same time, Horiba locally customizes its systems using its engineering staff in each local market, allowing fully local completion of the whole cycle of designing, production and installation of a system.

Horiba's offer of not just equipment but the system as a whole, and of customization supported by local engineering capability, increase the value added of its product, which in turn leads to the price premium Horiba enjoys.

Unique Value Chain

The characteristics of Horiba's value chain lie in its organization structure with "virtual headquarters" (hereinafter VHQ) assigned in each function of Product Planning, Design Development and Engineering, Automated System Development, and Sales & Marketing. Each VHQ sets the demarcation between global standardization and local customization for its function, based on careful consideration in seeking an optimal solution for overall global results.

Product Planning: The Global Product Planning Group is a VHQ consisting of international members from Japan, US and Europe which determines what should be defined as a globally standardized product or system and what should be locally modified. Values or functionalities



customers universally request are defined as “global contents”, while regulatory differences or needs specific to customers of a region or a country are defined as “local contents”. As a result, a gas analyzer system (a system of analyzers that is housed in a 19-inch rack and managed and controlled by integrated software) is standardized as global content, while the sample handling system and automation system (software that automatically operates various equipment) are defined as local content.

Product Development: Horiba owns three technical centers in Japan, US and Europe, each with a unique focus and strength: the gas analyzer core system in Japan, the sample analyzer in the US, and the automation system in Europe. Development of global contents as defined by a VHQ is assigned by that VHQ to one of the technical centers according to the main thrust of the technology requirement.

Development activities for a project defined as local content are carried out in each market covering the whole process from designing and production through installation. Such local activities can be completed in a relatively short period of time because of proximity to the customer and independent nature of the project, which does not require international coordination.

Manufacturing: Horiba outsources the majority of its manufacturing, which amounts to 70% of the total production cost, and concentrates on high value-added activities to be done in-house including manufacturing of the sensor, a crucial component of the gas analyzer, and quality control and adjustments prior to product shipment. Manufacturing outsourcing enables short delivery time and flexible response to fluctuation in demand.

Marketing and sales: Because of Horiba’s position as a key supplier to environmental protection agencies around the world, it has access to information regarding future trends in regulatory changes. This is a unique information-gathering capability of Horiba.

Horiba had a direct sales network for overseas markets from the beginning but relied on trading companies to cover the domestic market. This was due to the need to cover a vast number of repair shops and gas stations that constitute part of the measuring equipment market and the fact that Horiba’s corporate policy dictated the outsourcing of non-core activities such as manufacturing and sales. However, in April 2002, the Measuring Systems Division switched to the direct sales force approach, as its major customers are limited in number and credit management and other administrative workload is not so burdensome. As a result of this shift, Horiba became able to obtain information directly about customer needs, which led to development of a series of new unique products such as the fuel-cell evaluation system, the particulate matter (PM) measuring equipment for exhaust gas, and portable exhaust gas measuring system. Consequently, the Division’s new product sales as a percentage of total Division sales increased from 4.5% in the financial year ending March 2002 to 7.8% in FY2005.

After sales services: Horiba dispatches its service staff to work at each major customer’s premises so that service engineers of the customer organization can be trained to provide higher quality system maintenance and also reduce system downtime. This results in a higher rate of operation for the exhaust gas measuring system and helps shorten the product development



cycle for customers.

Human resources development: Horiba trains and develops its staff members to become comfortable in working in multi-cultural environments so that they can effectively work in a global team assignment including Virtual Headquarters. 53% of the group employees are non-Japanese, and Horiba sends Japanese staff to overseas group subsidiaries and invests heavily in overseas training programs, and as a result, more than 10% of the headquarters staff has extended work experience overseas.

Fit Across Activities

Car manufacturers, which are Horiba's major customers, need to operate globally and comply with different regulations in each country. Horiba's activities simultaneously achieve technological evolution and efficiency through global integration, while responding to local needs in each market and enabling customized offerings for each user. This ability is supported by engineering capability built in each country, three global core technology centers, VHQs that define activities to be done by global integration as opposed to local customization, and the company's human resources development system. (Please refer to "Activity System Map" attached for more detailed accounts of relationship among these activities.)

Innovations that enable the strategy

- Organizational set-up of VHQs that enabled both global efficiency and adaptability for each local market.

Continuity of Strategy

Horiba started to develop engine measurement systems around 1962, when the State of California passed an automobile emission control law that set a limit on carbon hydrate and carbon monoxide contents in vehicle exhaust gas emissions. From the beginning of the development project, Horiba focused on accuracy of measurement and chose a different technology from those adopted by competitors who already had started development efforts. While competitors pursued gas chromatography technology that can simultaneously measure multiple components in a gas sample, Horiba concentrated its resources on infrared technology that can provide a rapid response to deliver the analysis result. Horiba's unique technology was later chosen as the specific measuring method stipulated by the Japanese government in 1970's when a law was passed to control exhaust gas emission for used cars, and it also led to the sale of the system in 1975 to the Environment Protection Agency in the United States.

During the same period, Horiba acquired patents on gas sampling methods from a US company to expand its product line for peripheral equipment to be integrated as a system with its gas analyzer. Then Horiba acquired a division of Inter Automation Corp. of US to reinforce software development capability to market the full measuring system lineup that is required to develop a car or engine, clearly departing from being a hardware supplier of gas analyzer equipment and associated peripheral equipment. This system allowed automation of the development process and measuring equipment applications in the customer's facilities and offered a total integrated solution for the customer.



In the 1980's, in addition to improving measuring equipment that already possessed overwhelming competitive strength, Horiba honed its technological skill in automation technology, capitalizing on rapidly advancing information technology. Major customers of Horiba's systems at that time were US car manufacturers who had a common policy of outsourcing low value-added activities in their development process.

Throughout the 1980's, each customer developed its own automation system for exhaust gas measuring and experimenting, but in the 1990's it became well recognized that a better system was available at lower cost if they purchased the automation system from Horiba. In this period, Horiba started to globally standardize its hardware pieces including packaging design and was successful in putting together a lineup with standard global specifications implemented by its global development team.

The reorganization of global car manufacturers which began in 2000 has brought about global integration of car design and development and the need for Horiba's customers to share development processes and data globally. Horiba responded quickly by creating a global development system centered on hardware.

In 2001, Horiba formed a joint venture with leading measuring equipment companies in UK and Germany that specialized in automation, with an aim to further strengthen the function in automation technology development. In 2005, Horiba acquired the engine performance measuring equipment division (Driving Testing Systems Division) of Schenk GmbH in Germany. The acquired division will provide systems for measuring engine and brake performance as well as their development support systems. Capitalizing on the synergy effect of these moves, Horiba plans to strengthen its capability to support improved engine performance in removing harmful contents from exhaust gas.

Trade-offs

- Horiba provides the total system and does not sell the measuring unit alone. It loses customers who want to develop their own exhaust gas measuring system using a purchased measuring unit.
- Horiba chose not to pursue efficiency gained from concentration of engineering resources in one location, but to build local engineering capabilities in major locations all over the world.
- Horiba does not pursue global launching of an existing system built for a specific market. If Horiba tries to modify a product or a system developed first for its home market Japan so that it can be marketed overseas, localization is carried out at its offices in the target markets.
- Horiba also does not pursue the other extreme approach of producing a few global products or systems that are based on various needs globally gathered from different markets with a lot of compromises. Horiba feels that such an approach would not sufficiently satisfy the needs of each customer.
- Horiba insistently pursues a direct selling approach in the global market and does not rely on sales through trading companies



Profitability

Horiba's return on invested capital has consistently been higher than the mean of the measuring and analyzing equipment manufacturers in Japan, and its advantage is growing. Its return on sales is also higher than the industry average.

Return on Invested Capital (ROIC): Engine Measuring Systems Division, HORIBA, Ltd.

(Unit: Percentage points)

5-Yr. Avg. Margin Above Industry 14.4%	Annual Margin Above Industry				
	2000	2001	2002	2003	2004
	2.9%	9.5%	16.2%	16.5%	21.8%

(Note: Return on Invested Capital = Operating Profit / (Shareholders Equity + Long-term Debt + Short-term Debt – Cash on hand)

Return on Sales (ROS)

(Unit: Percentage points)

5-Yr. Avg. Margin Above Industry 5.7%	Annual Margin Above Industry				
	2000	2001	2002	2003	2004
	0.6%	5.7%	9.3%	6.6%	7.5%

(Note: Return on Sales = Operating Profit/Sales Revenue)

Activity System Map --- Engine Measuring Systems Division, HORIBA, Ltd.

