

Chapter 6 | 1975 - 1985

Development of the “New Life” Product Strategy Building a Strong Financial Structure

In the midst of sluggish domestic demand resulting from market saturation of home appliances and an economic downturn that followed the oil crisis, Sharp laid out its New Life product strategy—a consumer-oriented strategy that proposed new lifestyles.

This was well received and contributed to both sales and profits. In addition, the office automation equipment business—including copiers and fax machines—began to blossom in earnest. Overseas, in the face of growing trade friction, Sharp continued its development by strengthening overseas production and introducing new categories of products.

With the success of these business strategies, Sharp achieved 10 consecutive years of growth in sales and profits. At the same time, it improved its financial structure.

Thin profiles enabled Sharp to win the calculator wars. The EL-8152 featured an outstanding design with a thickness of just 1.6 mm.

1 Setting in Motion a New Strategy to Ride Out an Economic Downturn

The New Life Product Strategy

To cope with the first oil crisis in 1973, Sharp pushed forward with development of feature-oriented ELM products designed to eliminate wastes of energy (E), labor (L), and materials (M), but they were never fully able to address the needs of consumers.

Consequently, in 1976, the company launched an innovative New Life product strategy. The intention was to introduce a new marketing technique called “lifestyle proposals,” which involved suggesting new lifestyles to the youth segment born after World War II and dubbed the “baby boomers.” These individuals had values different from those of the past—values that were expected to spread among an even broader segment of consumers. Sharp created development standards tailored to these values and designated high-value-added products meeting these criteria as New Life (NL) products.

In the course of designing this new strategy, Sharp studied leading companies who were profitable even during periods of economic recession. The points these companies had in common were 1) that they made products that pursued the values of consumers, and 2) that everyone in the company had a solid understanding of company policies and strategies. With this in mind, Sharp instituted the New Life Committee in April 1977 to thoroughly inform all employees about the concept of the

new strategy—an essential first step towards implementing it. More than 700 management personnel at the section manager level were appointed to the committee, including personnel from head office divisions and sales subsidiaries.

Popular New Life Products

The first NL product was the 16C-681S 16-inch color TV introduced in April 1976. It satisfied the desires of consumers who wanted to enjoy a larger 16-inch screen on a TV equivalent in size to a 14-inch model. The SJ-6400X three-door refrigerator/freezer announced at the same time positioned the frequently used refrigerator compartment on top and included a special bin to store vegetables at the proper temperature. This product was introduced in response to the voices of housewives who wanted to keep vegetables fresh without having them dry out.

The emergence of these hit products changed the way NL products were viewed within the company, particularly among sales representatives. A series of products made their debut and gained popularity in the market, including a stylishly designed vacuum cleaner and a stereo cassette player with a track-selection feature.

The 200th NL product was the R-5000W sensor microwave oven introduced in December 1979. It was an innovative product that detected the degree of doneness when cooking and automatically adjusted heating time without using a timer. It was a popular product, and the company was flooded with orders.



SJ-6400X three-door refrigerator/freezer



EC-1500 vacuum cleaner was highly rated for its stylish design

The percentage of NL product sales among all home appliances sold in fiscal 1979 was around 45%, and they grew to become a mainstay for Sharp. They proved to be a major contributor to sales growth and improved profits in this period.

Products such as the ones below were hits either side of 1980.



VC-6080 VCR sold for the then-low price of 150,000 yen



GF-808 double-cassette radio/player offered new value, namely, the ability to edit cassette tapes

New Developments Follow the New Life Strategy

As the information society continued to advance, Sharp formulated the New Business Strategy in April 1980. The company proposed a new around-the-clock lifestyle that augmented its “new lifestyle at home” concept with a “new business style at work” concept.

In 1985, the 10th year of the New Life Strategy, the company redefined its target-user market segment. In place of the “new family” approach, which emphasized emotional value, the company adopted a New Life People Strategy that focused on informational value and targeted young people with unique personalities and a strong sense of individualism. New product engineering was launched, directed toward consumers who were in the vanguard of new modes of living in the information society.

Design played an important role in both the New Life and New Business strategies. In October 1973, all design teams were reassigned from their divisions and placed under the umbrella of the Corporate Design Center, a newly established company-wide business unit that reported directly to the President. Design strategy was

given a role not only to improve product value, but also to improve corporate image by reflecting corporate strategy and embodying Sharp’s business philosophy through design.

The Corporate Design Center developed product designs based on the fundamental concept of “humanware design,” which made the user the foremost consideration.

New Focus on Sales Promotion Measures

NL products were designed to propose new lifestyles, so it was important to communicate to dealers the “heart and soul” that underpinned product planning. To that end, Product Strategy Meetings (i.e., preview meetings) were held across the country. There was also a high level of interest in NL products from people other than exclusive Sharp dealers. The number of participating stores increased over time, so that by the spring of 1979, representatives from 8,500 stores were in attendance.

To complement the product strategy, Sharp proposed creating tastefully designed retail stores where consumers could experience the benefits of the products first hand. This led to upgraded exterior signage and the establishment of in-store New Life product areas. To increase points of contact with consumers, Sharp had, since 1973, been making use of nationwide joint exhibitions (*Goten*)—product-exhibition and -sales events held in collaboration with local dealers. The aim was to expand sales through lifestyle proposals by bringing together expertise for attracting customers and promoting sell-through. The exhibitions toured the entire country, attracting customers with unique events.



Stores were refurbished to become New Life Stores suitable for NL products. They received new standardized exterior signage (top) and were set up with unconventional sales-floor designs.

The ATOM unit was also active in promoting sell-through of NL products. One of their unique activities was a “bucket” promotion that was deployed nationwide in 1985. In advance, customers were handed a plastic pail on which an invitation was affixed. When the customer visited a store, a door prize—such as vegetables or a convenient everyday item—was placed in the pail. The element of surprise and the sense of expectation proved popular, and these promotions produced a customer turnout two to three times greater than that of normal sales events.

2 Breaking Through to Be a Trillion-Yen Company

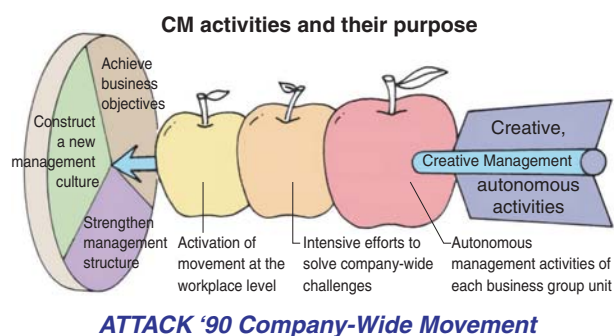
The One-Trillion Yen Initiative and 10 Straight Years of Growth in Sales and Profit

■ Announcement of the One-Trillion Yen Initiative

At the Basic Management Policy Presentation in January 1980, President Saeki announced a growth initiative that targeted sales of 1 trillion yen (non-consolidated) by fiscal 1987, the 75th anniversary of the company’s founding.

The company formulated a series of three-year plans to boost sales from approximately 395 billion yen in fiscal 1979 to one trillion yen. Called the New Sharp Strategy, it aimed at making an unprecedented leap forward. In 1983, the targeted year for reaching one trillion yen in sales was brought forward, to fiscal 1985. In fiscal 1983, non-consolidated sales were 756.5 billion yen, while consolidated sales were 1.172 trillion yen. However, the export environment deteriorated during fiscal 1985; sales on a non-consolidated basis were 955.2 billion yen, falling slightly short of the 1 trillion yen target.

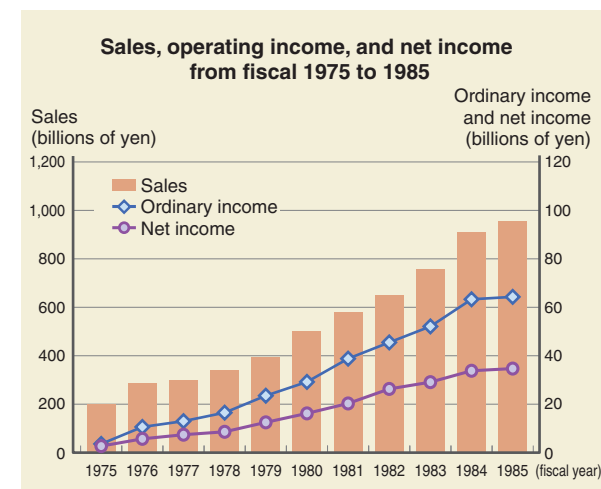
In 1985, Sharp deployed ATTACK '90, a company-wide movement that looked ahead to the 1990s and aimed to strengthen overall management capabilities. It was a movement devoted to management “attacks”—that is, management on the offensive. One of the initiatives of ATTACK '90 involved the launch of the CM (Creative Management) campaign. Under this campaign, employees aligned themselves with the direction of company-wide and departmental policies. The tasks that needed to be accomplished—and the people responsible for achieving them—were clearly delineated. Employees were expected to do their job tasks autonomously and creatively in order to reliably and steadily achieve business objectives. Implementation was based on the PDCA cycle: developing policies (Plan); executing policy measures (Do); performing self-checks and undergoing checks by superiors (Check); and implementing measures and countermeasures in response (Act).



■ Sales and Profit Increase for 10 Consecutive Years from 1976

Sharp worked to stimulate demand by developing novel and feature-rich products based on innovative technologies and marketing strategies. In addition, all departments

worked ceaselessly to strengthen management structure. As a result, financial results showed steady improvement, and the company saw growth in sales and profit for 10 years in a row from fiscal 1976 to fiscal 1985.



In this period, one of the factors behind Sharp’s strong operating results was the company’s effort to rapidly strengthen its financial structure. In 1975, Sharp embarked on an initiative to strengthen its balance sheet by setting goals to reduce debt, improve its capital-asset ratio, and lower the break-even point. First, each division worked to reduce accounts receivable and inventory, in order to create an environment that would allow an injection of high-quality external funding. Leveraging this, the company raised new capital by issuing convertible bonds and by making a public offering of new shares at market price. In overseas markets during the years from 1978 to 1985, Sharp issued convertible bonds, which were denominated in German Marks and Swiss Francs, as well as European Depository Receipts (EDRs).

Over the 10 years from fiscal 1976 to 1985, Sharp made capital investments at home and abroad totaling approximately 500 billion yen and invested a total of approximately 280 billion yen in research and development. Even while making such huge investments, the company worked to enhance its financial structure through the capital-raising efforts mentioned above, so that in fiscal 1985 the company posted an annual financial profit in excess of 25.0 billion yen (non-consolidated). In addition, the company’s net assets (non-consolidated) at the end of fiscal 1985 were 350.5 billion yen—about 8.5 times the level at the end of fiscal 1975—and the capital-asset ratio stood at 40.6%. Sharp’s financial structure had thus been greatly strengthened.

Subsequently, non-consolidated financial results for fiscal 1989 showed sales of 1.572 trillion yen and ordinary income of 72.4 billion yen. This was a record high for both sales and profit, and the company had at last achieved its goal of being a trillion yen business.

Establishment of Sharp Taskforces

In 1977, Sharp Taskforces (*Kin-Pro*) were born. This system is unique to Sharp and offers unparalleled flexibility for teams working under the direct control of the President. The best human resources are gathered from each division and research laboratory to tackle urgent themes that require company-wide collaboration outside the regular company organizational structure.

What provided the model for the Sharp Taskforce was the S734 Project organized in 1972 to win the “calculator wars” of the early 1970s. Making the EL-805 COS calculator a reality required concurrent development of innovative new technologies—such as the LCD, C-MOS LSI chip, and thick-film wiring—over a short span of one year. Accordingly, Sharp achieved its objectives by creating an organization that crossed divisional boundaries and involved the collective efforts of engineers from the Corporate Development Group and the Industrial Equipment Group.

Based on this model, the company set up the Emergency Command System, later renamed Sharp Taskforces. This became the framework under which projects were established. These projects encompassed not only development and production, but also fields such as sales and management.

Starting in December 1977, 14 Sharp Taskforces were launched—including one working on development of the front-loading VCR—and achieved notable success.

Members of Sharp Taskforces wore a gold company badge and displayed a spirit of striving for success, no matter what. With their combination of human resources, facilities, and funding, the Sharp Taskforces demonstrated development capabilities that other companies were unable to replicate.

Many unique, proprietary products such as the Zaurus PDA and LCD ViewCam videocamera came out of these Sharp Taskforces. Wide-ranging interchanges between team members—who gained a solid grasp of the processes involved in commercialization—also had a beneficial effect on the development of the company’s human resources. Sharp’s corporate culture supported a climate of



fusion, such that team members were never made to feel organizational barriers. This was the key to the longevity and success of the Sharp Taskforces.

The Death of Chairman Hayakawa

On June 24, 1980, Chairman Tokuji Hayakawa, the founder of Sharp, passed away. He was 86 years old.

The company funeral for Chairman Hayakawa was held on July 12 at the Namba Branch Temple (Minami-mido) of Higashi Honganji temple in Higashi-ku (now Chuo-ku), Osaka, with the service presided over by President Saeki. Representing friends, Konosuke Matsushita, founder of Matsushita Electric Industrial Co., Ltd., delivered a eulogy that left a deep impression on those in attendance.



June 25, 1980: Prayers were offered for the spirit of deceased Chairman Hayakawa during his funeral procession leaving the head office

In November 1981, to honor the memory of the founder, the Memorial Hall and Technology Hall were completed within the Advanced Development and Planning Center at Tenri, Nara Prefecture. A number of representative products for which Sharp was the industry leader are on display in the Memorial Hall. These include the Tokubijo snap buckle and the Sharp Pencil invented by the founder, as well as crystal radios, TVs, and electronic calculators. The Technology Hall emphasizes Sharp’s technological prowess, and features easy-to-understand commentaries intermingled with demonstrations of the latest technologies.

In April 1980, the Sharp Fellowship Society was formed. Established for the benefit of retirees of the company, the society provided a place where old associates—who had shared good times and bad—could gather and maintain ties with the company. The society continues to hold New Year’s gatherings, publish a newsletter, and sponsor various club activities. Chapters have subsequently been formed across the country. An issue of the newsletter commemorating the 30th anniversary of the Sharp Fellowship Society was published in April 2010.

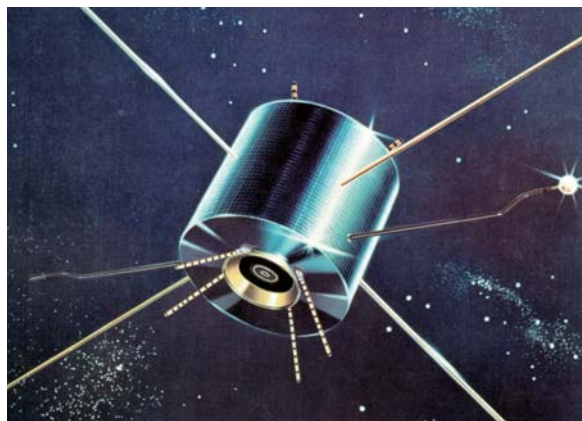
3 Growth of the Device Business Built around Technology

Expansion of the Solar Business

■ Enhancing Monocrystalline Solar Cell Technology

Sharp's solar cell business broadened to encompass applications other than maritime uses. By working ceaselessly to improve conversion efficiency and reliability, the company strengthened its position as a leading solar cell manufacturer.

In February 1976, Sharp solar cells traveled to outer space aboard the Ume, Japan's first operational ionosphere-observing satellite. For solar cells used on artificial satellites traveling outside Earth's atmosphere, the conversion efficiency was improved for short-wavelength solar radiation such as ultraviolet light, and, furthermore, the size and weight were trimmed. Since no repairs were possible in outer space, a thorough quality-assurance system was set up to establish the extremely high reliability that is essential for mission-critical components such as power sources.



Ume, Japan's first domestically produced operational space satellite powered by Sharp solar cells (photo courtesy of Japan Aerospace Exploration Agency [JAXA])

When it came to solar cells for terrestrial applications, Sharp developed the S-225 solar module in 1976. This module featured a tightly sealed, ruggedized structure designed for sea-based or coastal installations where maintenance was difficult. In addition, in 1976 the company developed the EL-8026, the world's first solar-powered calculator.

■ Commercialization of Amorphous Silicon Solar Cells

Amorphous (non-crystalline) solar cells offered attractive advantages. For one, they eliminated the need for the crystallization process. What's more, they were cost-effective, owing to the fact that they used only about 100th the amount of refined silicon, compared to crystalline solar cells.

In 1982, Sharp established Sharp-ECD Solar Co., Ltd. as a joint venture with Energy Conversion Devices Inc. (ECD) of the US. The company was able to form a tandem-cell

(dual-layer structure) amorphous silicon film on a stainless steel substrate, and it boasted high productivity.



Production line for amorphous silicon solar cells, whose distinguishing feature is the roll-to-roll process

■ Shinjo Plant Completed for Dedicated Production of Solar Cells

The oil crisis prompted the Japanese government to launch the Sunshine Project to promote development of alternative energy sources. In 1980, the Solar Equipment Group was established to commercialize solar energy (i.e., solar light and heat). The Shinjo Plant (now the Katsuragi Plant) was constructed in Shinjo-cho, Kita-katsuragi-gun (now Katsuragi City), Nara Prefecture to serve as its base of operations.

Plant No. 1 produced the Solar Ace A (Auto) solar power system, consisting of a high-efficiency heat collector and heat-storage tank. At the same time, Plant No. 2 for solar cells had an annual production capacity of 1,000 kW.

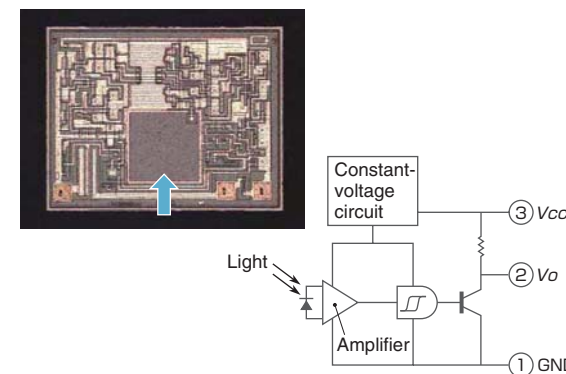
Demand for solar products fell rapidly after oil prices settled down and Sharp downsized its solar business. Nevertheless, the advanced technologies and sales networks developed during this time were later fully put to use.

The Evolving Electronic Device Business

■ Growth in Opto Devices Based on Proprietary Technologies

OPIC devices were a revolutionary development in the field of optoelectronics. OPIC (optical IC) devices integrated an optical semiconductor (a light-receiving element) and signal-processing circuitry (an IC) onto a single chip. In addition to helping make products more compact at lower costs, OPIC devices also had the outstanding feature of being highly resistant to electrical noise—a benefit deriving from the fact that they are single

Structure and block diagram of OPIC chip (IS485)



The square in the center (arrow) is the photodiode (light-receiving component); the area around it is occupied by signal-processing circuitry (IC).

integrated devices. Taking advantage of this, Sharp developed numerous OPIC products, including a laser light-receiving element. In 1981, a photo-interrupter to detect the motion of objects and a photocoupler that provided both electrical isolation and signal propagation were developed.

Also in 1981, Sharp developed the VSIS (V-channeled Substrate Inner Stripe) structure to effectively extract laser light. It was a breakthrough that extended the lifetime of existing laser diodes by several times, enabling a service life of approximately 40,000 hours. It proved extremely popular, and since 1982 Sharp laser diodes have been used by numerous makers in the majority of their CD players.

■ Commercialization of Inorganic EL Displays

In 1974, Sharp developed thin-film technology capable of depositing light-emitting elements under vacuum for use in EL (electroluminescent) displays. This enabled a display in which the panel itself was very thin, with a thickness of about 2 mm. Moreover, compared to CRTs, this panel consumed only one-fifth the power, provided wide viewing angles, and suffered virtually no bleed (blurring).

In 1983, the industry's first factory for mass production of EL displays became operational. These displays were adopted for use as monitors in instrumentation and production equipment, and they were also installed as computer displays on the US Space Shuttle.



Thin-profile, easily viewable EL displays

■ Development of New LSI Chips

In 1977, taking advantage of LSI technology developed for the electronic calculator, Sharp introduced the SM-4, the world's first C-MOS-based single-chip 4-bit microprocessor. As well as offering ultra-low power

consumption, the SM-4 came in a flat package that represented a significant improvement in mounting density. It went on to see widespread use.

One application of the SM-4 was in a portable game device introduced in 1980, which became a huge hit in Japan.

Progress in LCD Technologies

■ From DSM to TN LCDs

The display element in the EL-805—Sharp's first LCD pocket calculator—was a DSM (dynamic scattering mode) LCD. This LCD presented significant difficulties, in that it required high drive voltages and its response time slowed at low temperatures. Accordingly, in 1976, Sharp introduced the EL-8020—a calculator equipped with a TN (twisted nematic) LCD. TN LCDs were also used in small game devices with a built-in clock. Faced with growing demand, Sharp began operating an integrated production line with advanced automation in 1982.

■ Development of an LCD TV

Beginning in 1976, Sharp launched research on an LCD TV. Passive-matrix LCDs were not capable of achieving high-resolution image quality. Therefore, in 1983, Sharp developed an active-matrix LCD that incorporated thin-film transistors (TFTs). The company then went on to complete a prototype of a 3.2-inch color LCD TV.



Prototype 3.2-inch TFT color LCD TV (1985)

■ From TN to STN LCDs

At the same time, Sharp developed the STN (super twisted nematic) LCD for use in passive-matrix LCDs. The liquid crystal material in this new design featured a twist angle increased from 90°—the angle achieved by TN LCDs—to 240°. This allowed the LCD to provide sufficient contrast even when the panel was enlarged (i.e., when its pixel count increased). Equipped with this LCD, the WD-250 word processor could display text and graphics clearly on its large screen. That model gained popularity in part because of the convenience it offered in creating New Year's greeting cards in Japan. Through the success of this word processor, demand for LCDs also grew dramatically.

4 Establishing a Foothold as an Electronic Office Equipment Manufacturer

In the late 1970s, office equipment evolved and began to be called OA (office automation) equipment. Sharp developed a range of electronic office equipment, adding new features to earlier models of calculators and copiers. In addition, the company responded to requests from dealers by expanding into new product categories, such as fax machines or computers—the latter evolved from earlier calculator designs.

Development of Calculators and Computers

■ Outbreak of the Calculator Wars

In the 1970s, the fierce competition in the Japanese calculator market grew even more intense and came to be known as the "calculator wars." To win amid this competition, Sharp announced a policy of in-house start-to-finish production—from parts to finished products—to make calculators different from those of other companies. The company pushed forward to give Sharp calculators thinner profiles.

In 1975, Sharp introduced the 9 mm-thick EL-8010 calculator, which was followed a year later by the 7 mm-thick EL-8020. In 1977, the EL-8130 "card" calculator was born, boasting a thickness of 5 mm. This buttonless model used a keyless touch pad that emitted a beep for each finger press to confirm the desired operation. Marketed with a highly effective TV commercial using the catch phrase, "The button wars are over!," this calculator became a huge hit.

In 1978, automated production lines built around ultra-fine pattern-fabrication technology made the EL-8140 calculator possible. It was the size of a credit card, with a thickness of 3.8 mm. The 1.6 mm-thick EL-8152 was launched the following year. Thanks to its outstanding design, it was selected for the permanent collection of the Museum of Modern Art, New York. Following this, in 1985, the 0.8 mm-thick EL-900 was introduced.

In addition, Sharp introduced a series of new calculators, including solar-powered models, calculators combined with an abacus, and scientific calculators. By 1985, cumulative production of calculators had reached more than 200 million units.

■ The Birth of the Pocket Computer and Electronic Translator

After the calculator, Sharp launched development of new products such as portable devices using dot-matrix LCDs that could display not only numbers, but also Roman letters and Japanese *katakana* characters. These developments led to the birth of the pocket computer and an electric translation device.

In 1977, Sharp introduced the PC-1200, its first pocket computer. It added programming functions to the calculating capabilities of a scientific calculator. In 1980, the PC-1210 was introduced with BASIC, a general-purpose

programming language. This was a huge hit product for applications such as scientific computing and introductory programming. The PC-1500 introduced in 1982 featured extended applications to handle business tasks, such as calculating estimates. A book was sold in which users presented their own programs written for the PC-1500, such as schedule management and an address book. The pocket computer gave impetus to the development of products such as electronic organizers.

In 1979, Sharp introduced the IQ-3000, its first electronic translation device. About 2,800 English words and phrases at the high school level, plus a 5,000-word Japanese dictionary (displayed in *katakana*) were built in. The following year, the IQ-3100 multi-lingual translator was introduced. With additional options, it could translate among three languages at the same time, making it useful for overseas travel. Its 23-character screen was wide enough to display conversational phrases.

In 1981, the IQ-5000 electronic translator with voice synthesis technology made its debut.

■ Development of Japanese-Language Word Processors

At the 1977 Business Show in Tokyo, Sharp unveiled a prototype Japanese-language word processor, a first in Japan. The functionality of its *kana-kanji* conversion feature—a proprietary development of Sharp—had been enhanced during the commercialization process, opening up new possibilities for a wide range of electronic office equipment. In 1979, the WD-3000 word processor was introduced using a text-input system based on a *kanji* tablet. In 1982, Sharp introduced the WD-1000, which was equipped with a *kana-kanji* conversion function, and in 1983, the WD-2400T, which combined a typewriter keyboard and phonetic tablet for Japanese-language input.

Sharp also began to focus on development of word processors for personal use. In 1984, it introduced the WD-500, and in 1985, the WD-100, which featured phrase-based *kana-kanji* conversion and which retailed at a low price of 148,000 yen.



PC-1210 pocket computer with BASIC programming capability



IQ-3000, Sharp's first electronic translator



WD-3000, Sharp's first Japanese-language word processor

In addition, as offices were beginning to move away from electric typewriters, Sharp also entered the electronic typewriter market, with a primary focus on Europe and the US. The ZX-400, a mass-market model for offices, was introduced in 1982, along with the ZX-500, a mid-range model with a display.

■ Introduction of Personal Computers

In May 1978, the Components Division of the Electronic Components Group introduced the MZ-40K microcomputer kit, and in December, the MZ-80K, an assemble-it-yourself model that ran under BASIC. This was Sharp's first personal computer. The next year, the MZ-80C was introduced as its pre-assembled version, and in 1981, the MZ-80B as a high-end model. The MZ series captured the top market share and became highly sought-after by engineering students, helping to boost Sharp's image as a technology company.

In 1980, the Electronic Calculator Division of the Industrial Equipment Group launched the PC-3000 series of computers for business and office tasks, but it turned out that it competed with the MZ series. To resolve this problem, in October 1981, it was decided to establish the Personal Computer Division within the same Group, and to place development and production of both the MZ and PC series under its control.

In November 1982, in turn, the TV Systems Division of the Electronic Equipment Group launched the X1 PC-TV. In addition to TV and PC functions, it enabled TV and PC image signals to be superimposed. The X1 was a particularly popular model among audio-video fans and game-oriented young people.



The MZ-80B (left) and X1 PC-TV became popular products

Evolution of Copiers and Introduction of Fax Machines

■ Developing the World's First Copier with an LSI Chip

In 1976, Sharp introduced the SF-710L, the world's first copier to use an embedded LSI chip. Switching to an LSI chip made it possible to shrink the control board to fit onto a single printed circuit board, and it also served to improve reliability, reduce the overall size of the copier, and lower costs. In 1978, Sharp introduced the SF-810, the industry's first stationary-platen desktop copier. The platen, which had previously moved horizontally to scan the document original, was now stationary, and this design subsequently became the model for mid-range and mass-market machines. The SF-740, introduced in 1979, also featured the ability to copy onto postcards and became a best-selling machine.

With a goal of producing the world's smallest and lightest copiers, Sharp developed compact, low-speed models not available from US and European manufacturers. The SF-750 and SF-770 copiers introduced in 1981 were hits in Japan and abroad. The Z-60, a copier small enough to be considered for personal use, was introduced in 1984. The world's smallest B4-size copier at the time, the Z-60 offered a number of innovative features, including a developing unit that could easily be replaced by users themselves. In 1985, the SF-9500 was added as Sharp's first high-speed model, and served to complete a full lineup—from the smallest personal models to high-speed machines.

■ Introducing Fax Machines

In 1979, while awaiting a decision from the International Telecommunication Union on international G3 facsimile transmission standards for high-speed machines, Sharp worked to develop products that could take advantage of the anticipated new standards. In 1980, the company introduced the FO-2000 series of G3 fax machines, which were capable of sending and receiving text more clearly with finer detail.



FO-2000 G3 fax machine

■ Developing a Broad Range of Commercial Equipment

In June 1974, Sharp combined three departments—those for vending machines, refrigeration equipment for cold chain distribution, and air conditioning equipment—and established the Commercial Equipment Division. Sharp's coffee-vending machines were market leaders: in 1977 they boasted a 40% share of the entire Japanese market and accounted for approximately 70% of the Division's total production value.

Environmental information systems represented a unique business field targeting the public sector. Traffic information systems—an area that Sharp had been working on since the late 1960s—informed drivers traveling on expressways about abnormal weather conditions, traffic congestion, speed limits, and the like. A water distribution system that provided remote control of municipal water systems was also widely popular.



Vending machine production line at the Yao Plant (1976)

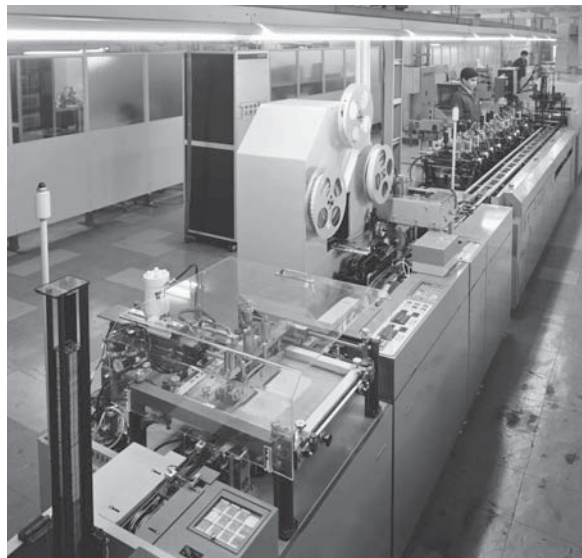


The world's first road weather information system installed on the Tomei Expressway used an illuminated board to automatically display traffic warnings (1969)

5 Expanding and Upgrading Production Facilities

In 1978, the Industrial Equipment Group launched the ACE-80 Plan, a three-year initiative aimed at rapid development following a basic policy of Advance, Challenge and Expand. Under this plan, the Nara Plant introduced the world's first automated production line for the complete fabrication of electronic calculators. In addition to the automated assembly of printed circuit boards, which it had been doing previously, it employed automated cabinet assembly and automated testing and inspection. The plant achieved production of 300,000 units per month and was awarded the 1980 Okochi Memorial Production Prize*1.

In response to growing demand for optoelectronic devices for use in office equipment, VCRs, and factory automation, Sharp consolidated the Semiconductor Applications Division at the Shinjo Plant (now the Katsuragi Plant) in 1985. The plant was tasked with providing greater production capacity for the electronic components business.



Automated production line for finished calculator products—a world first (Nara Plant)

In the autumn of 1973, production of audio products—including radios, tape recorders, and stereo systems—was consolidated at the Hiroshima Plant, which became the major base for the Audio Systems Division. In addition, deregulation of the telecommunications business in Japan prompted Sharp's entry into the phone equipment market.

Home game machines introduced by a certain toy manufacturer in 1983 were a big hit, and sales of the mask ROM*2 products used in them grew dramatically. To respond to this demand, Sharp constructed the Fukuyama Plant in 1985 (in Fukuyama City, Hiroshima Prefecture). This state-of-the-art automated plant used robots in all production processes. Further, Fukuyama Plant No. 2—which was constructed in 1989—introduced microfabrication technology along with the latest computer-integrated manufacturing systems.

In September 1978, Sharp established the CAD (computer aided design) Center. In 1980, the company began marketing a CAD system for printed circuit board design that reduced design time to one-tenth of previous levels and that accommodated automation of production equipment. In addition, in 1983, Sharp developed Kernel-3D, an integrated 3D CAD/CAM (computer-aided manufacturing) system for mechanical design. The system supported design at both the conceptual and mechanical levels and for items such as molds and dies.

*1 The Okochi Memorial Production Prize is an award presented to individuals and business entities who have improved business performance, as evidenced by outstanding results as well as inventions and designs related to production engineering and advanced production methods. The prize is named after Dr. Masatoshi Okochi, the third president of Japan's RIKEN natural sciences research institute.

*2 Mask ROM is a type of read-only memory (ROM) whose data contents are permanently stored in it using transistor circuitry.

6 Establishing Sales Subsidiaries on a Nationwide Scale

Restructuring and Consolidating the Sales Organization

Around this time in Japan, consumer electronics distribution underwent a major shift towards nationwide specialty retailers and chain stores. Sharp's business partners were seeking distribution agreements covering larger geographic areas, along with a consolidation of

business contact points. It became necessary for Sharp to move beyond the previous regional structure and establish companies providing nationwide coverage.

In 1972, Sharp's system for marketing consumer electronics comprised 16 companies nationwide (covering regions other than Okinawa). In 1978, the Osaka, Keiji, and Hyogo Sharp Electric Companies were merged to establish Kinki Sharp Electric Company. In January 1981, twelve companies around the country—with the exception

of companies in charge of volume retailers located in Nipponbashi, Osaka, and Akihabara, Tokyo—combined with Sharp's home appliance sales promotion department to establish Sharp Consumer Electronics Co., Ltd. The result was a four-company nationwide system that also included Naniwa Sharp Electric (Nipponbashi), Tokyo Chuo Sharp Sales (Akihabara), and Sharp Electronics Sales Okinawa Corporation.

In 1977, Sharp's nationwide office equipment sales companies formed a 10-company system. In 1978, nine of these companies (with the exception of the one in Okinawa) were merged and reorganized into a two-company system consisting of East Japan Sharp Office Equipment Sales and West Japan Sharp Office Equipment Sales. Further, in December 1980, these two companies were merged with an office equipment sales company in Okinawa. In addition, the department in charge of retailers at Sharp System Products (SSP) and Sharp Corporation's Industrial Equipment Marketing Group were also consolidated to form a single nationwide company, Sharp Business Co., Ltd. (SBK).

In October 1982, the Domestic Consumer Electronics Marketing Group was set up, followed in April 1983 by the Domestic Industrial Equipment Marketing Group. Furthermore, the head office functions—which had been incorporated into the sales companies when Sharp Consumer Electronics and SBK were established—reverted to Sharp Corporation. The Domestic Consumer Electronics Marketing Group focused on planning and promoting overall marketing strategies, planning sales network (distribution) strategies, and disseminating information. The Domestic Industrial Equipment Marketing Group was made an independent organization to provide software support and expand measures to meet the product needs of the Industrial Equipment Group.

Improving Service Subsidiaries and Affiliated Companies

In March 1977, to provide a higher quality of service nationwide, Sharp System Service was formed by consolidating the service departments of Sharp's office equipment sales companies. It was established as a dedicated office equipment service company with 68 offices.

In March 1982, the 10 home appliance service companies nationwide changed their company names to Sharp XX Engineering (where “XX” was the region name). In March 1983, Sharp responded to the nationwide growth of its sales subsidiaries by consolidating the 10 service companies to form Sharp Engineering Corporation.

In March 1977, the Hayakawa Tokusen Metal Limited Partnership became a special subsidiary company of Sharp Corporation. Under a Japanese law for promoting employment of the disabled, a subsidiary employing people with disabilities was deemed to be a business facility of the parent company when assessing the parent company's rate of employing disabled persons. When Tokusen Metal began construction of new premises (i.e., a new plant), city ordinances decreed building restrictions because the site was located in a residential area. However, outreach by President Saeki to the city of Osaka and understanding from local residents—based on concern for social welfare—enabled completion of the plant in



New factory building for the Hayakawa Tokusen Metal Limited Partnership, completed with local support



Employees working in the plant (around 1982)

October 1981. In September 1982, the company was reorganized as Sharp Tokusen Industry Co., Ltd.

In October 1978, Sharp Equipment Corporation and nine equipment sales companies nationwide were merged and reorganized into two large units, one responsible for eastern Japan and the other for the western part of the country (respectively, East Japan Sharp Equipment and West Japan Sharp Equipment).

In April 1979, Sharp Electronic Specialty Equipment Sales was established, with a focus on sales of medical equipment originating from the Medical Equipment Sales Division of the Industrial Equipment Marketing Group. In December 1979, SBC Software Co., Ltd. was established as a company specializing in application software development.

In May 1982, Sharp Finance Corporation was spun off from Sharp Consumer Electronics and established as an independent credit services unit. It expanded its business scope by adding comprehensive financial services to its existing provision of financing to promote manufacturer sales. In October 1985, it merged with Sharp Kosan and expanded into other business areas, including car leasing, insurance brokerage, real estate, and travel services.

From the Service Group to the Reliability Control Group

In 1975, the Service Group changed its name to the Reliability Control Group. This change reflected a policy of ensuring the reliability of products in terms of both quality and service. The Product Reliability Control Center, Parts Center, and Service Management Division were placed under its umbrella; later, the Overseas Service Division and the Consumer Center in charge of handling customer inquiries were added.

7 Establishing the Company’s First Production Base in a Developed Country

Developing a Diverse Range of Measures for Overseas Sales

■ Trade Friction over TVs Intensifies

Despite the headwind of the Nixon Shock of 1971 and the first oil crisis of 1973, exports of color TVs made in Japan—particularly Sharp’s Z Chassis model—continued to expand. This ongoing success was attributed to the improved performance and significantly lower costs made possible by the use of ICs. However, the steep increase in exports led to new trade frictions. In May 1977, Japanese manufacturers decided to voluntarily limit exports of color TVs to the US. Beginning in 1978, exports of TVs were reduced to 60% of the previous year’s level, dealing a serious blow to color TV exports.

■ Three Measures to Cope with Trade Friction

As a response to trade friction with the US, Sharp strengthened sales of non-TV products to that country, and at the same time, it worked to build up its sales networks in regions other than the US. In addition, Sharp decided to take the bold step of launching local production there (see page 6-12).

In response to the US copier market, which at the time was focused on large machines and controlled by a small number of major manufacturers, Sharp offered compact, easy-to-use copiers. In 1981, this led to Sharp models taking the top ranking in number of shipped units in the US (based on a Dataquest [now Gartner] survey). In particular, the SF-750, then the world’s smallest and lightest copier, was highly rated.

In addition, Sharp established a solid position in the microwave oven market, armed with an abundance of products that offered high performance and low cost. In 1975, 48% of the microwave ovens made in Japan and exported to the US were Sharp products (based on Sharp research).

The oil crisis plunged the US into a recession in 1974. A hit product at this time was a Sharp two-way CB (citizen band) radio designed for in-vehicle use. Long-haul truckers purchased these units to exchange information on the locations of filling stations where they would be able to refuel. Sharp products developed a reputation for high quality, which also helped expand the market for Sharp audio/video products through the same sales channels. However, other manufacturers quickly entered the market, causing prices to fall, and the CB radio boom was soon over.

Other sales and marketing bases established outside the US included Sharp Electronics (Svenska) AB (SES)—now Sharp Electronics (Nordic) AB (SEN)—in Sweden in 1979, and Sharp-Roxy Sales & Service Company (M) Sdn. Bhd. (SRSSC) in Malaysia in 1985.

■ Deepening Ties with China

In China, Sharp participated in the Canton Fair in 1963. Then, in 1971, the company welcomed members of the Chinese Institute of Electronics (CIE) to the semiconductor plant at Tenri. Following the normalization of diplomatic relations between Japan and China in 1972, Sharp’s relationship with China grew deeper. When China’s Chairman of the State Planning Commission visited Japan in 1979 and purchased 1.2 million black-and-white TVs from 11 Japanese consumer electronics manufacturers, Sharp received orders for more than 600,000 sets. Sharp began full-fledged marketing activities in China, establishing the Beijing Office in 1981, the Shanghai Office in 1985, and the Guangzhou Office in 1986.

Sharp not only exported finished goods to China; in keeping with Chinese government policies, the company also concluded technology-licensing agreements for color TVs with five major Chinese factories in 1984. The Chinese government had been promoting its own domestic production of parts, and Sharp’s common chassis was the only such component to pass Chinese national standards. Eventually, more than 20 factories adopted this TV chassis. In the spring of 1985, a Sharp Comprehensive Technology Exhibition was held in Beijing and Shanghai. This exhibition was big news, raising Sharp’s profile in China as a comprehensive electronics manufacturer and helping to solidify Sharp’s reputation for advanced technological capabilities.

This wide range of measures in various regions of the world began to bear fruit: the value of Sharp’s exports in fiscal 1976 topped 100 billion yen for the first time, reaching 153.2 billion yen—an increase of 81.8% compared to the previous year. In fiscal 1985, exports were 577.0 billion yen, another record high.



Long lines of visitors began forming early in the morning, waiting for the doors to open at the Sharp Comprehensive Technology Exhibition in Beijing

First Consumption-Area Production Base Established in the US

■ Meeting with Top US Government Officials

This was Sharp’s first attempt at local production in a developed country. Before establishing a production base in the US, there was a need to dispel concerns that a Japanese company starting operations there would cause further trade friction between the two nations. In October 1978, President Saeki traveled to Washington, DC, and met with Vice President Walter Mondale and US Trade Representative Robert Strauss, as well as other government officials. The meetings resulted in a vote of approval, with Vice President Mondale commenting, “I believe Sharp’s investment will not only contribute to increased employment and economic development in the US, but it will also help resolve trade issues between the two countries.”

In October 1979, Sharp Manufacturing Company of America (SMCA) was established on a 356,000 m² site on the outskirts of Memphis, Tennessee, as the production division of SEC, Sharp’s US sales subsidiary. It began with production of color TVs.



SMCA was established in Memphis, Tennessee in 1979

■ High Quality Is Key to Plant’s Success

However, operation of the new plant was not smooth sailing from the beginning. Employees were so strongly motivated to achieve planned production goals that they were not focused enough on product quality. By repeating the mantra, “Quality is the lifeblood of a manufacturer,” they transformed their attitude and awareness and eventually achieved high standards of quality. As an indication of the quality of SMCA products, cumulative production of color TVs and microwave ovens reached one million units in 1981, despite the recession. The *Wall Street Journal*, a leading business and financial newspaper in the US, devoted a great deal of coverage to the factors behind SMCA’s success, including its efforts to reduce defects, the guidance given to employees and subcontractors, and the family atmosphere based on Japanese-style management.

■ Expanding Production Bases outside the US

Sharp made steady progress in building a production system that would not be affected by government policies in the countries to which it exported. In 1985, it



An ad that appeared in a local newspaper in 1989 celebrating the 10th anniversary of the founding of SMCA and expressing gratitude from the Mayor of Shelby County, Tennessee, and other local dignitaries: “Thanks for pinning your hopes on us. Sharp and the Memphis Partnership.” Clearly, SMCA had integrated well into the local community.

established Sharp Manufacturing Company of U.K. (SUKM) as the production division of SUK, the sales subsidiary in the UK. SUKM was Sharp’s first production base in Europe, and it began with production of VCRs for the European market. This move was done against a backdrop of rapid growth in the export of VCRs from Japan to Europe, which prompted the imposition of customs import regulations in 1982—for example, limiting customs clearance to only the port of Poitiers, France—and dumping complaints from European manufacturers. This in turn had led Japanese manufacturers to voluntarily restrain exports for three years beginning in 1983. Although the objective in establishing SUKM was to avoid such trade friction with European countries, it was also welcomed by the UK government and local communities for contributing to local employment and strengthening the industrial infrastructure of the area.

In Asia, in conjunction with re-export bases, Sharp also established production bases in regions where its products were consumed. In Malaysia, Sharp established Sharp-Roxy Electronics Corporation (M) Sdn. Bhd. (SREC^{*1}) in 1980 to produce color and black-and-white TVs for export markets, and Sharp-Roxy Appliances Corporation (M) Sdn. Bhd. (SRAC^{*2}) in 1985 to produce color TVs and refrigerators for Malaysia. In the Philippines, Sharp (Phils.) Corporation (SPC) was established in 1982. It produced black-and-white and color TVs for the domestic market, as well as tape recorders and washing machines for export.

*1 In 2009, SREC was merged into Sharp Manufacturing Corporation (M) Sdn. Bhd. (SMM).

*2 In 2002, SRAC terminated production activities and became an investment holding company for SRSSC.