Aiming to Be a One-of-a-Kind Company
Issuing the LCD TV Declaration

Based on the One-of-a-Kind Strategy—to create new demand by developing unique technologies and new products that hadn't existed before—Sharp selected and consolidated its business resources on LCD development. Under its LCD TV declaration, the company succeeded in making technological breakthroughs and developing new markets for LCD TVs. Other products, such as mobile phones equipped with cameras and air purifiers with Plasmacluster Ion technology, also became hits with consumers. Meanwhile, Sharp increased corporate value by considering the environment as a driver for growing business and by carrying out a comprehensive brand strategy.

Line art of a camera-equipped flip-type mobile phone

1 Aiming to Be One-of-a-Kind, Rather Than Number One

President Machida Appointed

On June 26, 1998, Corporate Senior Executive Director Katsuhiko Machida was named Sharp president. At the same time, Corporate Advisor Saeki became corporate senior advisor, and President Tsuji became corporate advisor. President Machida, the new leader of the company, had become a corporate senior executive director in 1992 after working in a wide range of areas. He was also group general manager of the International Business Group and the head of overseas operations. He had contributed greatly to the development of Sharp's business in the Chinese market. In 1997, he became responsible for Sharp's home appliance business and domestic marketing.

Upon becoming president, Machida announced the revised Basic Management Policy (management that is easy to understand, covers the basics, and considers sustainability for growth) and the Guidelines for Business Management (developing unique businesses, autonomous management, fast and efficient operations, and effective global management; and promoting high customer satisfaction). He started traveling around Japan about a month after his appointment, visiting 11 sites to explain his ideas directly to managers.

In January 1999, he announced the Crystal-Clear Company Declaration. It was a call to become the only company of its kind that shines with unique technologies such as LCDs. In February, he started the Crystal Clear Homepage on Sharp's intranet, which included the Machida Channel column where he communicated his message directly.

"One-of-a-kind management" is a way for a smaller company to compete with larger companies and maintain steady revenues with products that are distinctly different and that offer unique features. The strategy is well aligned with the approach to product creation that Sharp has taken ever since its foundation—an approach symbolized by the words of founder Hayakawa to "make products that other companies want to imitate."

Starting with a speech at the Mie Plant on August 1, 1998, soon after his appointment, President Machida traveled around the company's facilities to explain his management policy

In August 1998, the company established the Sharp Business Standards and Action Guidelines as standards of conduct for the board of directors and employees to follow in realizing the company's business philosophy and business creed. Following that, Sharp instituted the Sharp Charter of Conduct in April 2003, placing emphasis on the importance of observing regulations and respecting corporate ethics, in an effort to make management more transparent.

Sharp's Declaration for LCD TVs

As part of the one-of-a-kind strategy, President Machida was thorough in selecting business areas and consolidating the company's efforts. Around that time, semiconductors were predominant in Sharp's device business. The LCD business was comparatively small in size, and it was not yet making a profit. However, Sharp LCDs were leading the world in terms of technology, and Sharp had one of the top shares in the market. President Machida decided that it would not be sustainable for a company of Sharp's size to keep investing in both of these business areas. He dared to choose the LCD business for Sharp's focus as it held great promise for future growth.

シャープの町田勝彦社長（写真＝十八日、今年六月の就任後、初めて会見し、新しい経営方針を明らかにした。①二十一世紀初頭までに国内で生産するテレビ全製品に液晶画面を採用する商品の注文から納入までの時間を大幅に短縮する――などが柱。事業の規模や量を求めるのではなく、独自技術で厳しい状況。ただが、「液晶需要は二十一世紀に入って本格的に拡大する」（町田社長）と判断、今後も事業の中核に据える。

TVすべて液晶画面に

シャープ社長が経営方針

現在、本体売上高一兆三千三百億円（九八年三月期）のうち三十万台のテレビを生産、液晶画面のものは一〇%に満たない。現在、シャープは国内で約二・五カ月のトータルリードタイムを、来年度は三分の一に短縮する。

Newspaper article about Sharp's LCD TV declaration (*The Nikkei*, August 19, 1998) (top) and two LCD TV models, the LC-121F1 and LC-150F1

Machida boldly declared, "We will replace all TVs sold in the Japanese domestic market with LCD TVs by 2005" and made that the company's new business policy. His declaration was initially greeted with tremendous skepticism from the general public; it was seen as "impossible" or "a pipe dream." Internally, engineers were perplexed, as there were still so many issues to be resolved for LCD TVs. However, this clear goal stoked their spirit of endeavor, and the company was soon united in the effort. In fiscal 2004, the percentage of LCD TVs reached approximately 90% of Sharp's total TV sales in Japan, achieving the goal ahead of schedule.

Mastering the Art of Manufacturing

In January 2001, President Machida announced that the company should return to its roots as a manufacturer and master the art of manufacturing in Japan. He noted that mastering the art of manufacturing was what Japan's electronics industry should aim for. This didn't mean they should manufacture everything in Japan. His idea was to use mature technologies to manufacture products at cost-competitive and optimally located overseas plants, thereby contributing to growth in those countries. Meanwhile, he thought the work on creating cutting-edge devices and products that were based on the latest, still-evolving technologies should stay in Japan from development through to production.

Sharp began full-scale implementation of supply chain management (SCM). The purpose of SCM was to supply markets in a timely manner with just enough products as were needed. That required systematizing every step of the business operation, from design and development to procurement, production, and distribution.

The company also implemented the Sharp Direct Manufacturing Method starting in 2001. This production innovation—based on the key word *choku*, meaning "direct" in Japanese—included vertical startup of production*1, direct delivery of components to the manufacturing process*2, and improvement in quality of manufacturing (first-pass yield)*3. The method was introduced at all production sites in Japan and abroad.

In March 2001, Sharp established S.I. Solutions as a joint venture with IBM Japan. The company offered business solutions in the form of enterprise resource planning (ERP)*4 and SCM to respond to various needs inside and outside the company.

*1 To start planned production at full volume from the beginning of production for a new product (or new plant opening).
*2 To deliver necessary components directly to the production line in order to eliminate in-process inventory.
*3 The ratio of components put into the production process that pass all inspections in the first round, including inspections in the production process and prior to shipment.
*4 Comprehensive information system to support core business management tasks including sales, production, distribution, inventory, financial accounting, management accounting, and human resource management, with the aim of efficiently utilizing a company's managerial resources.

2 Brand Strategy in Full Force

What to Leave in the 20th Century, What to Take to the 21st Century

As of 1999, Sharp's brand power in Japan was ranked seventh in the industry (according to a brand recognition survey from a professional research organization that the company commissioned). Sharp was not perceived to have a particularly strong presence and was seen as a "faceless" company. In order to raise its brand recognition, the company chose LCDs and LCD TVs as its "face." A new policy was set to advertise only LCD application products and to make the volume of the advertising number one in the industry. The entire advertising and sales promotion budget was devoted to LCD TVs.

Sharp chose Sayuri Yoshinaga, a famous and well-liked actress in Japan, as its image character and spokesperson. The company ran a massive commercial campaign on TV for four consecutive days starting from New Year's Day in 2000—the last year of the 20th century. The campaign carried a memorable catch phrase: "What to leave in the 20th century. What to take to the 21st century." The commercial ran so frequently that anyone who turned on a TV during those four days was sure to see it. Consumers got the impression that the age of the LCD TV had arrived. This campaign also made Sharp's engineers realize that the company was serious and passionate about LCDs.

TV commercial in which Sayuri Yoshinaga calls LCD TVs "what to take to the 21st century," while wrapping up an old CRT TV in a traditional wrapping cloth

Improving Corporate Branding

In 2002, the year of Sharp's 90th anniversary, a company-wide campaign called the Be Sharp Initiative was launched with the aim of improving the company's brand power. It was an effort to build a strong brand by creating a new business vision and developing products that reflected that vision. Sharp sought to capitalize on its strengths and engage in corporate activities that would help it gain wider recognition from society and customers as a top-tier company.

In January 2002, the Brand Strategy Planning division was created under the direct control of the president to lead corporate branding activities. It took measures to improve Sharp's brand power, providing branding and leadership training. Further, in February 2006, all advertising, sales promotion, and website departments were integrated to become the Global Brand Strategy Group. The group had two objectives for maximizing brand impact. One was to carry out uniform communications from a branding perspective. The other was to develop and execute branding strategies. To achieve optimal end-user impact, a plan was put in place to standardize the content, style, and "measurable volume" of communications across all media, including TV commercials, newspaper and magazine ads, billboards, in-store POP displays, and the Internet.

In November 2002, the company commissioned Hitotsubashi University's Professor Kunio Ito to assist and promote branding activities. He is considered the foremost researcher on corporate branding in Japan, and in cooperation with Nikkei Inc. he has developed a method to measure the value of branding.

President Machida often talked about the importance of branding and showed his firm determination to establish Sharp as a strong brand around the world. To this end, he initiated the company-wide Shine Campaign in April 2004 to raise the quality of the actions of individual employees, believing this would help improve Sharp's brand power. The idea for the campaign was that the Sharp brand would shine even more if employees had greater pride and confidence in themselves and the company, while creating one-of-a-kind products.

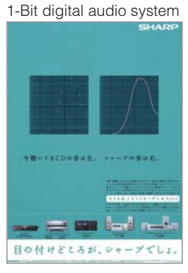
As a result of company-wide efforts to raise brand recognition, Sharp ranked top in the industry according to a brand recognition survey in the fall of 2006. This was a big leap from the company's seventh-place ranking in 1999 and reflected the company's success in unifying management policy, business activities, and brand strategy.

Residential solar power system

Ultra-thin notebook PC

AQUOS LCD TV

1-Bit digital audio system



Plasmacluster Ion home appliances

A daily series of newspaper ads introducing one-of-a-kind products (2002)

3 Human Resource Development Utilizing Diversity and Self-Motivation

Implementing the Sharp Leadership Program

Ever-accelerating technological advances required changes in the way business was conducted, even in areas of marketing and business administration. Sharp implemented a new human resource system so that all employees—the backbone of the company—could respond to these changes, improve their abilities, and work to their full potential.

In April 2001, the Sharp Leadership Program was implemented to nurture the next generation of corporate leaders. It was a selection-based education system for developing the leadership and management skills of employees—from young employees in semi-managerial positions to those in charge of departments—with a view to enabling them to work on the global stage. The Challenge Course was implemented for the early promotion of young talent in semi-managerial positions. The course had two pillars: a performance-based monthly salary system that eliminated seniority-based factors, and educational support programs.

In October 2003, the Master System was implemented to support Sharp in mastering the art of manufacturing. The purpose of the system was to produce excellent technicians who could foster the creation of one-of-a-kind products. In April 2004, four employees who had developed skills and knowledge in areas such as soldering and sheet metal work and who were capable of teaching the younger generation were selected as the first Masters.

In 2005, the Management of Technology (MOT) Program was created to strengthen the education system for corporate managers from technology fields. This system has been helping to develop managers who can create new businesses and revitalize existing businesses from the seeds of groundbreaking technology.

In October 2004, a special department was established to promote better utilization of female employees. The following year, the Company-Wide Affirmative Action Promotion Campaign began, with a remit of ensuring appropriate job placement for talented and motivated female employees. Progress has since been made in expanding the range of job areas open to women and promoting talented female employees to management positions. The company has also been working to improve its measures supporting an optimal work-life balance.

R-CATS Activities Begin

In October 2003, Sharp changed the name of its small-group activities to R-CATS (Revolution Creative Action Teams), and it started an original program involving all employees from all departments.

R-CATS activities are a method of pooling the collective knowledge and ideas of a group. These activities are considered work itself, and participants uncover and tackle issues in their workplace, thereby acquiring problem-solving skills as a group. The intention of R-CATS was to maximize the potential of people and organizations. The program has since been expanded to overseas bases.

Representatives of teams receiving awards at the All-Sharp R-CATS Convention, held for the first time after the organizational change (May 2004)

4 Becoming an Environmentally Advanced Company

Development of Super Green Activities

As society became more environmentally conscious, Sharp established the Environmental Protection Group in October 1997 to promote environmentally sustainable management. Specific measures were developed in four areas: Green Products, Green Factories, Green Mind, and Recycling.

Green Products

Sharp developed environmentally friendly products, such as energy-saving products or recyclable products, and identified them with the Sharp Green Seal as products that had passed an internal certification system. In fiscal 1998, the company issued Green Product Guidelines, compiling design goals for environmentally friendly products.

Green Factories

The company took measures to reduce waste and greenhouse gas emissions and established Green Factory Guidelines in fiscal 1999. The company also implemented the Sharp Environmental Management System at domestic production facilities starting in fiscal 2003, defining more advanced internal standards based on ISO 14001.

Green Mind

Sharp aimed to foster an environmentally conscious corporate culture and encouraged employees to take measures at their workplace and to participate in citizens' group activities for environmental protection. It started publishing the Sharp Environmental Report in 1999, disclosing environment-related information and enhancing communication with stakeholders.

Recycling

The company made progress in material recycling, extracting material resources from used products for reuse in new products. In 2001, it inaugurated its closed-loop recycling technology for plastic used in manufacturing washing machine tubs.

Sharp carried out the 3G-1R strategy—the name derived from the four areas of environmental activity. In 2001, the perspectives of "management" and "distribution" were added and the 3G-1R Strategy was renamed Super Green Activities.

Pellets of recycled plastic

Operation of Kansai Recycling Systems Started

In April 2001, the Home Appliance Recycling Law was enacted in Japan, making recovery and reuse of resources mandatory for air conditioners, TVs, refrigerators, and washing machines. Prior to that, in December 1999, Sharp had collaborated with Mitsubishi Materials Corporation in establishing Kansai Recycling Systems Co., Ltd. in Hirakata City, Osaka. This factory utilized cutting-edge facilities and manual disassembly to maximize the portion of materials recycled. In 2006, Kansai Recycling Systems opened a second factory for recycling TVs in Iga City, Mie Prefecture.

In 2001, an employee at Kansai Recycling Systems released recovered CFC (chlorofluorocarbon) into the air. Sharp, as the largest shareholder, was the brunt of criticism. Learning from this experience, the company renewed its efforts to reinforce a corporate culture respectful towards the environment and compliant with all laws and regulations.

1999 Sharp Environmental Report

5 Growth in the Device Business through Selection and Consolidation

Advancing the LCD Business through the Development of Unique Technologies

Sharp's LCD business proceeded to develop displays not only for PCs—its main LCD application product—but also for new applications such as TVs and mobile phones. To meet a wide range of user needs, Sharp carried out a strategy of developing a full line of LCDs—STN, TFT, large, and small size for mobile devices.

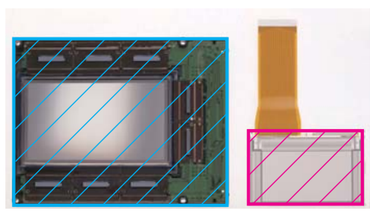
Developing Advanced Super-V LCDs

With LCDs for TVs in mind, Sharp made further efforts to develop technology to increase contrast, improve response, and create wider viewing angles that were not possible with conventional TFT LCDs. The defining factor was the alignment method for the liquid crystal molecules. Sharp succeeded in developing the Advanced Super-V LCD, which made it possible for viewers to enjoy high-contrast images from any angle. This LCD was used on the LC-20B1 20-inch AQUOS LCD TV and other models, released in 2001. They received rave reviews and became a stepping stone towards the growing popularity of LCD TVs. In 2003, the company developed the Mobile Advanced Super-V LCD. Having both reflective and transmissive properties, it was clearly visible in bright and dark environments. This LCD was utilized for products such as car navigation systems and mobile phones.

The first LCD TVs to be equipped with Advanced Super-V LCD—the AQUOS LC-13B1, LC-15B1, and LC-20B1

Development of System LCDs

In 1998, Sharp developed the world's first System LCD, where ICs could be incorporated onto the LCD substrate using CG-Silicon* technology. This technology enabled larger crystal grains for the TFT silicon and a smoother boundary between the grains. It allowed LCD drive circuitry to be built onto the glass substrate, thus improving reliability and lowering production costs, and this made an ultra-high-definition LCD panel possible. Mass production began at the Tenri Plant in 2002, and a dedicated System LCD plant, Mie Plant No. 3, was built the following year.



A System LCD (right) has fewer peripheral components and requires a smaller mounting area (shown with diagonal lines) than conventional LCDs. The photographs provide a comparison for LCDs used in projectors.

Development of 3D Image Display Technology

In July 2002, Sharp developed a groundbreaking 3D LCD that didn't require special glasses to be worn by the viewer. Three-dimensional view was achieved by creating a parallax barrier to deliver different images to the left and right eyes. It was used for the SH251iS mobile phone from NTT DoCoMo and for the Sharp PC-RD3D notebook PC. It also received attention from the education and entertainment industries.

Expansion of the Electronic Device Business

Development of 3D Image Display Technology

To further improve LCD image quality, for which Sharp was the world leader, the company developed high-performance LCD drivers. Examples include the LH168D, introduced in 1997, which reduced shadow and flickering between neighboring pixels; and the LH168R, introduced in 1999, which reduced the variance in brightness between pixels.

For imaging devices, Sharp created a lineup that included CCDs as well as C-MOS sensors that were easy to put together with other peripheral circuitry. The company also developed a small camera module, which incorporated a C-MOS sensor, lens, and signal processing LSI in a single unit. Responding to advancements in image quality of camera-equipped mobile phones, Sharp created a small and thin megapixel CCD (i.e., one with more than one million pixels).

In 1998, for the first time in the world, Sharp succeeded in creating a stacked CSP for mobile devices that layered two LSIs to fit in a smaller package. This enabled the creation of smaller devices.

Progress in Laser Diodes for Optical Drives

In infrared lasers for CD-R devices, efforts were made to achieve faster writing speeds by increasing power output. The development of the red lasers needed for DVD devices also progressed. Responding to a surge in demand, Sharp built the Mihara Plant in Hiroshima Prefecture in 2002. In addition to the production of infrared and red lasers, this plant would make blue-violet lasers for Blu-ray Disc devices in the future.

Progress in Creating Energy from Solar Cells

The Japanese government carried out programs to popularize residential photovoltaic power systems. In response, Sharp accelerated efforts to increase conversion efficiency and lower costs in order to expand the market. In 2000, the company developed a solar module that allowed light to pass through it. Able to be used on walls, windows, and building eaves, it created new applications and improved the image of solar cells.

In 2000, Sharp reached a power-producing capacity of 50.4 MW and had a world-leading 17.5% global market share (according to US industry magazine *PV News*). Cumulative production surpassed 1 GW in 2004, and Sharp maintained its number one position in market share for seven consecutive years until 2006.

* CG-Silicon (continuous grain silicon) was developed in cooperation with Semiconductor Energy Laboratory Co., Ltd.

6 Debut of AQUOS LCD TVs

Production and Sales Working Together on LCD TVs

Achieving 10,000 Yen per Inch

In January 2001, the introduction of a number of new products heralded the advance of Sharp's LCD TV declaration: the 20-inch LC-20C1, the 15-inch LC-15C1, and the 13-inch LC-13C1. From this point forward, Sharp's LCD TVs bore the nickname AQUOS. It was a newly coined word that combined "aqua" (water) and "quality" to express the image of liquid crystals.

This C1 series delivered a clear image even in a room with bright sunlight coming in. It also surpassed CRT TVs in terms of environmental performance, as it used less energy and fewer resources and offered a longer service life. The series also presented a new style of TV viewing with new functionalities, such as the ability to mount the TV on a wall or floor stand or move it easily from room to room as desired.

The C1 series aimed at a price range of 10,000 yen per inch—the target for popularizing the lineup. The suggested retail prices were 220,000 yen for the 20-inch model, 155,000 yen for the 15-inch model, and 88,000 yen for the 13-inch model.

A world-renowned product designer, Toshiyuki Kita, designed the product with a unique and subtle style that was seen as warm and appealing.

To raise customer awareness of the products, sales departments carried out the LCD Big Bang Strategy, which involved presenting ideas to retailers on how to effectively display LCD TVs in their stores. LCD TVs started selling well as their attractive features—such as user friendliness and compatibility with other digital devices—were gradually recognized.

In August 2001, Sharp introduced several new models, including the 20-inch LC-20B1 with side speakers. The LC-20B1 incorporated the newly developed Advanced Super-V Low-Reflection Black TFT LCD that enabled a clear, high-contrast image that could be viewed from any angle.

A volume display of the AQUOS lineup (at a Joshin Denki store)

Moving Toward Larger 30-Inch and 37-Inch Screens

Around that time, most large, flat-panel TVs were plasma TVs. But Sharp started working on producing larger LCD TVs to stoke demand for larger TVs in the home.

In November 2001, the LC-30BV3 was introduced. Using the newly developed 30-inch wide-panel Advanced Super-V Low-Reflection Black TFT LCD (1,280 x 768 pixels), it featured wide viewing angles and high contrast even in a bright room. It was compatible with BS digital broadcasting, which started in Japan in 2000, and displayed high-definition pictures from digital HDTV broadcasts.

Press event announcing the release of a new AQUOS, the LC-30BV3 (September 28, 2001)

In 2002, the 37-inch LC-37BD5 was introduced. It incorporated the HDTV LCD Panel (1,366 x 768 pixels) and also utilized Quick Shoot (QS) technology that ensured clear images even in fast-moving scenes. The shipping volume of AQUOS, including the 37-inch model, reached a million units within just two years of its introduction.

Entering the Mobile Phone Market with Determination

Development of a Camera-Equipped Mobile Phone

Sharp's mobile communication terminal business first introduced a mobile phone in 1994 and grew the business centering on PHS (Personal Handy-phone System) devices. However, as Sharp was late to enter the mobile phone market, sales growth was less than desired. As users' interest in PHS waned, sales declined.

In that environment, Sharp was asked by Digital Phone Group—the predecessor of J-Phone (now Softbank Mobile Corporation)—to cooperate in the development of a mobile phone suited to a new text information service called Skyweb. In 1998, Sharp developed the popular J-SH01, which could display text messages that were eight characters by six lines long. Shipping the product in time for the new service was the key to its success; this became the first step for Sharp to grow in the mobile phone business. In December 1999, the company delivered the J-SH02, which was equipped with a color LCD.

Next, Sharp worked with J-Phone to co-develop the industry's first mobile phone equipped with a camera. This was timed to coincide with the development of communications infrastructure that enabled users to send and receive photos as e-mail attachments. The J-SH04 made its debut in November 2000. On the back of J-Phone's sales campaign the following year, sending photos instantly by e-mail quickly became a new norm for communication among young people.

Further, in December 2000, Sharp introduced the J-SH05, a flip-type mobile phone with a TFT LCD that could display 65,536 colors. In June 2001, the company began delivering the J-SH07, a flip-type mobile phone equipped with a camera and TFT LCD.

J-SH04 (left) and J-SH05. There were some months when these two phones occupied the number one and number two positions in J-Phone's sales rankings by model.

The Fusion of Technology to Produce Mobile Phones

Sharp's mobile phones grew through the fusion of product and device technologies.

For the camera in the J-SH04, Sharp developed a 1/7-inch 110,000-pixel C-MOS image sensor with a lens incorporated to save energy and make the product smaller. Its energy consumption was roughly one-fifth of Sharp's conventional CCDs, and the thickness was reduced from 10 mm to 5 mm.

Working hard to develop fonts that were easy to read on LCDs, Sharp created the LC Font, which looked bigger than other fonts at the same size. In 2001, LC Font C was developed for color LCDs and included in the J-SH07.

In October 2002, Sharp's service company, SDS, opened a support center for mobile phone repairs and provided after-sales service.

The 1-Bit Amp—Revolutionary Sound Quality

Sharp developed unique technology in the audio area as well. Working in cooperation with Waseda University, the company succeeded in developing 1-Bit digital amplifier technology. This technology enabled playback that was extremely close to the original sound by using a sampling rate of 2.8 million times per second—64 times faster than the CD sampling rate of 44,100 times per second. August 1999 saw the introduction of a high-end 1-Bit amp, the SM-SX100. Its high quality surprised audiophiles and became big news. 1-Bit technology was also energy-efficient: it required only about half the power of an analog amp during normal use. It also enabled engineers to make even smaller products. This technology went on to be used for AQUOS TVs and portable MD audio products.

In November 1998, the cumulative production of Sharp's MD audio products surpassed 5 million units. At that time, the company's domestic market share of portable audio equipment such as MD headphone players was over 20% (based on Sharp research). The company went on to maintain a large market share for the next ten years or so.

The high-end SM-SX100 1-Bit amplifier

7 Plasmacluster Devices and Other Products with Distinctive Features

Debut of a New Type of Appliance

Development of the World's First Plasmacluster Air-Purification Technology

In 1998, Sharp was searching for new technology to make its air purifiers more competitive. Conventional air purifiers took in dirty air and cleaned it with filters, but they could not reach all the dirty air in a room. Sharp sought a method that would work directly on the air.

Researchers found out that when white blood cells attack viruses in the human body, they generate positive ions (H^+) and negative ions (O_2^-). About the same amount of H^+ and O_2^- ions exist in areas filled with clean air, such as in forests, and they are entirely safe for human health. Researchers thought to adopt this method to purify air and started researching ways to release H^+ and O_2^- ions simultaneously. They developed a method of generating the ions using plasma discharge. After repeated experiments, they created the Plasmacluster Ion (PCI) generator.

Sharp commissioned the Ishikawa Health Service Association to test the action of generated ions on airborne mold and bacteria, which are the cause of bad odors. They determined that the ions could, within one hour, eliminate 90% of black mold and bacteria in a room.

Based on such research, Sharp developed "academic marketing." This involved having an independent scientific research organization validate the effectiveness of Sharp products, and it became an important method of promoting them to the general public.

Among heightened expectations for a commercial application, Sharp released the FU-L40X PCI air purifier in October 2000.

In 2001, Sharp used PCI generators in air conditioners, clothes dryer/dehumidifiers, refrigerators, humidifiers, and humidifying ceramic fan heaters. In 2002, more PCI products were introduced, such as cyclonic vacuum cleaners.

Sharp aimed to put PCI wherever there's air and marketed PCI generators to various industries for use in a wide variety of applications, such as toilets with bidet seats, car air conditioners, gas fan heaters, and elevators.

Utilizing Cyclone, Ag^+, and Other New Technologies

Under a policy stating that "mature products can be transformed into growth products through the development of new technology," Sharp introduced other home appliances in addition to PCI-equipped products.

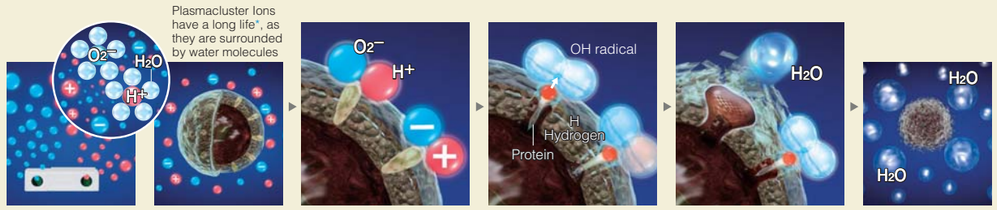
The EC-AC1 cyclonic vacuum cleaner eliminated the need for paper bags. A high-speed cyclonic airflow centrifugally separated dust from the air, keeping the exhaust air clean. (2000)

The ES-DG703 drum-type washer/dryer gave a long-lasting deodorizing effect to clothes by dissolving Ag^+ (silver) ions in the rinse water. (2003)

The QW-A60 dishwasher cleaned everyday dishes using salt, with no need for detergents. (2002)

Meanwhile, a new refrigerator production line began operating at the Yao Plant in September 2001. This was done to support a redevelopment project for the Ryuge district in Yao City and also to make production more cost-effective by consolidating the refrigerator plants in one place.

Mechanism to eliminate bacteria using Plasmacluster Ions (conceptual drawing)



1. Ions are released into the air
Positive (H^+) and negative (O_2^-) ions are generated through plasma discharge and released into the air.

2. Ions decompose mold fungi and bacteria
When Plasmacluster Ions come into contact with the surfaces of mold fungi and viruses, they turn into highly oxidizing hydroxide (OH) radicals that instantly remove hydrogen (H) from surface proteins, breaking them down.

3. Ions return to the air as water
The OH radicals bond with hydrogen (H) to form water (H_2O), which returns to the air.

* Compared to ions that are not surrounded by water molecules (Sharp study)

Progress in Personal Information Devices

Creating a Sensation with Uniquely Featured PCs

In 1998, Sharp introduced the Mebius PC-PJ1, an easily portable B5-file-size notebook PC. June 2001 saw the introduction of the Mebius Muramasa PC-MT1-H1, which was just 16.6 mm thick at its thinnest part. The thin design resulted partly from its use of a robust magnesium frame.

At the time, the world's thinnest and lightest notebook PC with a 12.1-inch LCD, the PC-MT1-H1

Development of unique software was carried out along with hardware development to make Sharp PCs more convenient. The Power E/J translation support software was one example; it was included with Mebius products and also sold as a software package.

Raising Value and Enhancing Convenience with Information Services

In March 1999, the Sharp Space Town information service was launched to provide Internet connection services and to distribute applications and content for Zaurus and Mebius products. The coordinated development of software, content, and hardware gave rise to high-value and convenient products and services, such as the Zaurus Library e-book service.

For the Zaurus line, the company developed products with unique features, such as the MI-E1, which had a slide-out keyboard (2000), and the SL-A300, which used the Linux OS (2002).

Keeping a Large Market Share in Facsimiles

Sharp led the home facsimile market, holding the number one market share in Japan for 11 consecutive years from 1996 to 2006 and the number two slot from 2007 to 2011 (as of 2012)*1. During this period, the company introduced numerous products with unique features, such as the UX-E1CL color facsimile (1999) and the UX-W50CL (2001), which was compatible with NTT's L Mode information service.

Development of Business Information Devices

Introducing a Series of Digital MFPs

In 1998, a new series of MFPs (multifunctional printers) was born—a 3-in-1 unit, which combined copier, fax, and printer functions in one. The AR-F280R was an epoch-making product: it wasn't just multifunctional, it was also a space saver. After that, Sharp introduced a number of MFPs with unique features, such as a color model. Sharp's cumulative global copier production surpassed 10 million units in April 2000.

The AR-C150 digital full-color MFP with a tandem-printing engi used four in-line drun for printing (1999)

Adding Information Security Functions to MFPs

Sharp was one of the first companies in the industry that looked into security issues relating to digital MFPs. Because the machines temporarily stored electronic data in internal memory before printing, there was a risk of confidential information being retrieved from the memory (hard disk or other memory).

To meet the procurement standards of the US Department of Defense, Sharp began developing technology that could encrypt digital data for temporary storage and automatically erase that data after using it. In April 2000, the company introduced a data security kit for overseas markets. Acquiring Common Criteria EAL2*2 from a US certification organization in April 2001 enabled Sharp to deliver products to governmental organizations and financial institutions around the world.

SDS—Sharp's sales and service company for MFPs—acquired information security management system certification in 2003 and promoted "Sharp for security" as a selling point.

Efforts for the Public Sector

Around this time, Sharp was receiving positive reviews of its unique system products. In February 1998, SSP delivered a job-finder search engine system to a government employment service center in Osaka. This was well received and led to Sharp delivering such systems to other employment service centers nationwide.

*1 Share in the facsimile market from 1996 to 2011. According to a survey by GfK Japan on sales performance at major consumer electronics retailers in Japan, based on share of sales volume by manufacturer.
*2 The Common Criteria is an international accreditation standard for evaluating the security levels of hardware, software, and information systems. EAL2 means "evaluation assurance level 2."

8 Revamping Overseas Marketing Strategy and Japanese Operations

Global Debut of AQUOS and Four-Region Strategy

Debut of AQUOS in the US

Following the domestic debut in January 2001, Sharp proceeded in cultivating overseas markets for AQUOS TVs. Initially, there were numerous challenges.

In the US market, Sharp needed to convince dealers that LCD TVs would surely replace CRT TVs, and that Sharp would make that happen. However, LCD TVs were expensive, with prices between $4,500 and $5,000, compared to CRT TVs priced around $200. And because digital broadcasting had yet to go mainstream, the company couldn't demonstrate the beautiful image quality of AQUOS in stores. Consequently, Sharp had a hard time selling the products.

Initially, Sharp targeted the "innovator" segment—people with an appreciation for design and superior features—and sought to have the TVs displayed in specialist high-end AV stores. In its initial marketing, the company emphasized the luxuriousness, innovative features, and superb design of AQUOS by having them displayed at high-end interior design shops and at selected trade shows. This approach was deemed a success. Prior to the debut of AQUOS, Sharp exhibited LCD products—ranging from 3 inches to 300 inches in screen size—at the 2000 Consumer Electronics Show. Sharp was making a strong impression as the leader in LCD technology.

Pan-European Marketing Strategy and Four-Region Strategy

Sharp implemented a pan-European marketing strategy. In 2000, coinciding with the release of its LCD TVs, four of Sharp's sales companies (SEEG in Germany, SUK in the UK, SEF in France, and SEIS in Italy) carried out a branding campaign under the slogan, "Bringing LCD to Life." In August 2001, the time was ripe for the debut of AQUOS at IFA 2001, Europe's largest exhibition of AV and multimedia products.

Regarding overseas strategy around that time, Sharp was adjusting its approach to newly emerging countries to reflect regional differences in culture, living conditions, and product penetration rate. Through its four-region strategy, the company especially strengthened measures in the four emerging regions of China; the Middle East and Africa; Central and South America; and Central and Eastern Europe (including CIS*) in order to expand business.

In Central and Eastern Europe, Sharp established a branch office of its Austrian sales company, SEA. This was set up in Poland—the biggest market in Eastern Europe—in 2000.

In China, which was becoming increasingly important as a large consumer market, Sharp pursued an expansion strategy centering on value-added products and mainly targeting the wealthy segment of the population. Sharp opened China's first 24-hour call center in 1999. Then, in 2003, it established a home-appliance R&D center to design and develop home appliances for the Chinese market in cooperation with the design and development departments in Japan. Sharp made progress in cultivating the Chinese market with these measures as China accelerated the opening up of its market after joining the World Trade Organization (WTO) in 2001.

Expansion in the four regions was accompanied by the establishment in 1999 of a sales company in South Korea: Sharp Electronics Inc. of Korea (SEI). In 2000, Sharp Business Systems (India) Ltd. (SBI) was established in India as a sales company for information equipment.

At CES in January 2003, a total of 320 AQUOS TVs were on display, with 40 being used to create a giant wall

Progress in Overseas Production

To respond to regionalization in the global economy—for example, the elimination of certain regional tariffs—it became an urgent priority for Sharp to develop a new system for production.

LCD TV production began at SEES in Spain in 2002. In 2003, Sharp began collaborating with Loewe Opta GmbH—a German manufacturer of high-end AV equipment—to develop and distribute LCD TVs. SEES produced some of these TVs as well. In the same year, SEMEX in Mexico began production of AQUOS TVs.

As interest in solar power increased in the US, SMCA began production of solar modules in the US in 2003. With demand also increasing in the European market, triggered by the implementation of feed-in tariffs in Germany and other countries, SUKM began production of solar modules in the UK in 2004.

In Asia, the number of manufactured products increased, thanks to rapidly improving technological capabilities. In 1998, for example, SRC in Malaysia began assembling the pickups for MD audio products—a highly skilled process—and then established an integrated production system for MD audio products.

A ceremony to commemorate the start of portable MD recorder production at SRC in 1999

Around this time, the spirit of cooperation was strong among production facilities in Asia. When the currency crisis that started in Thailand spread through Asia in 1997, Sharp companies—especially SEM in Malaysia—responded as a group by rescuing facilities in the country that had deficits in their foreign currency reserves.

Production started in 2001 of Malaysia's first large-scale LSI manufacturer, 1st Silicon (Malaysia) Sdn. Bhd. Sharp had provided technology transfers upon request from the Malaysian government. In 2002, Sharp cooperated with El-Araby, the largest manufacturer of consumer electronics in Egypt, for technological assistance, production, and sales. Production started in 2004, and most of the air conditioners it produced were sold under the Sharp brand in Egypt.

Sharp also established development bases to help in the efficient development of global products. In 1999, Sharp Software Development India Pvt. Ltd. (SSDI) was established in India. It started with the development of software for digital MFPs based on basic designs supplied by SLA in the US. In 2001, Sharp Telecommunications of Europe Ltd. (STE) was established in the UK to develop mobile communications software and provide testing and certification services.

Revolutionizing Sales and Service Systems in Japan

In July 1998, two specialized sales companies were established by combining the related departments of existing sales and service companies in the areas of electronic office equipment (centered on digital MFPs) and solar power systems—two areas that offered promise for future growth. Sharp Document Systems Corporation (SDS) performed sales and maintenance of MFPs and other devices, sold consumables, and provided maintenance of system devices and mobile phones. Sharp Amenity Systems Corporation (SAS) made sales, design, and installation of solar power systems its core business.

In October 1998, Sharp's sales companies for home appliances and information products—formerly SEH and SLH—merged to become Sharp Electronics Marketing Corporation (SEMC) (which covered all of Japan except the Okinawa district). The purpose of this merger was to strengthen the front line of sales and to streamline operations.

Sharp also reviewed customer service from a customer satisfaction perspective and opened the industry's first Comprehensive Call Centers to respond to all inquiries without dividing services by products (e.g. home appliances or information/communication products) or by the nature of the inquiry (e.g. shopping guidance, technical support, or repairs). Centers opened in Yao (Osaka Prefecture) and in Makuhari (Chiba Prefecture) provided smooth assistance that utilized an advanced system. These centers received positive media attention.


The Comprehensive Call Center was systematized so that specialists could provide quick and precise responses

* The CIS (Commonwealth of Independent States) was formed among former Soviet nations.