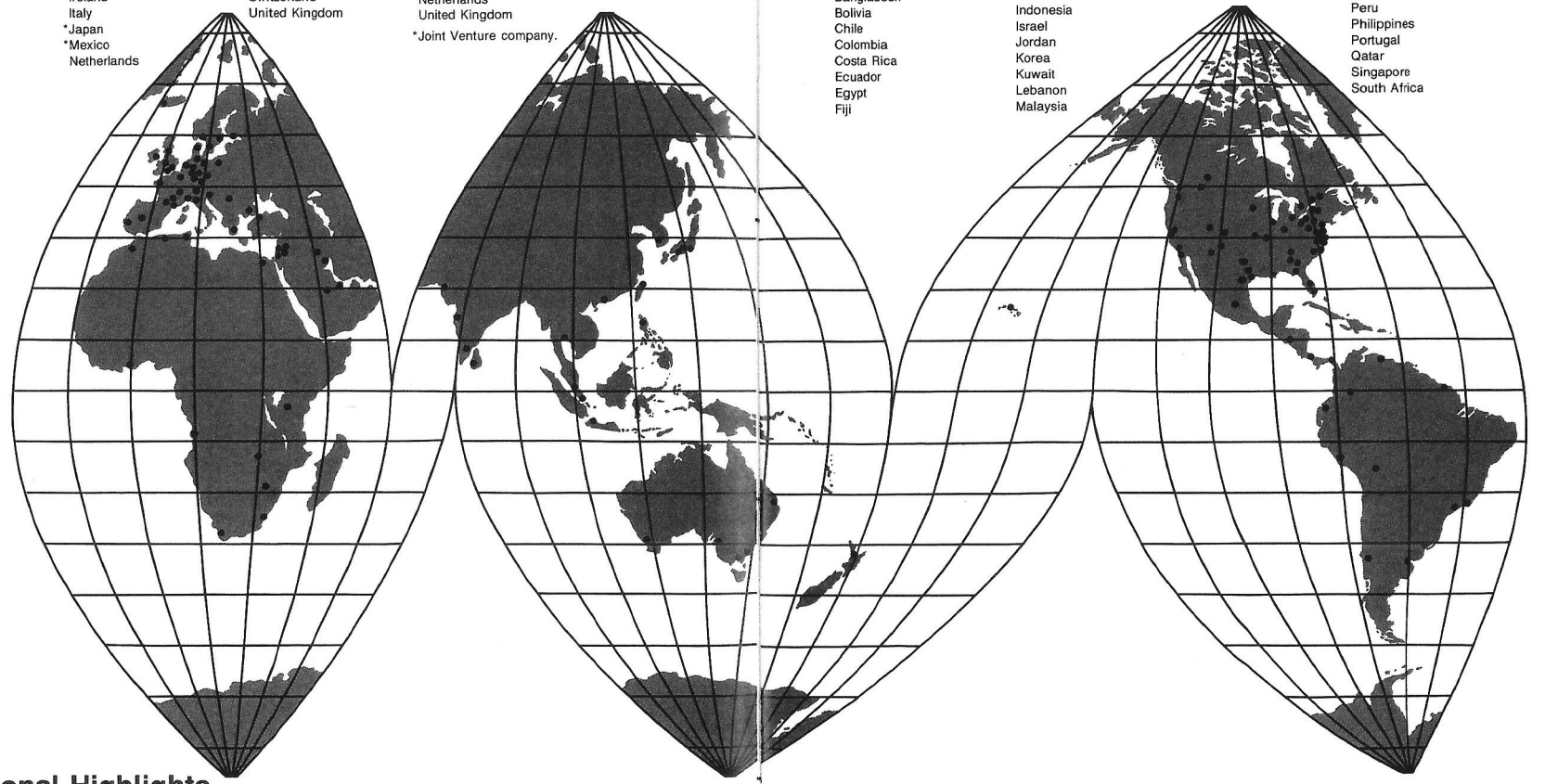
International Locations

Direct Sales and Service
Australia
Austria
Belgium
Brazil
Canada
Denmark
Finland
France
Germany
Ireland
Italy
*Japan
*Mexico
Netherlands
Norway
Spain
Sweden
Switzerland
United Kingdom

Manufacturing
Guernsey C.I.
*Japan
Netherlands
United Kingdom

*Joint Venture company.



Distributor Sales and Service
Argentina
Bangladesh
Bolivia
Chile
Colombia
Costa Rica
Ecuador
Egypt
Fiji
Greece
Hong Kong
Iceland
India
Indonesia
Israel
Jordan
Korea
Kuwait
Lebanon
Malaysia
Nigeria
New Zealand
Pakistan
Panama
Peru
Philippines
Portugal
Qatar
Singapore
South Africa
Sri Lanka
Syria
Taiwan
Thailand
Tunisia
Turkey
Uruguay
Venezuela
Zambia
Zimbabwe

International Highlights

1948 First product ordered by a non-U.S. customer – L.M. Ericsson Telephone Company of Sweden.
Tek's first distributor agreement established in Sweden.
1948–1964 Distributor agreements increased in number to 37 by 1964.

1958 Overseas manufacturing operation established on Guernsey, Channel Islands.
1961 Tek Switzerland established, followed in the same year by subsidiaries in Holland, Guernsey, and Canada.

1963 Subsidiaries established in Australia and the U.K.
Tek Limited incorporated on Guernsey.
1965 First joint venture – Sony/Tek of Japan.
1966 Acquired the business of our French distributor – later renamed Tek France.

1967 Acquired Telequipment, Ltd., – now a part of Tek U.K. Ltd.
1969 Tek Denmark established.
1970 Tek Europe (then called Datatek) established in Holland.
Tek Sweden incorporated.

1971 Tek Belgium incorporated.
1972 Joint venture established with Rohde & Schwarz to sell Tek products in Austria and the East Bloc.
1978 First subsidiary in Latin America – Tek Brazil.

Two Scandinavian subsidiaries incorporated in Norway and Finland.
Tek Spain incorporated.
European Marketing consolidated in Holland.
1979 Tek Italy incorporated.
1980 Tek Mexico established.
European Board Exchange Center set up in Amsterdam.

1981 Tek Germany started operations.
1983 Provided technical assistance to the People's Republic of China in establishing a Service Center for Tektronix products.

Tek Austria commenced operations in Vienna to cover Austria, Yugoslavia, Eastern Europe, and Russia.
European Marketing Center discontinued.
International Operations reorganized into present six-Area structure.

The Road that Led to Sony/Tek

Before 1965, Tektronix was represented in Japan for a number of years by an independent Japanese distributor, Midoriya Electric Company, Ltd. In 1964, Howard Vollum reported as follows to the Board:

"While this association has been pleasant, the business circumstances in Japan have made it evident for several years past that the potentialities of the Japanese market cannot be adequately exploited from Beaverton.

"Competition by Japanese manufacturers has become a serious factor and Japanese export competition is beginning to make itself felt in other markets, for instance, Australia. It is highly desirable, therefore, for the company to reassert its leadership position in this field by more direct participation in oscilloscope manufacture in Japan and the marketing of Japanese-made instruments.

"Under the rules established by the Japanese government, a practical approach to a program of this sort requires partnership with a Japanese concern. We have had numerous offers from Japan but I have not felt that the necessary compatibility of interests existed until I had an opportunity to meet the founders of Sony Corporation.

"Sony's history and approach to business and technical problems parallels Tektronix' history and approach in surprising fashion. Both are engineering oriented to a high degree; both are relatively young concerns who have succeeded on the basis of the technical excellence of their products and aggressive marketing."

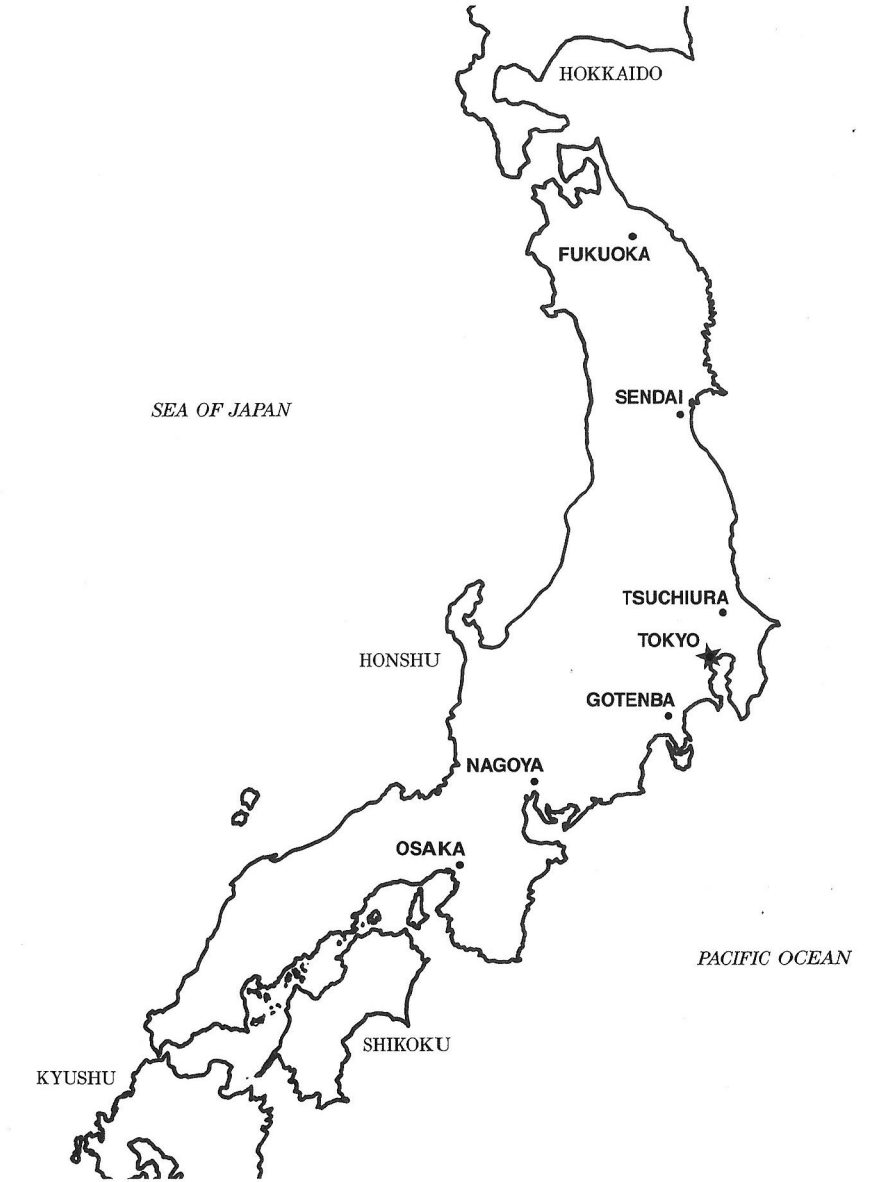
The original joint venture agreement, described in the document just quoted, contemplated the creation of a joint venture company on a 50/50 basis by Sony and Tektronix. The initial equity investment in the company was set by the agreement at 100,000,000 yen (about $280,000), of which one half was contributed by each of the partners.

Initially, the objectives of the joint venture company were "(a) to manufacture in Japan and to sell in Eastern Asia 'Tektronix-designed products'; and (b) to engage in research and development work for the purpose of producing 'Sony/Tektronix products' . . . , to manufacture such products in Japan and to sell them throughout the world . . ."

In addition to the joint venture agreement, license agreements granted patent and trademark rights to Sony/Tektronix from both parent companies, and distribution agreements contemplated sales of Tektronix products in Japan by Sony/Tektronix and Sony/Tektronix products in the rest of the world by Tektronix.

Over time, the agreements have grown more complex and numerous. In 1973, major changes were made to expand the scope of the joint venture into the areas covered primarily by the Tektronix Information Display Division. Other agreements define rights in joint inventions and provide for the transfer of certain patents and the licensing and sublicensing to third parties in Japan of certain patents.

Sony/Tektronix has an eight-member board of directors, with four members designated by each shareholder. (The current directors are listed on pages 6 and 7.) The Board meets four times a year. Most matters of policy are reserved to the shareholder meetings by the articles and bylaws of the company.



Joint Venture Organization

TEKTRONIX

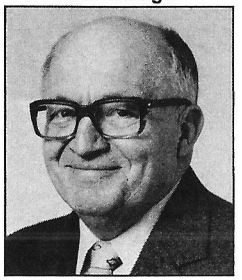
Department of Japan
Wim Velsink, Chmn.
Russ Fillinger **Allan Leedy**
John Landis **John Shafe**

SONY

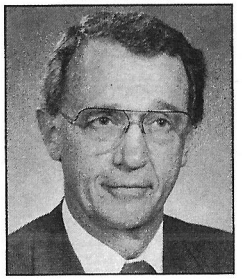
Masaru Ibuka, Hon. Chmn.
Akio Morita, Chmn. & CEO
Norio Ohga **Masahiko Morizono**
Masaaki Morita **Susumu Yoshida**

Sony/Tek Board of Directors

Russ Fillinger



John Landis

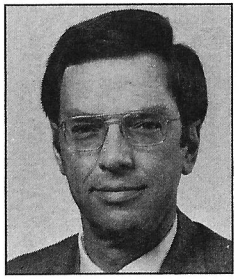


Taketoshi Kodama, Chmn.

Takashi Kumakura

Allan Leedy

Wim Velsink



Saburo Oya

Michio Tomura

Sony/Tektronix – The Company

The mission of Sony/Tek is to develop the Japanese market and to expand the overall business of the two shareholders by supplying Tek and Sony/Tek products to customers in Japan and by exporting Sony/Tek products to Tektronix for sale in the rest of the world.

To accomplish this mission, the company performs three distinct functions:

- It provides comprehensive sales and service in Japan for all Tektronix products (except those from the Grass Valley Group) and for all Sony/Tek products.
- It manufactures portions of the Tektronix line of products for sale in Japan.
- It designs and manufactures products under the Sony/Tek brand which are sold and serviced in Japan by Sony/Tek and exported to Tektronix for marketing to the rest of the world.

To understand Sony/Tek, it is useful to consider the economic, political, and competitive conditions that influenced its growth and stimulated the creation of its particular functions over the past 20 years.

20 Years Ago

In 1965, Japan could be characterized by the following factors:

1. Imports of finished products were restricted because of the limited availability of foreign currency.
2. There was rigid control over the inflow of foreign capital. Total ownership of Japanese companies by foreign interests was not permitted.
3. In the electronics industry, there was a technology gap between Japan and the U.S. of some five to seven years. The Japanese government implemented strong measures, including subsidizing funds, to help Japanese electronics companies advance to a competitive level. Some improvement was beginning to show, but Japanese products were still strikingly similar to those of U.S. firms.
4. The exchange rate of yen to U.S. dollars was fixed until 1971 at ¥/360 U.S. dollars.

Immediately after Sony/Tek was formed as a joint venture, manufacturing and material-handling groups were set up, and assembly operations were started for some of the key products from the Tek line. In addition, the company organized its own sales and customer service force to take over those responsibilities from Midoriya, who had been the distributor for Tektronix until that time.

When Sony/Tek started assembly operations, only Tek-supplied components were used because the quality and reliability of locally made components were very poor. It was essential to convince Japanese customers that Sony/Tek-assembled products had levels of quality and reliability equal to those of the same products manufactured and assembled by Tektronix. Customers generally had a low opinion of the quality/reliability of the dozen or so local competitors, most of whose products were "copies" of Tek products. These competitors were very aggressive in sales, and competed against Sony/Tek's claims of quality and reliability with lower prices. Certain groups of customers hesitated to buy the Sony/Tek-assembled products, and it took a while to overcome their reluctance.

Today

Since 1965, the situation has changed considerably. Restrictions on the import of finished products and the inflow of foreign capital were removed about ten years ago. The electronics industry in Japan has made tremendous progress in the past 20 years, with an average growth rate of 14% and a current production volume of $53 billion.

With the exception of military electronics, the technology gap has virtually disappeared. In some areas, in fact, Japan appears to have a slight edge. The quality and reliability of locally made components are now very high. In the semiconductor area, Japan generally surpasses the U.S. In software technology, there is still a gap, with Japan behind.

Sony/Tek's Japanese competitors have grown much stronger. They have switched from copies of U.S. products to designs of their own with high reliability and low cost. They market not only to Japan but also to many other parts of the world.

Strategy

As circumstances changed over the past 20 years, it was inevitable that Sony/Tek would change its strategy to perform its mission. In the start-up period, it was important to show industry/customer communities that Sony/Tek was aiming to be a firmly rooted Japanese company and to market the same quality of product as Tektronix. Therefore, the major emphasis was on developing the necessary abilities to provide the same quality of products. The strategies in the early period of the company were to establish thorough after-sales service facilities, to create a corporate image, and to provide Japanese catalogs and manuals.

An engineering group was started relatively early. From the technological aspect, Japan did not have anything particular that would assure Tek some benefit from having engineering activity in Japan. Rather, the major purpose at that time was for Sony/Tek engineers to learn the basic techniques related to designing instruments. However, this early start-up of engineering brought various important results to both companies later.

Patent activities were also started relatively early in order to establish and protect the rights of Sony/Tek effectively. Products of competitors at that time were more or less replicas of Tektronix products. Unfortunately, Tek has been and still is a less patent-minded company than Sony/Tek. Nevertheless, Sony/Tek strategy is still to retain competitiveness by obtaining patent rights, even though Tek feels otherwise.

For about the last 10 years, Sony/Tek has been in the midst of the most competitive situation in the world. As a result, its present strategy is to realize a competitive cost/price ratio while maintaining its traditional strength and quality/reliability. It became evident some years ago that these objectives could not be achieved by using only Tek-supplied components. In some cases, the reliability of Tek-supplied parts became too low to qualify for "state-of-the-art" products. To realize its objectives, therefore, Sony/Tek started an extensive local components introduction program. The local purchasing group was expanded, and a component evaluation group was formed in manufacturing engineering.

Throughout the history of the company, all completed (assembled by Tek) products have been checked before delivery to customers. The group that performed this function kept records of component performance. When their statistics indicated that a particular part in a product had low reliability, that part was replaced with a good one prior to delivery, even though it had not yet failed. These two activities involve "local mod". Extensive local mod is performed in Japan, not only for maintaining reliability, but also to satisfy specific customer needs.

Engineering

Sony/Tek engineering started with the study of the basics of instrument design. For the first 10 years, the cost of engineering and production was relatively low, and the export of products developed by Sony/Tek contributed to the creation of a solid financial base of the company. In addition, after the currency was permitted to float in 1971, exports partly compensated for import costs, acting as a hedge to stabilitize corporate profits under currency fluctuations and helping to prevent frequent changes of local product prices.

Outlook

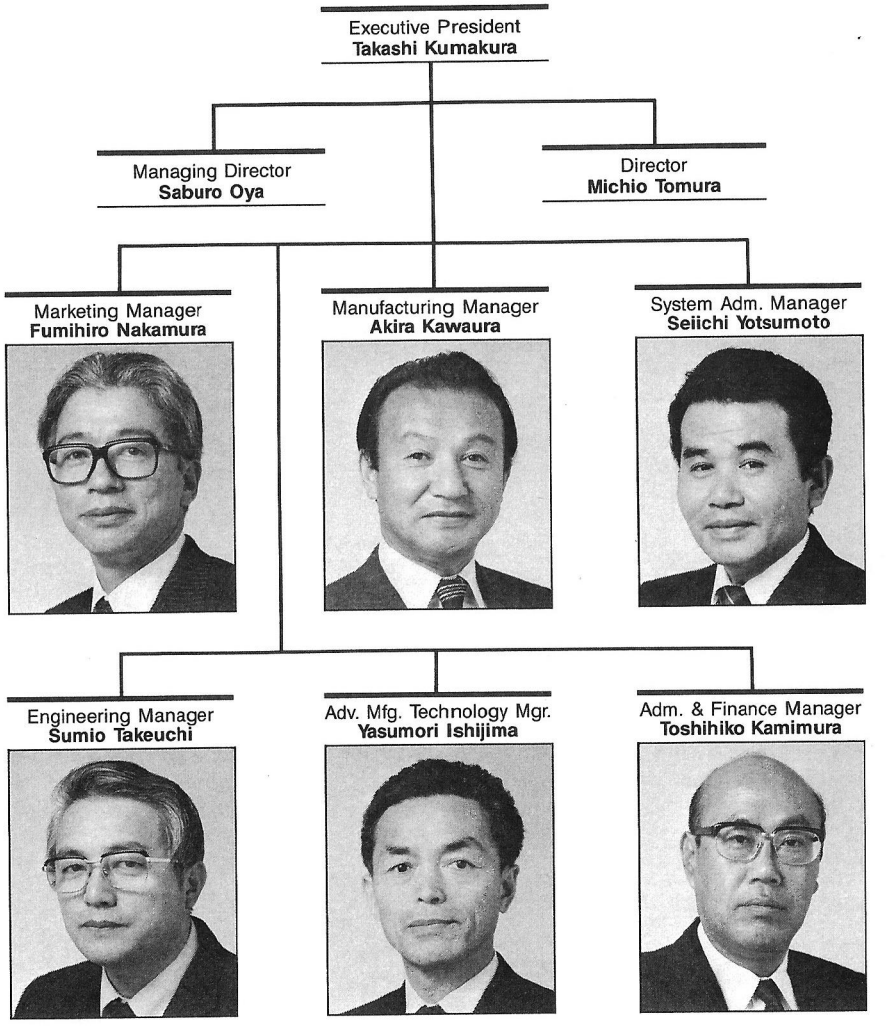
More recently, there has been a need to develop products to fill out the Tek product line and to satisfy local customer requirements. A typical example is a character display generator for Japanese languages. Developing Japanese-customer-only products may be expensive, but it is important for Sony/Tek to address these local needs.

The engineering group has also provided a training ground for technical support people for the marketing and sales area, where there is an ever-increasing need. The variety of functions in the company makes it easier to recruit people with good potential capability, and to provide them with a broad perspective for the future.

As is the case in most companies, decisions made over the past 20 years by Sony/Tek or Tek, or by both, were not always right. Undoubtedly, there were some opportunities that were missed. As the technology evolves, however, the market continues to change. For the future, it's essential to carefully monitor trends, and to provide the ability to react on time.

An important contribution of Sony/Tek has been its success in developing a "Tek culture" company in the oriental environment. The effective use of this experience could be valuable in the rest of the oriental world.

Sony/Tek Organization



Growth of Sony/Tek

Sales

In 1967, when Sony/Tek began marketing instead of using the services of Midoriya, Tek products had a reputation for high reliability. However, large manufacturers who made exact replicas of Tek products, including Iwasaki, Hitachi, Matsushita, Toshiba, etc., had a greater share of the oscilloscope market than Sony/Tek. In fact, the Iwasaki brand name of "Synchroscope" was used more widely than Tek's term "Oscilloscope".

In Japan, the majority of sales are through distributors, and a promissory note payment system and markdowns are widely accepted business practices. In this environment, Sony/Tek dared to set out with its basic policies of C.O.D. settlement, catalog price sales, and direct marketing, which were considered to be a rare and unusual approach to the Japanese market.

When direct marketing began on December 1, 1967, Sony/Tek's single office in Tokyo consisted of only 14 people: 5 field engineers and 5 field secretaries in marketing, 2 people in sales promotion, and the manager and his secretary. To mark the occasion, a private show was held at the Sony building in Ginza. Although the Sony/Tek team was then the smallest oscilloscope marketing force in Japan, it was the best in morale and strength of its products.

Riding the tide of Japan's economic growth and technological innovation, Sony/Tek has enjoyed continued progress since that time, with only a few problem years. In 1971, the switch from a fixed yen/dollar exchange rate to a floating rate was implemented and Japan's exports of industrial products to the U.S. were seriously affected for a year. Fortunately, Japan rebounded a year later to enjoy a business upturn. The oil crisis of 1973 presented another trial, with a subsequent steep rise in prices, and the adverse effect on orders lasted two years.

The 7000 Series oscilloscope introduced in 1970 is still extremely popular in research and development circles, maintaining a virtual monopoly of the market. In 1971, the new 400 Series oscilloscope was announced and introduced as the "Mighty Series" in Japan. Since that time, an increasing number of Japanese manufacturers adopted the name "Oscilloscope," rather than "Synchroscope," signalling that Sony/Tek's market share was increasing.

The high quality and low cost of the 400 Series triggered a price competition among Japanese manufacturers. The 400 Series was beginning to feel the effects of this tough competition in its last several years, but the 2400 Series was then successfully introduced and Sony/Tek's current marketshare is as high as 52%. As a result, Japanese oscilloscope makers have again resorted to price competition by reducing their prices and trying to find a way of escape in low-quality products and export.

IDG's graphic terminals, chiefly storage terminals, have made a great contribution to sales over the 20-year history of Sony/Tek, holding a share of over 90% of the market. However, IDG is now struggling against fierce competition from its rivals with the rise of the refresh-type terminal developed by other manufacturers. Logic Analyzers and Microcomputer Development Products are promising items, with an average growth rate in excess of 40%, and the same is true of SPS with its annual growth rate of 30%. Our television equipment, which played an important role in the Sapporo Winter Olympics and Expo '70 and which grew with the current boom in video tape recorders, now holds almost 100% of the market and can boast superb stability in market occupancy.

Exports peaked at $9.5 million in 1980, and are currently at the lower level of $8.5 million.

The number of visitors to the Tokyo Private Show has risen to more than 6000, or about 7.5 times the 850 people who attended the first show. Offices have increased by 8 times, and sales are expected to reach USDC $100 million by the end of FY500, for an increase of 40 times over the 17 years since direct marketing began.

Production

Production activities by the Manufacturing Division began as soon as Sony/Tek was established. A small part of the Sony Osaki plant was rented for this purpose. When the company was founded, the reputation of the Tektronix brand was already firmly established among users, and its products were highly valued for product performance, quality, and reliability. Accordingly, Sony/Tek's first consideration was to reproduce Tek's product quality faithfully and, in so doing, contribute to raising the level of Sony/Tek's domestic manufacturing capabilities to that of Tek's products from every point of view.

In line with this objective, Sony/Tek elaborately reproduced Tek's manufacturing environment, using only the same equipment and methods as Tek, from tools and work benches to training methods. The transplant operation was performed by Howard Mikesell and two Sony employees who had been trained in the fundamentals of manufacturing at Tek over a five-month period preceding the establishment of Sony/Tek.

The first products manufactured were oscilloscope types 561A, 3A1, and 3B3. The first instrument was completed on November 4, 1965. In the following year, ten more oscilloscopes were locally produced, including Types 585A, 545B, and 547. Types 453 and 556 were added later, after which the first product developed by Sony/Tek, Type 323, was manufactured. The high quality and highly reliable technology sought after and acquired during this period remain the foundations for the tradition of the Manufacturing Division.

At the start of production, the manufacturing staff consisted of 6 female production workers and 2 managers. The female workers hired were housewives in their forties, a most unusual selection for such employment at that time. They were chosen because the work entailed considerable patience in assembly, requiring the soldering of one component at a time to a ceramic strip. This work required personnel who were not necessarily fast, but who had an emotionally stable nature and could cope with a steady pace. As PC boards were introduced and there was a transition toward mechanization, these women were gradually phased out.

By February 1966, the number of manufacturing employees had increased to 46, and a Tek Product Incoming Test was introduced. The existing factory then became too small, and the first move within the Sony Osaki plant took place. In 1969, operations moved to the present head office building No.1, which has an area of 1,135 sq.m. (12,200 sq.ft.). In 1975, operations moved to the Gotenba plant located on 14,543 sq.m. of land, of which buildings occupied 4,132 sq.m. In April, 1983, the second construction stage of expansion took place on a land area of 35,012 sq.m., of which buildings occupied 13,024 sq.m., and the number of employees rose to 293.

Production records show that a cumulative number of 10,000 finished units was reached for Type 323 in 1977, for Type 335 in 1981, and for Type 314 in 1982. In 1982, production began on the first IDG product, Type 4014. In 1983, the number of types being produced in the "300 Series" reached ten.

The Advanced Manufacturing Technology Division was established on January 1, 1981, for the purpose of revolutionizing manufacturing technology. It has developed the semi-automated test and calibration system and robot simulation which are to be adopted at the Gotenba plant in the near future.

In 1984, PWQC (Plant-wide Quality Control) was introduced with the basic idea of producing products with state-of-the-art quality, based on traditions developed since inauguration, and contributing to the prosperity of society. PWQC consists of gathering together the resources of all the employees to devise ways of raising the quality of each employee's work and thus improving the overall quality of the factory. This is the second year that QC circle activities have been in progress. It is the responsibility of manufacturing divisions to create and develop new ways of maintaining Tek's traditional high product performance, quality, and reliability.

Product Development

Product development at Sony/Tek began as soon as the company was established in 1965. In 1968, the company introduced Type 323, the world's smallest high-performance oscilloscope. This scope, which was the result of a joint development project in which both Tektronix and Sony engineers took part, was manufactured by Sony/Tek and exported worldwide.

In March 1969, Sony/Tek officially established an engineering division and began its own development. In the same year, technology was introduced to manufacture the Type 324 oscilloscope designed by Sony engineers, and this product was sold worldwide. Subsequently, the Super-Portable 300 Series was extended, with Types 314, 335, and 305 arriving in rapid succession.

In September 1979, the company announced its first digital product, the 308 Data Analyzer, which was equipped with the 8085 microprocessor. This instrument was quickly followed by the development of additional T&M products comprising Types 380, 390AD, 381, 318/338, and 336.

IDG products have also been developed. The Type 4019 Graphic Terminal was announced in March 1984 and, in the autumn of the same year, the Type 4918 Intelligent Module was developed and introduced to the Japanese market.

Sony/Tek's strength in development technology is the result of both Tek's advanced and revolutionary technologies (in such areas as cathode-ray tubes, integrated circuits, large-scale integration, cam switches, etc.) which have been developed over many years, and numerous benefits received from the tremendous growth of electronics technology in Japan. Best-fit engineering environments for software/hardware are being arranged to shorten development time and reduce costs and thus cope with the increasingly severe market effectively. In addition, a powerful technological computer and an engineering software tool are being introduced to support Sony/Tek's aim of being ranked at the top level of quality in the industry. Construction of a designer workbench/station based on the Unix computer network is also progressing steadily.

In the future, Sony/Tek will pursue not only stand-alone product design, but also the development of systems and software products.

Financial Highlights

In 1984, Sony/Tek sales totalled 28.5 billion yen. This total represents a 5.2-fold increase over sales of 5.5 billion yen ten years ago. Looking at the 1974 to 1984 ratios, sales of Tek-finished products to the Japanese market were up 5.8 times, sales of Sony/Tek-finished products designed by Tek to the Japanese market increased 4.4 times, and sales of Sony/Tek-developed products sold worldwide increased 4.8 times. Considered from the viewpoint of income before tax, an increase of 4.6 times was achieved.

Total assets at the end of 1984 were 25 billion yen, an increase of 5.5 times over the same period; shareholders' equity rose 7.2 times, and dividends of 1.31 billion yen each were paid to the two shareholders. Working capital increased 5.1 times. As a whole, a fairly well balanced growth can be seen in financial affairs.

As regards assets, Sony/Tek began 20 years ago with 100 million yen (approximately $280,000) from the two shareholders. Since the following year, the company has continued to register black figures. To provide for increasing inventory assets as well as investment funds for facilities, approximately 470 million yen (about $1.3 million) was borrowed from both shareholders at the highest point; repayment of these funds was completed in 1974. Since then, working capital and facilities expenditures have been covered by the company's own funds, and Sony/Tek is now debt-free.