

Siemens A.G. Business Information, Profile, and History

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Siemens A.G. is Europe's largest electrical and electronics company, producing over 50,000 products manufactured at 400 sites in 40 countries. Referring to the company's history of achieving success through well engineered refinements of other people's inventions, one *Fortune* analyst noted that "second is best" might well serve as Siemens' motto. But opportunism is not the only interesting facet of Siemens' history, which is also a story of a long family tradition and intimate involvement with some of the most important events of the 19th and 20th centuries.

Siemens & Halske was founded in Berlin in 1847 by Werner Siemens and J. G. Halske to manufacture and install telegraphic systems. Siemens, a former artillery officer in the Prussian army and an engineer who already owned a profitable patent for electroplating, was the driving force behind the company and remained so for the rest of his life. The company received its first major commission in 1848, when it contracted to build a telegraph link between Berlin and Frankfurt.

Construction of telegraph systems boomed in the mid 19th century, and Siemens & Halske was well equipped to take advantage of the situation. In 1853, it received a commission to build an extensive telegraph system in Russia. Upon its completion, the company opened an office in St. Petersburg under the direction of Werner Siemens' brother Carl Siemens. In 1857 Siemens & Halske helped develop the first successful deep sea telegraphic cable. This led to the transformation of the London office into an independent company under the direction of Wilhelm Siemens, another of Werner's brothers, the next year. By 1865 the company's English operations had become substantial. Its name was changed to Siemens Brothers, still under the direction of Wilhelm, who was eventually knighted as Sir William Siemens.

In 1867 Siemens Brothers received a contract for an 11,000 kilometer telegraph line from London to Calcutta, which it completed in 1870. In 1871 it linked London and Teheran by telegraph. In 1874 Siemens Brothers launched its own cable laying ship, the *Faraday*, which William Siemens co-designed. The next year, it laid the first direct transatlantic cable from Ireland to the United States.

In 1877 Alexander Graham Bell's new telephones reached Berlin for the first time. Immediately grasping their worth, Werner Siemens quickly patented an improved version of the device and began production. In the next decade, Siemens & Halske also developed and began manufacturing electrical lighting and power generating equipment after Werner Siemens discovered the dynamo electric principle in 1866.

In 1888 Werner Siemens was ennobled by the German kaiser for his achievements. Two years later he retired and his company became a limited partnership shared by his sons Arnold and Wilhelm and his brother Carl. Werner Siemens died in 1892, but the House of Siemens continued to prosper. That same year, Siemens & Halske built a power station at Erding in Bavaria and founded an American subsidiary, Siemens & Halske Electric Company, in [Chicago](#). The latter, however, closed in 1904. In 1895 Wilhelm Conrad Roentgen discovered the X ray, and the very next year Siemens & Halske owned the first patent for an X ray tube. In 1897 Siemens & Halske decided to go public and reorganized with Carl Heinrich, now Carl von Siemens after being ennobled by the Russian czar in 1895, as chairman of the supervisory board. He retired after seven years in that post and was succeeded by his nephew Arnold.

Siemens & Halske remained busy as the 19th century gave way to the 20th. In 1903 it established Siemens Schuckertwerke GmbH, a subsidiary devoted to electric power engineering. In 1909 Siemens & Halske developed an automatic telephone exchange serving 2,500 customers in Munich. But when World War I broke out, orders for civilian electrical equipment slowed considerably and the company began production of communications devices for the military. Siemens & Halske also produced explosives, gun locks for rifles, and, later in the war, aircraft engines.

But perhaps the company's most successful contribution to the German war effort was the fire control system it produced for the navy's battlecruisers, which proved its worth at the Battle of Jutland in 1916. There, the battlecruiser squadron of the High Seas Fleet met its British counterpart for the only time during the war. While the main fleets fought to a draw, the German battlecruisers used their superior gunnery equipment to batter their opponents, sinking two British ships and severely damaging several others. It was a highlight for the German navy in a battle from which it otherwise won no advantage.

On the balance, however, the war hurt Siemens & Halske badly. The Bolshevik government that seized power in Russia in 1917 also seized the assets of the company's St. Petersburg subsidiary, which were worth about 50 million rubles. Siemens Brothers was taken over by the British government in 1915 and sold to British interests the next year. The company was not returned to the Siemens family after the armistice, although it retained their name for business purposes. Siemens Brothers eventually re established links to its old parent and its general manager, Dr. Henry Wright, even became a member of the Siemens & Halske supervisory board in 1929. But Carl Friedrich von Siemens, a son of Werner's who had headed the British subsidiary for six years and had many English friends, was shocked by these events; "they have stolen our name," he lamented.

Arnold von Siemens died in 1918, before the end of the war. He was succeeded by his brother Wilhelm, who died the next year. Carl Friedrich then became chairman. Despite the precarious state of the German economy in the 1920s and a bias among foreign customers against doing business with a German company, the company continued to make its mark in electrical manufacturing. In 1923 it started producing radio receivers for the consumer market. In the same year, recognizing the growing importance of Japan as an industrial power and not wishing to concede that market to General Electric and Westinghouse, Siemens & Halske set up a Tokyo subsidiary, Fusi Denk, later known as Fuji Electric. In 1925 Siemens began construction of a power station on the Shannon River in Ireland, and in 1927 the company began work on another hydroelectric power station for the Soviet government, near Zaporozhe. Back home in Germany, Siemens & Halske financed and produced a railway network in suburban Berlin that began operation in 1928. By the end of the decade, the company was accounting for one third of the German electrical manufacturing industry's production and nearly the same proportion of its employees.

Siemens & Halske was bloodied by the Great Depression, but it survived. It was forced to halve its dividend in the early 1930s and lay off employees in large numbers, but remained on relatively sound financial footing until the Nazi government's rearmament project helped revive its fortunes in 1935. During the remainder of the decade, Siemens & Halske manufactured a wide range of equipment for all of Germany's armed services. One of its most significant technical contributions at this time, the development of an automatic pilot system for airplanes, was the result of a project initiated for the Luftwaffe.

The company's activities during this time are difficult to evaluate. On the one hand, according to family historian Georg Siemens, Carl Friedrich von Siemens was repelled by the Nazis' anti-Semitism from the start and only grew more disgusted with their goals and methods as time went on. Just before his death in 1941, he wrote to an assistant: "my work no longer brings me satisfaction or joy. Those who were once proud that their work was devoted to the task of serving progress and humanity, can now only be sad that the results of their work merely

serve the evil of destruction. Whenever I start to think, 'why,' I should prefer to creep into a corner, so as not to see or hear any more." And yet there is no question that Siemens & Halske benefited from German rearmament during the late 1930s. Certainly the company did little or nothing to hinder Nazi militarism.

Carl Friedrich went into partial retirement in 1940 and appointed Hermann von Siemens, Arnold's eldest son, to succeed him. By this time, Siemens & Halske was devoting virtually all of its manufacturing capacity to military orders and would do so for the duration of the war. In 1944 it helped develop and manufacture the V 2 rocket. Its factories also suffered substantial damage from Allied bombing raids. And after the Soviet army conquered Berlin in 1945, Russian occupation authorities completely dismantled the Siemensstadt factory works and corporate headquarters.

In 1945 Hermann von Siemens, who had also been a director of Deutsche Bank, was arrested by American occupation authorities and interned for two years. There is also no question that the company employed slave labor during the war. Georg Siemens pointed out that every major German industrial concern used forced labor because of manpower shortages caused by the war, and asserted that Siemens & Halske treated its laborers better than most companies. But in 1947, allegations surfaced that three of the firm's directors had been active in importing slave laborers from occupied countries. In addition, testimony from Holocaust survivors also surfaced at this time that Siemens had supplied gas chamber equipment to the concentration camps. These allegations were never proven, however, and the company denied them both.

Hermann von Siemens resumed the chairmanship upon his release in 1948. The company had been devastated by the war and required years of rebuilding to get back on its feet. Its corporate headquarters were relocated to Munich in 1949. By the early 1950s, Siemens & Halske was once again producing railroad, medical, telephone, and power generating equipment, as well as consumer electronics products. In 1954 it established an American subsidiary in [New York](#), Siemens Inc. Its first product sold to the American market was an electron microscope. In the mid-1950s Siemens & Halske entered the burgeoning fields of data processing and nuclear power. It introduced its first mainframe computer in 1955, and its first nuclear reactor went into service in 1959 at Munich Garching.

Hermann von Siemens retired in 1956 and was succeeded by Ernst von Siemens, Carl Friedrich's only son. In the mid 1960s, Siemens & Halske technology went to Mars after the company developed a disc seal triode that was used in the transmitter of the American space probe Mariner IV. In 1965 it scored another coup when its 03 high-speed passenger train went into service with the German Federal Railway. And in 1968, it began constructing a nuclear power station at Atucha, Argentina, the first such facility in South America.

The company underwent a major reorganization in 1966, bringing all of its subsidiaries directly under control of the parent company and reincorporating as Siemens A.G. By the end of the decade, worldwide sales had reached DM10 billion; in 1970 they reached DM12.6 billion. In 1971 Ernst von Siemens retired and his cousin Peter succeeded him as chairman.

The 1970s were prosperous years for Siemens. Despite a slower worldwide economy that cut into customer orders in some areas and forced the company to cut its workforce, sales grew to DM20.7 billion and net profits to DM606 million in 1976. When the summer Olympic Games came to Munich in 1972, Siemens was its first official supplier of telecommunications and data processing equipment. In 1977 the company entered into a joint venture with the American engineering firm Allis Chalmers, called Siemens Allis Inc., to market turbine generators in the United States. In fact, Siemens' status as an electrical manufacturer rose to the point that *Fortune* wrote in 1978 that it had "replaced Westinghouse in General Electric's demonology." Siemens had replaced Westinghouse as the world's number two electrical manufacturing concern, ranking "as GE's major worldwide competitor in everything

from motors and switchgear to generators and nuclear reactors." It had also raised its share of the West German mainframe computer market to 21 percent, cutting sharply into IBM's position as the Bundesrepublik's leading mainframe supplier.

In the late 1970s, Siemens stumbled when it initiated a research and development effort in microcircuit technology, against the advice of a consulting firm employed by the West German government to counsel the nation's industrial companies. It was thought that Siemens' slow and methodical practices would render it unable to keep up with the smaller, quicker Silicon Valley firms that were breaking ground in this area. Nonetheless, Siemens A.G., with its research and development budget of \$1 billion (one eighth of all the money spent by West German industry on research at the time), eventually entered into a joint venture with Dutch rival Philips to develop advanced microcircuits. None of the company's efforts on this front proved successful, however. Its components division lost money through 1987 and Siemens was forced to buy chips from Toshiba to meet its commitments until its own became available in early 1988.

In 1981 Peter von Siemens retired and was succeeded by Bernhard Plettner. For the first time, the Siemens family relinquished day-to-day control over the company it had founded over a century ago. But the 67-year-old Plettner had worked for Siemens for all of his adult life, and Peter von Siemens felt that his own son, at the age of 44, was still too young and inexperienced for the top job.

Under Plettner and new CEO Karlheinz Kaske, Siemens embarked on an expensive and ambitious program of acquisitions and research and development to try to make itself into a world leader in high technology. Its effort to develop its own microchips was a part of that effort, as was the acquisition of IBM's struggling Rolm Systems subsidiary in 1988. That deal cost Siemens \$844 million, but gave control of the third largest supplier of PBX telephone switching equipment in North America. Siemens' strategy during the 1980s was designed to pay off over the long term and produced few tangible benefits in the short run. The company spent \$24 billion on both research and development and acquisitions between 1983 and 1988, and the tremendous cash drain produced both a significant drop in earnings and a cut in the dividend in 1988. As one analyst told *Business Week* in 1988, "Siemens will be an interesting story in the 1990s."

As the company entered the new decade, globalization became a vital part of its policy--and that meant a readjustment of the company's homogeneous culture. Europe was facing a recession and the Asian and South American markets offered huge opportunities for growth. To help guide the new direction of Siemens, the company appointed Hermann Franz as chairman and Heinrich von Pierer as president and CEO. The appointment of Dr. Heinrich von Pierer as chief executive in 1992 reflected the need for a cultural change and the drive for higher profitability.

Siemens had always been dominated by engineers. When von Pierer, an economist and [lawyer](#), was elected to head the company, it was seen as a commitment to greater commercialism for the company. Von Pierer's guidance stressed three fundamental trends: the first was that 85 percent of Siemens' business would be conducted either in global markets or in markets that showed an unmistakable trend toward globalization; second, that significant improvements in manufacturing depended on reducing manufacturing "depth"; and third, that software was the increasingly the crucial commercial factor.

Within the company, von Pierer caused a cultural revolution. He continued the reorganization begun by his predecessor, Kaske, and developed a program designed to make Siemens more competitive with Japanese companies by making it more responsive to market pressures. He replaced the hierarchical structure and engineering focus with a new emphasis on innovation and service. He gave managers in local markets free rein to cut costs and bid for projects, while also appointing a younger generation of managers in their 40s. Moreover, von

Pierer cut Siemens' workforce by 7.5 percent and sold \$2 billion in non-core businesses and slashed \$3.6 billion in operating expenses by fiscal year end 1995. He continually asked if the company was flexible and changing enough, and at one point, included self-addressed postcards in the company magazine urging employees to send him their ideas.

Such measures were part of a strategy to get Siemens into new high-growth markets especially in Asia. Von Pierer planned to invest \$3.4 billion in Asia by the year 2000 and to double sales to \$14.3 billion, according to *Business Week* in 1995. He set up facilities in Asia and Eastern Europe to lower costs and reach new customers, and bought telecommunications units in the United States and Italy. He also planned further acquisition to move more production out of Germany. The strategy began to pay off. While net profits slipped 17 percent to \$1.18 billion in 1994, earnings jumped eight percent in three months and analysts saw a 20 percent increase for the year. As of 1995, sales continued to increase and the declining profits for the company began to increase.

In another move toward globalization, an international partnership brought Siemens together with the world's largest computer maker and Japan's second largest chip maker. In 1992, Siemens joined forces with IBM and Toshiba Corp. to develop 256M-bit chips to create microprocessors with the power of supercomputers. The first chip was expected to be marketed in 1998. The estimated cost for the project was a billion dollars for designing the chip and another billion for setting up the manufacturing facilities. The Siemens, IBM, and Toshiba alliance was expected to become the industry norm given rising operation costs and the focus towards a "borderless" world economy.

Innovation has always been a part of Siemens' tradition. But new social pressures and rapidly changing technology throughout the world brought new challenges to Siemens as it faced the 21st century. To deal with this new business market, Siemens used its tradition of intelligence, resources, and systematic application to remain a strong international force. As von Pierer stated in Siemens' 1994 annual report: "Helping set the course of change has been a vital part of our business for nearly 150 years.... Fifteen years ago, barely half of our worldwide sales came from products that were less than five years old. This figure has now risen to more than two-thirds--solid proof that we are not just meeting increased demands for change, but are setting the pace for innovation."

Principal Subsidiaries: Siemens Nixdorf Informationssysteme AG; Osram GmbH; Vacuumschmelze GmbH; Duewag AG (97%); Siemens Matsushita Components GmbH & Co. KG (50%); Siemens S.A., Saint-Gilles (Brussels); Siemens A/S, Ballerup (Copenhagen); Siemens Osakeyhtiö, Espoo (Helsinki); Siemens S.A. Saint-Denis (Paris); Siemens A.E., Elektrotechnische Projekte und Erzeugnisse (Athens); Siemens plc, Bracknell (London); Siemens Ltd., Dublin; Siemens S.p.A., Milan; Siemens Nederland N.V., The Hague; Siemens A/S, Oslo; Siemens AG Österreich, Vienna (74%); Siemens S.A., Lisbon; Siemens AB, Stockholm; Siemens-Albis AG, Zurich (78%); Siemens S.A., Madrid; Simko Ticaret ve Sanayi A.S., Istanbul (51%); Siemens Nixdorf Information Systems S.A./N.V., Brussels; Siemens Nixdorf Information Systems S.A., Cergy (Paris); Siemens Nixdorf Information Systems Ltd., Bracknell (London); Siemens Nixdorf Informatica S.p. A., Milan (51%); Siemens Nixdorf Informatiesystemen B.V., Zoetermeer/Netherlands; Siemens Nixdorf Informationssysteme Ges.m.b.H., Vienna; Siemens Nixdorf Informationssysteme AG, Kloten (Zurich); Siemens Nixdorf Sistemas de Información S.A., Tres Cantos (Madrid); Osram S.A., Molsheim/France; Osram Ltd., Wembley (London); Osram Società Riunite Osram Edison-Clerici S.p.A., Milan; Siemens U.S.; Siemens Electric Ltd., Mississauga (Ontario); Siemens S.A. de C.V., Mexico City; Osram S.A. de C.V., Tultitlan/Mexico; Siemens S.A., Buenos Aires; Siemens S.A., Sao Paulo (82%); Siemens S.A., Bogotá (94%); Siemens S.A., Caracas; Osram Argentina S.A.C.I., Buenos Aires (66%); Osram do Brasil-Companhia de Lâmpadas Elétricas S.A., Osasco; Siemens Ltd., Richmond; Siemens Ltd., Bombay (51%); Siemens K.K. Tokyo (83%); Siemens Components (Advanced Technology) Sdn. Bhd., Malacca/Malaysia; Siemens Pakistan Engineering Co. Ltd., Karachi (64%); Siemens Componentets (Pte) Ltd. Singapore; Siemens Telecommunications Systems Ltd., Taipei (60%); Osram-Melco Ltd. Yokohama (51%); Siemens Ltd.,

Johannesburg (52%).

Related information about Siemens

SI unit of electrical conductance; symbol *S*; defined as 1 divided by resistance as measured in ohms.

Siemens may refer to:

- Siemens (unit), the SI unit of electrical conductance
- Siemens AG, a German electrical and telecommunications company, including the former branches:
 - Siemens & Halske AG
 - Siemens-Schuckertwerke

Siemens is a German family name carried by generations of telecommunications industrialists, including:

- Ernst Werner von Siemens (known as Werner) (1816-1892)
- Carl Wilhelm Siemens (known as Wilhelm or Sir William Siemens) (1823-1883), brother of Werner von Siemens
- Carl Heinrich von Siemens (1829-1906), brother of Werner von Siemens
- Arnold von Siemens (1853-1918), son of Werner von Siemens
- Georg Wilhelm von Siemens (known as Wilhelm) (1855-1919), son of Werner von Siemens
- Carl Friedrich von Siemens (1872-1941), son of Werner von Siemens
- Hermann von Siemens (1885-1986), nephew of Werner von Siemens
- Ernst von Siemens (1903-1990), nephew of Werner von Siemens
- Peter von Siemens (1911-1986), nephew of Werner von Siemens

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