The Rise of Industrialism Toward the end of the nineteenth century and the beginning of the twentieth, the United States became industrialized, and the country changed dramatically. The rise of industrialism—a change in production from hand craftsmanship to machine manufacturing—meant that more and more goods began to be produced by machines. By 1880 the value of industrially manufactured goods exceeded that of farm production in the United States. And by the turn of the century, the United States ranked first in the world for industrial goods. Sweeping technological developments brought about major societal changes, ushering American society into the modern age and the realm of international relations.

Key Factors in Industrial Growth The growth of industrialism was fueled by several key factors. First, an abundant supply of natural resources seemed to promise centuries of fuel for industrial factories. Entrepreneurs discovered vast amounts of coal in Pennsylvania and the West; oil reserves in Texas, Oklahoma, Kansas, and California; and iron ore near Lake Superior and across Minnesota. Second, improved transportation methods expanded trade from coast to coast. With approximately 150,000 miles of railroad track laid between 1865 and 1900, farmers in the West could sell agricultural products on the East Coast and purchase mechanized farming equipment made in northeastern factories. In addition, the opening of international markets allowed the United States to export over 2 billion dollars' worth of goods annually by 1910. Third, in the late 1800s, the American population shifted from rural areas to urban centers. Between 1865 and 1910, the number of people living in urban centers—areas with a population of 2,500 or more—increased from less than 25 percent to over 50 percent. Whether Americans moved for economic opportunity or to escape the isolation of farm life, they entered the industrial work force and became part of an abundant labor supply. This labor supply was further expanded by immigrants, mostly from southern and eastern Europe, and some from Mexico and China, who poured into American cities in the late nineteenth century.

Government Support for Industrialism The U.S. government supported the great wave of industrialization in several ways, often to the detriment of workers. First, the government aided the industrialization process by helping industries with loans and minimal regulation. For example, the government subsidized railroad construction, granting over $60 million worth of loans and 100 million acres of land to railroad companies. Second, the U.S. government maintained a laissez-faire, or hands-off, approach, imposing few regulations on private enterprise. Furthermore, the government often viewed labor organizers with suspicion. There were few regulations requiring businesses to protect worker safety, and employers paid no social security or unemployment compensation. Third, taxes on personal incomes earned by businessmen were not required until 1913, and tariffs on imports were held high to protect domestic industry from foreign goods. Finally, the government established no environmental controls on industries, allowing timber cutting, land grabbing, coal mining, and cattle grazing on the public domain. While the government's approach allowed unimpeded industrial growth, workers and the environment often suffered as a result.
The Spirit of Innovation  Industrialism owed its success in large part to the spirit of innovation that dominated American culture during the second half of the nineteenth century. Between 1860 and 1900, the U.S. Patent Office granted over 676,000 patents to inventors of machines, techniques, and tools. A government survey in the mid 1890s observed that “scarcely an article now in use [for hand or machine labor] is the exact counterpart of the one serving the same purpose forty or fifty years ago.” Urban centers and universities such as the Massachusetts Institute of Technology in Boston became magnets for scientists, engineers, wealthy business entrepreneurs, and skilled artisans, many of whom were filled with enterprising optimism. In addition to achieving personal fame and fortune, these inventors hoped to improve life for individual Americans through better communication and transportation methods.

Steel Is King  No single innovation affected technological change more than the development of steel production. An English engineer named Henry Bessemer perfected the cold air pressure method for transforming iron ore into steel, making steel both easy and cost-effective to produce. By the last quarter of the nineteenth century, the so-called “Bessemer process” came into widespread use, and steel replaced iron as the master building material. Railroads now had durable steel rails to carry heavier cars, and powerful steel locomotives to travel faster across completed transcontinental rail lines. Steel railroad tracks, comprising 89 percent of all track laid by 1897, allowed unprecedented opportunities for individual mobility and expansion into new markets. As Americans migrated to cities, the need for more space within crowded urban areas was met with a new steel wonder, the skyscraper. Steel girders in beams supported buildings many dozens of stories high, supporting larger and larger city populations as they reached into the hundreds of thousands and even millions. Bridges, resting on steel rather than wood or iron, held greater and greater loads.

Electricity Becomes Widespread  The introduction of electricity for widespread commercial and domestic use spurred innovation in technology. Inventions such as Samuel F. B. Morse’s telegraph and Alexander G. Bell’s telephone successfully transmitted speech across electrical wires, thereby connecting distant parts of the nation with news and personal communication. Businesses quickly caught on to installing the newest electrical technology; escalators, elevators, doors with electrical “eyes,” and central heating appeared in many cities’ department stores. Thomas A. Edison’s work with electrical lighting systems led to a host of inventions including incandescent lamp filaments, generators, and underground conductors that allowed city life to operate round the clock.

Machines Increase Production  Inventors’ attention to machines created a rush of new production methods. For example, the sewing machine, which Elias Howe patented in 1846, made it possible for seamstresses and tailors to greatly increase garment production. Armed with thousands of sewing machines, competing shop and factory owners pressed workers to operate them at lightning speeds for mass production of ready-to-wear clothing. Bicycle and automobile manufacturers took mass production one step further, using the assembly line technique to speed up production even more. Machines such as those at Henry Ford’s automobile production plants made single-task assembly lines a profitable production method.