

The legacy and impact of the shinkansen technology

[Technology](#)



Japan was among the countries that realized the potential problems of the automobile. In thickly-populated cities such as Tokyo and the huge population of the country itself, the car was not the way to move forward. Japan pioneered in the construction of a dedicated railway line suitable for high speed travel (Keating, " The Shinkansen"). In response to its transportation woes, the Japanese Parliament approved the construction of a railway line in 1958.

After only five and a half years of construction, the tracks became fully operational in October 1964 just in time for the Tokyo Olympics to be held in that same year (Raynor, " Japan Bullet Train"). History of the Bullet Train Shinkansen is the name of every train that travels throughout Japan. Regarded as the first high speed train in the world, the Bullet train can travel at speeds of 210 km/h (131 kmh). At that time, no other trains in any other country, including the United States, could travel at such tremendous speed.

During that period, there was no real concept of " high speed" but nevertheless the success of the shinkansen technology paved the way for Europe to adopt similar technology (Keating, " The Shinkansen"). The original trains serviced commuters between Tokyo and Osaka. The initial line covering Tokyo and Shin-Osaka covered 515 kilometers. In 1972, the Sanyo line started servicing passengers from Shin-Osaka to Okayama and was extended to Hakata in 1975. Three additional lines from Omiya to Morioka, Omiya to Niigata, and Tokyo to Nagano were opened to the public in 1982 and 1997, respectively (Keating, " The Shinkansen").

With average speeds of 264 kilometers per hour, the Shinkansen train can cover the 192 kilometer stretch from Hiroshima to Kokura in 44 minutes. The <https://assignbuster.com/the-legacy-and-impact-of-the-shinkansen-technology/>

first train ran at 200 kilometers per hour and was eventually increased at 220 kilometers (Keating, " The Shinkansen"). In a report by JR Central in 2003, it was revealed that the average arrival time of the bullet train was 0. 1 minutes or 6 seconds within its estimated time of arrival. This is includes potential natural and human accidents and errors and is computed from its total 160, 000 trips. In 1997, the bullet train set a record of 0. 3 minutes or 18 seconds (Keating, " The Shinkansen").

Originally designed to transport passengers and freight trains day and night, the Shinkansen line only carries passenger trains. It undergoes daily system shutdown from 12 midnight to 6 am for maintenance. However, there are overnight trains running on the parallel narrow gauge line (Japanese Lifestyle," Shinkansen History"). The shinkansen train consists of sixteen cars, each measuring 25 meters in length. The longest train measures 400 meters from end to end. As expected, the stations are likewise lengthy in order to accommodate the long trains (Japanese Lifestyle, " Shinkansen History").

The 320 mile stretch from Tokyo and Osaka covered by the train was worth \$640 million to construct. In its first eighteen months of operation, it was the only Japanese rail line that runs for profit. At the start, the bullet train traverses the Tokyo to Osaka route but now it runs throughout the entire Honshu region. The Japanese government has built new lines (Raynor, " Japan Bullet Train"). In October 23, 2004, the Shinkansen train experienced its first derailment as a result of the Chuetsu Earthquake. Eight of the ten rail cars of Toki No. 325 got derailed close to the Nagaoka Station in Niigita.

Fortunately, none of the 154 passengers was injured or killed (Japanese Lifestyle, "Shinkansen History"). More than 40 years after it opened its first train, the Shinkansen network has transported more than six million passengers without suffering any major accident. The word "bullet train" is renowned only abroad but when in Japan, visitors would only see Shinkansen on English signs (Japanese Lifestyle, "Shinkansen History").

The Description of Each Line The Shinkansen railway network has seven lines that services passengers. The Tokaido Line, which is the first that was opened in 1964.

It makes trips from Tokyo and Osaka, adjacent to the Tokaido Road connecting Edo and Kyoto during the Samurai era. Eventually, it went on an expansion to include the Sanyo Line which runs from Hiroshima to Fukuoka. There are three lines running on the Tokaido/Sanyo Line (Japan Railways Group, "Shinkansen"). The Tohoku Line operates in the principal cities of Sendai and Morioka. Currently, it expands to Hachinohe and in the future it will include Aomori. Located in the northeastern region of Honshu Province, Tohoku is popular for its hot springs and mountain regions (Japan Railways Group, "Shinkansen").

The Akita Line provides its passengers with a scenic sight of Lake Tazawa as well as Kakunodate, the town famous for its samurai. The Akita Line crosses Honshu Province to the city of Akita, crossing the Japanese Sea (Japan Railways Group, "Shinkansen"). The Yamagata Line branches off from the Tohoku at Fukushima and is connected to the inland cities of Shinjo and Yamagata. On the other hand, the Joetsu Line has been established as an important link to Russia since the 1990s (Japan Railways Group, "

Shinkansen"). The Nagano Line was built for the purpose of connecting Tokyo to Nagano for the 1998 Winter Olympic Games.

It serves as the transportation of people who flock to the mountainous region of Central Japan away from the heat of the summer or to go skiing during the winter (Japan Railways Group, "Shinkansen"). The newest member of the Shinkansen network is the Kyushu Line located on Japan's southern islands. Currently, it connects Shin-Yatsushiro with the southern city of Kagoshima (Japan Railways Group, "Shinkansen"). The computer program responsible for operating the Shinkansen train is run by electrical energy. Pantographs, which are cables positioned overhead, are set up on individual trains accepts the electrical energy.

They supply and regulate the flow of power into the train. The 500 series bullet train will no longer have the pantographs (Raynor, "Japan Bullet Train"). Further Developments The 500 series bullet train introduces an advanced technology. They are faster and provide more aerodynamics. Their average speed is 199 miles per hour and its maximum speed while running is 186 miles per hour (Raynor, "Japan Bullet Train"). The 500 series bullet train has a length of 82 feet and a width of 11 feet, which is huge enough to accommodate passengers of varying size.

Its 12-foot ceiling gives the tallest passengers plenty of room to operate (Raynor, "Japan Bullet Train"). The 500 series Shinkansen train is composed of sixteen cars and can accommodate a total of 1,324 passengers, which can be divided into 200 first class and 1,120 second class accommodations. Its aluminum honeycomb panels minimize the sound pollution of the tires on the tracks as well as other external noises produced by the train (Raynor, "<https://assignbuster.com/the-legacy-and-impact-of-the-shinkansen-technology/>

Japan Bullet Train"). The new tracks being constructed are very different from the old ones. The super-express track will have shorter spaces between the rails.

It will likewise utilize a new power gauge. The new track will likewise cover a total of 1, 954 kilometers (Raynor, " Japan Bullet Train"). The Impact of the Bullet Train Japan has a huge population which is about half of the size of the United States. The Shinkansen technology has greatly boosted Japan's economy. It did its share in minimizing the number of automobiles plowing the busy streets of Japan. It has reduced the number of hours that workers would need to go to their work or other interesting places (Raynor, " Japan Bullet Train"). Conclusion

The bullet train was introduced in Japan in 1964 which originally extended 515 kilometers from Tokyo to Osaka. Eight years later, the Sanyo line was opened for commuters from Osaka to Okayama and eventually Hakata in 1975. Three additional lines were built from Omiya to Morioka, Omiya to Niigata, and Tokyo to Nagano in 1982 and 1997, respectively. Covering a stretch of 192 kilometers from Hiroshima to Kokura, the Shinkansen has an speed of 264 kilometers per hour in 44 minutes. The first train ran at 200 kilometers per hour and was eventually increased at 220 kilometers.

Electrical energy is harnessed to the computer program which is chiefly responsible for running the Shinkansen train. The electrical energy flowing to the computer program is accepted by overhead cables called pantographs, which are likewise responsible for the regulation and flow of power into the train. However, with the arrival of the 500 series bullet train, pantographs will be replaced. The new 500 series bullet train will utilize more advanced <https://assignbuster.com/the-legacy-and-impact-of-the-shinkansen-technology/>

technology. They are faster and provide more aerodynamics. It will have an average speed of 199 miles per hour with maximum speeds of 186 miles per hour.

The 500 series bullet train is 82 feet long and 11 feet wide, making it spacious enough to accommodate commuters with varying sizes. With a 12-foot ceiling, tall passengers will have sufficient room to operate. The 500 series Shinkansen train will consist of 16 cars and can accommodate up to 1,324 passengers. Commuters have an option to choose between 200 first class and 1,120 second class accommodations. Its aluminum honeycomb panels minimize the sound pollution of the tires on the tracks as well as other external noises produced by the train.

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