High Speed Rails

These vehicles can be thought of as trains on steroids. Massive power and torque figures that make normal trains seem like a child’s toy is a natural byproduct of these high speed rails. Their invention has massively reduced **train times**. The time taken by each train to reach a destination, that is. These behemoths travel in excess of 250 kilometres per hour (160 miles per hour) on tracks especially designed to attempt to contain them. Any train that goes around 200 kilometres per hour (120 miles per hour) or more is considered to be a high speed train, actually. These kinds of speeds for such heavy machines require enormous engineering efforts to be not only safe, but economical to agencies that operate them. Japan, in 1964 built the very first high speed railway system and it was aptly named the bullet train. The tracks for these trains are slightly thicker to accommodate for the extreme forces it would experience, and they also generally have very large turning radii so as to prevent the turns from toppling down the entire vehicle.

A lot of wealthy and developed nations like Austria, Belgium, China, France, Germany, Italy, Japan, the Netherlands, Poland, Portugal, Russia, South Korea, Spain, Sweden, Taiwan, Turkey, the United Kingdom, the United States and Uzbekistan have so far developed high-speed railway systems that connect major cities in and around them. Europe is the only place on earth which operates high speed rails across borders. The country of China holds the astonishing record feat of possessing about two thirds of all the world’s high speed railway line length. It stretches for about 22,000 kilometres (14,000 miles) as last measured in December of 2016.

High-speed rails though very impressive, must be better than existing transportation systems like aircrafts, to actually be a success. It has been estimated that these trains are best suited for journeys that take it anywhere between 1 to 5 hours to complete is optimal. is best suited for journeys of 1 to 4½ hours (about 150–900 km or 93–559 mi). For these distances, cars and air traffic times are lesser when round trips are included in as well. This is because it takes significant time for airport staff to perform security checks and process all your details before sending you off on the plane.

Although these vehicles can reduce **train times**, they suffer from a few drawbacks as follows:

* A lot of land is required to build these train systems, and this could lead to displacement of settlements and a harbor for illegal land acquisition scams.
* It can be extremely expensive to build in areas with a high cost of land.
* Tunneling through mountains and providing safety against earthquakes are some major engineering challenges that have to be tackled.
* Unlike aircrafts that can add or drop routes depending on demand, high speed rails have to be built only in areas where it is certain that demand would be present 24/7 since the initial investment is huge, to build trains.
* Cities usually cannot have a straight, clear path connecting each other due to which, train lines have to bend and curve along the way. This leads to increase in length of the journey, which makes it inefficient as a whole since a direct flight would be better suited instead.