

# Space Elevator

In 1985, Russian scientist, Konstantin Tsiolkovsky looked at the Eiffel Tower and conceptualized a building that extended far into Earth's atmosphere; a space elevator (Snowden, 2018). A space elevator is a theoretical transportation system that stretches a tether from Earth to the outer depths of its atmosphere and into space ("What is a Space Elevator (in 500 words or less)?", 2016). In laymen's terms, it is an incredibly tall building/structure. Just imagine if the CN Tower was 64,000 times taller or the Eiffel Tower was 100,000 times taller. The tallest building in the world is the Burj Khalifa and it stands at just over 829m. The Burj Khalifa would need to be 42,000 times taller to be a space elevator.

At the time, this was a crazy idea that stupefied everyone. But that didn't stop scientists from toying around with the idea, even though it was materially impossible at the time. The technology, material, research, and funding was insufficient to make a space elevator. Fast forward a few decades later, and we have the means to make this happen. In fact, both China and Japan have set deadlines for achieving a space elevator by 2045 and 2050, respectively (Snowden, 2018). I think this is great and more countries and organizations should join the venture of creating a space elevator. In addition, this should be turned into a 'Space Race', where groups compete to build a functioning space elevator - that is safe - as fast as humanly possible; because competition breeds innovation.

The main reason we should build a space elevator is because it will greatly reduce the cost of sending stuff into space from thousands of dollars per pound to approximately a hundred dollars per pound (Snowden, 2018). This is because rockets ships are VERY expensive. They are gas guzzlers that require an inordinate amount of fuel and other resources. In fact, most of the fuel is used to escape the earth's atmosphere and compensate for the mass of the rocket ship and

the mass aboard it. Plus, rocket ships tend to be single use. This wastes a lot of precious resources and harms the environment. A space elevator is both sustainable and scalable. The space elevator can power itself using solar energy. No longer will thousands of liters of gasoline be wasted on single-use rockets, and harmful greenhouse gas emissions will be prevented. A space elevator will save a lot of money and resources in the long run. Not to mention, a space elevator will democratize space travel. People will be able to travel to space for the first time in the history of humanity. Just imagine all the amazing Instagram pictures you'll be able to take and post on your story.

Another benefit to developing a space elevator is research and development. The advancements in technology and science will be incredible. A space elevator needs to be built out of a VERY strong material. So far, nothing on Earth has these properties. However, graphene has been extensively tested in labs, and has been shown to have enormous potential if it can be manufactured into large sheets. Scientists believe that with enough research, and funding, graphene can be commercially used. This is just a small area of science and technology that will see improvements. Other tech like solar panels will also see huge improvements and advancements.

### References

- Snowden, S. (2018, November 29). A colossal elevator to space could be going up sooner than you ever imagined. Retrieved October 30, 2019, from <https://www.nbcnews.com/mach/science/colossal-elevator-space-could-be-going-sooner-you-ever-imagined-ncna915421>.
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