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A FEASIBILITY ANALYSIS OF SMALL SATELLITE CONSTELLATIONS DEDICATED TO SERVE  
A COUNTRY OR REGION WITH HIGH SPEED CONNECTIVITY

**Abstract**

Over the past few years, multiple initiatives have started developing constellations of satellites to beam high speed internet access around the globe. The most prominent companies currently involved in this endeavor include: OneWeb, SpaceX and Telesat. The systems proposed so far, vary in many different aspects; however, all of them have one thing in common: they considerably outnumber all operational constellations. For instance, Iridium has less than 100 operational satellites and OneWeb plans to launch the first generation of their system with 600 satellites. It is undeniable that one of the many challenges that these new systems face is "mass" production that is sustainable over time. Companies that have made most progress so far have already started production of their satellites, OneWeb together with Airbus, have launched a joint venture called "OneWeb Satellites" that aims to produce hundreds of satellites each year. They have started promoting their "Arrow" satellite platform, which will be made available for other types of payload and customers. This enables new opportunities for various space applications. In this paper, a brief analysis is made to assess the feasibility and practicality of developing LEO constellations that are dedicated to serve broadband to a single nation or a small group of nations around the globe; in this case, Bolivia will be considered as a case study. Simplification would be the main reason as to why a nation would implement a constellation dedicated solely to itself; avoiding complex regulatory issues that affect global systems and achieving a payload design that is fully optimized to the specific needs within the country. The topics that will be covered in this paper include: orbital parameters and other characteristics of the proposed constellation, payload characteristics and assessment of available capacity, ground segment architecture, regulatory issues and a brief economical analysis.