

Expanding Home Broadband Coverage Through Existing Low Earth Orbit Megaconstellations



BUSINESS PROBLEM

Internet Service Providers (ISPs) face high infrastructure costs when expanding broadband into rural and underserved areas, making traditional solutions financially unviable. Verizon seeks a scalable and cost-effective alternative to close the digital divide.

APPROACH

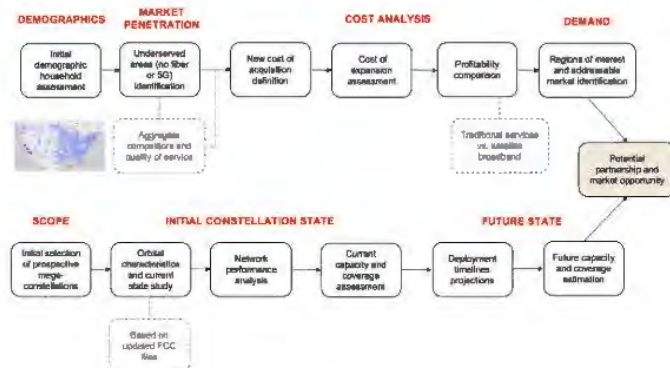
This project assessed the feasibility of leveraging Low Earth Orbit (LEO) satellite megaconstellations as an alternative broadband solution. It developed a customer demand model and a cost optimization framework to compare the profitability of traditional offerings vs. satellite solutions across diverse geographies, along with a technical capacity analysis of different satellite providers.

DATA SOURCES

The analysis leveraged publicly available FCC broadband coverage datasets and U.S. Census demographic data at the census tract level. Internal Verizon cost and market data were also used, anonymized for confidentiality. Satellite provider capacity data and deployment plans were drawn from FCC filings and industry reports.

Data Types and Format

Geospatial demographic census data, product tabular cost, time-series deployment projections, and FCC datasets.



IMPACT

The analysis identified 17 million potential customers in underserved areas, with satellite broadband emerging as the most profitable solution for at least 1 million households. With minimal capital investment and favorable wholesale agreements, satellite technology enables new customer acquisition and rapid broadband expansion, positioning Verizon for strategic growth and improved digital equity.

DRIVERS



The main driver was Verizon's need to expand broadband to underserved areas where traditional infrastructure investments are not cost-effective. The rise of LEO satellite megaconstellations presented a timely opportunity to assess whether they could offer scalable, complementary solutions.

BARRIERS



Barriers included limited internal data on satellite broadband, uncertain satellite deployment timelines, and the challenge of comparing technologies with different cost structures and coverage models.

ENABLERS



Support from Verizon's Impact Analytics team, along with access to public regulatory data and internal broadband cost structures, enabled efficient development of demand models and profitability analyses.

ACTIONS



Built a customer demand model, cost optimization framework, and technical capacity assessment to evaluate LEO satellite broadband profitability relative to existing offerings across U.S. geographies.

INNOVATION



The integrated decision-making tool combined demographic demand modeling with broadband cost structures and satellite capacity analysis—bridging strategic, technical, and financial considerations in a single framework.

IMPROVEMENT



The analysis provided Verizon with previously unavailable data to support strategic decision-making and partner negotiations. It identified 17 million underserved households across the U.S. and pinpointed high-opportunity regions for satellite broadband deployment. Notably, the study revealed that satellite is the most profitable solution for at least 1 million of these households.

BEST PRACTICES



Start by integrating publicly available data sources to identify the market opportunity. Normalize cost structures across technologies to enable fair comparisons. Maintain flexibility in your modeling framework to adapt to new technical inputs or deployment updates. Finally, ensure cross-functional collaboration to incorporate both strategic and technical perspectives.

OTHER APPLICATIONS



This methodology could apply to satellite-to-device connectivity, international broadband expansion, or other telecom product rollout strategies.