KANSAS BROADBAND ACCESS AND USAGE ANALYSIS

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INTRODUCTION

The Kansas Office of Broadband Development aims to increase broadband access across the state, leveraging federal funds to ensure that residents and businesses benefit from high-speed internet connectivity. This project examines broadband usage and availability within Kansas, benchmarks it against other states, and provides insights into it by performing analysis.

DATA OVERVIEW

The analysis began with data examination and cleaning, focusing on datasets detailing broadband data for 2019, 2020 and by zip code. We filtered data to focus on Kansas, ensuring a clean, consistent dataset for in-depth analysis. Key steps included:

- Loading and examining datasets for understanding structure and content.
- Cleaning data to address any inconsistencies or missing values, specifically focusing on Kansas.

Datasets available: Currently we have two datasets:- FCC(Federal Communication commission): broadband_data_2019November, broadband_data_2020October & broadband_data_zipcode and UK Data.

Data Cleaning: No missing and duplicate values were found in FCC datasets, indicating good data completeness.

Data Integration: Three datasets from FCC were joined on ST and COUNTY_ID which are common data columns among them for further analysis.

FINDINGS

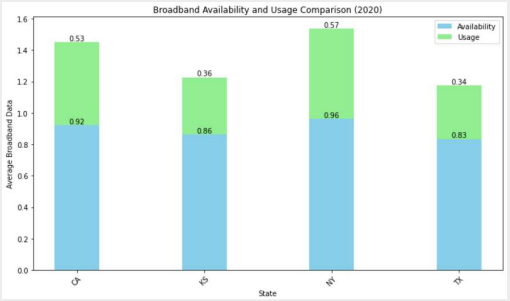

Figure 1: Broadband Availability and Usage Sates (2020)

The first state California has a 0.92 (or 92%) broadband availability and 0.53 (or 53%) usage, suggesting that while broadband is widely available, its usage is not as extensive. The second state Kansas shows a higher usage (0.36 or 36%) relative to availability (0.86 or 86%), which indicates a better use of the available broadband. The third state New York has the highest availability (0.96 or 96%) and a moderately high usage (0.57 or 57%). The fourth state Texas shows a close relationship between availability (0.83 or 83%) and usage (0.34 or 34%), also suggesting lower usage compared to availability.

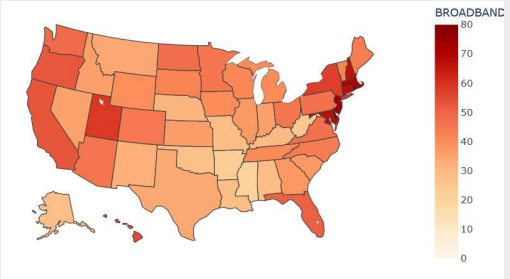

Figure 2: Broadband Usage by State in 2020

The map of the United States showing average broadband usage by state in the year 2020. The color gradient represents the percentage of broadband usage, with darker shades indicating higher usage and lighter shades representing lower usage.

Areas such as the Northeast and parts of the West Coast appear to have higher usage rates, whereas some central and southeastern states have lower usage. This could be indicative of various socio-economic factors such as urbanization, income levels, or state-level investment in broadband infrastructure

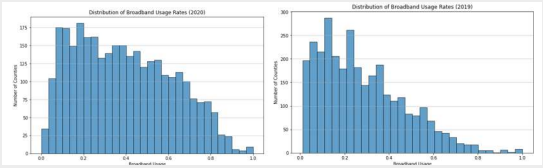

Figure 3: Broadband Usage Distribution in 2019 & 2020

The histograms for 2020 and 2019 show right-skewed distributions of broadband usage rates, with most counties having lower usage rates. Both years have peaks in the 10%-30% usage range, indicating that a significant number of counties have relatively low broadband adoption. This suggests persistent barriers to higher broadband usage across various counties.

Figure 4: Broadband Availability & Usage in 2019 & 2020

The gauge charts showing average broadband usage and availability for 2019 and 2020. In 2019, average usage was at 0.333 and availability at 0.795, indicating that while broadband was widely available, it was less utilized. In 2020, usage increased to 0.443 and availability also rose to 0.853, suggesting improvements in both aspects with higher usage rates and greater availability compared to 2019.

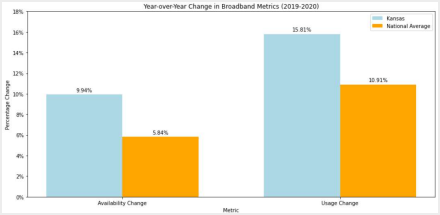

Figure 5: Year Over Change in Broadband Metrics (2019-2020)

Availability Change: Kansas shows a significant increase (9.94%) in broadband availability compared to the national average (5.84%), highlighting effective efforts to expand broadband infrastructure within the state.

Usage Change: Similarly, Kansas's increase in broadband usage (15.81%) outpaces the national average (10.91%), indicating growing adoption rates among residents.

CONCLUSION

Kansas has made significant strides in enhancing broadband access and usage, yet challenges remain. By continuing to focus on data-driven strategies and learning from both national trends and other states' successes, Kansas can further improve its digital equity landscape, ensuring that all residents have access to reliable, high-speed internet. Recommendations focus on infrastructure improvements and data accuracy to support a more equitable digital landscape. In summary, the project calls for collaborative efforts to ensure broadband access is as universal and essential as other utilities, benefiting all of society.