



LOCATION-BASED SERVICE DATA FOR TRANSIT AGENCY PLANNING AND OPERATIONS: MARKET SCAN AND FEASIBILITY ANALYSIS

Background

Anonymized location-based service (LBS) data from smart phones and other location-aware devices make it possible to track the precise movements of millions of Americans. LBS data may offer transit agencies a new tool as they reexamine travel patterns and travel demand in the wake of the Covid-19 pandemic. Gathering and sharing LBS data may have beneficial commercial and government purposes, but it also carries the potential for abuse and risks to individual privacy and civil liberties. It is critical that any public transportation effort associated with using LBS data ensures privacy and anonymity, and that transit agencies utilizing such data understand its limitations, such as not accounting for populations that do not own smart phones.

Objectives

The research provides an assessment of the strengths and weaknesses of using LBS data as proxies for traditional ridership data, the readiness of transit agencies to incorporate smart phone data into their planning and operations, and the challenges that would need to be overcome to ensure privacy, protect civil rights, and make more effective use of this data source.

Findings and Conclusions

This report summarizes the experiences of transit agencies using LBS data to improve transit operations and planning, as well as lessons learned, key challenges and risks. This report identifies the several key findings, including:

- Transit agencies have found promising use cases for LBS data, including bus network redesign, improving bus operations, understanding mode share and complete trips, emergency response, prioritizing investment, and outreach/marketing.
- Transit agencies work closely with data vendors to improve LBS data and explore how to use the data to guide decision making.
- Transit agencies may find the greatest success if they use LBS data to supplement existing data streams and take steps to “ground truth” results.
- Although no transit agencies reported any privacy concerns raised by the public, transit agencies are aware of LBS data-related privacy concerns.

Transit agencies, industry experts, and privacy advocates caution that LBS data comes with limitations. Time and expertise are required to process and interpret the information effectively, accuracy may be difficult to verify, some demographic groups may be underrepresented, and LBS data raises concerns about potential violations to individual privacy and civil liberties.

Benefits

The findings can be used to help a transit agency better evaluate the benefits, costs, and other considerations associated with LBS data if the agency considers exploring LBS as a novel tool to understand travel patterns across modes in the region in a timely fashion.

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