POLICY BRIEF

UNIVERSITY OF CALIFORNIA Berkeley
Transportation Sustainability RESEARCH CENTER
tsrc

ITS Berkeley
Institute of Transportation Studies

Smartphone Applications and Data Impacting Transportation

Susan Shaheen, PhD and Adam Cohen
tsrc.berkeley.edu • innovativemobility.org

KEY TAKEAWAYS

Smartphone apps are transforming mobility by improving access to transportation services, increasing mobility, and enhancing traveler engagement.

Smartphone apps are spawning innovative transportation businesses, services, and mobility models.

"Real-time data, mobile Internet, and smartphone apps are transforming California's transportation system."

TOPIC/ISSUE

Demographic shifts, improvements in computing power and mapping technology, the use of cloud computing, and changes in wireless communication — coupled with the growth of data availability and data sharing — are changing the way people travel. Increasingly, mobility consumers are turning to smartphone "apps" for a wide array of transportation activities including: vehicle routing, real-time data on congestion, information regarding roadway incidents and construction, parking availability, and real-time transit arrival predictions (1). Travel time savings (e.g., high occupancy vehicle lanes available to users of shared-ride services); financial savings (e.g., dynamic pricing providing discounts for peak and off-peak travel and for choosing low-volume routes); incentives (e.g., offering points, discounts, or lotteries); and gamification (e.g., use of game design elements in a non-game context) are among the key factors driving end-user growth of smartphone transportation applications (1).

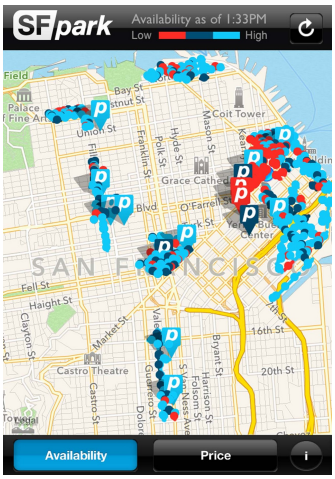
RESEARCH FINDINGS

One national study of smartphones and mobile technologies revealed, from interviews and a literature review, how vital smartphones and the mobile Internet are becoming to the transportation network (1). Four broad categories of apps impact transportation. These categories represent the apps' primary function: 1) mobility apps; 2) vehicle connectivity apps; 3) smart parking apps; and 4) courier network services (CNS) apps.

Mobility Apps have the primary function of assisting users in planning or understanding their transportation choices and may enhance access to alternative modes.

Vehicle Connectivity Apps allow remote access to a vehicle through an integrated electronic system that can be used in times of emergency (e.g., locked out of a car, asking for help after an accident, etc.).

Smart Parking Apps provide information on parking cost, availability, and payment channels. These apps are often paired with smart parking systems (e.g., SFpark). These apps include e-Parking (providing real-time information on the cost and availability of parking, parking reservations, and payment) and e-Valet (for-hire parking services where drivers use an app to dispatch valet drivers to pick-up, park, and return vehicles).



Courier Network Services (CNS) Apps (also referred to as flexible goods delivery) provide for-hire delivery services for monetary compensation using an online application or platform (such as a website or smartphone app) to connect couriers using their personal vehicles, bicycles, or scooters with freight (e.g., packages, food).

APPROACH

With the growing popularity of smartphone applications, California agencies should consider several guiding principles regarding the role and implementation of smartphone apps on a transportation network.

- **Data sharing and interoperability** will form the foundation of transportation apps, particularly mobility apps. Public and private entities could play a critical role in facilitating and defining data sharing through public-private partnerships.
- **Providing open data** has allowed local governments and public agencies the ability to offer real-time transportation information to their communities, without the cost or responsibility of developing or maintaining mobile applications themselves. Public agencies should address three key areas: 1) data accessibility, 2) open licensing, and 3) data quality and timeliness.

Data Accessibility: Ensure that data made available are in an open format that can be downloaded, indexed, searchable, and machine-readable to allow automated processing.

***Open Licensing*:** Ensure data are available to the public for use at little to no cost.

***Data Quality and Timeliness*:** Ensure data are high quality and scrubbed for plug-and-play end use by developers without requiring extensive effort to make datasets usable. Data are made available as quickly as possible and frequently enough to remain current and usable.

- **Public agencies could establish data exchanges** to serve as a repository for public and private sector data sets. In doing so, public agencies should establish data standards (both data type and format); conditions for data use; and establish a data management platform to collect, securely store, and re-disseminate data to public users.

CONCLUSIONS AND RECOMMENDATIONS

The **California Legislature should consider the following public policies and legislative agenda** pertaining to app-based transportation services:

- Require de-identified data sharing on trip origin and destination by all app-based transportation service providers when requested by California public agencies.
- Establish statewide data standards and privacy protections for all transportation apps offering information, payment, delivery, or mobility services within the State.
- Adopt statewide privacy legislation that protects user geolocation data and exempts these data from release under the California Public Records Act when in the possession of a public agency.
- Amend California Civil Code § 1798.81.5 to add geolocation data to the definition of personally identifiable information in the law requiring businesses to protect the information with reasonable and appropriate security.
- Require plain-language opt-ins for user data sharing between apps and service providers when required.

References

1. Shaheen, S.; Cohen, A.; Zohdy, I; and Kock, B. (2016). *Smartphone Applications to Influence Travel Choices: Practices and Policies.* FHWA Report 16-023. U.S. Department of Transportation: Washington, D.C.

This policy brief was generously funded by the State of California Public Transportation Account.