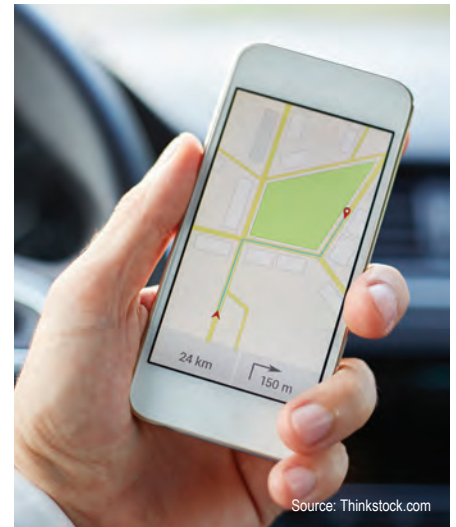




Overview

Increasingly, travelers 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. The increasing availability, capability, and affordability of intelligent transportation systems, global positioning systems (GPS), wireless, and cloud technologies—coupled with the growth of data availability and data sharing—are causing people to increasingly use smartphone mobility apps to meet their mobility needs. Travel time and financial savings, incentives, and gamification are among the key factors driving end-user growth of smartphone transportation applications.



The full primer is available at the following link: <http://www.ops.fhwa.dot.gov/publications/fhwahop16023/index.htm>

Smartphone Application Types

Transportation Apps



Mobility Apps focus on moving people and include the following derivatives: business-to-consumer (B2C) sharing apps; mobility trackers; peer-to-peer (P2P) sharing apps; public transit apps; real-time information apps; ridesourcing/TNC apps; taxi e-Hail apps; and trip aggregator apps.



Vehicle Connectivity Apps help users to connect to their vehicles remotely; these apps can be very beneficial in case of lockouts or an accident.



Smart Parking Apps make the parking process more efficient by highlighting real-time availability and parking cost. Additionally, smart parking apps enable easy payment. Valet parking apps allow the user to hire an experienced valet to park their vehicle after dropping it off at a convenient location.



Courier Network Services (CNS) Apps focus on efficiently delivering goods to individuals.

Other Apps Impacting Transportation



Health Apps assist users in monitoring their health (e.g., calories burned, heart rate, etc.), understanding the health impacts of their transportation choices, and encouraging health-conscious behavior, such as walking and biking. Outside of mobility, health apps are integrating health records, providing low-cost medical care, and creating motivational communities focused on health.



Environment/Energy Consumption Apps track environmental impacts and energy consumption of travel behavior, for example, greenhouse gas emissions (GHG) associated with different mode choices. Outside of mobility, environment/energy apps are reducing material consumption, changing eating habits, connecting consumers to their environment, and generating awareness of important environmental issues.



Insurance Apps enable users to opt for pay-per-mile automobile insurance (e.g., Metromile) and other usage-based pricing and incentives related to distance, time-of-travel, and safe driving (e.g., Allstate's usage-based insurance app). Outside of mobility, insurance apps are speeding the insurance claims process and reducing insurance fraud.





Current Challenges

A number of challenges exist for developers, mobility service providers, and public agencies. These include:

- ▶ **Privacy Concerns:** Apps may intentionally or unintentionally collect sensitive information that may be exposed by the app itself or through third-party application interfaces and cloud-based data storage.
- ▶ **Open and Interoperable Data:** Data can broadly be divided into three types: 1) open data, 2) proprietary data, and 3) personal data. Open data are publicly available for download or through programming interfaces. Protecting all three types of data, while still enabling information sharing with other apps and services, is a continual challenge confronting developers.
- ▶ **Accessibility Considerations:** Bridging the digital divide for low-income users, providing service in rural regions with less data coverage, and providing payment options for unbanked and underbanked users represent some of the key accessibility considerations surrounding app-based services. Additionally, ensuring that apps are usable by people with various health conditions (primarily older adults), as well as disabled users represents another key challenge for app developers.

Guiding Principles for Public Agencies

With the growing popularity of smartphone applications, it is helpful for public agencies to recognize several guiding principles in considering the role and implementation of smartphone apps on a transportation network. These include:

Enhancing Data Sharing and Interoperability

- ▶ **Open Data:** Providing open data allows 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. Ensuring data availability, open licenses, and data timeliness are key recommendations for public agencies.
- ▶ **Data Exchanges:** Public agencies should consider establishing data exchanges to serve as a repository for public and private sector data sets.

Encouraging Multi-Modal Mobility

- ▶ **Enhancing Multi-Modal Payment Mechanisms:** With a growing array of private sector trip planning (e.g., ticketing and fare payment apps and integrated solutions), fare payment is becoming increasingly complex for the end user. Developing a common fare payment platform for a single point-of-sale to cover an entire journey (multiple modes) can make smartphone apps more convenient to use and support multi-modal trip planning, ticketing, and payment.
- ▶ **Expanding Commuter Benefits:** Public agencies should consider allowing smartphone apps access to pre-tax commuter accounts, employer-provided usage, and providing app-based commuter incentives linked to a user's modal choice.

Protecting Consumer Privacy

Smartphone apps can collect a lot of private and sensitive information from their users, such as:

- ▶ Addresses
- ▶ Current location
- ▶ Location history
- ▶ Financial information (for fare payment).

The private sector can aid consumers in making informed data sharing decisions through transparent, plain language user agreements. Developers can help protect consumer privacy by designing apps that limit data sharing to mitigate unnecessary data release.

Learn More on Active Transportation and Demand Management

Active transportation and demand management (ATDM) can include a variety of approaches to manage, control, and influence travel demand across the transportation network. Improvements in mobile technology, the growth of social networking, and increased demand for real-time information support the overall ATDM Knowledge and Technology Transfer program. For more information about ATDM, please visit the following link: <http://ops.fhwa.dot.gov/atdm/>

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