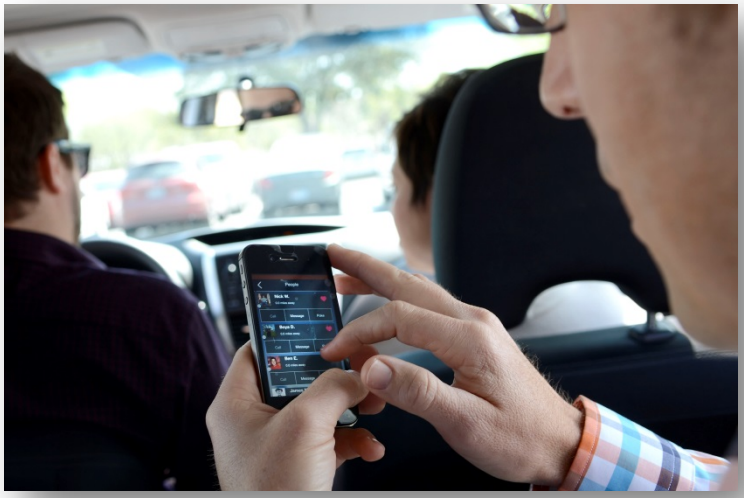
REAL-TIME RIDESHARING

Description

Real-time ridesharing (also called dynamic, or instant ridesharing) is an automated system that matches drivers and riders on very short notice or even en-route,[1] differing from formal ridesharing by not requiring pre-planning or recurrence. Though most commuters prefer to pre-arrange commutes at least the night before,[2] real-time ridesharing promotes carpooling regardless of the time available for planning.



Riders may stand at bus stops near HOV entrances or use one of many private services through an application on their smartphone that automatically pairs them with a driver. If the rider is near a bus stop, the rider benefits from having another travel option and may use transit service as a safety net in case a single driver does not arrive. The driver benefits with lower travel time by qualifying as a carpool in a managed lane and a potential monetary benefit from receiving payment for picking the rider up.

Real-time ridesharing has been practiced without technology, also known as slugging, for HOV lane use. New techniques offer the prospect to improve the practice with safety, efficient payment, and service on managed and un-managed roadways. Smartphone apps help locate likely drivers, provide information on drivers to help users determine whether they would like to share a ride, and often include an automatic payment system to reimburse the driver without exchanging cash. Researchers have estimated savings in vehicle miles traveled from real-time ridesharing programs in specific communities ranging from 6 percent to 27 percent.[3]

Cost:	●○○○○
Time:	**Short**
Impact:	**Region**
Who:	**City/Private**
Hurdles:	**Local Regulation**

Target Market

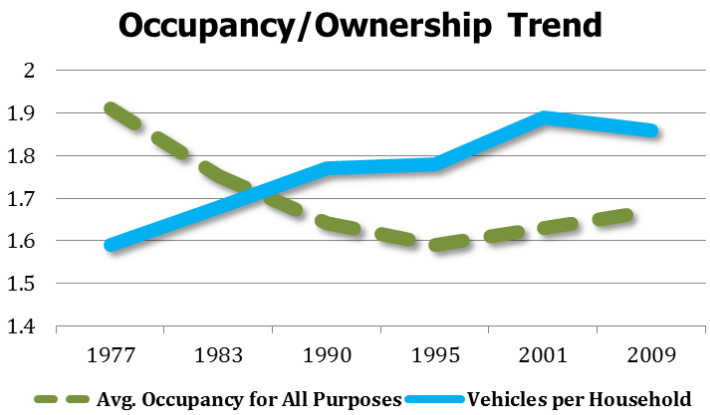
The number of participants in a ridesharing program must be high enough to offer users a good chance of finding a match,[2] so identifying a good market for a range of trip types is important. Traditional carpooling can provide efficient service for regular commute schedules, but real-time ridesharing is also useful for other trips. The 2009 National Household Transportation Survey reports less than one-third (28 percent) of U.S. vehicle miles travelled are commute trips, so real-time ridesharing offers potential to expand the market of ridesharing beyond the daily commute. Although real-time ridesharing offers potential for any vehicle trip, the following markets may be early adopters with positive impacts to the transportation system:

- Suburban or exurban districts not well served by transit.[4]
- Urban activity centers.[2]
- HOV or HOT lane users seeking passengers or drivers.[5]
- People comfortable with computer and cell phone messaging.[2]

How Will This Help?

- Reduce congestion by eliminating cars from the road and maximizing HOV lane use.
- Lower costs of commutes for users (by cost sharing or eliminating the need for a car).
- Decrease auto emissions by removing cars from the road and allowing more efficient speeds.

National Household Transportation Survey data show the number of vehicles per household rose over 13 percent between 1977 and 2009, while the average number of people occupying vehicles decreased 24 percent over the same period. These statistics have moderated over recent years due to economic and other factors, but the overall trend is not expected to change immediately. If adopted, real-time ridesharing could increase average vehicle occupancy, and therefore, more efficient use of the investments Americans have already made in vehicles and roadway infrastructure.



2009 National Household Transportation Survey Summary of National Trends

Implementation Examples

Real-time ridesharing is gaining adoption within the U.S., but widespread adoption has been much faster in Europe. Technology-assisted ridesharing is relatively new in the U.S., but Seattle's experience demonstrates some of the potential benefits and pitfalls of real-time ridesharing.

Casual Carpooling

Though much of the current discussion on real-time ridesharing involves innovative use of technology, casual carpools known as slugging are impromptu carpools formed for meeting high-occupancy vehicle (HOV) lane requirements. Slugging is a prevalent practice at meet-up points like park and rides or local businesses upstream of HOV lanes in Washington, D.C., San Francisco, and Houston. In the evening, slug lines near employment places reverse the flow of carpoolers.

San Francisco's casual carpooling community has 22 morning pick-up points, with approximately 150 daily carpools per location.[6] One study estimated that casual carpooling in San Francisco saves between 449,000 and 924,000 gallons of gasoline per year, or 53 to 106 gallons per person annually.[6] The same study also estimated savings of CO_2 emissions, time savings, buses not purchased, and bus operating costs saved exceeding $30 million per year, which includes added efficiency to general purpose lanes.

Carma Austin

As of this writing, the Central Texas Regional Mobility Authority and Carma are engaged in a study of the use of real-time ridesharing technology to support differential tolling by occupancy.[7] Carma's ridesharing app recommends drivers and riders for sharing trips, and this study evaluates the use of a discounted toll on US 183-A and the Manor Expressway for study participants. A 2-person carpool gets half of the toll reimbursed, and a 3+ person carpool gets the full toll amount back. Toll reimbursements are made on a monthly basis credited to a registered TxTag account. The pilot program is scheduled to conclude in December 2014. The evaluation plan includes assessment of the program's impact on vehicle occupancy, the impacts of toll discounts, equity, and other dimensions, with a final report scheduled for completion in May 2015.

Application Techniques and Principles

Employer and Residential Marketing—Real-time ridesharing requires a significant number of participants in order for it to be efficient for a variety of users and trips. Since large employers include employees with similar travel patterns, they can be easily recruited for marketing a new program. Researchers have also found that residentially focused social marketing can be effective in encouraging carpooling.[4]

Encourage Multiple Passengers—Maximizing the number of people in a vehicle not only increases efficiency, but it may also increase trust between driver and passengers. Early research found HOV policies for 3+ carpools lessened trust concerns.[5] Having another carpooler makes a shared trip feel more like transit.

Issues

Agency Liability—Local public agencies have expressed concern over officially endorsing or creating real-time ridesharing programs due to liability concerns and profit reduction. Several companies have addressed this challenge by assigning safety liability to the user.

Critical Mass—The sheer number of participants is crucial to success of real-time ridesharing in a given area. Awareness of the program and likely ridesharing candidates increase with the number of participants. A study of Canadian ridesharing found proximity to carpool lots or urban versus suburban location were not as significant factors as residential accessibility to other ridesharing users.[4]

Technology adoption—Smartphone-enabled ridesharing may have the best prospect for spur-of-the-moment use, but not everyone has access to the phone or data plan required. Eighty-five percent of cell phone owners ages 18 to 29 go online with their phones, whereas only 22 percent of seniors 65 and older do so.[8] Low-income communities are increasingly purchasing smartphones when they previously have not been able to purchase both a computer and Internet connection, expanding the opportunity for increasing transportation access.

Taxi Regulation—The methods and rates of charging fees for ridesharing is an important concern. Several cities have challenged companies such as Uber, Lyft, and Sidecar for operating similarly to taxi companies without following the same permitting and safety requirements. They often counter that they are offering a "transportation network service" rather than offering a direct transportation solution as a taxi company. The federal definition of real-time ridesharing (9) limits cost recovery to not exceed the cost of the trip provided, which delineate taxi-like services profiting from trip services from ridesharing. Under this definition of ridesharing, there is no financial motivation for a driver to deviate from a regular trip to pick up a passenger beyond sharing the cost of an existing trip. So this definition between ridesharing and taxi-like services can mean the difference between reducing the total vehicle miles travelled through ridesharing, or a taxi-competitive service where drivers can profit by making extra trips.

Who Is Responsible?

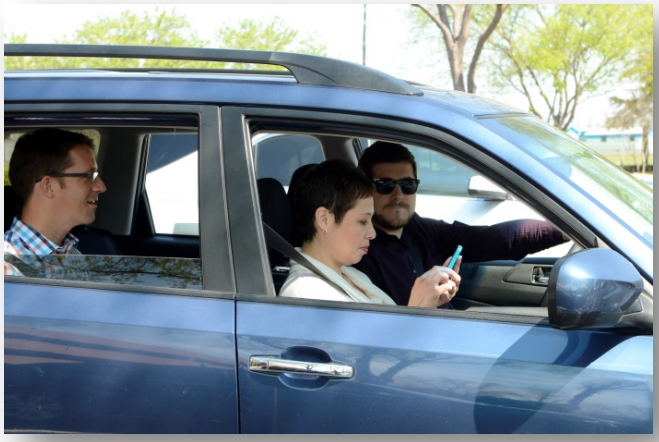
Private real-time ridesharing providers and consumers are deploying the service, most often without intervention from public agencies. Several pilot programs have been sponsored by agencies like the Seattle example above, and marketing and support of incentives from transportation management associations may help.

Project Timeframe

Real-time ridesharing is already available in most large urban areas in the United States, but may be not well known. The time needed to measure large-scale impacts on the transportation system is unknown, but further research on adoption will be helpful for growth of programs in new areas.

Cost

There is no direct cost for public agencies, since the systems arrange ridesharing payments between drivers and riders. Pilot studies or incentive programs can be scaled according to population and local needs. Individual costs to participate are typically taken as a percentage or fee-based service per trip from users. Actual personal costs for one system on a per-mile basis are 20 cents/mile for riders, of which 3 cents goes to the company, and 17 cents goes to the driver. At least one company caps this reimbursement to not exceed Internal Revenue Service rates of the cost of the trip provided, to fit within the federal definition of ridesharing in Sec. 1501 of the Moving Ahead for Progress in the 21st Century Act (MAP-21).[9]



Data Needs

Real-time ridesharing applications currently integrate with smartphones, utilizing GPS locations, and only the driver and rider information agreed to by participants, delivered over cellular or WiFi wireless data transmission. Pilot studies arrange for use of selected data by research organizations, subject to institutional review boards to ensure the appropriate standards of data use.

Real-time Ridesharing Best Practice

- Type of Location: All-congested urban areas or longer rural trips.
- Agency Practices: General knowledge of this new practice and support of pilot studies.
- Frequency of Reanalysis: Annual analysis of adoption is recommended for 5 to 10 years to gauge use and impacts to transportation systems.
- Supporting Policies or Actions Needed: Free or reduced-price access to high-occupancy toll lanes, parking cash-out (employees can opt out of a parking space and receive compensation from their employer who leases/owns the space), pretax commuter incentives (commuter is not taxed on ridesharing expenses),[10] and guaranteed ride home programs.[3]
- Complementary Strategies: Multimodal transfer centers, managed (HOV/HOT) lanes, vanpooling, trip reduction ordinances, variable pricing, vehicle mileage fees.

For More Information

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