



First Mile

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innovations to extend the reach of transit

Shootout in San Francisco: New Players Expand Car Sharing Market in Bay Area

As the costs of vehicle ownership have spiraled upward, we're now seeing a new phenomenon: multiple car-sharing entities competing in major markets, with for-profit players moving into territories previously dominated by non-profits.

The best example of this new potential battleground is San Francisco, where City CarShare planted its stake as a non-profit in 2001. The company has grown to over 5,000 members who have access to a fleet of 130 vehicles at over 70 Bay Area locations. In contrast, Zipcar, with 40,000 members and 700 vehicles, mostly in the Northeast, entered the San Francisco market last year. The oldest of the major players, Seattle-based Flexcar, also expanded into San Francisco last fall. Recently, AOL co-founder Steve Case's investment firm Revolution LLC recently raised its stake in the company from 55 percent to 85 percent, adding to its profile.

How this plays out could have important implications for car sharing elsewhere. Interestingly, no one seems to



view the competition as negative, but rather as a boost for the industry. Rick Hutchinson, CEO City Car Share, says it's great for carsharing. "As a non-profit, part of our mandate is to expand car sharing, so we see the entry of two for-profit companies into the San Francisco market as validating our mission and raising public awareness of carsharing." Since Flexcar and Zipcar entered the market,

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EasyConnect Tests Personal Mobility Options



easyconnect

There is a new mobility option for commuters using the Pleasant Hill Bay Area Rapid Transit (BART) station. The EasyConnect field test, coordinated by California Partners for Advanced Transit and Highways (PATH) at the University of California, Berkeley, enables area businesses to rent bicycles, electric bicycles, and Human Transporters (HTs) for their employees to use for commute and day-time travel.

The EasyConnect alternative is ideal for individuals who want to take BART to work but previously could not, or chose not to, because there was no way for them to navigate conveniently from the station to their office or to run errands during the day.

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New Vehicle Concepts

When you need more than a bicycle but less than a car, here are three examples of small, efficient, "local-use" vehicle concepts that could be right around your corner. There are many prototypes in the funnel, but as more major car companies enter the space, these vehicles appear to be gaining the needed credibility and momentum to launch them into the marketplace.

Nissan Motor recently unveiled Pivo, an electric car concept, in partnership with renowned Japanese artist Takashi Murakami. Pivo features an innovative cabin that revolves 360 degrees, eliminating the need to reverse. Pivo is powered by Nissan's high-performance lithium-ion battery and Super Motor. The Super Motor controls the power output of each shaft separately, making it possible to drive the right and left wheels independently, and is targeted for a variety of applications, including in fuel cell vehicles or as a generator in hybrid vehicles.



Nissan Pivo

Honda has been showcasing its electric Moped-EV pro-

totype which was designed specifically with in-city commuting in mind. It weighs just under 100 pounds and employs an innovative nickel hydrogen battery to store 360 watt-hours of energy. This gives the scooter enough power to climb a twelve-degree incline, with acceleration and range comparable to a similar gas scooter.



Honda Moped EV

Intelligent Energy, a British hydrogen energy technology developer, has unveiled the ENV (or 'Envy') which is an acronym for Emissions Neutral Vehicle, billed as the world's first hydrogen-powered motorcycle. The ENV tops out at 50 mph and will run for about four hours, or 100 miles, on a "tank" of hydrogen. The tank is a detachable, modular fuel cell that plugs into the motorcycle's chassis, right where the engine would normally be. The drive is so silent that



Intelligent ENV

pedestrian safety advocates have petitioned the company to add an 'artificial engine sound' to warn of the vehicle's approach. For information on these and other vehicles, check out WestStat's *EV Compendium* at http://www.calstart.org/images/Local-use_Electric_Vehicle_.jpg.

EasyConnect

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With EasyConnect, employees can check out a bicycle or Segway HT from an electronic locker at the Pleasant Hill BART station, and then ride to work along the scenic Iron Horse Trail, for instance.

Units are also available for rentals from nearby offices for off-site meetings, errands, or lunch appointments. At the end of the day, employees can ride the bicycles or Segway HTs back to the station, where they are stored and recharged in electronic lockers.



Pleasant Hill BART Station

Participating employees are provided on-site training on the safe use of all devices as well as maps of recommended safe routes to their office and common daytime destinations. California PATH researchers will monitor and evaluate the use of the EasyConnect travel options for the duration of the field test.

Eventually, other multi-modal connection technologies, such as smart parking reservation systems with real-time freeway signage, car sharing (short-term auto use), eLockers with smart card access, real-time transit information, and power supplied by a hydrogen fuel cell will be integrated into the EasyConnect program at the Pleasant Hill BART station and transit village.

The multi-year, \$500,000 EasyConnect project is funded by the California Department of Transportation, the San

Francisco Bay Area Metropolitan Transportation Commission; the Bay Area Air Quality Management District; Contra Costa Centre; Contra Costa County; 511 Contra Costa; Segway, Inc.; and Giant Bicycle. Other project partners include the BART District, Millennium Partners, City of Pleasant Hill, City of Walnut Creek, City of Concord, and East Bay Regional Park District. The project officially launched on June 12, 2006.



EVs Roaring (quietly) Back: Tesla Unveils the Roadster!

On the evening of July 20th, Tesla Motors unveiled their new two-seat roadster, a high-performance electric vehicle that looks, feels and drives like high-end sports cars in a Santa Monica, California airport hangar.

Powered by a 3-phase, 4-pole AC induction motor, the Roadster can go 130 mph and does 0-60 in about 4 seconds, in almost completely silence. Touting a single charge range of approximately 250 miles - with an innovative battery pack design incorporating thousands of small cells - is another great selling point.

Gov. Arnold Schwarzenegger flew in for a brief look at the car, and was allowed to drive it. According to Autoblog, Gadget, an L.A.-based mechanic who converts conventional cars to electric drive and was seen in the movie "Who Killed The Electric Car?", as well as that film's director Chris Paine, were seen in line for test rides. Earlier in the evening, Tesla Motors CEO Martin



Tesla Roadster

Eberhard said that, "An electric sports car was the way to fundamentally change the way we drive in the USA." The unveiling was also an invitation to purchase the Roadster when it is released in mid-2007 (for about \$80,000-\$120,000).

Three years ago, Eberhard and friend Marc Tarpenning launched Tesla Motors Inc. Their goal: to design a sports car that would go as fast as a Ferrari or Porsche, but run on electricity. Some previous vehicles, notably the TZero

from AC Propulsion, achieved that goal, but never went into production. AC Propulsion Inc. is now supplying Tesla and a rival firm, Wrightspeed, with key components. Commuter Cars Corp., based in Spokane, Wash., last year started selling its Tango T600, an ultra-narrow, two-seat electric car that claims actor George Clooney among its customers. And there are others coming, or striving to come to the market soon.

With about 80 employees, Tesla just raised \$40 million from high-profile investors including Google Inc. founders Larry Page and Sergey Brin, as well as PayPal founder (and Tesla Motors Chairman) Elon Musk. The company is offering the first 100 Tesla Roadsters as Signature models. Musk said that the people who buy the Signature cars will not only be getting an incredible sports car, but will be helping to pay the R&D costs for future Tesla Motor vehicles.

The consensus is, Tesla's Roadster is impressive aesthetically as well as technologically. While range and performance are huge considerations, important questions seem to be largely unanswered at this point relating to battery lifespan and charging infrastructure. The Tesla vehicle, its approach to battery-electric propulsion and the venture capital it has attracted are undoubtedly major achievements, particularly for driving enthusiasts. The impacts the company makes on the electric vehicle market and the auto industry at large remain to be seen. *For more information, visit www.teslamotors.com.*

Car Sharing

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CCS has had month after month of record growth, adding more cars and locations. Also, CCS has from its inception tried to address the needs of middle and lower economic communities, which might not be prime targets for the launch of for-profit companies.

Zipcar chief executive Scott Griffith noted in *The San Francisco Chronicle*, "Whole Foods took the food co-op to a very national level. We are taking this very green-feeling industry and taking it to a different level." Griffith estimated the Bay Area car sharing market at "tens of thousands of people." Zipcar will offer a wide range of cars including upscale models like BMWs and Volvos that may appeal to a broader clientele than City CarShare, which has cars such as Volkswagen Beetles, Honda Civics and Toyota Priuses.

A spokesman for Flexcar noted that "The debate shouldn't be about business model - but rather a discussion about the benefit to the community of having multiple car share providers. With each shared car taking up to 15 regular cars off the road, it's obviously beneficial to have as many shared cars as possible. The market can grow faster with multiple providers."

City CarShare - San Francisco, CA.- basic rates: \$10/mo, \$4/hr, \$0.44/mi. www.citycarshare.org, (415) 995-8588.
Flexcar - Seattle, WA - basic rates: begin at \$8/hr, all costs inclusive, monthly plans available. www.flexcar.com.
Zipcar - Cambridge, MA - basic rates begin at \$8.50/hr, daily/monthly plans available. www.zipcar.com.

Annual or monthly fees may apply, pricing schemes vary.

True Mobility Solutions: Integrating Planning *Plus* Technology

Advanced technology can only go so far to solve the problem of America's personal immobility. Whether you're deploying Segway HTs, electric bikes, or neighborhood electric vehicles, without the appropriate street and community design, achieving personal mobility is difficult.

In the early 80's, a group of urban designers, architects, and planners formed the New Urbanist movement to reform all aspects of real estate development and urban planning, creating people-oriented solutions to the problems of urban mobility. While most developers were designing and building cities for automobiles that inhibited human interaction, the New Urbanists harkened back to the more traditional small town design of early America, constructing towns and urban cores where people could easily walk to local destinations and forge a sense of community with others.

Peter Katz was one of the original founders of the New Urbanism design movement and the author of the book, *The New Urbanism: Toward an Architecture of Community*. In an interview we performed for this newsletter, we asked Katz about the relationships between smart growth and transit. To Katz, the key to transit is a well-designed community with sufficient density. Many suburban communities lack sufficient density to sustain public transportation systems, and failed to incorporate transit into their design. The problem is that modern suburban development - with its pockets of cul-de-sacs, enclosed layouts, and winding internal streets - hinders pedestrian activity, and the infrastructure layout for most modern suburban communities precludes retrofitting as density grows.



'Celebration' in Orlando, Florida
Copyright 2005 Thomas E. Marchessault

According to Katz, unlike the status quo of mainstream development, the design layouts for the New Urbanist communities can be retrofitted for transit as the density increases. They often encourage intermodal exchanges, though the question remains as to how much Americans will walk or use scooters and bicycles in lieu of automobiles to reach transit nodes once they have them within appropriate distances. Public policy and planning can be used to encourage these options simply by following some of the New Urbanist guidelines.

From Katz's perspective, the issue of personal mobility is not solved via the marketing of two-wheeled vehicles. The real root of the problem is addressed when human-oriented development is intentionally and appropriately designed from the start. This translates to walkable neighborhoods centered around decent public space, multi-use zoning, narrow grid-oriented streets that connect to each other instead of dead-ending in cul-de-sacs, and enough density to bring in transit.

Katz believes when the proper urban design is fashioned, the use of personal mobility vehicles is facilitated and bikes, scooters, and Segways can then fill the streets. The vehicles are useful in building a sense of community as long as they replace automobile trips and stay off the sidewalks, because the entire design is focused on the pre-eminence of the pedestrian. Otherwise, they can easily produce another impersonal barrier between people that erodes the healthy sense of community, which is at the very core of the design in the first place.

(Look for an expanded interview in our next edition)

First Mile: News & Information

The *First Mile* newsletter provides regular updates on the latest developments, success stories and trends in innovative mobility services. By providing accurate and relevant information on this emerging industry, the *First Mile* newsletter will help increase awareness of a wide array of mobility options that are available.

The *First Mile* is published on alternating months. All comments and suggestions on how we can improve the quality of this publication are welcome. WestStart is a non-profit organization that works with a wide array of public and private partners to encourage development and commercialization of advanced transportation technologies and systems.

Please direct questions, feedback and story suggestions for *First Mile* to the Editor, Gregg Moscoe at gmoscoe@weststart.org.

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