



Yale University designs a bikeshare program

Success ON TWO WHEELS



that works for students, faculty, and the campus.

By Holly Parker

As a practitioner in the specialized profession of higher-ed sustainable transportation for more than 13 years, I can confidently say that I looked for the perfect bikeshare solution for a university campus for about a dozen years.

Anyone who sees bikesharing as the economical, scalable, and emission-free transportation solution it is owes a debt of gratitude to Paul DeMaio, bikeshare program manager for the City of Arlington, Va., and co-founder of MetroBike. Not only was Paul instrumental in starting a pilot bikeshare program that became the wildly successful Capital Bikeshare in Washington, D.C., but he also came to visit me at Harvard University 12 years ago with a heavy, solid-tired bicycle from the City of Copenhagen's *ByCyklen* (City Bike) program in tow. We had a brainstorming session with representatives from a few other New England universities who were also interested in leveraging emerging technology to make a fleet of bicycles accessible to would-be riders on our campuses.

We were ahead of our time. Issues of power source, data security, and simply the existence of a vendor who could supply what we endeavored to create slowed us down but did not break our will. In the absence of appropriate technology, my approach was to start small and test the interest in bikesharing—both at my previous employer and current one (Yale University)—by providing a bike for any department that wanted one and could pledge a point person who would help coordinate its maintenance and track odometer readings. A departmental bikeshare, I thought, would be just the thing to get university staff who probably hadn't been on bicycles since childhood riding bikes for transportation—and in so doing, remember that it is also fun.

Y-Bike Debuts

Yale's departmental bikeshare program, called Y-Bike, delivered the results I had hoped. Having equipped the bikes with odometers, we know that more than 8,000 miles were pedaled on them, and at least a little bit of culture change resulted. Comparing responses from our first commuter transportation survey in 2007 to those from the 2013 survey, we have seen a 6 percent increase in bicycle commuting—now at 11 percent!

As kiosk- or dock-based bikeshare vendors slowly materialized, the next massive hurdle to jump was funding. Even back in the early 2000s, this type of system cost a few thousand dollars per bike. This continues to be the case today. As Tom Glendening of E3Think, a consulting firm dedicated to innovative solutions for cities, states, "New York City's program has an \$8,000-per-bike set-up cost; across the Hudson River in Hoboken, a pilot bikeshare program costs less than \$2,000 per bike."

The discrepancy between New York and Hoboken is due to different technologies and equipment: smart lock vs. smart dock models. Yale and an increasing number of universities, corporate campuses, hotels, and apartment complexes are employing the smart lock system to deliver bikesharing at a fraction of the cost of the large-scale municipal systems, such as New York's CitiBike bikeshare.

Smart Lock vs. Smart Dock

Smart lock or smart bike refers to the fact that the locking mechanism on each bike in the shared fleet travels with the bike, which allows the bike to be locked to any standard bike rack along the rider's route, versus requiring the rider to find a system station (with an available dock) near his destination. Additional benefits include much less expensive startup costs, lower operating costs, and a smaller footprint. This is not to be understood as a criticism of smart dock systems. In fact, they generally are a good solution for a large city—when the docking stations are ubiquitous, both docking locations and the availability of open docks can be easily shown and updated on a smartphone app, and where a large staff can be deployed to redistribute bicycles that bunch up at certain locations.

Both smart lock and smart dock bikeshare systems provide data tracking that can enhance the program by collecting performance metrics such as number and duration of reservations, number of members, and the resulting reduction in greenhouse gas emissions.



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How It Works



1. BORROW

Enter your bike's number into the app and tap "START RIDE." You'll get a code to open and close the lockbox.



2. UNLOCK

Use the key from inside the lockbox to operate the U-lock that attaches the bike to its station. Close the lockbox before you ride.



3. RIDE

Have fun and stay safe! Use the U-lock to keep the bike secure if you make stops along the way. Your lockbox code will continue to work during your ride.



4. RETURN

When you're done, lock the bike back to a Yale Zagster station and close the lockbox. Then go to the app and tap "END RIDE."

You can also borrow bikes using SMS text messages. [Check out our Support page for more info.](#)

ZAGSTER.COM

Industry leaders in the smart lock bikeshare business are Social Bicycles (SoBi) and Zagster. More businesses are entering this arena as the popularity of bikesharing continues to grow, including Republic Bike, which designed the undeniably "Googly" fleet of 1,300 bikes on Google's Mountain View, Calif., campus. On BikeShare,

Gotcha, and A2B Bikeshare are working their way onto the playing field as well, potentially providing more competition for market share.

Yale chose to partner with Zagster and has 50 bikes available at 10 campus locations. Yale's bikeshare program boasts more than 600 members and since the

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program's inception, has seen an average of 18 rentals per day. The Zagster bikeshare program has also driven more than 200 faculty, staff, and students to enroll in our campus bicycle safety class. Participants receive a \$20 reimbursement for their Zagster membership and a free helmet.

After the first six months of the program, Yale's Zagster members were surveyed and indicated that 39 percent of their bikeshare trips replaced car trips. This is consistent with other results I have seen from bikeshare member surveys. This should be of interest, considering the per-space cost of a structured car parking facility, which in the New Haven market is at least \$25,000 for at-grade and \$100,000 for below-ground. Considering that 12 bicycles can fit in the space dedicated to a car, it seems logical that to maximize use of space, bicyclists should be encouraged and accommodated.

New Technologies

New technologies for bikesharing are appearing with some regularity, given the visibility and fascination with shared bikes worldwide. Now Skylock, Bitlock, and Lock8 offer locks that provide wireless locking/unlocking capabilities, as well as bicycle location tracking and other security and safety features to the bicycle security realm. While this may sound enticing to an institution or municipality that feels it can now simply purchase a fleet of bikes for shared use with little worry about the bikes' whereabouts or security, keep in mind that someone still needs to create and maintain membership and scheduling software, provide customer service, manage incoming calls and registration requests, maintain and redistribute bikes, provide real-time assistance to members who have sudden maintenance issues, and track and report the aforementioned performance metrics.

It's also worth remembering that few commercially available bicycles are robust enough for the rigors of bikesharing; consider exposure to the elements, theft and vandalism, and multiple users per day. Zagster addresses this issue by replacing its bike fleet every two years. Further, bikeshare bikes require adjustability (to fit every rider's size), advanced security, and integrated lighting, to name a few critical features. As was true of the bikes used in Copenhagen's ByCyclen bikeshare program, bikeshare bikes can have solid rubber tires so that there is no need to fix flats and employ drive shafts instead of chains. There's no need to worry about bike grease on your pants! But more importantly, there are no broken, stretched, or rusted chains to maintain.

Is your city, corporate campus, or university ready to explore bikesharing? On BikeShare has a well-composed white paper titled "Bikeshare Implementation Strategies: a Comparative Guide" comparing the different types of bikeshare systems and pros and cons of each that could help you decide what kind is best for you. 

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