THE COMPUTERWORLD HONORS PROGRAM

CASE STUDY

LOCATION:
Cambridge, Massachusetts, United States

YEAR:
2006

STATUS:
Laureate

CATEGORY:
Transportation

NOMINATING COMPANY:
Cingular Wireless

ORGANIZATION:

Zipcar

PROJECT NAME:

Car Sharing

Summary

Zipcar's project is to create an alternative to car ownership that convinces millions of urban residents to give up their privately owned vehicles.

Zipcar is the leader of a new transportation category called car sharing. In a basic sense, car sharing allows communities to share cars rather than leaving their residents and businesses to rely only on privately owned vehicles. Zipcar leaders knew that in order to be successful, they needed to instigate a change in behavior among urban Americans. They recognized that its service had to be less expensive, more convenient, and more fun than owning a car. For this reason, Zipcar selected Cingular Wireless technology and connectivity to create a system that made reserving, accessing and using a Zipcar as simple as getting cash from an ATM. Now, in minutes or up to a year in advance, members can reserve Zipcars either online or by phone, 24 hours a day, seven days a week, and have automated access to Zipcars using a "Zipcard" to simply unlock the door and drive away. Zipcar has revolutionized the way urban America thinks about car ownership. The impact of car sharing in city environments is noticeable with reduced car ownership, resulting in less traffic congestion, fewer parking concerns, fewer miles driven and more environmentally friendly cars on the roads, and an average cost savings of $435 per month compared to the average price of owning and operating a car in an urban setting.

Introductory Overview

Zipcars first hit the streets in Boston during the summer of 2000. In five short years, the company has accomplished something that was once dismissed by many as impossible: it has created a profitable new category of transportation, a unique lifestyle brand, a superior in-vehicle and member experience and has convinced urban residents to turn to car sharing as a more cost-effective and environmentally-friendly alternative to car-ownership.

Once a Zipcar member, drivers can choose from over 20 different makes and models -- the largest and most varied fleet of any car sharing service in the world. Zipcars include gas/electric hybrids such as the Toyota Prius and Ford Escape, as well as Toyota Tacoma pickup trucks, standard sedans, SUVs and high-end vehicles like the Mini Cooper, BMW 325i and Volvo S-40.

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Rates start as low as $7.25 per hour or $51 per day with gas, designated parking, maintenance, insurance and XM Satellite Radio included. Low cost, ease of use, and the convenience of having a Zipcar within a block or two of where members live and work have all become essential elements to Zipcar's continued growth and success.

By using modern and innovative technology, making its service easy and convenient as well as promoting it's environmental and money-saving benefits, Zipcar has positioned itself as the largest service of its kind. Zipcar currently has over 50,000 members nationwide and offers service in 10 states and over 30 cities, including Metro Boston, New York, San Francisco and Washington DC. The company plans to launch at least two new markets in 2006, and anticipates being in over 25 North American markets by 2009.

Benefits

The proof is in the numbers. So far, Zipcar estimates that its service has taken more than 20,000 vehicles off the streets, reducing traffic and parking concerns in the cities it operates. By providing conveniently located and easy to use cars that residents want to drive, more than 40% of Zipcar's members have either sold their car or opted to forego car ownership. In addition, Zipcar members report saving more than $435 each month and increasing walking, biking and public transit trips. Zipcar replaces older vehicles with newer cars and members report driving thousands of miles less each year compared to when they owned a private car, helping to reduce green house emissions going into the atmosphere. Zipcar currently serves more than 50,000 members with just 1,000 cars, and estimates that the market for car sharing is well into the millions of members. Just imagine what city streets would be like if tens of thousands of cars disappeared from city streets. That dream is now a reality with Zipcar.

The application of car sharing in any community can have a profound impact by providing transportation to residents that cannot afford to own a car and by offering an alternative to car ownership for those who can. Whether it is offering Zipcar on college campuses to help alleviate traffic and parking concerns or serving low-income neighborhoods with economical vehicles, Zipcar is committed to providing car sharing as an alternative transportation option to all walks of life and all urban centers.

What makes Zipcar so different from other transportation choices such as car rental and public transit is that it causes a true behavior change in the communities it serves. For example, in Arlington, VA, where Zipcar started a pilot program to provide car sharing in previously "on-street" parking spaces, half of the respondents to a recent survey of new members said they agreed or strongly agreed with the statements "I walk more often," and "I use public transit more often." The same study found that up to 70% of members have put off purchasing a first or second vehicle, and on average drive 3,850 miles less each year since joining the service.

Many businesses have signed up for Zipcar to encourage their employees to take public transit to work and then rely on Zipcar for use during the day. Companies have also used Zipcar to expand service to new areas, provide an alternative to a company car and even launch new offerings such as delivery services. So far, more than 5,000 business drivers have signed up for Zipcar's business offering, Zipcar to Business (Z2B), and experienced, firsthand, the community and cost benefits of car sharing.

With colleges facing challenges of limited parking, high infrastructure costs and increased

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traffic congestion, car sharing improves campus life by providing an environmentally-friendly and cost-effective alternative to privately owned automobiles or traditional car rental. Jack Molenaar, Rutgers University Director of Parking and Transportation Services said, "Primarily, it provides the opportunity for students who don't have cars to leave campus and accomplish something they couldn't do with public transportation, such as going to an interview, running errands or getting groceries, and since the service is cheaper and more convenient than owning, it will also be an incentive for students who already have cars not to bring them on campus." Zipcar currently operates on more than two dozen college campuses, including Harvard, Rutgers, MIT, University of North Carolina at Chapel Hill, University of Minnesota, Princeton and Georgetown.

The Importance of Technology

In order to be successful, Zipcar needed to invest in technology that made car sharing easy and convenient to use. It chose Cingular's Data Network in order to meet customer demand and provide the coverage and speed necessary to make its service efficient and reliable. Zipcar members reserve vehicles either online or by telephone, and specialty "black box" devices – a custom circuit board, processor and modem – installed in all Zipcar vehicles, receive the reservation information via the Cingular Wireless network. The Zipcar reservation process is very secure and reliable because every member is issued a unique "Zipcard" upon joining. This Zipcard is authorized for use via the Cingular GSMTM/GPRS data network when a reservation is made and ensures that Zipcar can administer everything from its Cambridge headquarters.

Superior, Customer Service and Vehicle Access

Zipcar members can quickly reserve an available car near them, choosing from cars and locations within walking distance from their location. The Zipcard authorization process occurs typically within seconds of making a reservation. Members go to the location of the car they've reserved and hold their Zipcards in front of a special window decal. Their membership and reservation time is read and validated, and only then does the system unlock the car door and enable the ignition. Members use the car, returning it to the same location, ready for the next reservation. Usage information is sent to Zipcar's servers and the member's account is automatically charged.

Remote Asset Management

Zipcar uses the GPRS network to monitor their cars' systems for security and billing purposes, as well as maintenance checks. Zipcar can remotely monitor miles driven, the time the car was used and engine functionality such as battery voltage and fuel level. If a Zipcar member forgets to turn off the lights, for instance, the car sends a message to Zipcar so that a maintenance person can be immediately dispatched. In addition, minor problems with the vehicles can be detected and corrected before they become a problem for a driver. This reduces maintenance costs for Zipcar and ensures a superior customer experience.

The Zipcar Asset Management Solution Delivered by Cingular Wireless Has:

• Differentiated Zipcar from car ownership and car rental. The innovative system has created compelling consumer and business value. A unique selling point – complete 24/7 self-service access and hundreds of convenient locations – allows Zipcar to better serve the needs of their target markets.

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• Provided the means for timely service when their customers need it any time of day or night. The ready availability of a car when a member needs it increases the frequency of a member's use and strengthens customer loyalty.

• Allowed Zipcar to remotely monitor their assets. Cars are maintained better, and the locations of vehicles, a substantial company asset, are known at all times.

• Minimized Zipcar's overhead expenses. Remotely managing both their fleet and their customer service from one central location requires fewer field employees in each market and no brick-and-mortar locations. Additionally, Zipcar's mode of vehicle distribution eliminates the need for large parking lots of vehicles. No counters, no lines, no waiting. Just driving!

• Ensured smooth expansion to other cities. The broad coverage of the Cingular data network and the expertise of Cingular professionals across the nation will expedite Zipcar's expansion into new markets.

• Allowed for additional innovation for the near future. The company is already looking at adding Bluetooth® and Wi-Fi technology to their service mix. The wide range of Cingular industry alliances and the dedicated expertise of Cingular will make adding these services a smooth transition for Zipcar as well.

Originality

The goals of Zipcar are not new, nor really is the concept. People have been talking about sustainable transportation solutions for decades and the basic concept of car sharing emerged in Europe years ago. However, when Zipcar became the first car sharing company in the US, its leaders knew that in order to get savvy American urbanites to give up their cars, they would have to be innovative and they would have to get creative.

Zipcar's remarkable growth and success is a direct result of its leaders creativity, vision, and commitment to providing the best "in-car" experience possible. The company proved that car sharing could be fun and exciting by offering a unique fleet of the "coolest" and newest cars on the market. They replaced the company's original green VW Beetles with more than 20 makes and models of cars such as MINI Coopers, Scions, Hybrid Toyota Priuses and BMWs --cars that people want to drive, but may not be able to afford or want to own and maintain.

To differentiate itself from car rental, Zipcar added services like XM Satellite Radio at no additional cost to its members, and, rather than charging additional fees for members under 25, Zipcar made its service available to everyone 21 years of age and older. Perhaps most importantly, Zipcar led the implementation of revolutionary new technologies and "member-first" processes to make the car sharing experience completely self-service. In minutes or up to a year in advance, members can reserve Zipcars online or by phone, 24 hours a day, seven days a week. Zipcar members have automated access to Zipcars using a "Zipcard," to simply unlock the door and drive away.

Corporate and local market leaders forged partnerships with some of the world's top brands and largest automakers, and developed relationships with transit agencies, universities and influential city and state governments. For example, when leading furniture retailer, IKEA, opened its first Massachusetts store in the suburbs of Boston, Zipcar partnered with it to create exclusive "Zipcar Only" parking spaces in the front of the lot to encourage city residents to come out

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to the suburban store. IKEA and Zipcar also wrapped cars in IKEA logos, and offered them to members at discounted hourly rates in an effort to build awareness around car sharing and IKEA's commitment to the environment.

In Washington DC, Zipcar is the key partner in a program with the District Department of Transportation (DDOT) to provide on-street car sharing to residents and businesses. The program began last year with 27 spaces dedicated to Zipcars, and due to its quick success and adoption, has doubled in size this year. The program is designed to provide District residents, businesses and nearly 15,000 local Zipcar members with a convenient, safe and environmentally-friendly alternative to car ownership that reduces traffic and parking congestion in Washington, DC.

Dan Tangherlini, Director of the Department of Transportation, said about the program, "Car sharing meets many of DDOT's goals: it reduces traffic congestion, air pollution and demand for parking, while meeting the increasing demand for alternative forms of transportation."

The program is successful because Zipcar is not its own entity. It is an extension of the public transportation system in Washington DC and in all of the other markets it serves. Zipcar works by encouraging residents to walk or use mass transit whenever possible, and encourages its members to only use a car when they need one. This works because Zipcar members only pay for a car when they use it, and when financial implications become a factor residents have to consider every time they choose to drive a car, they are more likely to walk, ride a bike, or take mass transit.

Zipcar is the leading car sharing company in the United States, consistently recognized for offering superior service to its growing member base across the country. Although its goals are not new, and they weren't the first to figure out that if many of us share a car then we don't each need our own, Zipcar is the only company that has turned this basic idea into a revolutionary behavior change that is sweeping across the country. Other innovative technologies look at how we can use our cars more efficiently or how we can redesign them to reduce oil consumption, but Zipcar's goal is to actually reduce the number of cars we drive and how often we drive them--a goal that has already taken more than 20,000 cars off the streets.

Success

The success of Zipcar can only be measured by the trial and adoption of its service, and how it impacts urban car ownership. Since its initial launch in 2000, Zipcar's membership has doubled, year after year, to its current membership base of more than 50,000 urban residents and businesses. The membership is expected to at least double again in 2006, and statistics are starting to show a significant impact on urban car ownership and transportation behaviors.

Zipcar is the largest service of its kind, offering the largest variety of cars, in-car services, and joining incentives to its members. The service offers both XM Satellite radio at no additional cost to its members, as well as partnership incentives like discounts at ski resorts, discounted tickets to local events, and parking partnerships with retailers like IKEA and Whole Foods to encourage membership, trial and adoption.

Zipcar has partnered with urban transportation leaders like Arlington County and Washington DC to make car sharing accessible in "on-street" locations that are safe and easily accessible to urban residents. When Zipcar expanded its pilot "on-street" program in Arlington County

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to a permanent transportation initiative, Dennis Leach, Director of the Arlington Division of Transportation said, "Car sharing is a great option for us to invest in because it leads to a lasting change in behavior. During the pilot's first year, many of our residents came to realize that they could survive without their own vehicle, and we believe that as more residents come to learn that car sharing is a good choice for their community, the environment, and their pocketbook, we can actually decrease the number of cars in Arlington while welcoming thousands of new residents to the community."

Results representing two years of the program show that Mr. Leach was right. An Arlington County study just reported that nearly 30% of respondents to a recent survey said they have sold their car since joining the service, and more than 60% said that the service allowed them to postpone buying a vehicle. Perhaps most dramatic, when car sharing members were asked, "What would happen if car sharing services stopped," more than 30% responded that they would have to buy a car.

Zipcar has become a part of the urban transportation mix, partnering with Metro North in New York to encourage city residents to use the train to get out of the city, and then supplement their trip with Zipcars parked at train locations. Zipcar also partnered with the Washington Metro Area Transit Authority (WMATA) in Washington DC, and placed cars at or near 50 metro stops to make Zipcars more accessible, and encourage residents to combine public transportation and driving trips. The program resulted in a net increase of 32% metro trips and 14% bus trips by new Zipcar members, along with 42% of members stating that they generally combine their "Ziptrip" with another method of public transportation.

Business use of Zipcars has changed the business model for companies across the country as well as for Zipcar. Businesses have traded in company fleets of cars for the cost and environmental benefits of Zipcar. Other companies have turned to Zipcar to launch delivery services or provide the occasional car to head to an out of town meeting or pick up a client in-style. When the business offering was launched in 2004, it changed Zipcar's business model because the cars were now being used during the weekday, meaning there was no "down time," and later that year Zipcar became the first and is still the only car sharing company to announce profitability in all of its established markets.

Zipcar leaders know that none of the company's success could have happened if they hadn't overcome the early technical roadblocks. American's love the freedom of car ownership, and Zipcar leaders knew it would be difficult to convince urban residents to try car sharing even once, let alone allow it to completely replace their own vehicle. Through internally-developed technology used in concert with Cingular's wireless network, Zipcar created a transportation option that can replace car ownership because it is completely self-service and as easy, reliable and secure as having your own car.

The success of Zipcar can only be measured by the trial and adoption of its service, and how it impacts urban car ownership. Since its initial launch in 2000, Zipcar's membership has doubled, year after year, to its current membership base of more than 50,000 urban residents and businesses. The membership is expected to at least double again in 2006, and statistics are starting to show a significant impact on urban car ownership and transportation behaviors. Zipcar anticipates that the market for membership is well into the millions and anticipates adoption in 29 major North American markets by 2009.

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Difficulty

Zipcar leaders realized that for the service to be successful, they had to make it as convenient, reliable and secure as a privately owned car. If Zipcar could accomplish this by leveraging Internet and wireless technology, there was confidence that the service could be "the next big thing."

Zipcar's service enables Zipcar members to reserve a car 24 hours a day, seven days a week via the Internet or automated phone system. Members just walk to their reserved Zipcar and scan their "Zipcard" on an RFID reader on the windshield. The reservation system sends the reservation to the Zipcar via Cingular's wireless network to unlock the doors and enable the ignition. The member can then drive away just as if it were their own car, and at the end of the reservation the car sends usage information back to Zipcar in order to monitor systems and charge members for the reservation.

It may sound easy, but in fact Zipcar leaders faced many challenges; the first being to ensure that technology didn't become a limiting factor and was always a means to success. They knew they needed technology that made reserving, using and paying for a Zipcar easy as well as convenient, reliable and secure. It needed to enable Zipcars to be completely self-service, and it needed to be scalable to thousands of cars and hundreds of thousands of drivers in locations across North America.

The first obstacle Zipcar leaders had to overcome was that this type of technology did not exist, so they had to build everything from the in-vehicle technology to the reservation system. Leveraging Cingular's wireless network, Zipcar innovators took the basic automobile – a complex machine carefully designed for one individual driver- and made it work just as well for many drivers.

Making the cars accessible to many drivers turned out to be the easy part. The next challenge was to ensure that vehicles were only accessible to members that reserved them, and only during their reservation period. To ensure access was granted during each and every reservation, Zipcar leaders built a completely self-contained system installed into each vehicle that incorporated an RFID proximity card reader connected to a small computer and a wireless GPRS modem. The computer is also connected to various vehicle systems enabling it to lock and unlock the doors as well as monitor the vehicle's systems. The wireless GPRS modem enables each vehicle to communicate via the wireless network, receiving reservation information from and sending usage data back to Zipcar's servers. Zipcars's in-vehicle telematics systems must be more reliable and secure than typical in-vehicle telematics systems because the system is "mission critical" -- if the Zipcard doesn't match the reservation, then the vehicle won't unlock. This level of security is critical so members feel as though their reserved Zipcar is as safe and reliable as having their own car.

Zipcar leaders also ran into several engineering challenges. For example, the in-vehicle systems had to be running 24/7, but couldn't use a significant amount of energy or else they would drain the car battery. Zipcar leaders redesigned the power supply to consume less power and made electronics much more efficient by changing components and modules and made sure they didn't consume energy unless absolutely necessary. Another challenge was to find a way to communicate lots of information reliably between the vehicle and the server, while keeping the actual number of bytes sent back and forth to a minimum. The easy choice would have

been to use the error-free, guaranteed delivery afforded by TCP; however, Zipcar did not need all the features and functionality of TCP so it created its own lower level protocol of acknowledgements and re-transmission. Using the lower level protocol was more work, but in the end enabled Zipcar to avoid the significant TCP overhead.

Zipcar leaders also realized that members would be likely to leave items behind in the car, such as their gloves, their hat, their umbrella, their cell phone, their Blackberry, etc. Instead of running a big lost and found service by retrieving the items from the cars, then figuring out how to redistribute them to the members (similar to a mini-FedEx hub and spoke model), Zipcar created a distributed self-service system. Members who find a lost item are encouraged to leave it in the vehicle and report it online. Members who lose something are also encouraged to visit the online "lost and found" and check to see if anyone reported it found. With thousands of cars such a system might seem rather daunting, but the members are only able to report items found in Zipcars they have recently reserved, and members looking for a lost item are only shown the items reported found in cars they have used recently. This means that each member sees a limited "lost and found" with only several cars in it. In order to retrieve a lost item, members simply reserve the same car again. Zipcar is thus completely out of the loop, and the members are well served in an extremely efficient manner.

Zipcar overcame all of its initial technical challenges and is now able to deploy in-vehicle systems that are inexpensive, reliable, secure, and simple to use. Their members access more than 1,000 cars across the country everyday with the same expectation of security and reliability they would have of their own private vehicle. As the company continues to expand across North America, its scalable technical solutions are being deployed in new cities, new car models and to new members with unprecedented ease. Zipcar truly has become "the next big thing."