

Carsharing – Start Up Issues and New Operational Models

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Abstract

This paper discusses some of the decisions to be made in when starting a new carsharing service. These include selection of business type; pricing issues; identification of target membership markets; vehicle selection, financing & insurance; reservation/scheduling systems & in-vehicle telematics (on-board computer); parking, staffing, marketing, partnerships. A simplified spreadsheet model to compare various pricing and expense scenarios is presented. Finally, a brief discussion is presented of the possibilities of franchising and outsourcing certain functions; as well as several innovative service models, including exclusive use vehicles, van shuttles, open-ended, and one-way reservations.

This paper will be a useful overview of the industry for entrepreneurs considering starting a carsharing service, as well as public agencies wanting to partner with a carsharing service, both in North America or in developing nations of the world.

Carsharing – Start Up Issues and New Operation Models

By David Brook, Carsharing Consultant, Portland, Oregon

INTRODUCTION

Carsharing offers a solution of one of the most intractable problems of modern urban life – how to have the convenience and flexibility of a private car without owning one. By pricing the service on a per-use basis it sends a more accurate price signal to consumers about the cost of each car trip, consequently “leveling the playing field” with other modes of transportation. Carsharing could also play a major role in meeting future mobility in developing nations by providing a high level of personal mobility for residents while reducing traffic congestion from incidental trips that could be taken via other modes.

Carsharing started in the United States in March 1998, with the launch of CarSharing Portland Inc. in Portland, Oregon. Earlier in North America, Benoit Robert launched in Quebec City in 1994 and Tracey Axelsson started the Cooperative Auto Network (CAN) in Vancouver, British Columbia in 1997. Since then several other carsharing organizations (CSOs) have been formed in North America. Two for-profit companies, Flexcar, based in Seattle, and Zipcar, based in Boston, account for the majority of the vehicles in service in the US; with CommunAuto, serving Montreal & Quebec, being the largest carsharing provider in Canada. Large, growing non-profit or cooperative carsharing services are located in San Francisco, Philadelphia and Vancouver, British Columbia.

These services are based on a European model, which started simultaneously but independently in 1987 in Berlin and Lucerne, Switzerland, and focus on individual members, and charging for usage both by time (hourly or half-hourly) and distance (mile or kilometer). Vehicles are geographically distributed in reserved parking spaces, typically off-street, through neighborhoods, putting one or more vehicles within easy walking or bicycling distance of the primary users, individual household members. Gasoline and insurance coverage is included in the rates.¹ Although some variation in policies and procedures exists among different CSOs, all strive to provide a level of convenience as close to owning a car as possible – especially with easy reservations by phone or web and simple, unattended vehicle access.

As exciting and potentially transforming as carsharing may be, carsharing is still a highly speculative business venture. In order to succeed, carsharing companies need all the help they can get to grow fast and keep expenses down. Four years ago I wrote a short paper attempting to lay out the issues facing start up carsharing organizations (“So You Want To Start a Carsharing Service?”²). At that time, reasonable estimates for many of the costs needed for a start up business were still uncertain. Since then, a great deal of experience and some important options, such as outsourcing vehicle and reservation systems, as well as new carsharing “products”, such as open-ended reservations, and business vanpool/fleet vehicles, are available for start ups to consider. Based on 4 years of experience, working both small, startup CSO and the major national carsharing service (Flexcar), this paper provides an updated look at the carsharing world, which may be useful for startups, as well as government agencies and others wishing to encourage the growth of carsharing.

START UP ISSUES

The basic business premise of carsharing is to spread the administrative and marketing costs of the service over enough vehicles, being driven enough hours and miles per day that prices can be set at a level attractive to enough members. Carsharing is a comparatively low markup (per trip) business proposition. In addition, attracting new members is fairly expensive and sometimes involves a long time lag. Unlike cell phone companies, carsharing is not yet the “must have” necessity for most people.

Business Type – cooperative, non-profit or for-profit

The issue of whether to establish a new carsharing service as a cooperative, non-profit, or for-profit company can be one of the most difficult to resolve in start up situations, and is often more related to the personal beliefs and motivations of an organization’s founders than anything else. There is nothing inherent in any business form which would prevent it from providing excellent service to members and achieve any size desired.

The ultimate issue that any startup CSO needs to address is where the capital will come from to expand the business until the service reaches breakeven and revenues equal expenses. Each business type has unique sources of funding that it may be able to take advantage of, such as direct investment, foundation or government grants. The current popularity of “public-private partnerships” between government agencies and private companies (where little or no money changes hands but many in-kind services, such as publicity and free parking spaces may be provided) may minimize some of the unique advantages of cooperative and non-profit organizations have in this regard. However, non profits and cooperatives may be able to take advantage of considerable good will and customer loyalty, and even investment, from members that a for-profit company could not.

One capital-raising strategy this author would caution any start up against is using a portion of member security deposits for operations. Most importantly, spending a portion of member security deposits on operations results in these amounts becoming a liability of the corporate books, eventually making the company look very leveraged. The function of a security deposit is to minimize risk to the company by insuring that members respect the vehicles and pay accounts on time. These issues can easily be addressed in other ways, such as requiring automatic payment by credit or debit card or performing a credit check at the same time as the insurance screening. Finally, a security deposit is yet another barrier to joining for people who may already be uncertain about the value of carsharing. If capitalization from members is desired, it would be preferable to classify it as a “membership share”, for which the company makes no guarantees about, except, perhaps, agreeing to transfer a departing member’s share to the next new member. Other options, such as member purchase of vehicles leased to the CSO is a possibility that has not been used in the USA.

Insurance & Membership

Membership is a major distinction that differentiates carsharing and car rental. The membership application process can promote loyalty to the CSO, but the cost and several day delay before a new member is approved by the insurance company and able to drive vehicles can be a damper for some applicants. The insurance carrier typically requires a driving history check (Motor Vehicle Report) from the state or Provincial driver’s license agency, which may cost \$15-\$20 per driver and adds several days delay before new members are able to drive vehicles. Drivers with several major infractions within the past few years, as well as those below 21 years of age are typically not accepted.

Obtaining the affordable carsharing insurance, similar to the levels that a household would choose to carry on a privately-owned vehicle, continues to be one of the major challenges facing any CSO today. Although the loss-history of carsharing in the US and Canada appears to be remarkably low, the total number of vehicles covered and annual premiums for the entire industry are still too small to attract serious competition from fleet insurance providers. Typical rates are about \$250 per vehicle, per month for \$300,000 combined liability, comprehensive and collision coverage. Rates may be substantially higher in some cities.

Pricing

Pricing is another of the major distinctions between car rental and carsharing. Carsharing typically prices its services on an hourly (or half-hourly) basis, as well as a distance (mile or KM) charge. Setting the prices is a difficult balancing act between revenue from time and distance charges, as well as allocating administrative costs between regular and infrequent users. No pricing system will be fair to all users - higher hourly rates tend to minimize short distance, long duration trips, for example.

In an attempt to simplify pricing, in 2000, Flexcar implemented a unique hourly-only pricing structure, with each hour including 10 free miles (excess miles, calculated from monthly hours used, are charged at 35¢ per mile). It was hoped that this simplified pricing structure, with only one variable (time), would attract a wider market, though it is not clear whether anything short of providing unlimited mileage really removes the distance component from members’ consideration.

As a convenience to members, most carsharing services provide a free overnight period (such as midnight to 8 am), with only a charge for distance driven charged during the period. Many European CSOs are now moving to charging a reduced hourly fee, in addition to the standard distance rates, during this period. This provides a good point for marketing and costs the service very little since vehicles are mostly parked at night.

Although carsharing is not intended to be as inexpensive as rental car rates, most carsharing services also offer some sort of discounted Daily Rate, usually in the form of a “maximum hours per day charge” – balancing the convenience to members, as well as to increase vehicle utilization. Services with many vehicles situation primarily to serve business members on weekdays, may offer these vehicles to all members during evenings and weekends at discounted rates.

If a trip reservation is cancelled less than a specified time before the trip start, usually between 8 and 12 hours, CSOs typically levy some sort of charge to minimize lost revenues from members’ “holding” a time slot and preventing other members from scheduling the vehicle. Cancellation fees are typically some portion, up to the entire hourly fee for reserved time, less any time picked up at the last minute by another member. A similar issue occurs with whether to provide a credit for early return of a vehicle. Detailed analysis of member scheduling behavior potential revenues impacts must be performed to determine this policy. It appears that in a mature carsharing system, with many members and a dense network of vehicles, the revenues from last-minute trips might be sufficient to offset lost revenues from cancellation period much less than 8 hours before trip start time or early return.

Other pricing decisions include membership fees and security deposits. Membership fees seek to allocate the administrative cost of maintaining a member equitably among high and low users. These costs include newsletters, account maintenance and on-going insurance screening. It is worth noting that when CarSharing Portland implemented a membership fee in its second year of operation about 30% of the members quit, but revenues changed very little, since most of those quitting were not active members and treated carsharing primarily as “mobility insurance”. Some CSOs offer membership plans with lower rates when a higher membership fee is charged. Another decision a startup must make is whether to charge membership fees on an annual or monthly basis. Each has its own dynamic — prompting the member to consider the value of the service to them, and decide whether to continue their membership.

Finally, penalties and credits can be excellent motivators to encourage members to treat the service, and other members, responsibly. Late return of vehicles — thus not inconveniencing subsequent drivers at the beginning of their trip — is perhaps the most critical area that penalties (as well as continuing reminders) can address, but it remains an on-going challenge in customer relations for all CSOs.

Member Demographics

To date the demographics of individual members appear to be remarkably consistent across all carsharing organizations in the United States, and are similar to European membership demographics, as well. Members’ are in all age groups, with an average age in the mid-30’s. Perhaps the most distinctive characteristics of current carsharing members is the high level of education, with more than two-thirds of members being four-year college graduates or holding advanced degrees — substantially greater than the norm in the neighborhoods where the service is being provided. Member incomes are close to the median for the areas served, probably related to education level, although participation in very wealthy neighborhoods is low. Generally evenly divided are gender (male and female), married and unmarried and renters vs. homeowners.³ To date, this author is not aware of any CSO that has demonstrated a marketing or service model that effectively serves low-income neighborhoods and households, although several small-scale efforts are underway.

Reported usage is also quite consistent among members in the United States, with a typical trip being about 3-4 hours and 20-25 miles. Frequency of use varies widely, with 2-3 trips per month per member typical of organizations that charge a monthly membership fee and a much lower average for those that don’t charge an annual or monthly fee for membership. Distance from a members’ home to the nearest vehicle is a factor in how frequently a member tends to use a vehicle. Many members report avoiding buying a vehicle or, in some cases, actually selling a vehicle as a result of joining a carsharing service. Research suggests that many members’ use of vehicles decreases somewhat the longer that person is belongs to the CSO, perhaps because they get better at switching trips to other modes (or not taking them at all), perhaps as a result of the on-going price signal from unit pricing.⁴

The question of how many potential members there are possible in an area is an intriguing one, but one that given the relatively undeveloped market in North America can only be guessed at. Presently, Mobility Carsharing Switzerland reports that about 1.4% of licensed drivers in that country are Mobility members, but the availability of a variety of transportation modes in Europe is considerably different than North America, so it is difficult to generalize.⁵ Even in

dense urban neighborhoods, North American CSOs would be fortunate to have even 1/2 of 1% of licensed drivers living in the area as members, much less as active users of the service.

Marketing Carsharing

Marketing an unfamiliar “product” like carsharing is probably the most challenging aspect of starting a carsharing service. Even providing a simple description of how the service works for advertising and promotional purposes is difficult. Phrases, such as “time share for cars” or “hourly car rental”, often confuse as much as they explain. It’s worth remembering that the term “carsharing” was coined for use in German-speaking countries, allowing it develop a unique own meaning. In English-speaking countries, the term “carsharing” is sometimes confused with “ridesharing” or “carpooling”. One of the best carsharing slogan was coined by Toronto Autosshare: “The smart alternative to owning a car”™.

Most carsharing companies focus on two distinct market segments: individual (or personal) memberships and business memberships. Individuals typically use vehicles near their home or work for personal trips. Businesses may provide carsharing membership too employees as an alternative to owning a fleet or as a bonus in a Commute Trip Reduction or subsidized transit pass program. Within each category, certain usage patterns, and hence revenues, are typical and, as the service grows, should be considered in developing future marketing programs. Members may be categorized as follows:

Individuals/households

- Non-car owner/car free lifestyle
- Alternative to owning a second car
- Alternative to rental car/mobility “insurance”

Businesses

- Alternative to owning a fleet (or underutilized vehicles in a fleet)
- Alternative to reimbursing employees for driving their own vehicles
- As an additional incentive to participate in a subsidized transit pass/Commute Trip Reduction program or when subsidized employee parking is reduced, by providing access to a car for personal trips during the middle of the day
- To substitute for, or at least partially replace, rental cars for trips shorter than a day

General Marketing

Situations motivating individuals and businesses to consider alternatives to their present transportation methods occur on an on-going basis. Therefore, awareness of the service when a decision is being made is an essential first step in attracting new members. Marketing must overcome the perceptions that having to reserve a car in advance is complicated, that having to specify a return time for the vehicle will not reduce the member’s spontaneity, that the service is reliable and that vehicles will be available when a members want them and that other members will return vehicles on time ready for the next member to use. It is well-known that most people do not know how much they’re spending to own and operate a vehicle now so, comparisons to the hourly/mileage rates of carsharing is difficult. Many car owners report that carsharing rates seem inexpensive, while those who have never owned a vehicle say that the same rates seem expensive to them.

Partnerships with local government agencies, particularly transit agencies and municipal transportation offices, particularly in in “transportation alternative” programs, can be a cornerstone of any CSO’s marketing strategy. Transit agencies are particularly valuable since they already have an established base of riders who are familiar with not using a car for at least certain types of trips. These agencies can become valuable “channels” to create awareness and “legitimize” the service. Cultivating relationships in these agencies may take some time before the right “champion” within the agency can be found.

Ongoing awareness of the service through press, TV and radio coverage is also essential to convince people that such an unfamiliar service is a reasonable alternative. Trade outs of carsharing usage for advertising in local

newspapers, particularly free weekly “lifestyle” newspapers and public radio stations, can help provide general awareness and good name recognition. Non-profit and advocacy groups, such as environmental groups, bicycle and pedestrian advocacy groups, and anti-sprawl land-use watchdog groups, are also small but worthwhile channels to cultivate. General marketing should emphasize the reliability of the service, availability of the vehicles, ease of use and affordability. Testimonials are essential since the concept of short-term access to a vehicle rather than ownership is unfamiliar to most people. In addition, most people (and many businesses) are not aware of the cost of owning their vehicles actually costs them, and how little most people use their cars, so they have little to compare carsharing rates to.

Marketing to Individuals

Member surveys repeatedly indicate that after first hearing about carsharing, even those favorably disposed to the concept, continue their existing transportation patterns, whether they own a vehicle (or two) or use public transportation, until some event in their lives prompts them to consider alternatives. For car owners, this “trigger event” may be the prospect of major out of pocket costs to repair an older vehicle, failure to pass a required smog test or a major accident. Or it may be a change of job locations, marital status, or moving to a new home (particularly if it’s in a new city), etc. For this reason, no matter how good the marketing and how generous the incentives, there is a “natural limit” to how many people in an area will consider and join a carsharing service at any given time.

The geographic nature of carsharing suggests a neighborhood-based marketing strategy, with general awareness marketing and news stories, coupled with target marketing near vehicle locations. Developing partnerships with local businesses, such as coffee shops and apartment building managers, and attending neighborhood fairs and events, can provide effective, low-cost neighborhood marketing for start ups.

Surveys regularly indicate that word of mouth from members to their friends and business colleagues are a small but consistent source of new members. Although member referral bonuses may be helpful but the majority of referrals seem to be made without expectation of payment. Free or discounted membership applications, although useful for boosting membership numbers, do not appear to be particularly helpful in attracting members who actually use the service.

Marketing to Businesses

Businesses are an attractive market for carsharing since their usage is typically during the day, (including mornings, a typical low usage period for carsharing vehicles) but not on weekends (a high usage period). Marketing carsharing to businesses has some similarities to marketing to individuals, as well as significant differences. Depending on the size of the business, some companies may have a very good idea of the cost of their fleet, partners’ cars, subsidized parking, and employee reimbursements. Consequently, a fair comparison between carsharing and existing expenditures can be developed. In many smaller companies, however, there may be no one with direct responsibility to monitor and manage transportation costs, which makes a sales presentation more difficult. Until a number of businesses actively use the service, the “sales cycle” to sign up business members can be very long.

Government fleets are another type of “business” account. Although government agencies tend to keep vehicles for more years than private fleets, they may have substantial excess capacity and may not realize the actual cost of maintaining their fleet.

Business carsharing markets will be most effectively tapped with customized sales information relating to businesses and sales staff to follow up on inquiries. Some tailoring of rate plans and billing systems may also be helpful to provide better service to business customers, but CSOs should be careful not to make their rate plans too complex or appear to be favoring one member category over another.

OPERATIONS

Once the company is launched, maintaining smooth operations is the on-going challenge. In addition to marketing and sales, discussed above, the following items must be addressed to keep the cars on the road and members happy.

Vehicle Locations & Parking

Carsharing depends on creating a network of closely-spaced vehicles providing easy access to the greatest number of people. At the present stage in the development of carsharing, this tends to be close-in urban neighborhoods and downtown districts, particularly those with a mix of business and residential members. Some suburban areas, particularly mixed-use and transit-oriented developments or businesses near light rail stations, are other potentially promising carsharing locations, as discussed in the final section of this paper. Although census data does not include all the desired indicators, a good indication of the promising areas can be derived by a simple analysis using education and income levels and transit and bike commuting. Congested on-street parking is another indicator of promising neighborhood for carsharing.

Parking may be in off-street or on-street spaces and should be in easy to find, well-lit areas. Spaces near sidewalks are particularly desirable since the vehicle will be visible at least some of the time and it may be possible to install a promotional sign and brochure holder. To provide the greatest convenience, vehicles should be about 1/4 to 1/2 miles apart.

Finding and leasing parking spaces in urban areas turns out to be a more difficult and time-consuming job than most CSOs anticipate. Providing designated, reserved on-street parking spaces can be one of the important ways a local government can support the growth of carsharing. Typically, such spaces are established under the same regulation that enables a city to designate parking for other “classes of vehicles”, such as taxicabs, movie or hotel zones. (If there were several carsharing organizations in the same city, any of them could legally use any space designated carsharing vehicles. In reality, competing services could easily establish a “gentleman’s agreement” about the use of such spaces.)

On-street spaces tend to attract more unauthorized parking by private individuals than off-street spaces unless they are very clearly marked with clear indication that unauthorized vehicles may be towed. A blocked parking space, whether on or off-street, causes serious inconvenience to the member attempting to return a vehicle, requiring an emergency phone call and staff intervention to attempt to get the offending vehicle removed and the carsharing vehicle back in its space. This can quickly cascade onto the subsequent drivers, who may be unable to find the vehicle at the start of their trip.

One vehicle per location is typical but as the membership and usage grows, CSOs must analyze usage patterns to determine whether to create new vehicle locations, which places more vehicles closer to more members, or to add additional vehicles to an existing cluster. Vehicles placed within or adjacent to the existing network will serve the greatest number members. Outlying or isolated neighborhoods, unless well-served by transit, should not be established with a single vehicle since members have no options when that vehicle is in use.

Another issue faced by growing CSOs is what to do with underperforming vehicles. The lack of use may be temporary, such as when a frequent user moves out of the area or, perhaps, buys a car; or it may be more structural. The first step in evaluating the situation may be to make some informal phone calls to members that live in the area to understand their perceptions of the location, their vehicle needs, etc. Then, undertake an adequate marketing efforts to build membership around these vehicles. In some cases, if vehicles are somewhat distant from others in the network, the best strategy may be to add more vehicles in the area so that members have more options rather than close down the locations.

Vehicles – Selection, Lease vs. Own

Determining the “standard sedan” for the carsharing fleet is another topic of great interest during the start up phase. Since most carsharing users see carsharing vehicles as functional means of transportation, they will be satisfied with a wide range of vehicles, as long as they are reliable and clean, but certainly brand and cachet should be considered. It is probably desirable to standardize on a few vehicle models, so that members, many of whom may be infrequent drivers, will be more familiar with controls and operation of the vehicle. Since many carsharing members have an environmental orientation, providing fuel-efficient, low-emission (and at least a few gas-electric hybrid vehicles) is good business decision. Unfortunately, at today’s gasoline prices, the savings in fuel do not offset the increased cost of the hybrid.

Since vehicle costs are a major operating expense, obtaining vehicles at the lowest cost is very important. Vehicles may be purchased or leased. Many CSOs lease vehicles, since it makes it possible to acquire more vehicles with less

cash outlay. One of the common mistakes made in vehicle selection when leasing is to select an inexpensive vehicle, rather than comparing the actual monthly lease cost, which is heavily influenced by the estimated residual value of the vehicle at the end of the lease. A Honda Civic, for example, can probably be leased for less than a smaller, less expensive, less desirable brand. Vehicle leases for CSOs will be commercial leases and have a higher interest rate than the promotional leases offered by dealers to individuals (most individual leases prohibit “commercial” use of the vehicle). Leases have an annual distance cap before a per mile/KM charge is levied. However, if good fleet records are maintained, the CSO can shift a higher mileage vehicle to a less popular location to avoid these surcharges. Lease or financing of late model, used vehicles although not common, is an option that may reduce costs without reducing the reliability of the service, if handled properly.

Many start up CSOs will not have adequate credit rating to lease or finance the significant number of vehicles needed. One possibility is member (or individual) purchase of a vehicle and leasing it to the CSO, though this option is not without drawbacks. Although the return on investment of vehicle leasing is very attractive (and the vehicle remains in the purchasers name in case of financial problems), the owner could be included in a lawsuit if a member is involved in a major accident.

A few specialty vehicles provide members with convenient access to infrequently needed vehicles, such as pickup trucks, minivans and even SUVs and convertibles. A single pickup truck with a bed liner, placed in a central location, can probably serve several hundred members quite well. Minivans will be attractive to certain business customers and will be appreciated by all members when family comes to visit.

Vehicle Repair and Maintenance

Developing long-term relationships with a centrally-located dealership, full service tire and garage, as well as with a body shop, is essential to get quick turn-around on repairs so the car can go back in service and generate revenue. Even a small carsharing fleet makes any CSO a very attractive customer to local businesses. As the fleet grows, mobile detailing and mobile oil-change companies are possible alternative to staff cleaning of vehicles. Trading out usage to members clean vehicles is another possibility but may require more staff oversight than using a private contractor.

It is important to repair dents and scratches promptly, since they send a subtle but clearly-understood message to members about their responsibility in maintaining the vehicles. In addition, the vehicles serve as mobile advertising to prospective new members. No matter how much emphasis is placed on member responsibility for reporting damage, much of it will not be reported. The cost of repairing these nicks, dents and dings become part of normal wear and tear and must be included in the budget. Establishing long-term relationships with one or more body shops is essential to get quick turn-around so vehicles can be returned to service and continue to generate revenues.

Finally, CSOs typically provide a company fleet gas card and require that members refuel the car when the gauge shows below a certain level, usually either 1/2 or 1/4 tank, offering the member a small credit on their account for their inconvenience. One-half tank provides a greater safety margin for subsequent users if a member forgets to fill up the tank, but inconveniences more members since the need to fill up is more frequent. One-quarter tank still leaves plenty of gas in the tank for a typical trip. Fleet gas cards have a variety of simple security options, such as entering a PIN number and odometer reading and few problems with illegal use of fleet gas cards has been reported by CSOs. Given how infrequently most members will have to fill the gas tank, these security features may end up causing more member frustration and emergency help calls than they’re worth.

In-Vehicle Electronics and Reservations Systems

Providing unattended member access to the vehicle is another difference between carsharing and rental cars. Small CSOs may begin with manual system, such as a lockbox or door mounted keypad (e.g. Ford or aftermarket security products), but as the service grows, electronic systems will be needed to keep staff costs down. The cost of retrofitting a large, established fleet with in-vehicle electronics can be a significant cash outlay.

The in-vehicle system may (or may not) communicate with central reservation computer to verify the member’s reservation for that vehicle and time. Such systems typically cost between \$1,000 - \$1,500 per vehicle installed and can be installed in subsequent vehicles, if it is not technologically out of date at the time. In addition, there will be a \$10-\$30+ per month wireless communication charge to enable the computer to transmit trip data to the central computer.

Some on-board systems also provide cell phone communication to the CSOs emergency operator or allow vehicle tracking through global positioning satellite (GPS). Typically, these GPS systems do not continuously report the vehicle's location but can be queried in the event a vehicle is overdue, either because it is parked in a wrong location or possibly stolen. The value of GPS, while widely accepted in the US, is not seen as necessary by any European CSOs.

All CSOs now offer web-based and some form of telephone scheduling — either operator-assisted (sometimes with a transaction charge per call) or free touch-tone or voice recognition scheduling. As wireless devices, such as PDAs and web-enabled phones proliferate, particularly among the target demographics of most CSO's, providing an reservation interface for these devices will be a useful selling point. An essential part of a reservation system is the ability to export usage data needed to generate reports describing member and location statistics needed for effective management the growth of the fleet. In the future, open-ended reservations (discussed later) could eliminate the need for scheduling vehicles at all

Until recently, sophisticated reservation systems and in-vehicle electronics were proprietary to individual CSOs. Now start up CSOs can choose from equipment from the European developer Invers, or EngineGreen in the Bay Area, as well as contracting with Zipcar or Flexcar as part of a package of outsourced services. In addition, there are several European software and hardware companies with scheduling/billing software that interfaces with existing in-vehicle electronics to provide another choice.

Staffing & Customer Service

Keeping cars on the road and getting new members is the essential goal of any carsharing organization. How that is done can range from a professional corporate structure to a largely volunteer and member-driven organization. The major staffing functions are:

- General Manager providing overall direction
- Customer Service handling new member orientation and responding to billing issues and emergencies
- Fleet manager handling all aspects of vehicles and parking spaces
- Marketing and Sales
- Finance handling billing and accounting

In smaller operations marketing/sales and finance may be handled by the General Manager, with everyone pitching in on many tasks. Leadership, interpersonal skills and an extensive list off business and government contacts in the community is essential for the General Manager.

Customer service is a critical factor in the long-term success of any CSO. The level of service the CSO will provide must be communicated, in all areas from marketing to emergency assistance, and the CSO must consistently meet and exceed those expectations to keep members happy. Since carsharing is a 24 hour a day operation, and to be perceived as a viable alternative to owning a car, the CSO must be able to handle emergency calls promptly and efficiently. Rotating on-call duties among staff carrying cell phones is most common, with bigger CSOs contracting with call centers to screen routine problems, handing them off to local on-call staff when someone local is needed to solve the problem.

In startup CSOs, Fleet Management is often a shared responsibility until the fleet grows to 30+ vehicles and can justify the attention of a designated staff member. Fleet management includes taking delivery of the vehicles, applying decals and installing any on-board electronics before putting the vehicle in service. Acquiring and preparing parking spaces for carsharing use is another typical responsibilities of the fleet manager since they are in the field a great deal of time. Disposing of vehicles at the end of service, either by returning them to the leasing company in good condition or selling them via auto auction or at retail for CSOs that purchase vehicles.

The most effective way to “sell” carsharing to businesses and individuals is an area where there are as many opinions as there are CSOs. Whether to structure sales staff on a commission or salary basis is a complex issue. The need for clear effective marketing materials, backed up by appropriate pricing and simple membership processing procedures, is a crucial factor. Making unique “deals” in order to attract new customers is a temptation that must be resisted since implementing, and even just keeping track of them, in an automated system can be difficult.

Timely reporting of sales and usage data and trends is essential to operate efficiently and profitably, while providing a high level of customer service. Determining useful metrics is an on-going challenge. Graphic presentation of the information, using mapping software, while nice, is not critical initially. Some of the basic data needed to effectively manage a growing carsharing service includes:

Vehicle/location

- Hours per day of use — overall, by time period
- Revenue by member types
- Number of members/drivers per vehicle location
- Mileage/maintenance of vehicle (fleet management)

Member usage

- Reservation “success” rate — first choice, second choice and no car reserved
- Revenues by member types
- Usage/revenue trends by member

Although large companies cannot maintain the kind of personal relationship with members that start up organizations do, maintaining a professional relationship with them does not happen by itself. Since word of mouth from existing members is such an important marketing channel, handling with problems effectively, if they occur, is critical. Given the high costs of recruiting new members, insuring that members are enthusiastic about the service vital. Whether such efforts are in the form of a formal Customer Relationship Management program or other business management process, good customer service is essential.

Writing the Business Plan

The Business Plan is where all the variables have to be decided: What vehicles will be offered and how much will they cost? What is the initial service area and what are the target market segment? How will the service be marketed? These questions influence how quickly one assumes will new members join and, ultimately, how soon the service will reach breakeven?

To compare various pricing and growth options a simplified spreadsheet model has been developed to enable startups to quickly consider pricing and staffing options worth a more detailed analysis. The user can input any set of assumptions (second column), the growth rate of vehicles and members and easily see the impact on expenses and revenues for the first 2 years. An example of one set of assumptions to get to breakeven are shown below in Figure 1.⁶

The costs in this model are driven by vehicle utilization (hours per day of usage) but might as easily have been based on members and an average trip. For simplicity, revenues are displayed the same month as usage, new members and new vehicles are added, whereas several months ramp up is common with many factors. Member application fees are not included since discounting of these fees is likely to be close to the actual processing costs. The Cash flow line reflects the total investment needed to finance the operation to that point. The results from using this spreadsheet should be considered a crude “reality check”, with promising options to be studied in more detail.

For most CSO business models, it appears that between 50 and 100 vehicles being driven 5+ hours per day is needed to maintain a reasonable price structure. Depending on the density of the vehicle locations, a member to vehicle ratio of about 20:1 appears to be a good balance between utilization of the vehicles and availability to members. Carsharing is a classic “chicken or egg” situation – members won’t join until there is a vehicle close to them and it may take several months, or longer, to get enough members near a vehicle to generate the desired utilization for breakeven, particularly during the start up phase (not reflected in this simplified spreadsheet).

Scenario: Sample	Assumption	Launch date	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Quarter 5	Quarter 6	Quarter 7	Quarter 8
New members added	40 per month	0	120	120	120	120	120	120	120	120
New vehicles added	2 per month	10	6	6	6	6	6	6	6	6
Total members	(calculated)	0	120	240	360	480	600	720	840	960
Total vehicles	(calculated)	10	16	22	28	34	40	46	52	58
Member to vehicle ratio	(calculated)	0	7.5	10.9	12.9	14.1	15.0	15.7	16.2	16.6
Vehicle utilization	5.5 hours/day 5 miles/hour	1650 8250	2640 13200	3630 18150	4620 23100	5610 28050	6600 33000	7590 37950	8580 42900	9570 47850
Revenue - hours	\$ 5.00 per hour	\$ 8,250	\$ 13,200	\$ 18,150	\$ 23,100	\$ 28,050	\$ 33,000	\$ 37,950	\$ 42,900	\$ 47,850
- mileage charge	\$ 0.25 per mile	\$ 2,063	\$ 3,300	\$ 4,538	\$ 5,775	\$ 7,013	\$ 8,250	\$ 9,488	\$ 10,725	\$ 11,963
Membership fee	\$ 5.00 per month	\$ -	\$ 600	\$ 1,200	\$ 1,800	\$ 2,400	\$ 3,000	\$ 3,600	\$ 4,200	\$ 4,800
Total revenues	per month	\$ 10,313	\$ 17,100	\$ 23,888	\$ 30,675	\$ 37,463	\$ 44,250	\$ 51,038	\$ 57,825	\$ 64,613
Expenses										
Vehicle cost	\$ 300 per month	\$ 3,000	\$ 4,800	\$ 6,600	\$ 8,400	\$ 10,200	\$ 12,000	\$ 13,800	\$ 15,600	\$ 17,400
Vehicle insurance	\$ 250	\$ 2,500	\$ 4,000	\$ 5,500	\$ 7,000	\$ 8,500	\$ 10,000	\$ 11,500	\$ 13,000	\$ 14,500
Maintenance cost	\$ 20	\$ 200	\$ 320	\$ 440	\$ 560	\$ 680	\$ 800	\$ 920	\$ 1,040	\$ 1,160
Repair cost	\$ 20	\$ 200	\$ 320	\$ 440	\$ 560	\$ 680	\$ 800	\$ 920	\$ 1,040	\$ 1,160
Cleaning cost	\$ 50	\$ 200	\$ 320	\$ 440	\$ 560	\$ 680	\$ 800	\$ 920	\$ 1,040	\$ 1,160
Parking	\$ 75	\$ 200	\$ 320	\$ 440	\$ 560	\$ 680	\$ 800	\$ 920	\$ 1,040	\$ 1,160
New vehicle/location set	\$ 1,500 per vehicle	\$ 15,000	\$ 9,000	\$ 9,000	\$ 9,000	\$ 9,000	\$ 9,000	\$ 9,000	\$ 9,000	\$ 9,000
Average MPG of vehicle	25 mpg									
Fuel (cost per gallon)	\$ 1.50 per gallon	\$ 495	\$ 792	\$ 1,089	\$ 1,386	\$ 1,683	\$ 1,980	\$ 2,277	\$ 2,574	\$ 2,871
Variable costs	\$ 2,215 per month	\$ 21,795	\$ 19,872	\$ 23,949	\$ 28,026	\$ 32,103	\$ 36,180	\$ 40,257	\$ 44,334	\$ 48,411
Staff - General Manager	\$ 40,000 per year	\$ 3,333	\$ 3,333	\$ 3,333	\$ 3,333	\$ 3,333	\$ 3,333	\$ 3,333	\$ 3,333	\$ 3,333
Staff - Customer Service	\$ 25,000 (gross)	\$ 2,083	\$ 2,083	\$ 2,083	\$ 2,083	\$ 2,083	\$ 2,083	\$ 2,083	\$ 2,083	\$ 2,083
Staff - Marketing	\$ 35,000	\$ 2,917	\$ 2,917	\$ 2,917	\$ 2,917	\$ 2,917	\$ 2,917	\$ 2,917	\$ 2,917	\$ 2,917
Staff - Fleet Mgr.	\$ 25,000	\$ 2,083	\$ 2,083	\$ 2,083	\$ 2,083	\$ 2,083	\$ 2,083	\$ 2,083	\$ 2,083	\$ 2,083
Staff costs	\$ 10,417 per month	\$ 10,417	\$ 10,417	\$ 10,417	\$ 10,417	\$ 10,417	\$ 10,417	\$ 10,417	\$ 10,417	\$ 10,417
Reservation/billing syst	\$ 100 per month	\$ 100	\$ 100	\$ 100	\$ 100	\$ 100	\$ 100	\$ 100	\$ 100	\$ 100
Marketing/advertising	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000
Office rent	\$ 750	\$ 750	\$ 750	\$ 750	\$ 750	\$ 750	\$ 750	\$ 750	\$ 750	\$ 750
Phones/internet	\$ 250	\$ 250	\$ 250	\$ 250	\$ 250	\$ 250	\$ 250	\$ 250	\$ 250	\$ 250
Supplies, mailing	\$ 500	\$ 500	\$ 500	\$ 500	\$ 500	\$ 500	\$ 500	\$ 500	\$ 500	\$ 500
Office costs	\$ 3,500 per month	\$ 3,600	\$ 3,600	\$ 3,600	\$ 3,600	\$ 3,600	\$ 3,600	\$ 3,600	\$ 3,600	\$ 3,600
Total Expenses	\$ 16,132 per month	\$ 35,812	\$ 33,889	\$ 37,966	\$ 42,043	\$ 46,120	\$ 50,197	\$ 54,274	\$ 58,351	\$ 62,428
Net profit/loss	per month	\$(25,499)	\$(16,789)	\$(14,078)	\$(11,368)	\$(8,657)	\$(5,947)	\$(3,236)	\$(526)	\$ 2,185
Cash flow (investment needed)		\$(25,499)	\$(42,288)	\$(56,366)	\$(67,734)	\$(76,391)	\$(82,338)	\$(85,574)	\$(86,099)	\$(83,915)

Figure 1 Sample “Back of the Envelope” Proforma

As an example, using the operating assumptions of 40 new members and 2 new vehicles per month @ 5.5 hours per day vehicle utilization, and taking into account the caveats mentioned above, a start up CSO could hypothetically break even in 24 months (“Net profit/loss” line) under the following conditions:

- \$5.00 per hour + 25¢ per mile & \$5 monthly membership fee (optimistically requiring an \$100,000 investment)
- \$4.00 per hour + 40¢ per mile & \$5 monthly membership fee (optimistically requiring an \$88,000 investment)

The model also shows some surprising results – the cost savings from eliminating the Fleet Manager position (or similar costs) for the first 2 years advances breakeven only a few months; while using a hybrid vehicle to improve the gas mileage of vehicles from 25 mpg to 40 mpg but increasing the vehicle lease/finance cost actually delays breakeven.

NEW OPERATIONAL MODELS

Providing new solutions to urban mobility involves creative thinking. What works in Europe may not be sufficient or appropriate in North America. This section will examine some new ideas for carsharing that may be useful for both startups and older organizations.

Outsourcing & Franchising

Since carsharing depends on a high level of technology (on-board computers, web/phone reservation system, etc.), developing integrated technology packages for smaller carsharing operations, becomes cost prohibitive. The large carsharing companies recognize that there is a interest in many cities where they might not provide service for many

years, many have developed franchise option, operating under an affiliation with an existing brand name company, or will contract to provide specific services to a start up. By franchising, or outsourcing certain functions, a startup can concentrate on what it knows best – the local market – while leaving the capital-intensive technology and “back office” staffing to larger organizations better equipped to handle these specialized tasks.

Franchises enable local operators to take advantage of the expertise and brand recognition already developed by a national company. In return, franchisees pay a fee, depending on the services received, and may have to meet specific operational and customer-service standards.

Outsource options include new vehicle leasing (with or without insurance or member screening), reservations system in-vehicle electronics, emergency call center and billing and collections. How these are bundled and priced is, of course, subject to negotiation.

New Shared-Vehicle Service Models

Conceptually, two different types of “classic” shared vehicle services serve opposite ends of the commute: carsharing has traditionally focused on neighborhood service to provide vehicles near where people live, while “stations cars”, has focused on transporting business commuters from suburban rail stations to nearby offices. The operational requirements of both these services are quite similar – provide members with easy, unattended access to shared vehicles parked in designated locations.

The two CarLink research projects in California, sponsored by American Honda, first explored the possibility of serving both “homeside” and “workside” members. Rather than providing hourly/mileage increments, CarLink negotiated partial-day contracts for weekday and evening/weekend use of the vehicle. Currently, Hertz car rental also offers a similar monthly “fractional” leases (weekdays or evening/weekend) to businesses and individuals commuting by BART at two stations in the San Francisco Bay Area (\$325 per month to get to and from BART and businesses and \$375 between home and BART). Regular car rentals are available at these locations as well.

Because of the increasing interest and partnerships between CSOs and transit agencies, as well as growing orientation toward business memberships, the distinction between carsharing and stations cars began to be blurred almost from the start in North America. By creatively, packaging services to different users, a carsharing company can generate revenue from several different users, increasing utilization and revenues.

Some new carsharing service models (actually “products” might be a better name) include:

- **Exclusive and Semi-Exclusive Use Vehicles** –Some businesses are interested in is exclusive access to a vehicle during part of the day for their employees. This reduces the concern that a vehicle might not be available. And it may be less expensive than owning and maintaining a vehicle, which would otherwise be parked on evenings and weekends. In addition, employees can also schedule and use other vehicles in the carsharing fleet, such as picking up a vehicle near one’s home to attend an early morning meeting.
- **Weekday Vanshare Shuttle** – During weekdays the car or minivan parked at a transit station is picked up by a company employee and makes several round trips in the morning and afternoon to carry employees from the station to the worksite. During the middle of the day, the vehicle is parked at the work site and be available for employees to use for company business. The CSO thus have the opportunity to earn revenue by providing a fleet vehicle to the business, from individual members on evenings and weekends and possibly a subsidy from the transit agency for the shuttle operation.
- **Open Ended Return** – one of the major complaints that new members have with carsharing is the requirement to specify a return time. In this model, members could simply walk up to the location and take any available car. CSOs have been concerned that offering “open ended” reservations, while attractive to the customer, requires a sufficient density of members and vehicles and could result in very low utilization since the vehicle would not be available until it was returned. A research project undertaken by Bodo Schwieger in Berlin during 2001 involved 25 vehicles available for open-ended use. The results showed overall vehicle utilization actually increased under this plan by 37%.⁷ Some European CSOs have reduced charges for unused hours if a vehicle is returned early (charging only for two additional hours) to enable a quasi-open-ended option.
- **One Way Rental** – Another part of the same research project in Berlin involved designating 8 stations that members could drop off vehicles at without having specify which station. Again, the results were encouraging: during the study period 17% of the reservations were one-way trips, and there were sufficient trips originating from all stations that a staff person was needed to shuttle vehicles to equalize the stations only every 10th trip..⁸ Intellishare is the name of a similar concept involving electric vehicles, operating at the University of California at Riverside since March, 1999.

These service models can provide a useful supplement the traditional neighborhood and business carsharing services. Implementation requires careful consideration in both operational details and may require modification of existing reservation and billing systems.

CONCLUSION

Carsharing has come a long way in North America since the first services started almost 10 years ago. It is hoped that the observations and suggestions, along with the simplified spreadsheet model presented in this paper, will be of value to future start up carsharing services.

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In my role as a carsharing consultant, I build upon my experiences as founder of CarSharing Portland, the first commercial car sharing service in the United States, and my later experience with Flexcar in Portland and San Diego. Over the years Dr. Richard Katzev of Portland, Oregon and Conrad Wagner of Stans, Switzerland have been on-going inspiration and guides in developing my thinking about carsharing, as well as good friends. My association with Flexcar has given me valuable perspective about the corporate model of carsharing, as well as an appreciation of the dynamics of new technology implementation. Recently, my acquaintance with Bodo Schwieger of Berlin has given me insight and re-energized my thinking about new operational models for carsharing services.

Finally, the carsharing industry would not be where it is today without the on-going support by Dr. Susan Shaheen of California PATH at UC Berkeley and Marty Bernard of the National Station Car Association, in Oakland.

Readers are invited to contact the author to discuss these ideas or for a copy of the Excel spreadsheet referred to in this paper. Contact: David Brook, 1905 NE Clackamas Street, Portland, Oregon 97232

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FOOTNOTES

¹ Shaheen, Susan, D. Sperling, C. Wagner. "A Short History of Carsharing in the 90s." *The Journal of World Transport Policy and Practice*. Volume 5, Number 3, September, 1999. Pp. 18-40.

² Brook, David, "So You Want to Start a CarSharing Service?" *The Journal of World Transport Policy and Practice*. Volume 5, Number 3, September, 1999. Pp. 202-210.

³ The most detailed analysis of US carsharing member behavior is analysis by Robert Cervero; the latest published information is: Cervero, Robert, *City CarShare, First Year Travel Demand Impacts*, University of California, Berkeley, November 2002, <http://www.its.berkeley.edu/publications/ITSReviewonline/spring2003/trb2003/cervero-carshare.pdf> (accessed August 1, 2003)

⁴ Katzev, Richard, *CarSharing Portland: An Analysis of Its First Year*, Public Policy Research, Portland, Oregon; July 1, 1999, http://www.publicpolicyresearch.net/documents/CSP_first_year_eval.PDF (accessed Jan. 5, 2004)

⁵ Personal communication, Conrad Wagner, Stans, Switzerland.

⁶ Copies of this spreadsheet in Excel format are available from the author.

⁷ Schwieger, Bodo, *International Development Towards a "Second Generation" Car-Sharing*, Dissertation, Technische Universität Berlin, Berlin, Germany, June 27, 2003 (advance copy)

⁸ Op cit.