4 Concepts to Help Solve the Relocation Problem

A Whitepaper By

Ecoservice movmi

Written by: Sandra Phillips and William Tang

TABLE OF CONTENTS
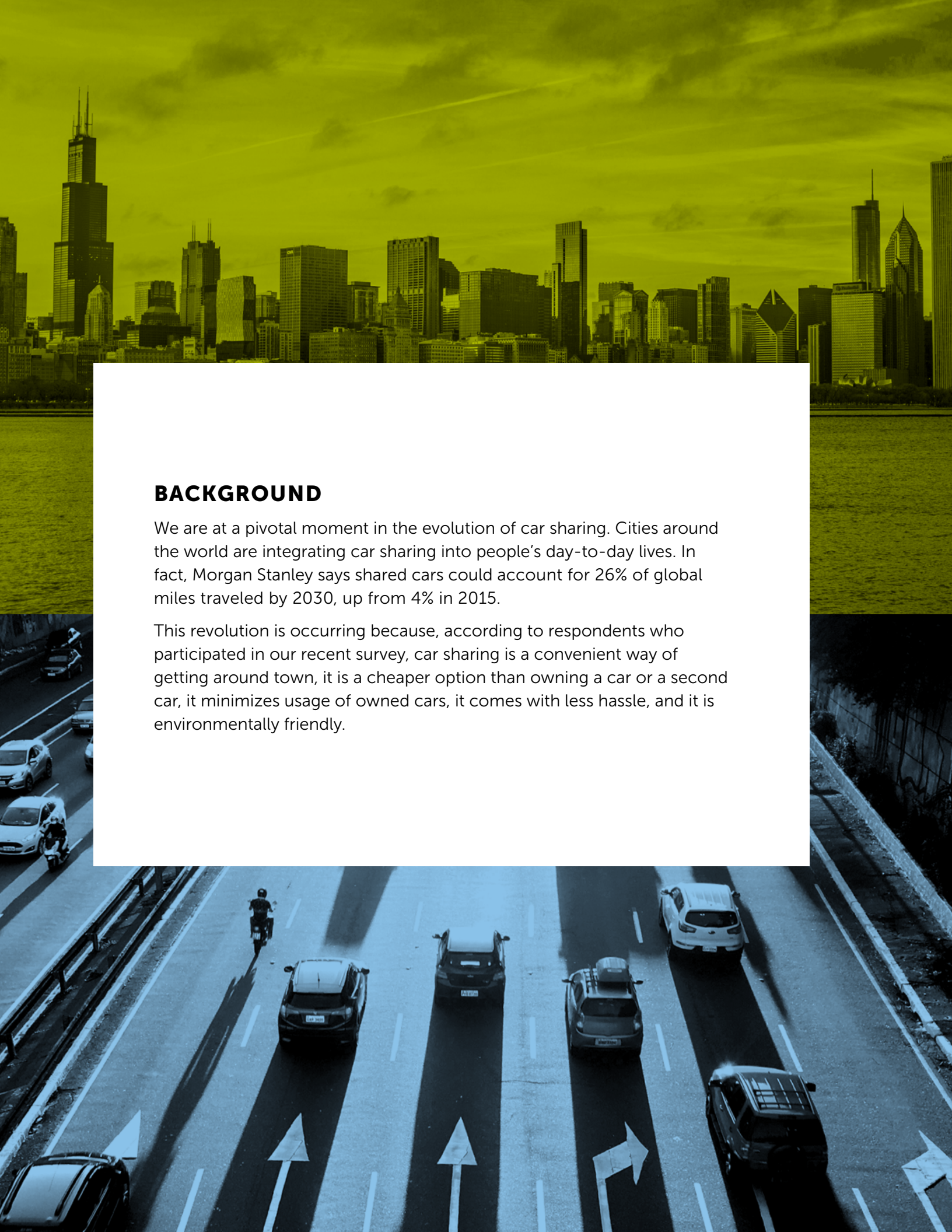
BACKGROUND

We are at a pivotal moment in the evolution of car sharing. Cities around the world are integrating car sharing into people's day-to-day lives. In fact, Morgan Stanley says shared cars could account for 26% of global miles traveled by 2030, up from 4% in 2015.

This revolution is occurring because, according to respondents who participated in our recent survey, car sharing is a convenient way of getting around town, it is a cheaper option than owning a car or a second car, it minimizes usage of owned cars, it comes with less hassle, and it is environmentally friendly.

While there are several commercial applications for sharing cars, free-floating car sharing systems offer the ultimate flexibility and freedom. That's because this model allows members to drop off a shared car anywhere. It's the number-one car sharing feature that convinces people to give it a try, even if they are strong believers in car ownership. Once they start using a car sharing system, people immediately appreciate the flexibility compared to owning a car. And, they recognize that they can get around town at a fraction of the cost of driving their own car.

> ## "However, the freedom that members enjoy represents the biggest challenge for operators."

However, the freedom that members enjoy represents the biggest challenge for operators. While operator's focus is on maximum utilization of their assets, things don't always work as they should. For instance, cars are often parked in neighborhoods where they sit idle for hours or even days. And, then there are popular areas where cars are routinely unavailable. This can happen no matter how many cars are dropped off.

Ultimately, the goal of operators is to balance supply and demand. Ideally, this is done by placing cars in locations that are optimum for both operators and members.

This white paper explores the biggest challenges faced by operators around the issue of relocation before offering solutions that members would like to see according to interviews of industry experts and a survey conducted jointly by movmi and Ecoservice.

movmi

Ecoservice

THE CURRENT STATE OF INDUSTRY

The attention of operators in the free floating car sharing industry is squarely focused on the problem of relocation. It's a deceptively simple issue of supply and demand. The better the system is balanced, the more cars are utilized, the better members are served, and operators earn more revenue and have lower operational costs.

But, how do operators create an optimum balance between supply and demand throughout their service area? It's not easy to achieve because the efficient coordination of cars is as difficult as herding cats. It's a Sisyphean task that never ends.

Currently, operators often lack the necessary insights into where cars are and where they need to go. This is an issue of not having sufficient technology. So, with limited insights comes the limited ability to balance supply and demand.

Operators understand that there are two sides to insights. On one hand, operators need to know when a member needs a car but there isn't one available. This is a hot zone. On the other hand, operators need to know where cars are sitting idle because no one needs the car. This is a cold zone. Without this real-time knowledge, the system will remain unbalanced.

The problem of imbalance is illustrated by the recent experience of car2go in Vancouver. Originally, car2go offered members the opportunity to drive cars to the Horseshoe Bay ferry terminal just outside of Vancouver. It is a very popular location for cars because car2go served the needs of commuters from the island as well as local tourists and vacation home residents visiting the Sunshine Coast.

When people left Vancouver headed for Horseshoe Bay, they preferred to take a car2go instead of relying on the bus service. That's because riding the bus doesn't always fit the member's schedule. And, it takes longer for them to get to their destination.

The problem for car2go was that members were perfectly happy to take a bus back into town because it was much cheaper than renting a car. After almost six years of trying to optimize the ebb and flow of cars--even using a van full of relocation drivers to bring cars back into the city--car2go shut down service to Horseshoe Bay.

The reality is that any operator in North America can have the same experience as car2go. So, how can this be avoided?

To understand what is currently being done by operators throughout the industry to address the relocation problem, we spoke with experts who have intimate knowledge about the operations side of car sharing to provide insightful responses. Here is what they told us.

movmi
Ecoservice

THE PROBLEM OF RELOCATION

Relocation is moderately difficult and very expensive. However, it is an essential part of the business. As operators continue to grow, and the industry continues to evolve, members will play a more important role in keeping fleets well-balanced geographically. Also, part of the solution to the relocation problem is to have visibility into where there is excess demand and limited availability. Knowing where your hot zones and cool zones are at any time of the day is very important.

> "Part of the solution to the relocation problem is to have visibility into where there is excess demand and limited availability."

DAILY FLEET MANAGEMENT

Fleets are typically managed by two teams. An internal team focuses on overseeing the fleet and keeping cars available for members to rent. An external vendor team is responsible for refueling cars, cleaning them, and relocating them.

HIRING CRITERIA

To aid the relocation issue, it is important to hire the right people to solve the problem. The best candidates are those who can creatively problem solve and make sound decisions in the field. Additionally, depending on their position, they must have the ability to troubleshoot automotive issues as well as handle some minor repairs and bodywork.

THE ROLE OF SOFTWARE

Having the right software is critical. But, the success an operator has with any software is based on the insights that software provides. Certainly, software can identify demand based on historical data as well as general trends and insights into the way a particular operating territory works. However, one of the limitations that vendors have is predicting real-time demand.

DEALING WITH RELOCATION REQUESTS

Relocation requests are market dependant. In a mature market, relocations due to residential complaints or parking issues are not a big problem. However, in a new market, the population may not be familiar with how car sharing works. Residents may feel that their curbside parking is being taken away by a company. They may not realise that the cars they are complaining about are car sharing vehicles that benefit their community. So, operators can expect a spike in relocation requests due to complaints of local residents. These relocation requests will subside over time as residents become more familiar with the concept of car sharing.

movmi Ecoservice
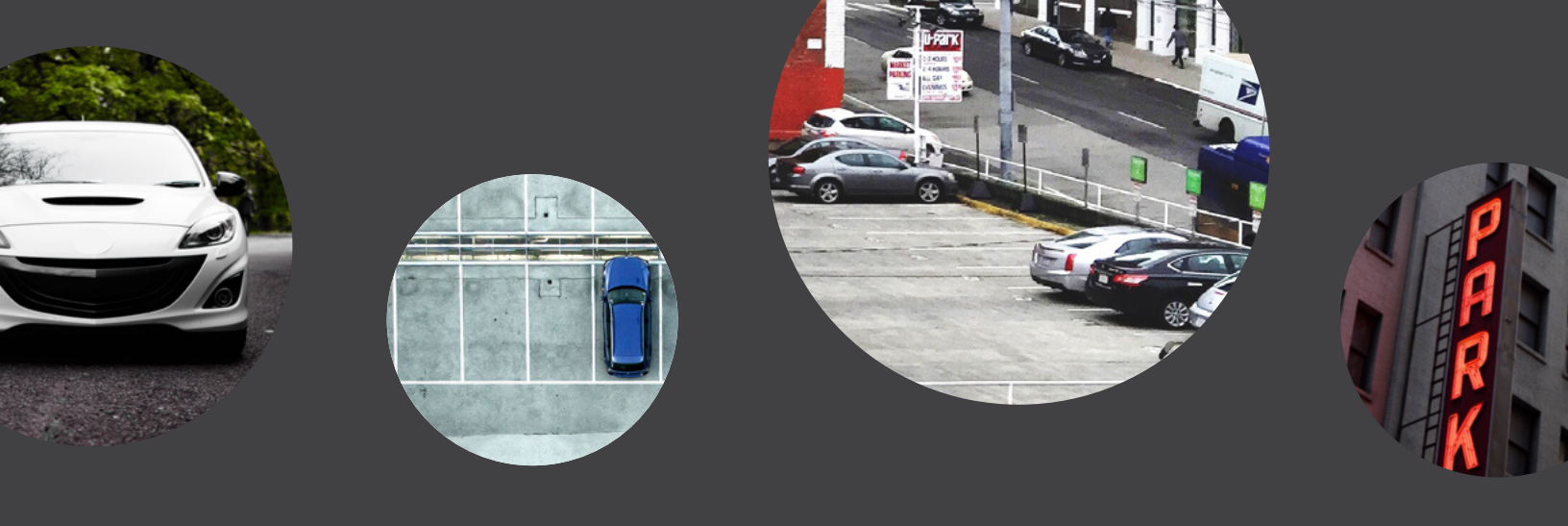
RELOCATION TIME OF DAY

Most carriers have probably tried every time of day to relocate their cars. They ultimately tend to settle on off-peak or nighttime relocations due to the efficiencies of less traffic on the streets.

THE COST OF RELOCATION

The cost of relocation is the biggest problem. Still, it's simply the cost of doing business. But, operators must do what they can to make relocation as efficient as possible. As the industry matures, operators will get better at managing the cost of relocation. This will likely be in the form of incentivizing members to handle as many of the relocations as possible.

SOLUTION TO THE RELOCATION PROBLEM

When operating a free-floating car sharing fleet, keeping relocation costs low means doing your best to leverage members to help rebalance the fleet. Theoretically, as utilization climbs, the cars are relocating themselves. Beyond that, operators must offer some type of incentive to members to motivate them to relocate cars from lower demand places to higher demand ones.

OTHER THOUGHTS

The research presented in this paper validates the belief that the industry doesn't yet have a clear answer to the problem of relocation. However, the research demonstrates that there are a number of opportunities that must continue to be explored. As operators peel back the onion, they will better understand the needs of their members. They will also better understand their members' willingness to help solve the relocation problem as companies test through several relocation options.

As car sharing grows and becomes relevant to a broader demographic beyond just millennials, there could be options for empty nesters who want to reduce their transportation costs. Over the next few years as car sharing reaches beyond the early adopters, that might be one way to not only encourage older demographics to drive but also provide economical ways for them to do so while contributing to the solution of the relocation problem.
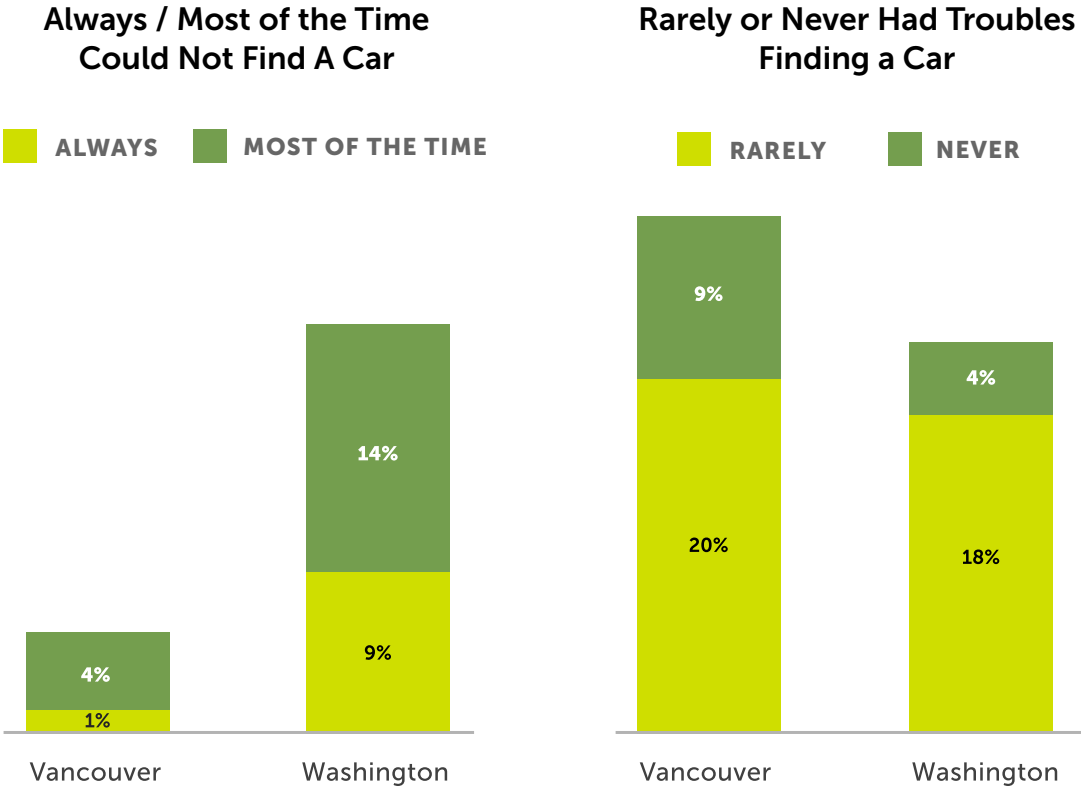
HOW RELOCATION COULD BE IMPROVED

movmi and Ecoservice also conducted a survey to understand free-floating car sharing users' experience regarding car availability and how those experiences vary by hot versus cold zones. The research also assessed reactions to a range of possible solutions to the relocation problem.

The data was collected in mid-September 2017 via the Angus Reid Forum online panel, an acknowledged leader in the North American research panel market. A total of 311 interviews were completed, with 152 in Greater Vancouver where 60% of respondents own a car, and 159 in Washington D.C. where 80% of respondents own a car.

Respondents were split in terms of their satisfaction with the availability of cars within their expected walking distance, with 55% giving a satisfaction rating of 8, 9, or 10. This rating varies significantly by city - 38% in Vancouver were satisfied versus 70% in Washington D.C. This difference is partially due to the fact that young males tend to have stronger satisfaction ratings, which is skewing Washington's data.

It's important to note that significantly more users (23%) in Washington claimed to find themselves not finding a car available within acceptable distance most times compared to 5% in Vancouver.

Always / Most of the Time Could Not Find A Car

ALWAYS   **MOST OF THE TIME**

	Vancouver	Washington
Most of the time	4%	14%
Always	1%	9%

Rarely or Never Had Troubles Finding a Car

RARELY   **NEVER**

	Vancouver	Washington
Never	9%	4%
Rarely	20%	18%

> **"Despite the fact that Vancouver members report having significantly less trouble finding cars in comparison to Washington members, Vancouver members have lower satisfaction scores."**

% of Members Very Satisfied with Car Availability

(Scored 8 Rating or Higher)
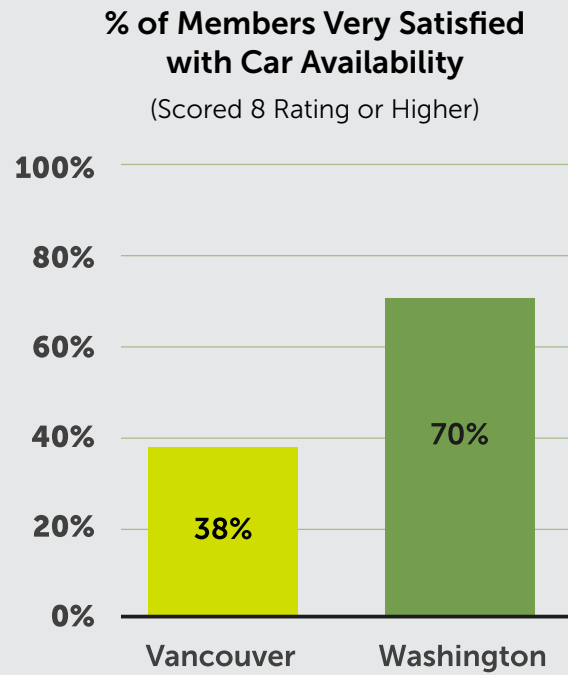
These findings are insightful because it means that supply and demand does not primarily drive dissatisfaction with members. We found that higher occasions of not finding a car within acceptable walking distance does not necessarily correlate with lower satisfaction scores with availability of cars when needed. Despite 22% of Washington members feeling they have trouble finding vehicles, 70% of Washington members were extremely satisfied with the car sharing services. This is interesting because in Vancouver, while 5% of members felt they could not find a car only 38% of members were extremely satisfied with the car sharing services. Thus, despite the fact that Vancouver members report having significantly less trouble finding cars in comparison to Washington members, Vancouver members have lower satisfaction scores.

When members could not find a vehicle, they felt frustrated (19%) and disappointed (15%), with much fewer (7%) feeling angry. Most felt nothing, were okay with the situation, or simply dealt with the situation (20%)[1].

As entrepreneur and author Robin Chase has said regarding people's emotional relationship to transportation, "Transportation is the center of the world! It is the glue of our daily lives. When it goes well, we don't see it. When it goes wrong, it negatively colors our day, makes us feel angry and impotent, curtails our possibilities."

When asked what they did when a car wasn't available, respondents in Vancouver took public

---

[1] The question asked members on a 10 point scale (10 being extremely satisfied) about their satisfaction with car availability. Results show scores of 8 or higher.

movmi Ecoservice

THE FOUR RELOCATION CONCEPTS

To help solve the relocation issue, movmi and Ecoservice introduced four possible relocation solutions to the survey members. The four relocation concepts presented to respondents in the survey were:

1   **Dynamic Drop-Off Pricing** – The operator charges members less if they drop off the car at a specified location. This may cause the member to walk further, or find another means of transport, to get to their destination.

2   **Dynamic Pick-Up Pricing** – The operator charges members less if they pick up a car at a specified location. This may cause the member to walk further, or find another means of transportation, to pick up a car.

3   **Delivery Fee** – When an operator utilizes a delivery fee, they are charging a small fee for members to book a car 30 minutes in advance to have the car delivered to them.
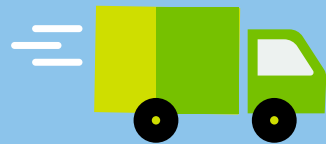
4   **Shuttling Group** – Members sign up to shuttle 10 cars each month from one location to another. For this effort, members either receive minute credits or a discount on future rentals.
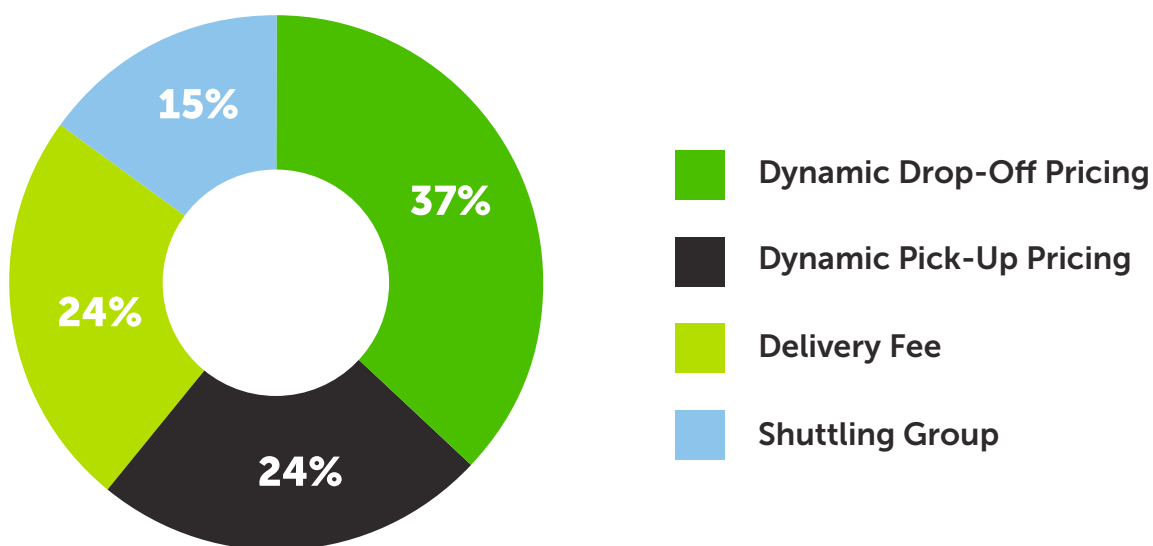
movmi   Ecoservice

After being presented with these four concepts, respondents were asked a series of questions designed to elicit responses that shared their experience with car sharing. The following is a summary of the data collected.

DYNAMIC DROP-OFF PRICING

This concept had the strongest preference of the four. And preference for this concept was consistent by city and other sub-groups. We found that members who preferred Dynamic Drop-Off pricing expected a modest per-minute discount. In addition to the discount, actual comments from survey participants revealed that Dynamic Drop-Off pricing was preferred because of perceived convenience and flexibility.

Most Preferred Concept

- Dynamic Drop-Off Pricing
- Dynamic Pick-Up Pricing
- Delivery Fee
- Shuttling Group

37% — Dynamic Drop-Off Pricing
24% — Dynamic Pick-Up Pricing
24% — Delivery Fee
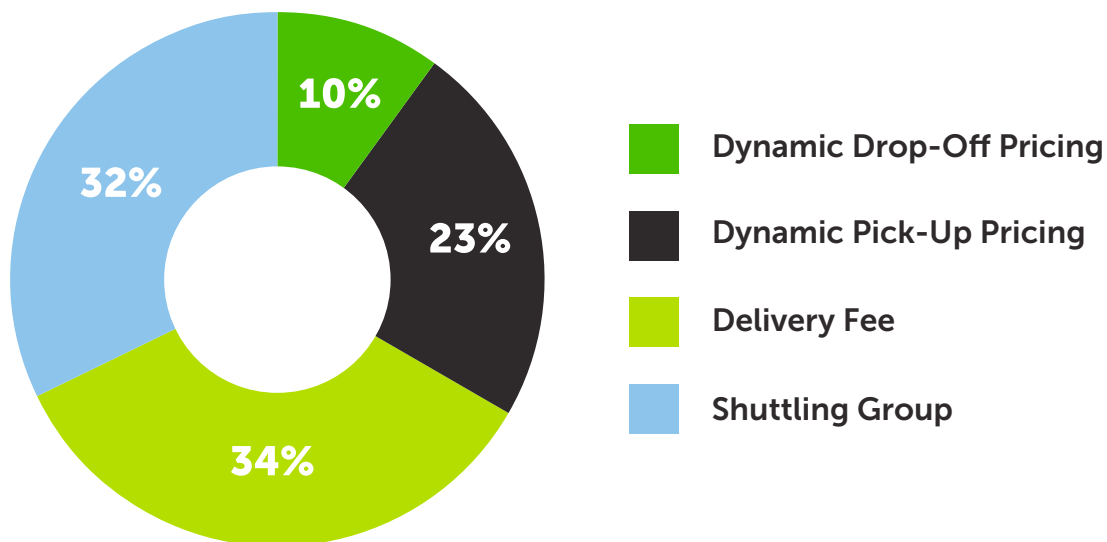15% — Shuttling Group

DYNAMIC PICK-UP PRICING

Even though Dynamic Pick-Up Pricing was among the least preferred concepts, based on verbatim comments, this concept seems to be a perceived flexible convenience when paired with a discount. The survey results support the conclusion that people are happier dropping off the car at the end of their trip. One comment communicated the sentiment that since they had to find parking anyway, it's not a big deal for them to drive a little further away from their destination to park the car.

movmi
Ecoservice

When offered the idea of a $7.00 delivery fee, more than half said that they would likely pay for the service.

DELIVERY FEE

Delivery Fee was the least preferred concept across both cities and all sub-groups. Expectations of delivery fee are somewhat unrealistic with a high percentage of respondents % expecting this fee to be less than $5.00. However, a significant amount of respondents were flexible about the fee. When offered the idea of a $7.00 delivery fee, more than half said that they would likely pay for the service. This concept is more favorable in Washington perhaps due to higher incomes and younger survey participants.

Least Preferred Concept

- 10% — ■ Dynamic Drop-Off Pricing
- 23% — ■ Dynamic Pick-Up Pricing
- 34% — ■ Delivery Fee
- 32% — ■ Shuttling Group

SHUTTLING GROUP

As seen above, Shuttling Group came in second as the least preferred concept just behind Delivery Fee. The likelihood to use this service if offered a 10% discount is encouraging. This preference is more favored by young Washington residents with higher income (greater than $80K). This is a surprising finding and further research is needed to understand this demographic's preference.

movmi   Ecoservice

SUMMARY OF LEARNINGS

We discovered that members don't always notice a mismatch in supply and demand. Higher occasions of not finding a car within acceptable distance does not necessarily correlate with lower satisfaction with availability of cars when needed. Instead, satisfaction with availability of cars is more dependant on demographic profiles. Recall, young male members with higher incomes tend to have higher satisfaction rates.
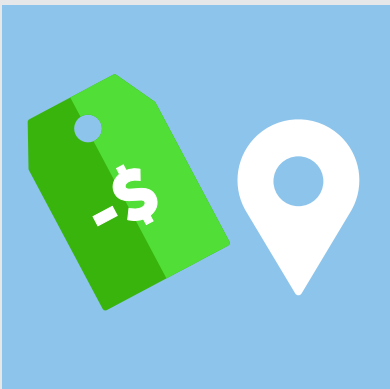
Dynamic Pricing is the most preferred solution. While none of the options rated favorably on their own, Dynamic Pricing options may be better received than others tested. They are perceived to offer convenience and flexibility without having to do increased work beyond a member's typical use.

Delivery Fee holds potential. It yields polarizing results but may be worth offering because 56% of respondents are willing to pay $7.00 for the service. Further investigation is needed to see if a specific demographic group or a particular use case exists that will support this type of service.
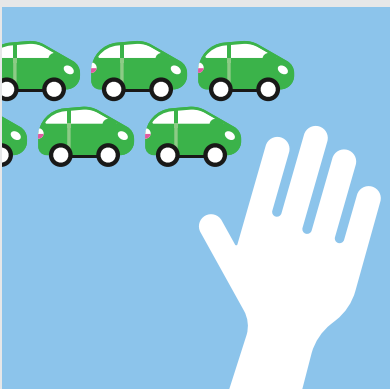
Shuttle groups may be an option if the software solution doesn't support dynamic pricing and the service attracts an older demographics that is less affluent. Engaging them in relocation will not only aid the relocation issue, it will also turn them into ambassadors for the program while providing economical benefits for them to do so.

Our findings indicate that further research is necessary to confirm these trends with much larger sample size.

THE RESPONDENTS' SOLUTIONS

We also asked respondents to share with us their own ideas about how to solve the relocation problem. The solution recommended by the most respondents was simply to add more cars to the operator's fleet. Some mentioned closely monitoring demand and relocating cars during peak hours. Presumably, some respondents who preferred the Drop Off option commented that they should be allowed to book cars ahead of time. Other respondents suggested cars should be spread out more throughout the geographic area.

CONCLUDING REMARKS

Based on the input from industry experts and our survey, we don't have one solution that fits every market. People tend to value convenience over all else. But because of the various cultural motivators that vary from market to market, the different demographic setup, and the available software options, operators may need to modify how they incentivize members on a per-market basis. Or, they may want to offer a menu of incentives.

In terms of optimizing relocation, we do know that what is needed is a software tool that integrates the latest trends in big data analysis, artificial intelligence, and machine learning. With such a platform, operators will be able to better determine in detail where most rentals start and end. Operators will also be able to arrange the city into smaller areas that make sense from a traffic, parking, and time-of-day perspective.

Additionally, if there is a big weekend event in the downtown core, the operator should be able to block an entire area for redistribution. Once the parameters are set, the system would highlight areas that are in need of cars and neighborhoods that have too many, and then automatically send the relocation tasks to the relocation team.

Can you afford not to understand how to relocate your vehicles?

Contact info@movmi.net for insights into possible relocation strategies and subscribe to our blog to stay on top of industry trends.

Contact sales@ecomobix.com to obtain a demo of the latest car sharing platform.

ABOUT MOVMI

movmi is a global boutique agency specialized in Shared Mobility Design: we provide people additional options for their transportation needs: whether that's car sharing, bike sharing or ride-hailing.

We use our 8+ years of experience in shared mobility to help OEMs, dealerships, and startups translate their vision into a workable business model. Our recommendations are based off evidence and hands-on experience - not theory based. We offer clients market research services to validate ideas, offer financial models to estimate capital and operating costs and provide a complete operational playbook so that you can get your operations on the road fast.

ABOUT ECOSERVICE

Ecoservice provides mobile, in-field operation solutions to create the perfect car sharing and ride-hailing experience for both the end user and the operator.

Ecoservice offers EcoMobiX, an end-to-end mobility software solution for car sharing, ride-hailing, and autonomous vehicles. It is the ideal platform for forward-thinking dealerships, car rental operators, government fleets and OEMs. And, unlike our competitors, Ecomobix offers an open API app marketplace, as well as a choice of telematics, client booking system, and operations dashboard – in-built with the world's only intelligent mobility fleet optimization tool.

Since Ecoservice's inception in 2010, the company has integrated with several leading carshare companies across North America. Today, we support over 2,000 carshare cars in 5 North American cities - Seattle, Brooklyn, Portland, Berkeley, and Vancouver, BC.

ACKNOWLEDGEMENTS

4 **Concepts** to Help Solve the Relocation Problem

movmi

Ecoservice