

How to make more people ride bikes* in cities

A comparative short study of behavioral
economics in Berlin and San Diego



evenson



Preface

A revolution is beckoning. Decades of car-centrism and the internal combustion engine might come to an end, giving way to a more clean, sustainable, and inclusive form of mobility. To drive this change, activists and city planners alike are focusing on infrastructure and regulation. Some are also recruiting the transformative power of tech. We would like to draw attention to another, decisive factor of success: human choice.

The choice of people to do or stop doing something, such as taking a bike or using plastic bags, is possibly the most powerful agent of progress. Without it, infrastructure, regulation and technology fail to yield results: new bike lanes do not lead to more bike usage, tighter emission standards are circumvented, and on-demand transit apps do not attract demand.

For the revolution to happen, city planners, advocates and decision makers will have to give equal attention to the human side of progress. This short study explores what triggers the desired behaviors when it comes to urban mobility.



Dirk O Evenson, Managing Partner

evenson are consultants for the human side of progress: Via behavioral economics, we develop ideas to facilitate change and innovation, and we create concepts and projects to deliver lasting results.

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Methodology

Sample characteristics and size

This short study focuses on triggers, and the residents of each city that have changed their behavior only. (As a further study, identifying also the inhibitors of change would certainly be interesting.) The sample size for the survey was 50 participants for each city. Characteristics: Men and women between 16 and 65 years of age; resident either in Berlin or San Diego; using or have used light-vehicle mobility sharing before.

Survey method and quality assurance

We conducted a quantitative online survey in September 2018. To ensure a high scientific standard, we partnered with GIM (www.g-i-m.com/en), a market research institute with extensive experience in the mobility field and a member of the European Society for Opinion and Market Research (ESOMAR).

Control for outliers

We conducted the research in two cities – roughly equal in size and wealth, both in the western hemisphere, but different in most other relevant dimensions. This way, one city served as the control group of the other: If a survey item gets similar and significant responses in both cities, even though underlying factors are different (e.g., topography, availability of public transport), then those responses might be relevant beyond these two cities.

Terminology of the study

 Bike, e-bike

 E-kick-scooter

 E-scooter

Executive Summary

By comparing two cities from the perspective of behavioral economics, we identified the triggers that change mobility behavior independently of local conditions. We focused on light vehicles (bikes, along with e-scooters and e-kick-scooters) in urban mobility, and researched the “soft” (human) factors that make people change their mobility patterns.

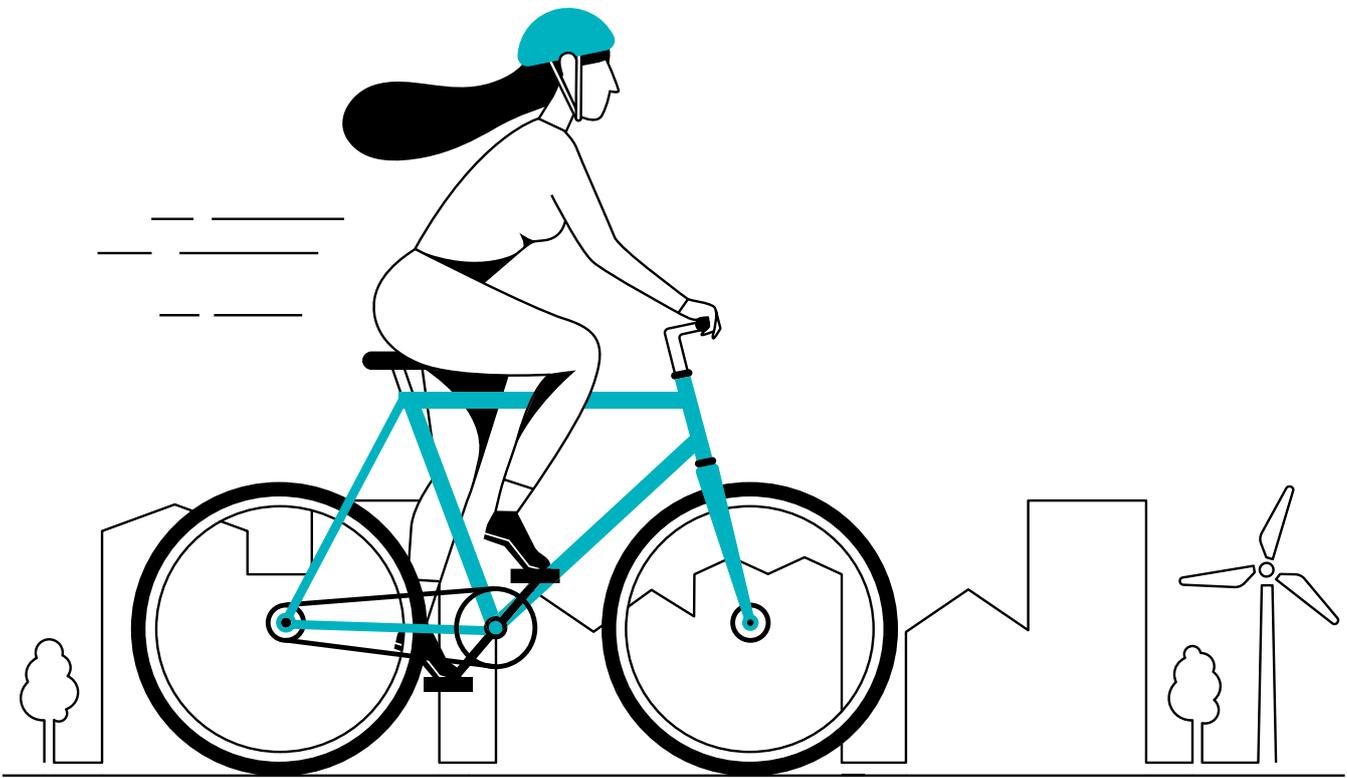
Our findings indicate that reasons for change in mobility behavior are largely the same:

1. Maximum visibility from the outset of a service that entices curiosity is key to people giving new offerings a try. (Mere occasional necessity ranked decidedly lower.)
2. Retention is mainly achieved by hassle-free, easy-to-use, convenient offerings. Fun is a decisive factor as well. (In contrast, core functions like price and speed seem to be only hygiene factors and not of the motivational sort.)

City planners, municipalities, and advocates across the globe promote active, sustainable mobility, epitomized by riding the bike. Their main instruments are usually infrastructure and regulation. While these are necessary, viable measures, they lack another key driving factor of success: In free societies, where citizens and consumers have a choice, it is ultimately their decisions – and their actions – that determine whether these efforts will yield results. All progress is determined by human action.

This short study has presented us with powerful triggers for the human side of progress. A broader study would enable us to explore further what influences people's actions, as well as help us understand what currently locks them into the status quo. We urge advocates and decision makers alike to apply behavioural economics in all stages of planning and execution of infrastructural and regulatory projects. They will be rewarded with a significant higher rate of success.

Introduction



Around the world, more and more people are moving to cities.¹ With few exceptions, the privately owned, internal combustion engine car remains the most dominant means of personal mobility in the West.^{2,3} As a consequence, growing population, growing cities, and increased traffic are challenges facing municipalities globally.

Investing in infrastructure and public transport are the obvious choices to tackle these challenges, as well as regulating traffic in an effort to ease the most congested places. After a post-war push for the expansion of public transport,⁴ dedicated bus (EU) or carpool lanes (US) followed in the 1980s. Car- and bike-sharing stations were introduced as alternatives to common modes of transportation.^{5,6} In the last decade, technological advancements have enabled further progress. Electrification offers the chance to ease local emissions – as well as to power previously non-motorized light vehicles. Digitization has enabled dockless sharing schemes that help abate the lock-in effects of privately owned cars.

Yet we also see underutilized public transport,⁷ bike lanes,⁸ and failing on-demand schemes,⁹ while streets are clogged with cars. Public investments in the western world fall under the scrutiny of the electorate and the media, and citizens complain about the millions spent for seemingly little results.¹⁰ The reasons for failing (or not-yet successful) projects are manifold, but they all make moving forward harder.

For this study, we focused on light vehicles (bikes, along with e-scooters and e-kick-scooters) in urban mobility, and researched the “soft” (human) factors that make people change their mobility patterns. The goal is to identify the sufficient conditions that complement the necessary steps like infrastructure towards creating sustainable mobility in cities.

Background

We live in one world, but every city is different. A comparative study of two cities affords the chance to gain insights tentatively applicable to more cities than just one.

Comparing Berlin and San Diego

Berlin and San Diego share the same political environment and size: Both are situated in liberal democracies in fairly rich countries. California, similar to Germany, has a history of strong environmental legislation. San Diego is the eighth largest city in the US¹¹ and Berlin is the eighth largest city in the EU.¹²

But that's where the similarities end. San Diego covers an area of 1,896km² and has a total urban population of 3,255,000; the resulting population density is 1,717 per km². With an area of 1,347km² and a total urban population of 4,120,000, Berlin is almost twice as densely populated, with 3,057 inhabitants per km².¹³

More importantly, Berlin has one of the lowest car ownership ratios of all German cities, a tightly knit 24/7 public transport system, two decades worth of experience with shared mobility and hardly deviates from the average elevation of around 34 m above sea level. San Diego, on the other hand, is a highly car-dependent city, still has a sclerotic public transport system (despite recent investments), has only been introduced to dockless shared mobility in 2018 and lies on approximately 200 deep canyons and hills separating its mesas.

Current legal framework

In 2018, the Berlin Mobility Act came into effect, which, amongst other measures, mandates the city to provide for a more convenient and safer biking environment.¹⁴ The San Diego regional bike plan of 2010¹⁵, the Bicycle Master Plan of 2013¹⁶ and the San Diego Forward Regional Plan of 2015¹⁷ predate that law. All three plans on paper call for more fundamental steps than the Berlin Mobility Act, albeit San Diego has a much lower rider base.

In Berlin, attempts by biking initiatives to also include marketing campaigns and educational programs were neither heard nor integrated. So far, neither of the plans of San Diego or Berlin call for research into the behavioral economics of urban mobility. Thus, any such plan – implemented or not – will not be based on behavioral insights, but on assumptions.

However, as per law and plan, both cities intend to incorporate extensive community input – San Diego has just finished the first round regarding the 2019 Regional Plan Transportation Network Concepts¹⁸ – as well as subsequent communication campaigns. These are procedures to democratically legitimize measures – less so to ensure maximum effectiveness.

Assumptions invite bias – and poor results

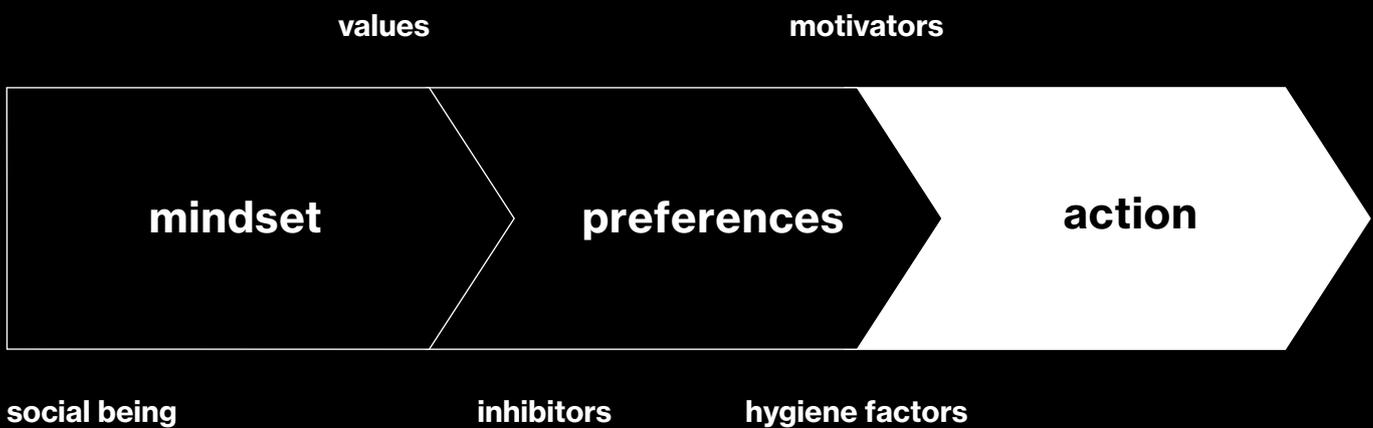
When it comes to mobility policy, research in behavioral economics – and application of the findings – still lack the scientific rigor applied to urban planning and transport economics. Often, better mobility is seen as a function of the right mix of density, road and other networks, and managing access through timetables, pricing and congestion charges.

City planners, municipalities, and advocates, like all humans, are prone to bias: namely, the propensity to project our own view of the world onto others – at least onto those that we believe to share our mindset.¹⁹ This results in the second assumption that people's mindsets directly define how people act and vice versa.²⁰ “You support clean air? Then, of course, you will use the bike more, once we’ve built the network.” We all know that vastly more people will agree to the first than follow up with the latter.

A more nuanced approach recognizes that individual preferences, stated or otherwise, determine what people do, and that these preferences might be influenced by a myriad of other factors, all of which either further or hinder the desired action – and therefore success.

We all have experienced large gaps between the stated preference and the actions of people. Yet when it comes to mobility policy, two assumptions reign: a) that people share (or at least should share) the beliefs that inform policy, and b) that consequently, these beliefs follow actions once the physical hurdle (i.e., lack of bike lanes) is lifted.

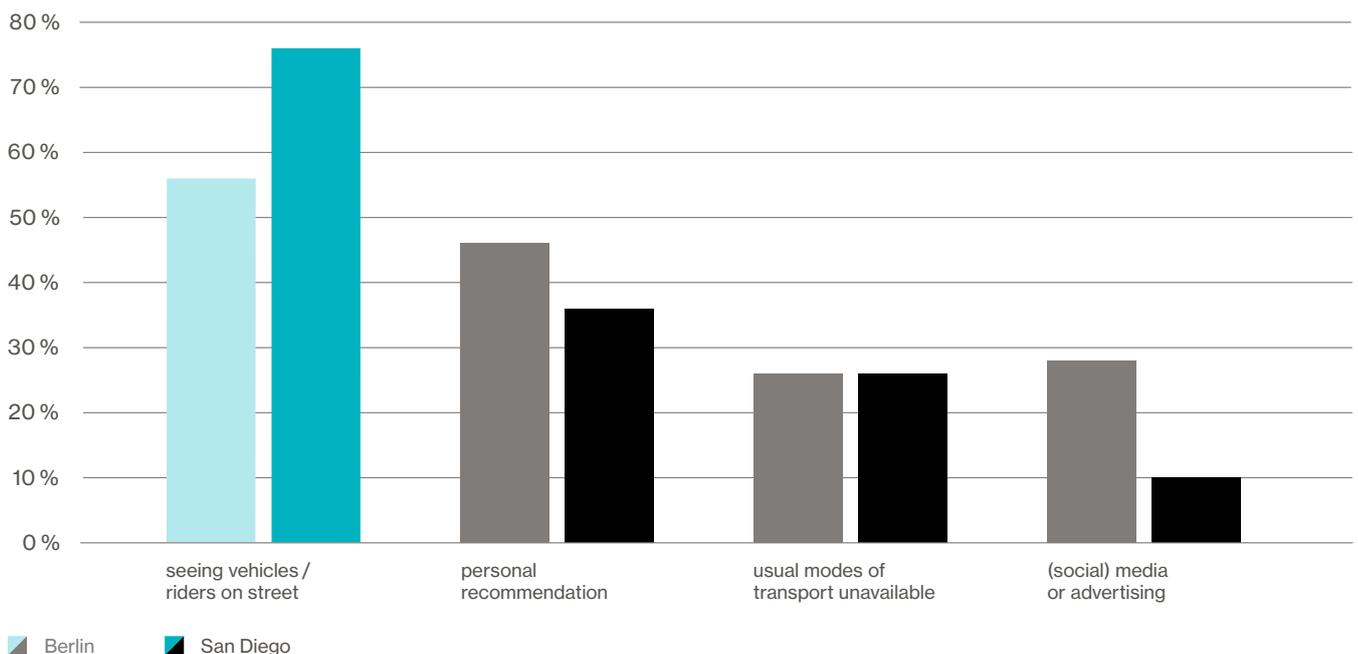
Neuroscience and behavioral economics show us that it is not that simple. In order to nudge²¹ people to do something (in itself a concept that skirts ethical debate), you have to know the inhibitors, hygiene factors,²² and motivators of your target group. This survey attempts to shine light on motivators as guidance for choice architecture.



Findings

Who would have thought? You can have fun in city traffic. Our findings about what truly drives change in mobility.

Start big: critical mass and maximum visibility



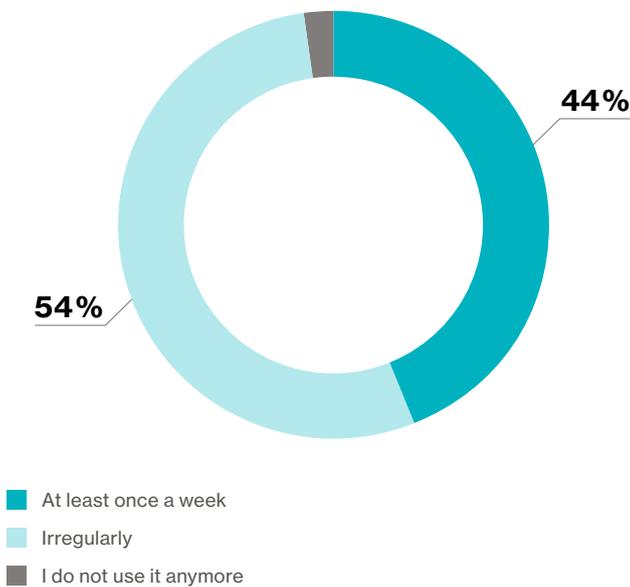
“What made you try shared light-vehicles for the first time?”, multiple-choice.

Source: evenson

When asked what made people use light-vehicle sharing for the first time, the top two reasons given were recommendations by friends, families or colleagues, and seeing vehicles of new services – and their riders – in the streets. This also means, people did not start to use light-vehicle sharing out of necessity, e.g., because the usual modes of transport were not available. The main driver was curiosity. Media – social or otherwise – also played a minor role.

There is a point to be made about starting big: New offers seem to need a critical mass to create enough visibility and recommendations. Small test runs might not yield tangible results. People are attracted to trying what is new.

Once you are in – you are in

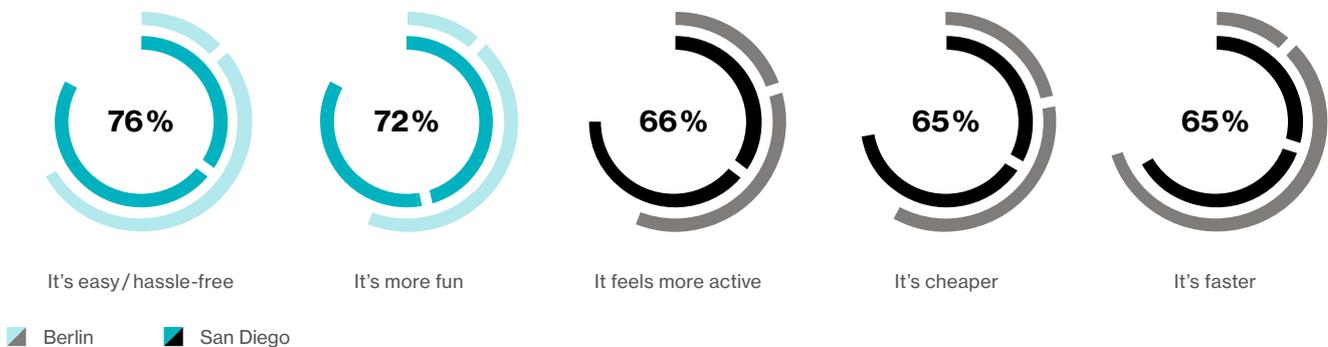


"How often do you use light-vehicle mobility sharing on average?", results identical in both cities. Source: evenson

Curiosity is not a long-lasting attractor, and novelty wears off, as many start-ups can attest to. E-kick-scooters such as those offered by Bird, which are new in San Diego and are, as of this study, still not permitted on Berlin streets, gained the largest popularity of all surveyed modes of transport in San Diego. A full 74% of those interviewed had tried e-kick-scooters. This shows that new formats have an effect and could be a key in achieving change. Light-vehicle sharing is still a new trend especially with regards to electronic propulsion. From all the people interviewed, just 2% stated that they had stopped using this form of transport. In both cities, 44% are still using light-vehicle sharing at least once a week and 54% are using it irregularly.

Given the vastly different maturity of the two shared, dockless light-vehicles markets (San Diego less than a year, Berlin almost two decades), plus all the other differences in the mobility landscape of the two cities, these identical results regarding retention are truly remarkable. It is an indicator of long-term acceptance of light-vehicle sharing being independent from market maturity.

Keep it simple and fun



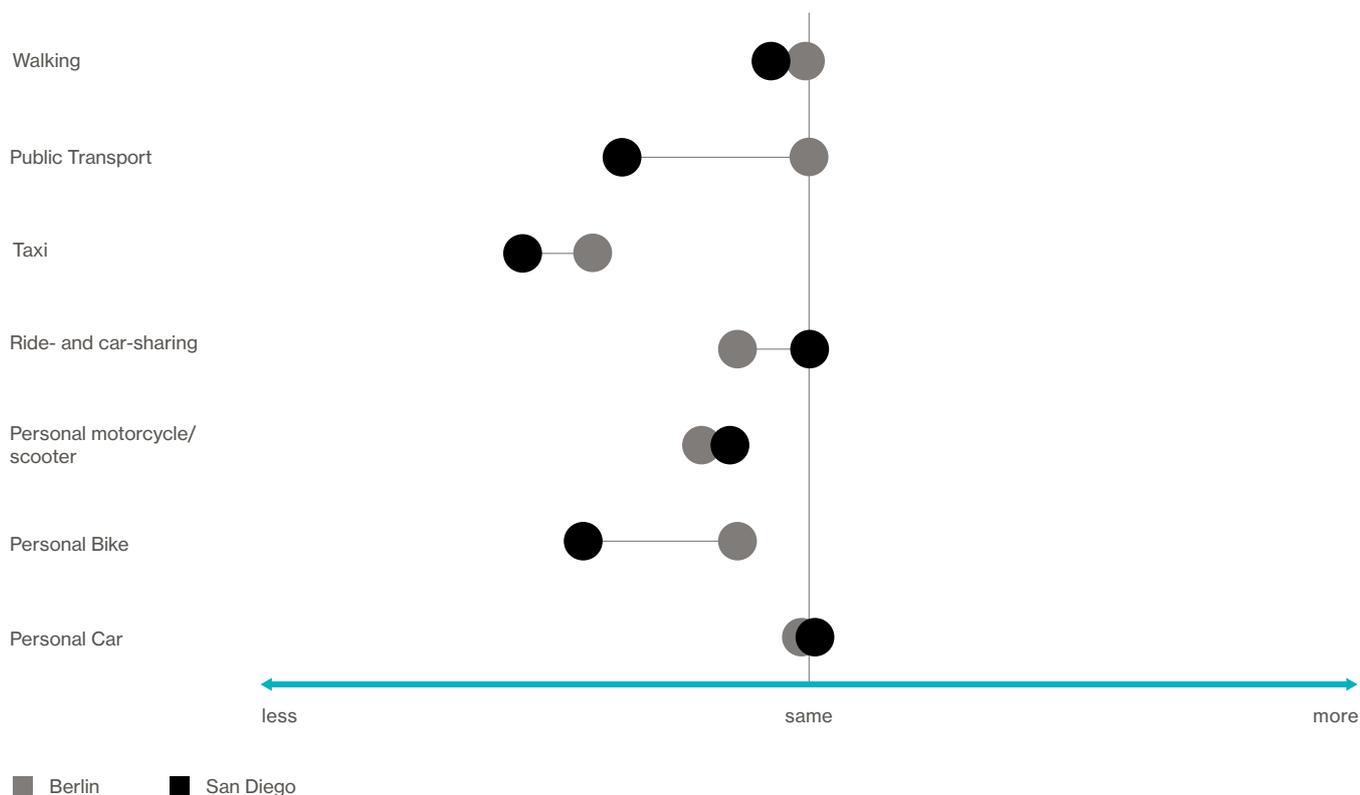
"What do you personally like about using light-vehicle sharing compared to other modes of mobility?", Top 2 Box score, percentage pertains to the average of both cities. Source: evenson

We wanted to know what makes people stay with shared services – what is the glue? Only with prolonged usage could we speak of a change in everyday transportation habit. Our survey indicates that overall in both cities the hassle-free characteristic of light-vehicle sharing is the main driving factor of changes in behavior in the long run. Low entry barriers and the simplicity of usage led to retention. Another, very human reason for people sticking with light-vehicle sharing is that they definitely have more fun

than with other modes of transports. When was the last time you heard that someone had fun in city traffic?

The more rational factors – speed and costs – play a significant role as well, but seem to entice less enthusiasm. It could be that these are more hygiene factors: By themselves, they do not give satisfaction, but their absence would lead to dissatisfaction.

Change starts small



"Since using light-vehicle mobility sharing, you have used the following modes of transport ...", 5-point Likert scale.

Source: evenson

The use of light-vehicle sharing does not lead to an increase of use in any other mode of transport – but to a significant decrease in some. Part of that change is welcome from an environmental standpoint – namely the use of taxis in both cities – some less so. – e.g., the decrease in use of public transport in San Diego.

Getting out of taxis and onto smaller, electric vehicles has an immediate effect on the environment and the space needed to get a person from A to B. The impact on both cities can be seen to be similarly significant, even though ride-hailing services like Lyft or Uber are banned in Berlin. While these certainly have had an impact on the taxi trade in the US, light-vehicle sharing is having an impact as well.

The negative impact on public transport in San Diego – 46% of respondents report using it less often – is certainly worth a deeper look, especially since there has been no impact on Berlin public transport. Advocates of light-vehicle sharing argue that their service can make up for the lack of feeder traffic and help to bring people to subways and trolleys – but the opposite seems to be the case in San Diego.

One possible explanation is that a service that lacks frequency and feeder traffic gets more exposed when on-demand, individual options become available. A strong service offer, on the other hand, remains unaffected. Further research could verify or disprove this thesis.

Overall, even within our limited research of people using light-vehicle sharing, the use of the private car remains unaffected in both cities. This could point to different modes of transport serving different needs of mobility, with those serviced by the personal car and those by light vehicles simply not overlapping.

Outlook

The study has shown, above all else, that human choice is a decisive factor in changes to mobility. It is the sufficient condition to the necessary conditions of infrastructure, technology, and regulation. Given the incomplete network of bike lanes in San Diego or the sometimes adverse regulation in Berlin, people's preferences and choices occasionally even circumvent these inefficiencies.

In our survey, participants attributed their change in mobility behavior to the introduction of shared services, to the electrification of light vehicles, as well as to improved infrastructure in equal measure.

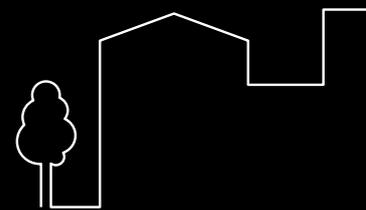
Cities have felt overrun with tech companies – initially with a brash and unapologetic move-fast-and-break-things attitude, lately being more cooperative. Since then, municipalities have moved from hesitant compliance to aggressively pushing back. That puts them in danger of rejecting the favorable along with the seemingly unfavorable: Electrified and shared micro-mobility, preferably embedded in the public transport infrastructure, helps change mobility behavior.

Bike lanes might now also be used by e-kick-scooters, but the ultimate goal is for car lanes to be less frequented and alternatives to flourish. Current disruption in the taxi business, with sometimes heart-wrenching consequences, might nonetheless be a result of an unholy alliance breaking apart: The compulsory protection (and regulation) of one business in exchange for astronomical entry fees.

Instead of outlawing (or, via prohibitive fees, driving away) new players, cities should look closely at what these new players are doing right, and set a framework within which they can work with these new players to achieve the desired results. It took private companies to show that dockless sharing achieves superior adoption rates compared to docked offers; it took start-ups to come up with on-demand transit. But it was cities that already long ago formed transport associations and forged integrated services and unified ticketing.

The majority of people are in favor of more sustainable, more inclusive mobility, and more liveable cities.²³ Yet most still take the car. Only when cities and companies take the human side of progress into account, and apply creative ideas and an evidence-based approach, will the majority of people do what they already want.

We advocate further research, including all major modes of transport, to identify all triggers and inhibitors of human choices. These findings will serve to create concepts and projects to effectively further active and sustainable urban mobility. It should also control for socio-economic factors.



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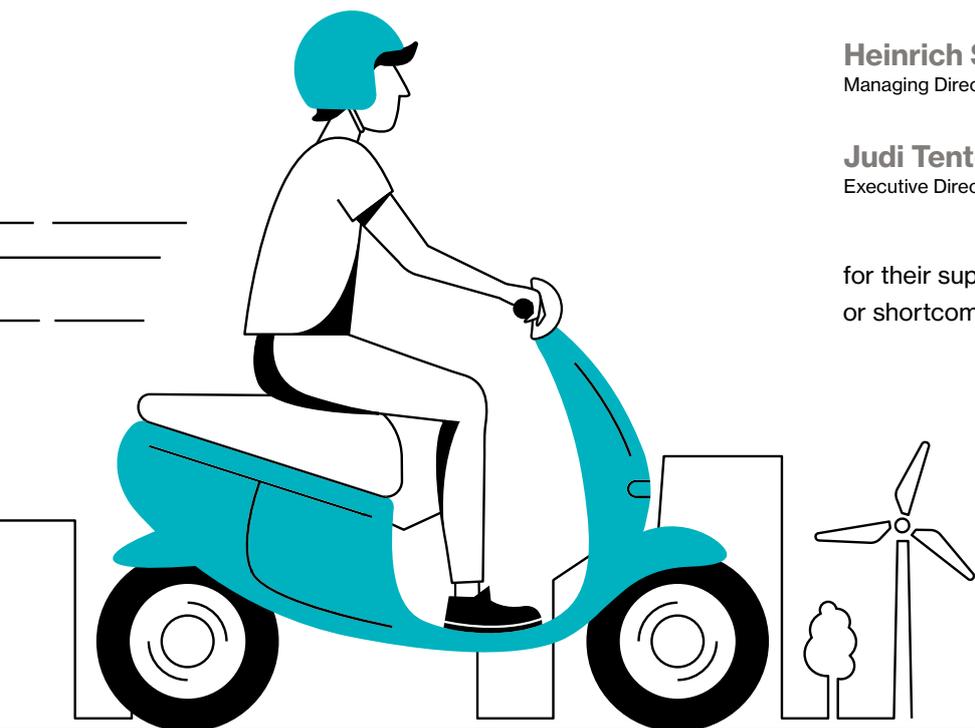
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