

Encourage sustainable transportation in singapore tourism essay

[Sport & Tourism](#)



**ASSIGN
BUSTER**

header-logo. gif

School of Property, Construction and Project Management

BUIL 1222

Research Project

Group 30JKYAW WAIYAN HTET : S3321584LIOW SIA ING: S3320107TAN WAN

CHIN: S3320202TEO LI YI ALISON: S3320224WONGCHEE WEI JARVIE:

S3320242

Supervisor

Mr John Garimort

Course Co ordinator

Dr Usha Iyer-Raniga

BUIL 1222 Research Project: Authorship Statement

We confirm that this report represents our own work entirely, except for those parts where the published work of others is specifically acknowledged.

We further acknowledge that copyright in this report shall reside with RMIT

University. Student Name: KYAW WAIYAN HTETStudent Number:

S3321584Student Name: LIOW SIA INGStudent Number: S3320107Student

Name: TAN WAN CHINStudent Number: S3320202Student Name: TEO LI YI

ALISONStudent Number: S3320224Student Name: WONG CHEE WEI

JARVIEStudent Number: S3320242

Acknowledgements

The project team would like to thankTable of Contents

INTRODUCTION

Discussion of how unsustainable car usage in Singapore.

We have an increase of population and people will have different needs to have successful healthy and happy lives. For example, a family staying with their aged parents may regard a car as a necessity to ferry his aged parents to their medical appointment. The majority of mode of transportation used by most of people is car. Car however has led to a series of problems including air pollution, congestion and growing greenhouse gas emission because a running car's engine produces large amount of carbon dioxide being emitted into the atmosphere every day. As such, we need to start as a group of community thinking about more sustainable form of transport in Singapore. One potential alternative to removing cars on the road is through car-sharing scheme. This research will focuses on the opportunities to present to Singapore through this car sharing scheme in our transportations. This is the more sustainable option in the long-run. In 2012, there we more than 520, 000 private cars registered in Singapore. The motor vehicle population in Singapore which include private and company cars, rental cars, taxis, buses, motorcycles, goods and other vehicles were increased by 1.45% from 951, 307 in 2011 to 965, 192 in 2012 (Singapore Police Force, 2013). Such a large number of private cars reduce the efficiency of the transport system by taking up road space that is needed by public transport and commercial vehicles. In order for Singapore to reduce vehicle population growth rate, increasing the Car of Entitlement (COE) prices for cars. Higher COE prices are driving people to look for cheaper and more flexible options and therefore, push people towards using public transport, or opt for car-

sharing. However, as the population grows, the numbers of cars on Singapore growth will continue to grow.

1. 1. 1 The need of Singapore transportation become more sustainable

In Singapore, despite there are a lot cars on the road, we need to decrease cars on the road to make the transport more sustainable, one potential ways by doing this is through car-sharing scheme. Singapore is a small island city-state country whereby we cannot afford to ignore the effects that transport that has on health and the environment. The environment is our priority and Singapore needs to keep the environment as pristine as possible. Our economy depends on an efficient transport system to delivery smoothly a flow of goods and personnel to where they are needed. Our limited supply of land also means that we have to allocate resources to transport system very carefully. Hence, it's important to adopt a greener form of transport.

Nevertheless, we understand that no matter how efficient Singapore public transport system are, can never fully meet every mobility need. Despite of an excellent MRT system and efficient taxi system, alternatives are required to allow for Singaporean to make different choices about going around on the island. Car-sharing scheme is such a choice for such opportunities to remove cars on the road while still allowing people to get around as they need to.

1. 1. 2Car-sharing scheme promote sustainable transportation in Singapore

Car-sharing is a pay-as-you-drive transportation service introduced in many modern cities to build a sustainable urban transportation strategy and

<https://assignbuster.com/encourage-sustainable-transportation-in-singapore-tourism-essay/>

environment-friendly urban community. This amazing green business idea works because people save money, and lose the hassles of ownership, yet still able to access to a car when they need one. Car-sharing allows individual to gain the benefits of using a private car without the costs of responsibility of owning a car. The benefits of car-sharing can include - more careful consideration of the necessity, duration, and distance of automobile trips, resulting in decreased vehicle use and ownership, and reduced parking demand. Besides, car-sharing will be greater consideration given to alternative mode, resulting in increase of MRT passengers. Car-sharing also provide cost saving to individual and employers, energy savings and air quality benefits as well as Despite to its many potential benefits, car-sharing is gaining in popularity as demonstrated by increasing North American membership. There are about 300 car-sharing vehicles located in over 100 locations in Singapore. LTA is working closely with HDB and car-sharing operators to provide more locations across the island to make it more convenient for users to access a car-sharing service in the near future. In Singapore, currently have 2 car-sharing service providers: Car Club (www.carclub.com.sg) and Whizzcar (www.whizzcar.com).

Research Question

Our research will focus on the primary and secondary question in view of the solution to road congestion, pollution and other environmental and resource consequences of automobile dependence through car-sharing.

Primary Research Question

Our research question is what are the benefits and opportunities for using car-sharing scheme to make Singapore transports system become more sustainable.

Secondary Research Questions

The scopes that this research is focusing on: What is car-sharing scheme and how does Car-sharing works; What are the Benefits of car-sharing scheme; Who benefits from car-sharing scheme; Analysis of Car-sharing scheme in other countries;

LITERATURE REVIEW

Definition and explanation of car-sharing scheme

Car sharing is a revolution in personal transportation - urban mobility for the 21st century. Carsharing is designed to replace car ownership for people who do not need to drive to work every day, and to significantly reduce congestion and greenhouse gas emissions. Carsharing is a service that provides 24/7 self-serve access to a network of vehicles stationed around your city (and increasingly, cities world-wide), which can be reserved by the hour or day via smart phones, Internet and call centres (Carsharing, 2013). Automobile, despite its numerous benefits, is largely responsible for many of the environmental and social problems in the world today (Katzev, 2003), which Singapore is one of such countries. The dependence on automobile has contributed traffic congestion and pollution to the air of Singapore. Therefore, in order to reduce traffic congestion and reduce the environmental impact contributed by automobile in Singapore, numerous

efforts have been made by the government to reduce vehicle population growth rate by increasing the Car of Entitlement (COE) prices for cars or reducing the quota for COE. Car-sharing is first introduced in Singapore by NTUC Income in 1997 since the rise of COE prices and over the years, the interest in car-sharing has risen as car-sharing is the ticket for drivers who cannot afford or do not want to own a car (The Strait Times, 2012). Differ from car-pooling, car-sharing is a process whereby people share or rent a car without having to bear the responsibilities of car ownership and costs. Whereas in car-pooling, it is a group of individuals taking the same car together to get to a common destination at the same time. In car-sharing scheme, the car-sharing companies pay all of the costs of vehicle maintenance, service, and repairs. This includes insurance coverage, parking, and the cost of fuel (Katzev, 2003). Also differ from conventional car rentals, car-sharing companies operate by placing cars near to member's home or office when the needs to use the cars arise. (Martin & Shaheen 2011). The pay-as-you-drive or pay-per-use transportation service which provided by the car sharing companies offer drivers another alternative and freedom of using the car. Drivers get to enjoy the benefits of a car without having to own one for a short period of time based on their travelling needs, such as hourly or daily basis. The drivers are also allowed to choose the types of cars according to their needs. This scheme is introduced in many modern cities to build a sustainable and environment-friendly urban community (Land Transport Authority, 2013). A research done in the North America shows that one shared vehicle can take 6 to 33 privately owned vehicles off the road. This is made possible by reducing the number of

private vehicle required to complete non-work trips (Green Business Times, 2013). Hence, car-sharing reduced congestion on the road as it reduces car ownership and people dependency on privately owned vehicles. Car-sharing also has environmental impact to the environment. According to the article stated in Green Business Times (2013), ' vehicle miles traveled by members dropped by 67%, yet they were able to maintain mobility and convenience of transportation while getting access to a wider variety of cars. The drop in vehicle miles traveled will have a huge environmental impact that results in a decrease in greenhouse gas emissions from 39% to 64%'. Since its inception, car-sharing has grown rapidly and it has become more common worldwide, especially in Europe and North America (Shaheen, Sperling & Wagner 1999). Car-sharing membership has increased by 360% worldwide between 2006 and 2010 (Carsharing, 2013) and as of January 2011, North American car-sharing companies served almost 604, 000 members with about 10, 000 vehicles. (Martin & Shaheen 2011).

How car-sharing works

HOW CAR SHARING WORKS ALISON

<http://www.carsharing.org.sg/how-cs-works.html>

news1.png

Benefits of car-sharing

Some of the major social benefits of car-sharing are such as lower emissions, ease traffic congestion, convenience and cost savings for individuals and businesses, better utilization of land and energy resources and reduce the demand for car park spaces.

<https://assignbuster.com/encourage-sustainable-transportation-in-singapore-tourism-essay/>

Less pollution to the environment

Motor vehicles are a major source of air pollution (National Environment Agency, 2013). The combustion process of fuel in motor engines emit Carbon Monoxide (CO) will not only pollute the air quality, it also harm the human body through respiration (Sing Health 2013). Other than carbon monoxide, greenhouse gases such as carbon dioxide, nitrous oxide, methane and chlorofluorocarbons (CFCs) are also released from the combustion process of fuel in motor engines. These gases caused greenhouse effects to the Earth which the temperature will increase and trap the radiated heat from escaping out (Nutramed, 2011). With fewer vehicles on the road through car sharing, the level to Carbon Monoxide (CO) will eventually be reduced, thus causing lesser carbon monoxide emitted to the environment. Noise pollution is also a consent issue to the environment. With more motor vehicles on the road, the noises created from the engine revolutions can be a nuisance to the environment. Especially during traffic congestion, the noise level can be high and it may disrupt the concentration of one's mind.

Less traffic congestions

http://driving-in-singapore.spf.gov.sg/services/driving_in_singapore/images/information/traffic_statistics/fatality.jpg

Table 2. 1 : Fatal and Injury Accident Rate Per 10, 000 Vehicle

Population(Singapore Police Force, 2013)

Car-sharing helps to tame traffic

because it reduces solo driving (Wang, 2011). According to the graph,

Singapore has an increasing figure in vehicle population by 1. 45% from 951, 307 in 2011 to 965, 192 in 2012 (Singapore Police Force, 2013). This is a

great number for Singapore as our country is limited in land area and the

<https://assignbuster.com/encourage-sustainable-transportation-in-singapore-tourism-essay/>

increasing vehicle population creates more traffic congestions. Due to the increasing numbers of motor vehicles on the road, the danger faced by the road users, especially motorcyclists are still an issue. Despite last year's drop in the fatal and injury accidents, there are still a significant number of deaths on our roads. The increase in the number of traffic violations remains a concern as every traffic violation can potentially result in a fatal or injury accident and the loss of lives (Singapore Police Force, 2013). As an alternative measure of reducing the amount of vehicle population, car sharing can provide road users with a choice. Some of Singapore car sharing companies such as CarClub provides to their customers a wide variety of motor vehicles to choose from to cater for different kind of occasions (CarClub, 2013). Because the drivers of the car sharing scheme are charged accordingly to the amount of mileage logged, therefore drivers would plan their trip carefully in order to make unnecessary drive trips. The implementation of car sharing can also reduce the amount of motor vehicles on the road if 5 people sharing a car to the common destination rather than driving on personal motor vehicles.

Reducing the cost of traveling to destination

Traveling to a destination by private vehicles can be costly. With Singapore implemented ERP (Electronic Road Pricing), It will be expensive to travel to CBD area during peak hours by personal vehicles. In addition, the cost of parking in business towers in CBD area can be costly too. The cost of owning a private car can be a burden in Singapore. As the price of Certificate of Entitlement (COE) is hiking, a measure by the Singapore Government in order to maintain or reduce the amount of motor vehicles on the road, which

<https://assignbuster.com/encourage-sustainable-transportation-in-singapore-tourism-essay/>

can be costly. According to report, a price of a Cherry QQ in Singapore with COE can match up for a Porsche Boxster Black Edition in the US (AsiaOne, 2012); this shows how the soaring COE price has turned the ownership of motor vehicle as a huge expenditure. As car sharing scheme in Singapore, drivers can save amount money on the cost of owning a private motor vehicles including maintenance fees, annual road taxes and motor vehicle insurance payable. Car sharing not only offers to non-car owners the driving experience; it has also offers a much cheaper alternative to travel to their destination that in private motor vehicles. Car sharing has also provided Singapore a much cheaper alternative to travel than by taxi. Traveling by mode of taxi can be expensive. The rates and surcharges can add up to a high cost. Surcharges such as peak hour charges, midnight charges and location charges are included in different timing and location. Some of car sharing companies in Singapore such as CarClub provides to their customers with different price plans. CarClub comes with value plan and standard plan to cater to every customer's needs. Value plan is cater for more for regular drivers whereas standard plan is cater more occasional drivers (CarClub, 2013). With different available price plans, drivers can choose the most appropriate plans to suit their driving frequency and save money. With the recently tightening measure by the Singapore government, it has become more difficult for low and middle income group to purchase a private motor vehicle as buyers have to foot a down payment of 40 per cent or more for a new vehicle and have a maximum of five years to service their car loans (ChannelNewsAsia, 2013). Therefore, car sharing can be a more afford to the market for low and middle income groups.

Better connection

Car sharing has provided users a better connection between different modes of transports, making it easier for the public to connect major transport nodes and therefore reducing the need to drive to their destination. Car sharing can provide better access to place where has limited access. For example, HDB residential area where the distance to the nearest public transport node is far away, it may be difficult for elderly or disabled people to travel. CarClub has offered their customers with over 60 HDB car parks around Singapore to pick up the vehicles and available on 24/7 which provides ease and convenience (CarClub, 2013).

Who benefits from car-sharing

Anyone who needs car occasionally may benefit from car-sharing.

2. 3. 1Environment

2. 3. 1. 1Creation a Potential for Better Quality of Life and Urban FormCar-sharing has proved its potential to reduce the negative impacts of social and environment. Monitoring of air quality takes place at stations around Singapore, and plays an important role in keeping the population up to date on haze conditions (National Environment Agency, 2013). Air emissions from the industries and motor vehicles are the two key sources of air pollution domestically (National Environment Agency, 2013). Each car-sharing vehicle can replace 4 privately owned vehicles (CarClub, 2013). Thus, car-sharing reduces the numbers of cars on the road; fewer cars equal fewer emissions of greenhouse gases. This means less pollution; decrease congestion on the road as well as reducing the amount of space used for parking and helps to

regain space for environmental and other social uses. 2. 3. 1. 2Reduction of CO₂ Burden of TransportCar-sharing is a pay-as-you-drive transportation service introduced to build a sustainable and environmentally-friendly urban community. This service provides an incentive for people to use car less and instead use public transport, a bike or walk. People have a greater variety of transport options available to them as when deciding the best way to reach their destination. Commuting by public transportation reduces your carbon emissions by 20 lbs per day, 4, 800 lbs per year, which is more than if you weatherized your home, converted to fluorescent bulbs and replaced an old refrigerator, combined (PromotingPublic Transport, 2013). 2. 3. 1.

3Reduction of Energy ConsumptionAn environmentally friendly car-sharing operator provides a wide range of vehicles to choose. They can choose different types of vehicles to fit their needs. Example, a small city car is usually most energy-efficient and less pollution; an estate cars are likely to be necessary for family trips; and a van may required for group travel. Users choose the vehicle type that best meets their needs for a particular trip. This benefits consumers, and may provide external benefits by reducing the use of oversized vehicles when smaller vehicles are adequate (Litman, 1999).

2. 3. 2Society

Car-sharing helps make communities more alive, attractive, safe, and less dependent on the private automobile, and contribute to a range of transportation, housing, economic development and social justice goals (City Car Share, 2013). 2. 3. 2. 1Save Money and Go GreenCar-sharing is an ideal for people who only need a car occasionally and or when the need arises. By car-sharing scheme, people still can access to a private car without having

<https://assignbuster.com/encourage-sustainable-transportation-in-singapore-tourism-essay/>

responsibilities of ownership such as obtain a Certificate of Entitlement (COE), car insurance premium, car maintenance and repair costs, monthly installment, season car parking charges and road tax. In Singapore, 87% of members in NTUC's car-sharing co-op average only 2,000km in distance driven each year, which is much less than average mileage of the average private car owner (Singapore Environmental Vision, 2013). Car sharing saves you money, it's greener, more affordable, and less stressful than driving and paying for a car you don't even need anymore (Cereplast, 2013).

2.3.2. Provide Mobility

Car-sharing provides access to a vehicle for low-income households and others without a car, helping them to fully participate in the region's opportunities (CityCarShare, 2013). Low-income households may not be able to afford the expenses as a car ownership, thus public transport maybe their only option. Car-sharing can provide access for job interviews, serve as an " emergency ride home", and meet the demand for occasional shopping and leisure trips (CityCarShare, 2013). With car-sharing scheme, they are now financially possible to join, in turn improving mobility by providing access to a vehicle.

2.3.2.3. Improves Commuting Options

Car-sharing offers a commuter option that may work better than other methods of transportation. With a car-sharing option, a public commuter is empowered to decide the best way to reach his or her destination, i. e. by bus, MRT, taxi or to drive a car (CSAS, 2013). Currently, there are about 300 car-sharing vehicles located in over 100 locations in Singapore (Land Transport Authority, 2013). It is very convenient for users to access a car-sharing. Also, car-sharing provides the flexibility and convenience of a car when driving is a better choice compared to the buses, MRT or taxis.

2. 3. 3Government

Transport issues affect the average Singaporean in a very intimate manner. There's been a sharp increase in public transport ridership over the past few years, with many people feeling the strain of no longer being able to afford the costs of car ownership (iCarsclub, 2013). With implementing car-sharing scheme, it will be the next solution to solve the transportation issues.

2. 3. 3. 1Reduce Road Congestion, Air Pollution and Demand for Parking

The only way to reduce road congestion is either construct a new expressway or reduce the car on the road. By reducing the number of privately owned cars, the potential for car-sharing to help ease congestion on the roads is considerable (Singapore Environmental Vision, 2013). Car-sharing scheme promotes having members share the use of a communal fleet of cars, which indirectly reduced car on the road. By reducing the numbers of cars on the road, traffic congestion problem will significantly trim down and consequently improve traffic flow during peak travel hours. This means CO₂ emissions which polluting the air is reduced and the demand for parking slot will also lessen.

Analysis of car-sharing in Europe and North America

Car-sharing in Europe was initiated in Zurich, Switzerland, 1948. It was for the purpose of sharing for the individuals who could not afford to buy cars. But it was not successful until 1980s. Current European Car-sharing Organizations (CSOs) exist in Denmark, England, France, Ireland, Italy, Norway, Scotland, and Sweden. Approximately 200 CSOs are active in 350 cities throughout Switzerland, Austria, the Netherlands, and Germany. The four most active car-sharing countries in Europe collectively claim over 100,

<https://assignbuster.com/encourage-sustainable-transportation-in-singapore-tourism-essay/>

000 participants. In 1991, Europe Car-sharing (ECS) association was established to support car-sharing operators. In 1993, a few smart shared-use vehicle tests have already been implemented in Europe, in which a computer releases a key and starts billing. In 1997, electric vehicles are introduced in France and there are thousands of system users recorded. In 2000, all the car-sharing operators have installed GPS and navigation systems, contactless smartcard technologies, and a central computer to manage the system (Susan Shaheen, Daniel Sperling, and Conrad Wagner, 2007). carsharinggrowth19982010. jpgTable 2. 2 (Carsharing. net, 2013)Car-sharing has become popular in more than 20 major regions throughout the US and Canada. Car-sharing was initiated in North America in 1994. North America's car-sharing evolution can be classified into three main phases: initial market entry and experimentation (1994 to mid-2002); growth and market diversification (mid-2002 to late-2007); and commercial mainstreaming (late-2007 to present). During phase 1, the operators were learning how to run a neighborhood car-sharing service, lower operational costs, and understand how to best structure rates to attract customers. This phase ended in June 2002, prior to the launch of a targeted strategy aimed at U. S. businesses by a bi-coastal American car-sharing operator. By the end of Phase Two, there were 18 operators in the U. S. and 13 in Canada, which operated a collective fleet of 5, 883 vehicles and served approximately 200, 000 members (Shaheen, North American car-sharing, 2008). The second phase reflects gaining more membership, market diversification, capital investment, technology developments, greater insurance availability, supportive and unsupportive policy developments, and multi-national

expansion. From 2005, car-sharing operators gained more membership because of rising fuel prices. This phase ends just prior to the Flexcar and Zipcar merger in October 2007 (Shaheen, North American car-sharing, 2008). In third phase, 2008, the North American car-sharing market had grown to 33 operators with 318, 838 members and 7, 505 vehicles totally. Car-sharing is going to be used more than private vehicles as a sustainable transportation alternative due to rising fuel prices, smart growth initiatives, and climate change concerns (Shaheen, North American car-sharing, 2008). As of September 2012, Zipcar is the largest service in the world with 730, 000 members and offering 11, 000 vehicles in urban areas and over 300 college campuses throughout the United States, Canada, the United Kingdom, Spain and Austria (Elliot Martin and Susan Shaheen, 2011).

Summary

The vehicle population in Singapore has increased by 1. 45% from 951, 307 in 2011 to 965, 192 in 2012 (Singapore Police Force, 2013). The increase in vehicle has caused the environment to be polluted and the road in Singapore to be congested. Therefore, to reduce these problems, Singapore government has made numerous efforts to reduce vehicle population growth rate by increasing the COE prices for cars and reducing the quota for COE. The idea of car-sharing is first introduced in Singapore in 1997 since the rise of COE prices and over the years, the interest in car-sharing in has raised as car-sharing is the ticket for drivers who cannot afford or do not want to own a car. Since its inception, car-sharing has grown rapidly become more common worldwide and it has proved its potential to reduce the negative

impacts of social and environment in countries such as Europe and North America.