

D) Influencing Travel Choices

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1. Introduction

Travel is complex in the modern world, especially in cities. There are a large number of ways of getting around: cars and taxis and auto-rickshaws; bicycles, motor scooters and motorcycles; buses, trains, light-rail and ferries; and of course on foot. These are just the more common modes of transport; many others are variants of or additional to these.

Travellers tend to pick one or a few modes of transport and stick with them. They get to know the ins and outs of these modes: the routes they can travel, how long trips take, how much they cost, how frequently they operate, and so on. They will routinely take the same modes of transport each time they go to work, or to school, or to the shops.

The trouble is, as this guidebook outlines, the transport modes people habitually take may not be the best ones for the environment (especially in the face of the global warming threat), for society, the economy or even to meet their own needs for cheap and fast travel. Governments and national leaders therefore need to ask how travellers can be assisted and persuaded to switch to the most appropriate mode for each trip. Of particular interest in the context of this guidebook is the question of how to encourage people to use sustainable, low carbon transport modes, in particular, mass transit, cycling and walking. This section, 'Influencing travel choices', seeks to address this question, specifically by focusing on:

- information provision, especially about the routes, timetables and costs of mass transit services, and about cycling routes
- behaviour change programs, which employ a range of methods to encourage and assist people to use more sustainable low carbon transport
- integrated ticketing for different modes of mass transit, which make multi-modal travel easier.

Modern information provision systems, behaviour change programs and integrated ticketing have, to date, been applied more in developed countries than in the developing ones. This is in part because the problem of car dependence is much worse in developed countries, leading to far greater greenhouse gas emissions per traveller, and concerted efforts are required to encourage the switch to other modes. But with rapid economic growth in many developing countries, the increase in car and other private vehicle use is dramatic. For example, vehicle sales in China rose from 5.1 million in 2004 to 13.6 million in 2009, with an estimated 18.6 million sales in 2010.¹ India's *Nano*, retailing for \$US 2500, is expected to usher in mass car use in that country. Other developing countries will see accelerating economic growth in the future. Of course, citizens in these countries have as much right to use cars as in developed countries, but the world as a whole needs to travel more sustainably and cities need to avoid the costs of congestion, pollution and traffic accidents that are associated with high levels of car use. Among other measures, this involves dramatically reducing car use (predominantly in developed countries) or avoiding car dependence in the first place (predominantly in developing countries).

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There is, therefore, a clear need for measures to encourage and facilitate sustainable travel choices in both developed and developing countries. And all the measures described in this section have proven to be feasible and effective in locations in which they have been applied. Behaviour change programs in developed countries have been shown to reduce car trips by 10% or more across neighbourhoods targeted by such programs, as well as increasing walking, cycling and public transit use, and these programs have also saved around \$30 (in socio-economic costs of pollution, congestion, health and fuel) for every dollar they cost.² It is harder to assess the difference that good information provision and integrated ticketing systems have made because these features tend to be applied across whole transport systems alongside other improvements to those systems. But modern transit systems in most developed world cities have instituted these measures over the past five years and dramatic increases in public transport use are now being seen in US and Australian cities and in most European cities while car use per capita is declining for the first time. This transformation is due to a number of factors but these include the provision of smart cards, integrated ticketing and modern information systems.³ In the US, vehicles sales declined every year between 2004 and 2009, from 16.9 million sales in 2004 to 10.4 million in 2009.⁴

There are many other ways of encouraging or enabling people to travel more sustainably, for example, through better urban design, more extensive walking and cycling paths, other improvements to transit services, the development of electric vehicles, pricing and parking policies to discourage private vehicle use, and traffic management that prioritises the most sustainable modes. These all complement the measures in this section, and are described in other sections of this chapter.

2. Benefits to be gained from these measures

Economic benefits

Greater use of mass transit, walking and cycling, and reductions in unnecessary travel, mean less money spent on transport by both individuals and whole societies. As well, those who cannot afford private transport can participate more fully in work and education if they have the opportunity and capacity to use other transport modes.

Social benefits

Measures to facilitate lower car dependence can lead to better health, from increased walking and cycling, from fewer accidents and from reduced pollution. Neighbourhoods in which there is less car use also tend to have higher levels of social interaction.

Environmental Benefits

The measures described in this section can lead to reduced local pollution, greenhouse gas emissions, noise, congestion and use of finite resources.

3. Potential reductions in greenhouse gas emissions

If people travel less because they eliminate unnecessary trips or they walk or cycle, then they save 130-170 grams of CO₂ e for each kilometre not travelled by car. If they switch to transit they cut greenhouse gas emissions to a half or a third of what it would have been in a car, as described in Chapter 2. In fact the reduction may be much more due to 'transit leverage'.

4. Implementing measures to influence travel choices

Information provision

To use trains, buses, light-rail and ferries people need to know where they run, when they run and how much they cost. It is also very useful to know the actual time of departure from the stop or station – which may vary from the scheduled time - and this can be supplied through real time information processes. Information can be provided by paper timetables, phone enquiry services, static signage and staff at stations or in vehicles, as well as through digital signage, on-line sites and mobile phone applications. Different kinds of information can be available in different places and through different media as appropriate. For example, digital displays and audio messages on transit can tell passengers the name of the next station, while the actual time of departure can be viewed on a digital display at the station (Figure 3.15), or via a mobile phone application as the traveller approaches the station or stop.

Travellers may need to use multiple modes of transit, as well as walking or cycling, to get where they want to go, and so they need to know how they can make their trip as quickly and directly as possible. This requires information about the routes, times and costs of the different transit services. Transport authorities can set up a service themselves that collates and provides such information, or they can do so in conjunction with a third party such as Google Transit, as is discussed below.

Providing good information systems for the public is critical. It not only increases existing users' confidence in the service; it also encourages those not using transit to consider it as a viable option. Passengers' experience of public transport is influenced by the ease with which they are able to navigate themselves

Figure 3.15 In Antwerp, Belgium, a digital display advertises when the next buses will arrive in real time



Picture Credit: Karl Fjellstrom, itdp-china.org.

through the system, and this is best achieved through the provision of different information systems catering to the different needs and preferences of users at the various stages of the journey (pre-trip, at stops or stations, in transit vehicles, at any points where the traveller must switch to other transit modes, and at the destination).

Public information systems are only as good as the quality of the data fed into them. The end result of poor data will always be a lack of confidence in the information system. And when data is managed in multi-modal systems, perhaps with different private companies and government agencies involved, there is always the risk of incorrect information being supplied to the public. The answer is to have, where possible, a single data management system that all the various information systems are a part of. This will minimize the chance of incorrect information being given to the end user.

Good data management is critical to success when implementing and integrating advanced information systems, as well as other systems requiring access to this information. These systems can include integrated smart ticketing systems, real-time passenger information systems, and intelligent transport systems (ITS's). ITS's, which are becoming more common, attempt to improve public transit services by reducing congestion, improving passenger and driver safety, and increasing the amount and quality of information available to the public so that they, in turn, can make more informed decisions when using transit.

One consideration often overlooked in transit information systems is the provision of information in a way that is accessible to people with disabilities. Depending on the types of disability passengers have, they

may require information to be provided in visual, audio or tactile forms, and of course consistency of information across these different forms is also important. Travellers who are not functionally literate will also need information to be conveyed verbally or via visual symbols.

Figure 3.16 Google Transit can plan a multi-modal journey from departure point to destination

The screenshot displays the Google Maps Transit interface. At the top, it says "Google maps" and "Transit". Below that, it says "Plan a trip using public transportation". There are two main sections: "Use Google Maps to" and "Get transit directions". The "Use Google Maps to" section includes a list of features: "Get step-by-step transit directions" (with a sub-link "on your mobile phone"), "Find transit stops in your area", and "View station information and schedules". There is also a link to "Join the transit partner program". The "Get transit directions" section has input fields for "Start address" and "Destination address", a "Leave" dropdown menu set to "12/1/10", and a time field set to "4:40pm". A "Get directions" button is located below these fields. To the right, there is a section titled "See what cities are covered (more than 448)" with a link to "View text only version". Below this, there are "Recent highlights" for "Madrid", "Greater Toronto and Hamilton Area Transit", "Bangalore", and "Barcelona". The main part of the interface is a map of Australia, showing state abbreviations (WA, SA, VIC, NSW, QLD, NT) and major cities. The map is surrounded by navigation controls. At the bottom, there are "Featured searches" with three map thumbnails and their corresponding search terms: "San Diego Amtrak Station to SeaWorld", "Stanley Park, BC to Simon Fraser University", and "Space Needle to Safeco Field". The footer contains the copyright information: "©2010 Google - Terms of Service - Privacy Policy".

Source: www.google.com/transit.

Increasingly, transport agencies are recognising the benefits of allowing the public to access information via third party products and services. For example, Google Transit (Figure 3.16) is a free and relatively simple way in which people can access transport information, at very little cost to the public transit provider. Google Transit can provide information on transit routes, times and costs. It is now fully integrated into Google Maps and currently has at least some information about transit services

in, among other countries, Mexico, Colombia, Brazil, Chile, South Africa, Egypt, India, Thailand and China. This system, which can be included on transport agency websites, can enable users to type in a point of origin and a destination and be given several options for making the trip, by multiple modes if necessary, with the routes, distances and times of the different modes, as well as distances and routes for any walking required.

If cycling is to be encouraged, information about safe cycling routes also needs to be publicly available, in paper and electronic forms as well as via street signage. And if there are walking routes that are additional to the normal footpaths beside roads, these will need to be publicised as well.

In the past, when urban populations were static or grew slowly, and there was much less growth and innovation in transport services, these populations learned fairly naturally and easily how they could get around, in the context of growing up and living in their urban communities. But today, as tens of millions of people migrate to cities every year, and as new transport systems are created, partly to cope with this influx, more deliberate methods of disseminating information are required. It is vital that new migrants to cities are able to access information about the more sustainable forms of transport as soon as they arrive – rather than the less sustainable ones – so that these can quickly become their habitual ways of moving around.

Behaviour change programs

In cities in both developed and developing countries the car provides a strong visual demonstration of social status and the potential benefits of travel comfort. However, using the car brings higher costs, traffic delays and stress to the driver. Community Based Social Marketing⁵ programs help consumers to explore the barriers and benefits of transport choices and to really understand the gap between the aspirations (as portrayed in car advertising) and realities of car use. Rates of car use are much higher in developed countries, but there is a serious risk that these rates will substantially increase in developing countries as a result of rapid economic growth and urbanisation, and so pre-emptive action is necessary. Let us, therefore, look at how successful behaviour change programs operate in developed countries, and then briefly consider how these might be adapted to developing world circumstances.

In car dependent cities up to 80% of trips are made by car and around 60% of the population will have not used alternatives to the car at all on any given day.⁶ Providing information alone is insufficient to influence the majority of car users who are not seeking to change modes. The impact of information and services relating to alternative modes is limited by the barriers to changing modes, including a lack of awareness, acceptance and experience of the alternatives. It is in addressing these barriers that travel behaviour change programs have a strong role to play. The research⁷ and practice⁸ of travel behaviour change programs reveals that voluntary behaviour change requires:

- positioning of travel alternatives as ‘normal’ activities that are being adopted by many others in the community
- coaching conversations to enable individuals to identify their own motivations for change (these may be to contribute to reducing climate change, improve personal health, save money, reduce stress, reduce travel time or many other personal benefits)
- providing information in the context of the new conversation around changing modes
- prompting behaviour change at the point of decision, such as messaging on a key chain for the car keys
- interrupting the current driving behaviour through special events or at life changing moments such as a new job or moving house

- engaging people in making commitments to themselves and sharing them with the behaviour change coach, a partner, friend or colleague, and
- enabling the intrinsic rewards (more time, better health etc) of the new behaviour to be embedded through reflection and conversation.

The same approach can be taken in developing world communities that have a level of car dependence, but where it has not reached this stage there will of course be significant differences, although focusing on the barriers and benefits of different transport modes, and on the gap between aspirations and realities of car travel will be common to both. In China there is a new awareness of the need to control the growth in numbers of vehicles on the road as the rapid growth in cars threatens to undo many of the advantages in their recent economic growth. They have implemented an odd-even number plate day to reduce cars allowed onto the road and a number of programs are beginning on behaviour change. The National Energy Saving Handbook in 2007 was implemented, first in Shanghai and other big Chinese cities. Part of this was aimed at enabling people to reduce their car use.⁹

The important thing is for the planners of behaviour change programs to start with local circumstances, and to explore (through surveys and interviews) the realistic transport choices that are available to the community for different trip purposes, destinations and times of day. Where there is choice, and the alternatives to the car (or other motorised vehicle) offer benefits to the individual, there is potential for travel behaviour change.

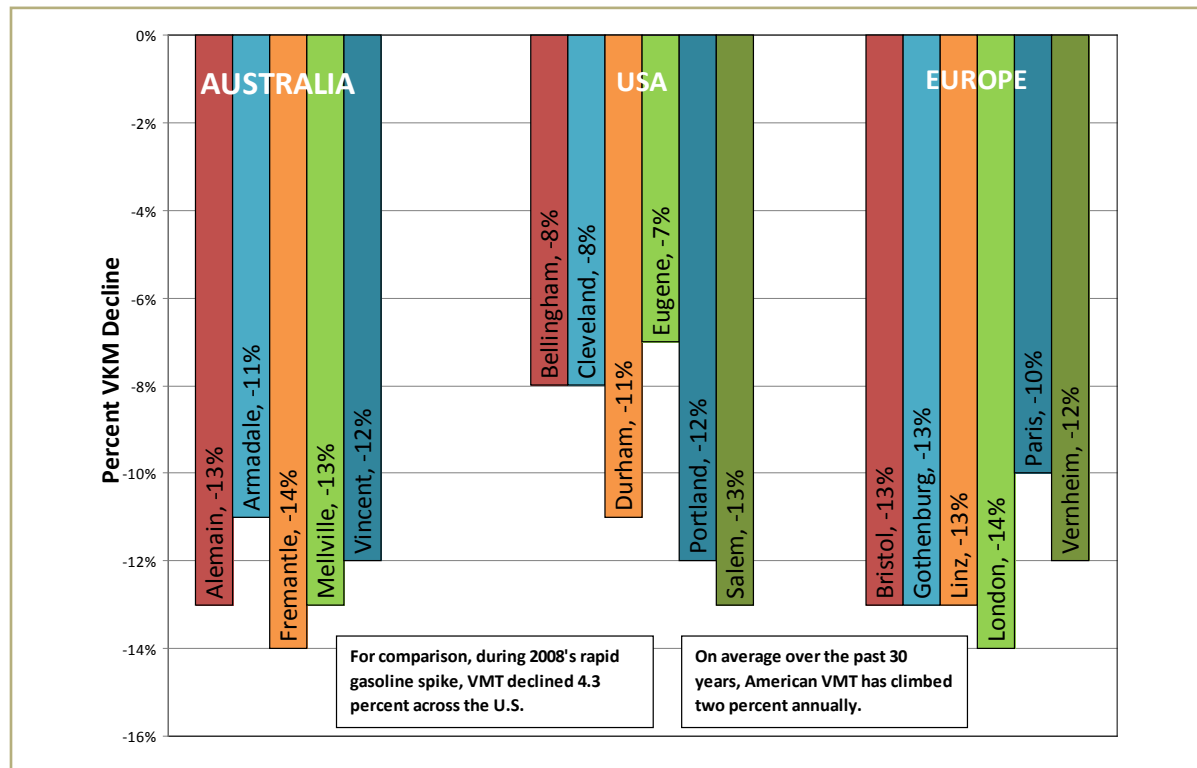
Behaviour change programs in places like schools and work places provide an opportunity to apply many of these points about successful behaviour change. People in these settings already know one another and have things in common, so group norms influence the individual's behaviour. When it comes to changing their travel behaviour, they can get practical information about alternative forms of transport and try these out together, giving each other help and support.

TravelSmart is a behaviour change program that has worked mainly with individuals and households, because it is in the home setting that all car trips (those for work, education, leisure, shopping etc.) can be discussed to identify the ones most easily changed to an alternative to the car. This program, designed to reduce private car use, is now being applied across the world. It encourages people to use other modes of transport, to make shorter trips, to use the one trip for a number of purposes, and to travel at times when roads are less busy. It can be used in conjunction with pricing policies, regulation, and investments in mass transit and facilities for walking and cycling.¹⁰

In Western Australia, *TravelSmart's* work with households involves assisting them to identify what motivation and information they need in order to reduce their car use – for example, information about the times, routes and costs of bus or train services, or the locations of bicycle routes – and then it supplies this information to those households. *TravelSmart* follows them up to see how they are going and to encourage further change. Support is provided verbally, as well as in printed form and on-line at <http://www.travelsmart.gov.au/>.

TravelSmart programs have consistently delivered reductions in car trips of 10% or more, as well as increases in walking, cycling and public transport use¹¹. In Perth, Western Australia's capital city, it has worked with more than 450,000 residents, at a cost to the state of under A\$36 per resident. Worldwide, individualised approaches to travel demand management have been delivered to approximately five million people.¹² If you take into account the reductions in the public and private costs of car use that it has achieved, the program saves \$30 for every dollar it costs.¹³ The increased public transport fare revenue

Figure 3.17 TravelSmart programs have delivered real reductions in car use across the developed world



Source: Department of Planning and Infrastructure, Government of Western Australia.

alone can recover the costs of *TravelSmart* in less than five years. When delivered in association with new or improved public transport services *TravelSmart* adds 40% more patronage than occurs with new services alone.¹⁴ And on average, each program participant produces 225 kg less carbon dioxide from their travel each year.

TravelSmart contributes to the establishment of new social norms and helps to build communities that are more able to use alternatives to the car. It works best when there are opportunities for people in a locality to use other modes of transport. In preparing for a behaviour change program of this kind it is important to research the barriers and benefits of the different transport modes available, to work out how best to communicate with the target audience, and to collect data on transport usage before and after involvement in the program to see how effective it has been. A guide to implementing *TravelSmart* type projects has been produced in the UK.¹⁵

The *TravelSmart* model has led to the development of a broader behaviour change program called Living Smart,¹⁶ which deals with a broader range of changes which people can make in order to live more sustainably, including – as well as travel – home energy and water use, the products we buy, recycling, food gardening and community building.

It's good if more sustainable travel habits can be established from an early age, and the 'walking school bus' program does just this. A 'walking school bus (Figure 3.18)' is a group of children walking to or from school with one or more adults supervising them. It can be informal – two or more families taking turns to walk their children to school – or more formal, with a planned route, a timetable and a roster of volunteers.

Figure 3.18 Walking School Buses provide safe, healthy travel to and from school and thus provide a grounding for the young in sustainable transport



Picture Credit: Missouri Bicycle & Pedestrian Federation/mobikefed.org.

Children can be ‘picked up’ or ‘dropped off’ along the route just as a regular school bus does. A variation is the ‘bicycle train’ in which adults supervise children riding their bikes to school. Walking or riding to and from school provides valuable exercise for children. It enables them to learn early that walking and cycling are very practical, pleasant and healthy forms of local travel. At the same time, the adult supervision that walking school bus schemes provide ensures that children – especially very young ones – are safe, thus overcoming a barrier that causes parents to prevent their children from walking or cycling. The experience of walking or cycling teaches children about their neighbourhood and environment, as well as gaining road safety skills and equipping them for independent mobility as they get older. Finally, these programs, if they are supervised by parents or volunteers, involve virtually no costs.¹⁷

In Santiago, Chile, a behaviour change program initiated by the Ministry of Planning has been trialled in a range of settings: a school, a factory, the city government, and a government department. It has sought to reduce car use because of the serious air pollution this is causing. The program used a method called ‘travel blending’, which involved diary keeping and discussion. In the school, students discussed their personal travel in class and then with their parents at home. Alternatives to car travel for the children and their parents were considered and tried – initially for perhaps one day a week. In these pilot programs between 60% and 90% of employees and students who were able to participate did so, and the program has since been extended to other organisations in Santiago.¹⁸

These are just some of many community based social marketing approaches that can change people's travel behaviour. Through such approaches, people can be encouraged and assisted not only to change their *personal* travel habits, but also to become active in supporting and promoting change at business, community and government levels, so that the quality and availability of low carbon transport can be increased.

Integrated ticketing

It is much easier for travellers to use a multi-modal transport system if they can buy one ticket that entitles them to travel on different modes to get to their destination, and this is now happening in many cities and localities. Such a system does not have to employ the latest smartcard technology, though this is ideal. Even if it uses a lower technology ticketing solution, the key is to allow passengers a seamless journey on a well-planned and integrated system with, for example, bus routes radiating out from train stations.

Hong Kong's Octopus Card is used by 95% of adults there between the ages of 16 and 65, generating over 11 million daily transactions.¹⁹ As well as its use for all forms of public transport, it can be used in stores and restaurants and for a range of other transactions.²⁰

Transperth in Western Australia provides another example of an integrated ticketing system. It is run by the Public Transport Authority of Western Australia and covers bus, train and ferry services for the state's capital city, Perth. At the core of the system is *SmartRider*, a fully integrated smartcard ticketing solution providing travel and transfers across modes. Users can top up the credit on their *SmartRider* cards at transit stations, on buses, at selected stores and through on-line transfers from their bank accounts, including, if they like, automatic transfers when the credit dips below a certain level.

Figure 3.19 Adding value to the Octopus Card in Hong Kong. The card can be used on any form of public transport (e.g., bus, metro, train, mini-bus, tram and ferry)



Picture Credit: Karl Fjellstrom, itdp-china.org.

The Public Transport Authority provides the central control and future planning for all *Transperth* services, while the bulk of those services are delivered by commercial contractors on five to ten year contracts tendered on a staggered basis. This regular testing of the commercial service delivery market ensures good value for money in the context of a finite budget, and also promotes a strong focus on high-quality customer service. The key to the model is having the transport authority maintaining control of the system's management. Services within the system may be contracted out, but the transport authority sets specifications and standards that must be met, manages the awarding of contracts, assesses contractor performance, and undertakes planning to ensure that the system is an integrated one with complementary transport modes and devices such as integrated ticketing to ensure ease of use by travellers.

5. Costs and sources of finance for these measures

As already mentioned, *TravelSmart* in Perth has been delivered at a cost of less than \$36 per participant, and the program saves \$30 for every dollar it costs. *TravelSmart* in Western Australia has been funded by the various agencies that benefit from the outcomes, including the state Departments of Transport and Environment, federal departments of Environment and Health, local governments and private bus operators. The major costs of delivering *TravelSmart* are the labour costs of telephone coaching and information delivery teams, and as such the costs and benefits of delivery in developing countries may be estimated based upon the relative difference in wages and public transport fares between the developing country and Australia.

Costs for information systems and integrated ticketing are difficult to separate from overall costs of building modern transit systems, and are frequently not disclosed for commercial reasons. However, if particular transit services are contracted out by government, then these are not costs that the government has to bear because they are part of the user fares.

6. Conclusion

Information systems, behaviour change programs and integrated ticketing all, in different ways, help travellers to switch to more sustainable travel options. Between them, they raise awareness about these options, encourage and support travellers as they try them out and, on an ongoing basis, enable them to use often complex systems with relative ease in order to meet their transport needs. Of the information based options, travel behaviour change (community based social marketing) provides the strongest return on investment. Although rare in the developing world the first signs of behaviour change programs are appearing.

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