

Sustainable Transport and Behaviour Change

23.8.2019
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Structure of the lecture

PART 1. Sustainable transport research at TUAS

PART 2. The basics of pro-environmental behaviour

PART 3. Sustainable mobility and behaviour



PART 1: Sustainable transport research at TUAS



Sustainable transport research at TUAS

TUAS has many applied research projects related to urban planning and sustainable transport.

Ongoing research projects tackle for example the following themes:

- ***Different aspects of e-mobility*** (eBussed, BSR electric, Civitas ECCENTRIC)
- ***Sustainable urban mobility among the elderly*** (Green SAM)
- ***Sustainable city logistics*** (New solutions for city logistics, Baltic Loop)
- ***Smart and sustainable urban transport solutions in Turku*** (Mobility HUB, Civitas ECCENTRIC)
- ***Promoting walking and cycling*** (HEAT)
- ***e-bus related research*** (SeBNet, eBussed, eFöli)
- ***Green travel chains in the tourism sector*** (Green travel chains)

→ A mix of both "hard" and "soft" approaches



PART 2: The Basics of Pro-Environmental Behaviour



**How do you usually travel
to your university?**

**How did you travel to the
lecture today?**

Why?



A quick introduction to pro-environmental behaviour (PEB): attitudes and actions

Although it has been shown that overall attitudes towards the environment tend to be positive, there is a clear *discrepancy between attitudes and actions*.

- A positive attitude towards the environment does not automatically lead to pro-environmental behaviour, i.e. *eco-friendly attitudes do not necessarily translate into eco-friendly actions*.
 - You might have positive attitudes towards veganism in principal, but haven't gone vegan, because it seems too difficult..
 - You might be aware of the problems related to flying and GHG emissions, but flying is such a cheap, fast and convenient way of travelling..
 - You might be pro-cycling, but it's not safe to cycle in your neighbourhood..
 - You might have positive attitudes towards e-vehicles, but you don't have enough money to buy one..
 - You might want to switch to green energy, but there are no options available for your apartment..



A quick introduction to Pro-environmental behaviour: Values, attitudes and habits

Values:

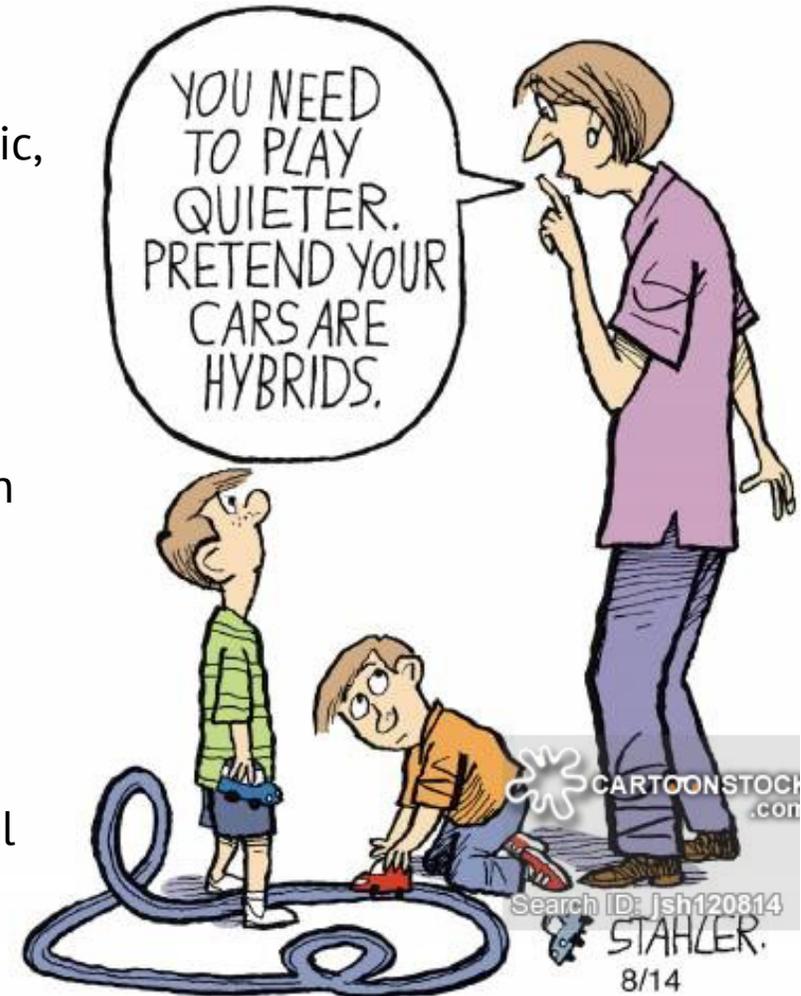
- What we consider as important and desirable
- Usually very stable and difficult to change
- Pro-environmental behaviour is linked to e.g. following values: altruistic, economic, family-related, comfort-orientated

Attitudes:

- Tendency to act positively or negatively to a particular thing, person, event or a situation
- Usually depends on the context, i.e. a person's attitudes can change depending on the situation
- A change in attitudes requires usually concrete tools to actualize the change

Habits:

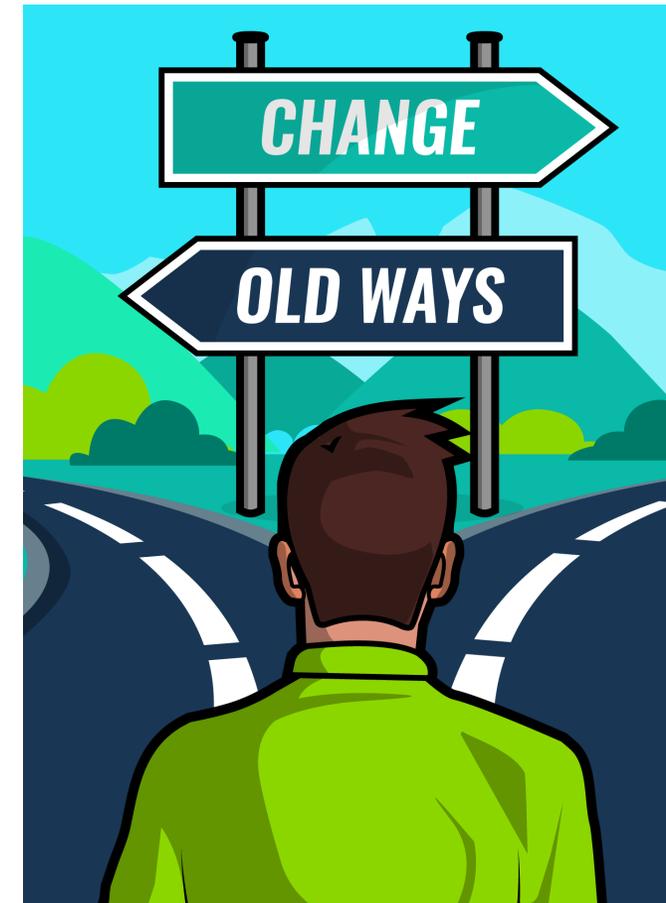
- Habitual actions which guide our behaviour very strongly, usually subconscious
- Habits are formed in a complicated process governed by eg. norms, cultural, social and economic factors, personal qualities, beliefs, peer behaviour etc.



A quick introduction to pro-environmental behaviour (PEB): a complex issue

Behaviour is not straightforward

- There are *many processes and functions at play* simultaneously
- People *do not act rationally*
- People are driven to action by *multiple interests* (such as, raising your status, aiming for comfort, saving money, respecting traditions, living healthy, doing what others do, saving the environment)
 - Environmental interests compete with other interests
- People are driven to action by *multiple*, yet sometimes conflicting *motivations* (the same person might be motivated to save the planet and visit as many countries as possible)
- Our actions are guided by both *various drivers and barriers* (e.g. taking the bus might be cheap but not very cool) → a balancing act



A quick introduction to pro-environmental behaviour (PEB): "Information deficit model"

There is a common belief that by providing enough information on e.g. the climate change people will change their behaviour. This is more or less inaccurate.

→ The *provision of information is not enough* and can even lead to *counterreactions*.

Information may affect attitudes but alone rarely leads to behaviour change.

→ *Environmental concerns* may seem too *abstract to* even *generate behaviour change*. Other factors may be more effective.

Pro-environmental actions require not only *knowledge and skills* but also *motivation*.

→ In addition to knowledge, one needs *the skills to act differently* and the *motivation* to do so.

Also – *behaviour can change without changing attitudes*

→ Economic incentives (e.g. free parking for e-vehicles), legislation (e.g. tax on fossil fuels)

→ Pro-environmental behaviour can also be promoted via other factors (e.g. healthy lifestyle, economic values, comfort)



A quick introduction to pro-environmental behaviour (PEB): are we rational?

Why aren't we rational actors when it comes to the environment?

- *People are driven by an array of different interests, motivations, habits and beliefs which guide our behaviour*
- *The impacts of our behaviour* are often **abstract** and **difficult to assess**
 - e.g. how many CO2 kilos can a city really save by increasing cycling
- *Individual benefits* are also hard to assess (e.g. pros and cons related to e.g. various transport modes)
- Concerning public goods, the *causality between one's pro-environmental behaviour and the impact may be vague* and *open* to various *interpretations*.

→ There might **not** be enough information available to form rational decisions. In addition, even if we would have adequate information, **we may still act irrationally**, because of conflicting interests and factors.



A quick introduction to Pro-environmental behaviour: Context

... Pro-environmental behaviour cannot only be explained by values, attitudes, habits, goals, interests or motivations

 ***Contextual factors are very important***

Contextual factors include e.g.:

- gender
- age
- education
- where you live
- financial situation
- cultural factors
- current political climate etc



Why is it so darn difficult to change behaviour when it comes to the environment?

- The *impacts* of our eco-friendly actions are largely *invisible* in our day-to-day actions
- *Habits and customs* are often automated, subconscious processes
- *Rational choice* is largely an *illusion*
- *Group pressure may be both a hindrance and a driver* (We are guided by the expectations and examples of others – good intentions may not translate into actions because of group pressure)
- *Our operational environment guides our behaviour* – our everyday lives do not always support environmentally friendly choices
- A *feeling of powerlessness* is very common, our actions may feel like “a drop in the ocean”. *Climate anxiety* is becoming a real issue among e.g. young people.

PART 3: Sustainable Mobility and Behaviour



What is sustainable transport system? What do we mean by sustainable mobility?

“Sustainable transportation is about meeting or helping to meet the mobility needs of the present without compromising the ability of future generations to meet their needs”

”Mobility and accessibility to all urban residents in a safe and environmentally friendly mode of transport”

A straightforward task?



Sustainable mobility

- Fulfilling various needs

People fulfil different needs when they travel:

- **Primary transport needs**, i.e. the need to get from place A to place B,
 - **Secondary transport needs**, i.e. various social and psychosocial needs, such as, need to be independent, need to be in control, need to live “normal” lives,
 - **Tertiary transport needs**, i.e. leisure or aesthetic needs, such as, travel for its own sake.
- The aim of any transport system should be to **fulfill all three types of needs**. Fulfilling these needs may increase e.g. the acceptance of public transport, the use of bike roads etc.



"Isn't it nice to see children walking to school?"

Sustainable mobility

- Different kinds of trips

In addition to different needs, people do different types of trips:

- ***Necessary or utilitarian travel*** (e.g. commuting)
- ***Social travel*** (e.g. travelling to meet friends, family or people in general)
- ***Leisure, spontaneous & recreational travel*** (travelling to e.g. a countryside cottage or to hobbies)
- ***Travelling just for the sake of travelling*** (e.g. sunday rides)

Different trips may fulfill multiple needs (e.g. commuting may also fulfil social and aesthetic needs).

→ Urban transport planning should take into account the ***wide range of trips***



Sustainable mobility and behaviour

- Choices, choices!

People choose for *the most suitable travel option*. A variety of factors determine our preferred choice of travel mode.

Availability: Is the travel mode available to people? Route coverage, bus stop locations, city-bike locations etc.

Acceptability: Is the travel mode something people are willing to use? Includes a variety of attributes such as safety, comfort, user-friendliness.

Accessibility: Is the travel mode accessible? Covers both physical and digital accessibility.

Affordability: Is the use of the travel mode possible within the financial means of people?



Barriers to sustainable mobility

- Behavioural barriers

- Transport behaviour is not rational. People are governed by:
 - **Habits**
 - People are slaves to their habits. If you drive to work every day, it's hard to break the habit simply by thinking it is better cycle for the sake of the environment.
 - **Values**
 - People may or may not act according to their values, i.e. values do not always translate into action.
 - **Norms**
 - People do what is generally accepted by society. If society supports driving and your neighbours drive everywhere, why should you be the one making all the sacrifices.
 - **Beliefs**
 - What people believe may or may not be based on facts. E.g. commuting by car may, actually, be slower than taking the bus.

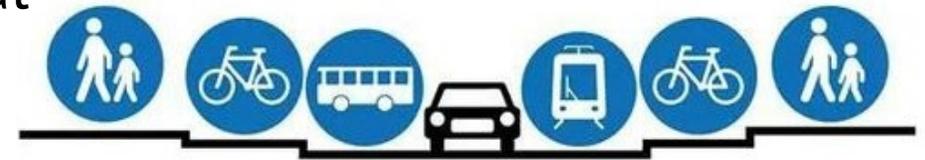


Barriers to sustainable mobility

- **Behaviour:** peoples' habits, attitudes and values, beliefs do not necessarily support sustainable mobility
- **Structural / city level:**
 - **Land use and urban design may not support sustainable mobility:** e.g. zoning, infrastructure design, urban sprawl
 - **Policies may hinder:** e.g. parking policies, unfavourable taxation policies, lack of political will, ticket prices etc.
- **Technological aspect may be a barriers:** e.g. immature technical solutions, lack of availability



How most traffic engineers see your city



How cities should be designed

How to motivate people to change their transport behaviour?

Changing people's transport behaviour is **not easy**, and e.g. just providing people information or new gadgets is not enough. However, following strategies show promise according to research:

- **Change the angle**
 - People tend to be more concerned about their health or their economies than the environment → Underline e.g. health or economic benefits
- **Make sustainable transport into a norm**
 - People are prone to do what is expected from them → make cycling, public transport and walking the new normal
- **Make sustainable transport easy**
 - People won't change their behaviour, if it's somehow difficult → make the change easy
- **Make it social**
 - People like to compare themselves with others and do things together
 - People tend to trust their friends, neighbours, family (i.e. their peers)
- **Break the habits** → Try to introduce a change in daily commuting habits, don't forget to take associated habits (e.g. people may associate daily car commuting as a way to clear your thoughts) into account



How to motivate people to change their transport behaviour? Part 2.

Say no to silos:

Joint efforts are needed to make way for sustainable transport.

Fulfil all needs:

Aim to fulfil also secondary and tertiary transport needs, not only people's basic needs to get from A to B.

Make the entire journey chain pleasant:

The entire journey is as successful as its weakest point.

Begin as early as possible:

Gaining positive experiences from sustainable transport modes as early as possible increases the probability of later life utilization.



Sustainable mobility at the city level: What can cities do to attain sustainable transport system?

Mobility systems are imperative.

The mobility system enables individuals to go to work or undertake other activities. It enables transportation of goods and therefore production, trade and commerce. A mobility system is necessary for society to function.

The downside?

Pollution, traffic safety and congestion, affecting the economy, health, wellbeing and environment.

Usually these ***negative effects are not taken into account by individuals*** when making decisions whether or not to travel or what mode to choose.



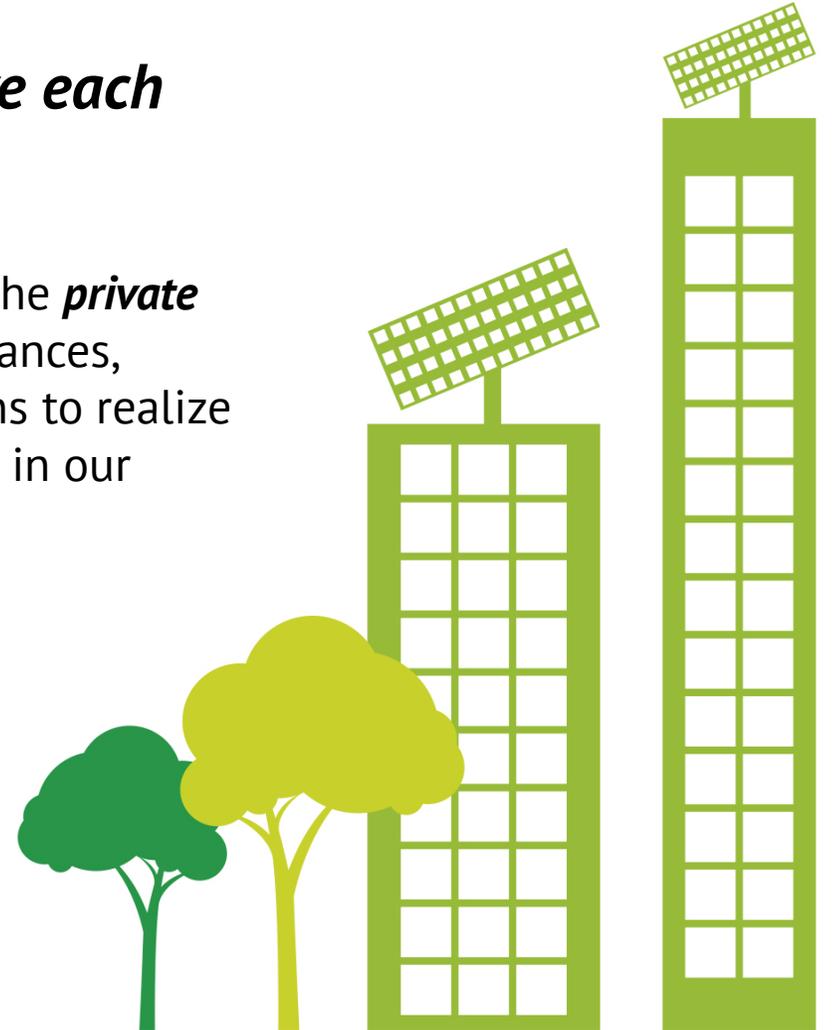
City level

- means, measures, actions

Cities have a huge potential to affect the way citizens move each day.

Solving the mobility challenge will require bold, **coordinated actions** from the **private and public sectors**. We need both **soft and hard measures**: technological advances, commercialization, funding, smart policies, and business-model innovations to realize productivity improvements while creating more sustainable environments in our cities.

- City planning can promote sustainable transport by introducing:
 - **Behavioural tools e.g. campaigns and nudging**
 - Sustainable Urban Mobility Plans (SUMPs)
 - Zoning practices (e.g. new neighbourhoods and parking)
 - **Mobility as a Service (MaaS)**



How to motivate people to change their transport behaviour: Campaigns

Traffic campaigning is a common tool for moulding people's behaviour. Research indicates that:

- **Positive messages work better than negative ones**
 - People do not respond well to fear mongering → Using the polar bear backfires easily
- **Flipping the message is effective**
 - Highlighting the negative sides of a popular exercise such as car driving can be more convincing than underlining the environmental benefits of cycling
- **Simple visual images may work better than numbers**
 - Smiley faces instead of statistics
- **Encouraging people try new things together tends to be more effective**
 - Peer support may work better than solo efforts





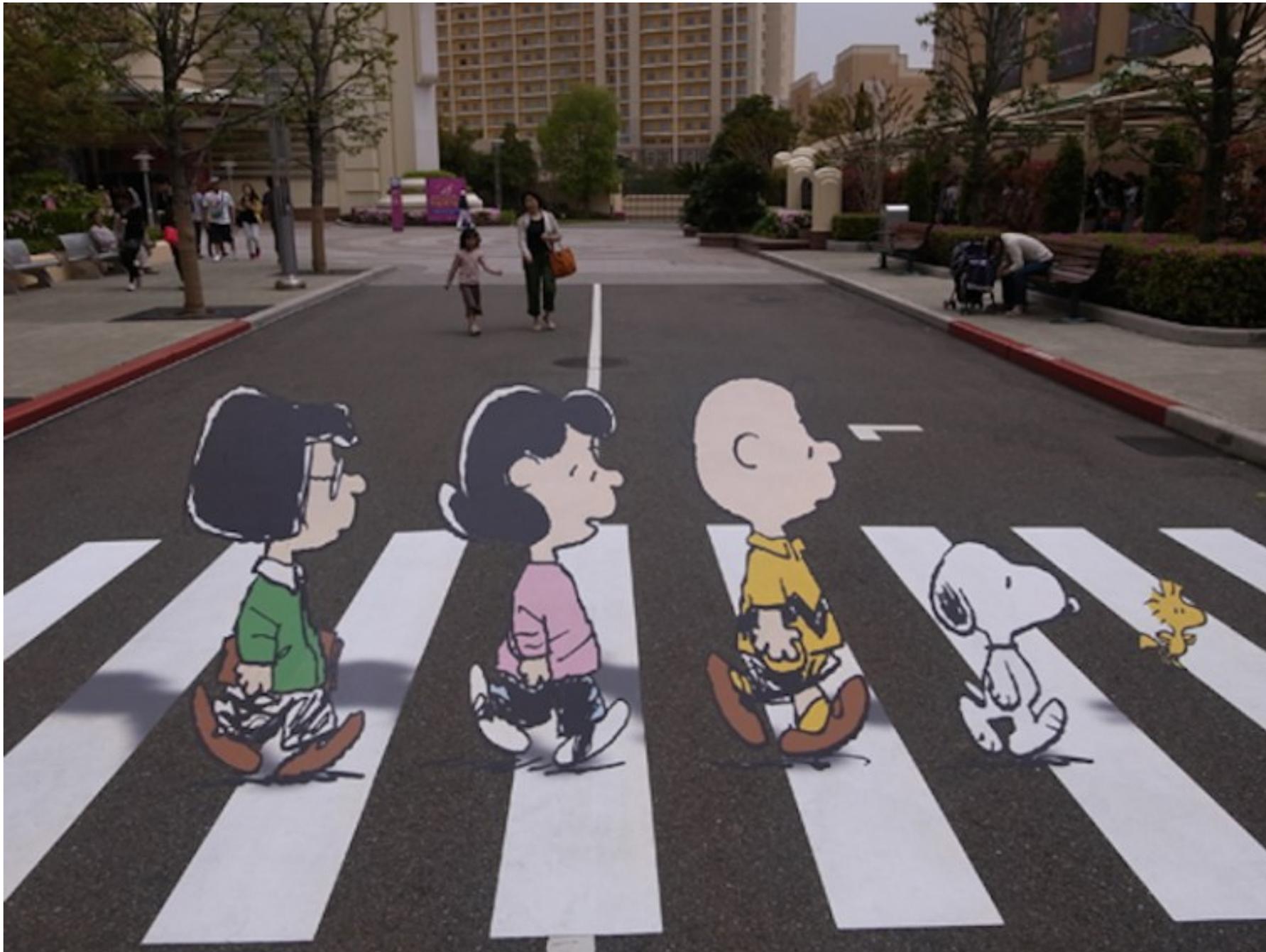
How to motivate people to change their transport behaviour: Nudging for smarter mobility

“A nudge is any aspect of the *choice architecture* that alters people’s behaviour in a predictable way without forbidding any options or significantly changing their economic incentives.”

Nudges work by *appealing to people’s cognitive biases*, gently steering decisions to the option that appears to be the default, is most salient or most straightforward.

- Supermarkets can be designed to subtly push people to making the desired purchase decision themselves, e.g. by placing of items
- Plate size defaults - smaller plate, less food
- Changing default options via city planning (e.g. bike parking vs. car parking)





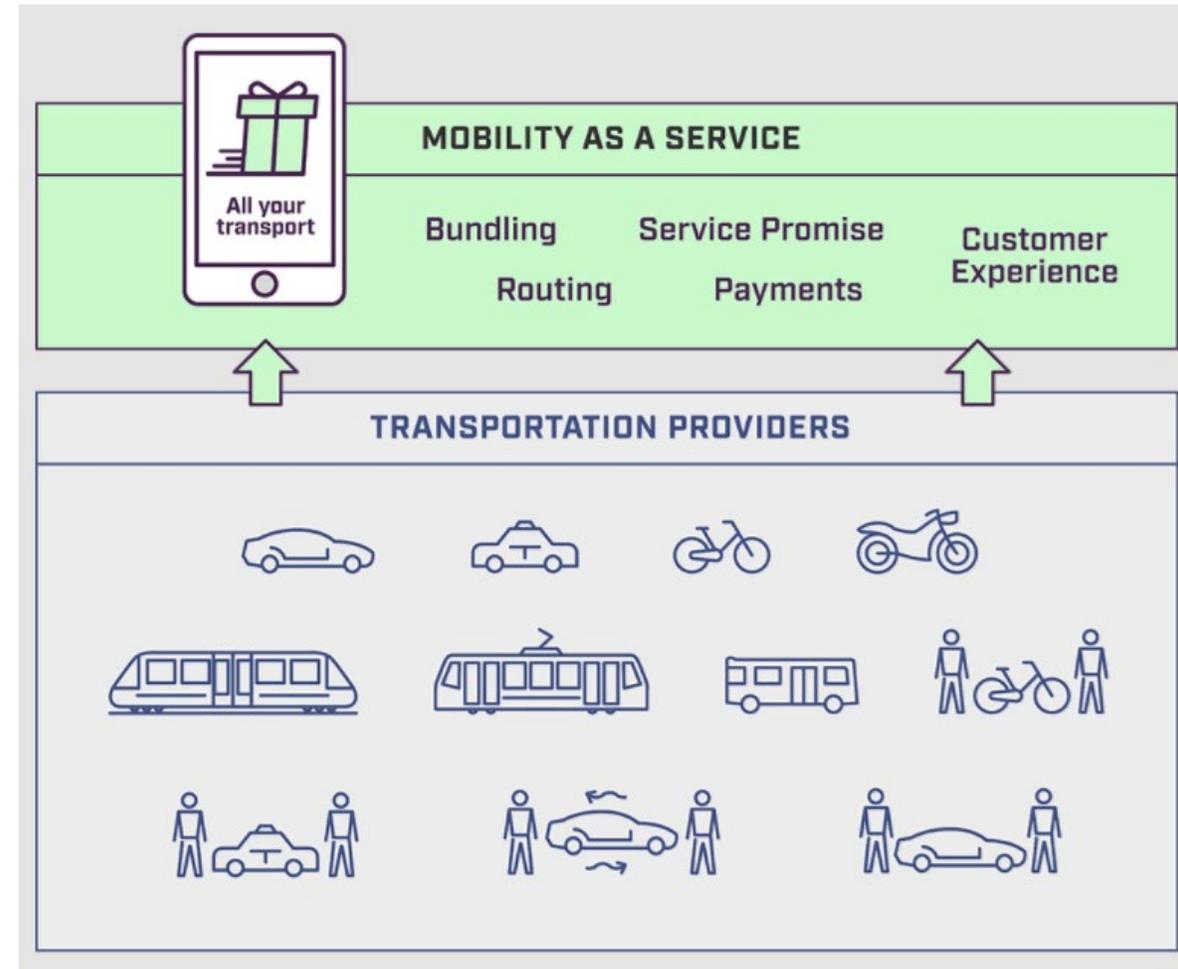


Mobility as a Service (MaaS)

A long-term aim pursued in transport policy is a change that would turn mobility into a service (Mobility as a Service, MaaS). Transport services are meant to be converted into *a service package* along the lines of the communications service sector.

Finland is a pioneer in MaaS thinking.

MaaS brings all means of travel together. It combines options from different transport providers into a single mobile service, removing the hassle of planning and one-off payments.



Why are MaaS services needed?

- Enabling and facilitating **choice** for the traveller
- Lack of **parking spaces**
 - On average, cars are used 4% of the day and are parked for the rest 96%
- **Congestion, traffic emissions**
 - Most people use their cars alone when they commute
- Changing **trends**
 - The rise of sharing economy
 - “From ownership to usership”



Group work: How do we move in 2030?

You have stepped into a time machine and transported yourself into 2030. What does transport look like in 2030?

1. Divide into groups
2. Choose a city
3. Imagine how people move in your city in 2030 – you can write or draw your ideas (20 min)
4. Discuss what kind of changes (e.g. at city level, in people's behaviour, in legislation & policy level) would need to happen for your image to become a reality (20 min)
5. Present your ideas to others



Thank you!

