

In total, 4 animated movies were shown to the participants. The first author will share these animations on request. The English transcriptions of these movies are as follows:

Movie 1: introducing the casus

In the up-coming two discussions, we will talk about two traffic measures. First, I will explain the situation that the measures are proposed for. To this end, we will use a fictional city. We made this so-called 'City X' simpler than in the real world, whereby we can focus on the traffic measures and we won't spend too much time on the details of the surroundings.

City X is divided by a river. The shortest route from one side of the city to the other side is via the only bridge. There are no other bridges or tunnels in the city. Expansion of the infrastructure is impossible. There is, however, a bus and a cycle path crossing the bridge. The number of motorists that uses the bridge has increased over the last few years, which has resulted in severe congestion every week-day morning during peaks hours. Hence, motorists are stuck in traffic for 15 minutes on average, ranging up to 30 minutes.

Nowadays about 10,000 cars cross the bridge during this morning peak time, while the bridge can handle about 8,500 cars with a good traffic flow. In other words, if you reduce the current number of cars by 15%, you will solve the congestion. Researchers have calculated that in this case most of the congestion will vanish. If there was still some congestion once a week, a car user would have about a 5 minute delay.

Movie 2: peak charge

The following plan has been thought of to battle the congestion: peak charge. Several variations already exist in foreign countries. With a peak charge, motorists need to pay an amount to cross the bridge during morning peak hour. The morning peak hour is between 07:00 and 09:15.

The aim of the peak charge is to decrease the congestion by reducing the current number of peak trips by 15%. This is done by increasing the charge until 8,500 cars have crossed the bridge. If fewer cars cross the bridge, the price decreases. If more cars cross the bridge, the price increases. The charge will be adjusted on a weekly basis. The revenues of the peak charge go to the municipality who can spend the money. The revenues can be spent on public transport or parking spots, for example, but can also go to the general budget.

In order to avoid waiting lines due to toll gates, people can register their car to make the payment automatically. People who haven't registered their car, can buy an electronic ticket via telephone or computer. Motorists who haven't registered their car and haven't bought an electronic ticket, pay a fine. The fine is the price of a ticket plus 5 Euros. The bridge remains free of charge outside peak hours.

So, let's take a car user who drove 5 times a week in the morning peak hour. Due to the peak charge he avoids the peak once a week on average. He pays the peak charge on the other 4 days. The revenues go to the municipality.

Movie 3: tradable peak credits

Also, another plan has been thought of to battle the congestion: tradable peak credits. This is a new concept and does not exist anywhere in the field of car use. Therefore, we are curious about your thoughts. Each trip in the morning peak time costs a 'credit'. The morning peak is between 07:00 and 09:15. The total amount of credits is equal to the number of trips the bridge can handle, thus 8,500. That's 15% less than the current number of peak trips. So, if this is the number of peak trips, then this is the number of credits [visualisation].

These credits are distributed free of charge on a weekly basis to all car users who used the bridge weekly in the past month. Everyone receives an equal share. Thus, it might be that some car users receive more credits than they need, while others receive less credits than they need. Hence people can trade their credits. People who want to sell their credits to a 'trade platform' receive some money. People who want more credits, can buy these. This platform does not make a profit.

The price of the credit is determined by demand and supply. If a lot of people want to buy a credit, the price increases. If a lot of people want to sell them, the price decreases. Trading and managing the credits works via an app or a website. People can register their car and then credits are automatically written off their budget.

People who cross the bridge without a credit, pay the current price of a credit at that moment plus a fine of 5 Euros. The bridge remains free of charge outside peak hours.

So, let's take a car user who drove 5 times a week in the morning peak hour. If he avoids the peak once a week he does not make a profit and does not incur costs. If he continues to use the bridge 5 times a week, he must buy a credit. If he drives 3 times or less, he can sell his credit(s) and make a profit.

As explained, tradable credits are a new concept for car use. The concept of tradable credits, or rights, does exist in other fields. Tradable emission rights in the EU. Or tradable milk credits for farmers for example.

Movie 4: distribution of the credits

Let's go back to the tradable peak credits. We will focus on one aspect: the distribution of the credits. In order to reduce the congestion, the amount of credits has to be lower than the current number of peak trips.

So far, we have assumed that the credits are evenly distributed among all car users who used the bridge on a weekly basis in the last month. But, the credits can of course be distributed in many other ways.

Firstly, it can be determined who are eligible for the credits. This could be the car users, but also all citizens with a driver license, for example, or all households of the city, all adults, you name it.

Secondly, the credits do not necessarily have to be distributed equally. The credits can also be distributed among motorists, but those with a less polluting car get more credits than those with a polluting car, for example. Another example is to distribute the credits among the citizens. And citizens with a job receive more credits than those without a job. Or, the credits are distributed among residents with a driver license and the credits are distributed according to how many people used the bridge in the past. Countless ways to distribute the credits can be thought of (visualizes many ways of distributing).