Measure title : On-street parking Enforcement with digital parking permits
City, Country: Utrecht , the Netherlands
Year(s): Implementation process 2009 -2013

A1   Objectives

The main objective of this measure was to improve the overall efficiency of the city's parking policy through:

- An increase in the "payment rate" for short term parking;
- A reduction in enforcement costs (i.e. less wardens and less staff for the front desk office);
- The collection of data that could be used to better analyse the effects of parking policy and to help the (political) decision making process.

A2   Description of the CS

In 2009 the city of Utrecht decided to introduce a new parking system based on the "digitalization" of the parking product. In short all paper based document related to parking – i.e. the parking ticket for short stay parking, the parking permit for residents and the visitors parking permit for residents – were digitalized. For visitors the classical park and display system (i.e. you pay and display the ticket in the car) has been replaced with a system where the motorist must simply enter the digits of the number plate of their car in the ticketing machine and pay. There is no need to go back to the car. At any time the system knows which car has paid and, accordingly, has "the right" to park. The enforcement takes place with a number of so called "scan-cars": these are cars equipped with several cameras that record all number plates of the cars parked on-street. The recorded number plates are then checked with a central database where all information about the payments for on-street parking and residents permits is contained. Also all forms of residential parking permits have been digitalized; residents don't need to display a card in their car but simply register their number plate.

Within this measure 530 digital parking ticket machines have been installed and a large information campaign was implemented. Additionally also mobile phone parking was introduced – i.e. the possibility to pay for short stay parking through your mobile phone.

The main advantages of the system are: more efficient enforcement; reduction in fraud; an increased payment ratio; a decrease in the number of visitors to the physical parking desk; and the generation of parking data.

Figure 1: the scan-car; Left: the side of the scan car with cameras behind the mirrored glass. Middle: camera system inside the car. Right: the computer display showing information on the scanned license plates.

Figure 2: the digital parking ticketing machine

B   Costs and who paid them

The implementation of the new parking system in the city of Utrecht was partially co-financed by the CIVITAS – MIMOSA project (EU-funded). The whole system is still in place after the completion of the project and it has been enlarged to other areas of the city.

Co-funded by the Intelligent Energy Europe
Programme of the European Union

C   Project objectives, indicators, data and impact/results

| OBJECTIVE	INDICATOR	DATA USED	IMPACT/RESULTS
Increase the "payment rate" for short term parking	*The payment rate (i.e. the percentage of motorist actually paying for parking)*	*All data come from the Parking Management System of the city*	*The payment rate increased 10% in the period 2010-2012 (from 68% to 78%)*
Reduce the enforcement costs	*Number of wardens used for the enforcement*		*The number of enforcement officers decreased from 63 in 2008 to 45 in 2012*
Reduce the enforcement costs	*Number of visitors to the parking desk per year*		*The number of visitors to the parking desk decreased 35% in the period 2008 (before the new system) and 2011. From 28,409 to 18,260 visitors per year. The workload of the parking desk staff decreased considerably and payroll was decreased by 1 Fte.*
Collection of data	*General data collection*		*Data are now used during the decision making process for new policy*
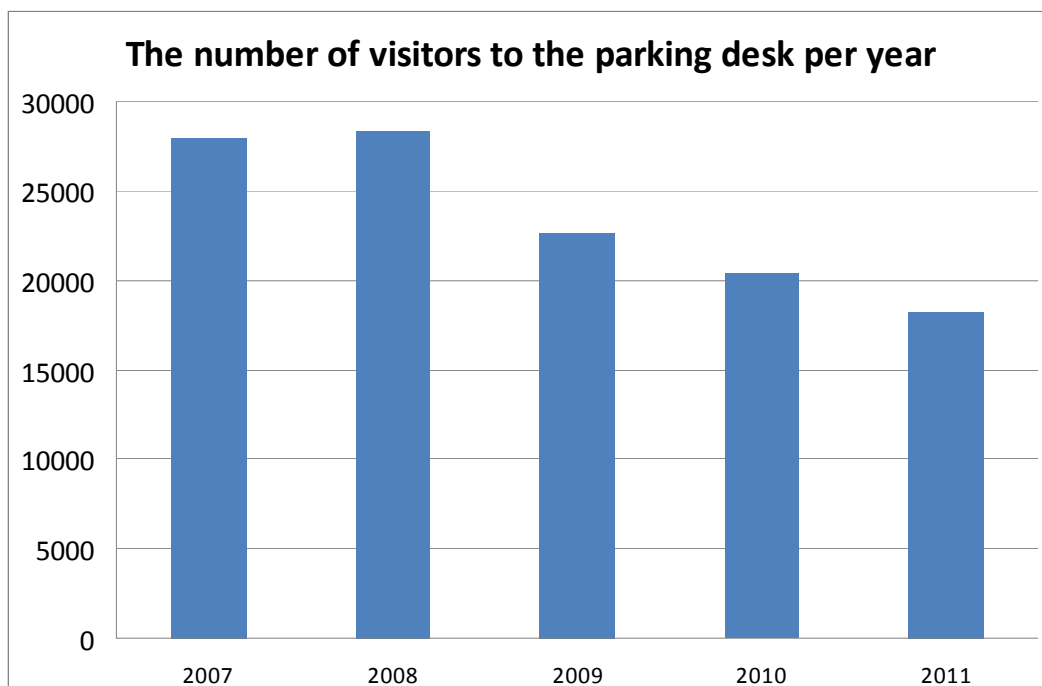
Figure 3: The number of visitors to the parking desk per year (department of parking)

D Implementation process

D1. Stages

The CS was implemented, as follows, in the following stages:

Stage 1: **Installation of new parking ticketing machines** (2009-2013)

In the period 2009-2013 approximately 700 new ticketing machines were installed in the city centre: 70 in 2009; 300 in 2010, 180 in 2011 and 150 in 2013.

Stage 2: **Introduction of the digital parking permit and a personal web page** *(2009-2010)*

An important stage in the implementation of this CS was the replacement of the plastic parking permit for residents – i.e. a card that must be displayed in the car - with the digital parking permit.

Since October 2010 parking permit holders have online access to a personal web page to monitor their parking credit and payment status. They can use a secure code to find the digital forms needed to apply for a permit, see the status and validity of their own permit, order visitor's tickets, find phone numbers or ask questions.

Stage 3: Communication campaign on digital parking *(February- May 2009)*

In the period February – May 2009 an intensive communication campaign took place, called "Digitaal parkeren doe je zo" ("digital parking – this is how you do it" in English). The new parking machines, the digital visitors' passes and the digital parking permit for residents were communicated to visitors, inhabitants and companies in Utrecht, as well as employees at the city administration and the politicians.

The aim of the communication was twofold. On the one hand it was meant to inform citizens and visitors about the change, and to highlight the benefits of digital parking. On the other hand, it was meant to generate internal support within the local authority.

Figure 4: An example of advertisement in the press.

Stage 4: Introduction of the digital visitor permit *(2009)*
This product gives the possibility to residents of the city to allow their visitors to park for a reduced fee (50% off) in the centre. This product was based on a plastic card technology – i.e. the residents could give the card to their visitors and they had to use it to get a parking ticket to be displayed in the car. Thanks to the digitalization of the system residents or their visitors have simply to enter a code in the ticketing machine and automatically they are charged the reduced fee.

Stage 5: Purchase of a scan-car *(2010)*
A special scan car, equipped with license plate readers, that enforces the digital parking permit was put into operation in December 2010. The car drives through the streets and 'reads' the license plates of parked cars. The scan car recognises the license plates that are in the central digital parking database; cars that have been paid for are registered in this database. Cars that are not in there are checked by enforcement personnel on scooters and on foot. When a parked car is confirmed to have no right to park there, the owner receives a so-called after parking-tax assessment (an additional assessment for unpaid parking fees which has to be paid within 30 days - the tariffs in 2012 are € 54.00 plus the parking tariff due for one hour of parking; this tariff covers the costs and does not result in a profit).

Stage 6: Removal of the obligation to enter license plate number (*2012*)
Digital short term parking was technically possible since the beginning but for political reasons (mainly privacy) it was decided that visitors still needed to be able to park anonymously in the case of short term parking. For this reason in September 2011 the city council decided that visitors could not be obligated to enter the license plate of their car when they wanted to park. Accordingly parking machines were adjusted in March 2012.
The local authority developed a variety of new products – among others mobile parking (see stage 7) – for which visitors entered their license plate number voluntarily. In this case they were informed beforehand what the license plate number would be used for.

Stage 7: Introduction of Mobile Parking (*2012*)
In March 2012 paying for parking by mobile phone was introduced. All phone providers can be part of this. Payment takes place via a separate mobile parking provider. The tariffs are the same as paying via the parking machine; the benefit for users is that it is easy to use. Visitors pay by calling, sms, mobile internet or a special smart phone-app when they park their car. Payment takes place after an agreed period, mostly every month or two weeks. Participants need to enter their license plate number for this.

D2   Barriers

Barrier 1: the legal framework – In case of mobile phone parking, some legal issues had to be overcome (e.g. permission to use the telephone bill for purposes other than to charge for phone-costs). As a result it took more time to implement this. Furthermore the market share increased slowly because people needed to apply themselves to a provider of mobile phone parking before they could use it. Nowadays mobile parking is a large success.

Barrier 2: **new developments must be accepted by all parties** - Due to the innovative nature of the system, it took more time to prepare all the products and to agree their use with all actors involved.

Barrier 3: Start-up problems with digital parking machines – Due to some start-up problems with the digital parking machines the implementation was delayed by six months.

Barrier 4: removal of the obligation to enter license plate numbers – There have been political discussions about the privacy of car parkers which resulted in the political position that users need to give permission to the city before the city can use personal information. Since motorists cannot formally give this permission, they cannot be obliged to enter their license plate number.

Barrier 5: digitised products make the process more complex – The system is sensitive to errors/problem that might occur in the whole process. For example when the phone network does not work, the parking machines and the officers cannot work either. It is very important that the staff understand the whole system in order to quickly identify potential problems.

D3   Drivers –

The city was responsible for enforcement – The fact that the responsibility for parking enforcement shifted from the local police to the Parking Department of the City of Utrecht on January the 1st of 2008 was one of the most important drivers for the introduction of the new system.

The **technical possibilities** of the new system provided many possibilities and features for the parking measures, which increased appreciation for the new system among the users (both visitors and residents). The digitalization of the parking permits also allowed the possibility for more flexible products.

Mobile Parking has facilitated the implementation of the system because it creates many advantages for motorists, e.g. people do not need to walk to the parking machine anymore.

The description was based mainly on two reports:

- o Stumpel-Vos, P. and van de Vosse, W. (2012), Measure Evaluation Results – UTR 3.1 Innovation of the system of parking permits and rates, CIVITAS MIMOSA report, 9 November 2012;
- o Gemeente Utrecht (2013), Nota Stallen en Parkern, February 2013.