



CiViTAS
Cleaner and better transport in cities

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Measure Evaluation Results

BOL 8.1 Motorbike Pollution Reduction

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Executive Summary

Since 2003 an automatic system to control the main entrance point to the city centre of Bologna was implemented. This system enabled the enforcement of the access privileges and restriction. The system proved to be very efficient for cars but is not accurate in detecting motorbikes on streets wider than 3 metres. The MIMOSA measure 'Motorbike pollution reduction' aimed initially at elaborating a regulation to control motorbikes access to the city centre based on emission level. The proposed technical improvement would strengthen the automatic control and enforcement system for access into the so-called "T" area (in the heart of the historic centre) and to permit only motorbikes with a pre-defined acceptable level of emissions to enter this area.

Firstly, a technical solution should be elaborated to control streets wider than 3 metres. This solution consisted to add a second camera at the gates and to adapt the existing monitoring software to enable the detection of motorcycles and mopeds: the road would be virtually divided in two sections and each camera would focus on one section.

Secondly, a strategy should be developed to elaborate the monitoring concept based on vehicles' emission level. A precondition for the implementation of this system was to collect data and create the database which would link for each registered motorbike (for "T" area access) its emission level to its licence plate.

Nevertheless, **several barriers** were identified and the achievement of the expected results of the measure was highly comprised.

Firstly, the feasibility study conducted in 2009 came to the conclusion that data concerning mopeds registered prior 1/7/2007 needed to be asked directly to the driver, since information on emission level was not available from the national public registry. This would include both residents and non-residents groups. The collection of this data appeared to be highly complex and seemed to present risks concerning the reliability of information collected. Indeed, it was identified that non-residents can lie about the emission standard or/and do not know about the obligation to give information on the emission standard to the municipality. Secondly, it was identified that the procedure of asking drivers about the emission standard of their moped could be contestable from a legal point of view. This could generate legal conflicts against fines' distribution and comprise the acceptance of the system among citizens.

Thirdly, the rate of the motorbike in the motorized vehicle fleet in Bologna has considerably changed during the measure elaboration due to national economic incentives to scrap old vehicles which implied a significant decrease in non-euro motor cycles in Bologna.

Due these three main reasons, the measure lost its significance and was stopped at the end of 2009.

Nevertheless, **two recommendations** for future and similar projects can be drawn from this experience. Firstly, the access control of motorbikes based on emission level is extremely difficult to realize. The local policies for mobility should aim to completely ban all motorbikes in particular areas/streets. This choice will allow simplifying the system implementation. Secondly, it is crucial by elaborating such type of system to involve all stakeholders from the beginning of the activities in order to prevent or solve eventual conflicts which could arise during the process.

A Introduction

A1 Objectives

High level objectives:

- pollution reduction,

Strategic level objectives:

- realize semi-pedestrian roads which are free of emission pollution

Specific measure objectives:

- regulation of motorbikes access based on emission level

A2 Description

An automatic system to control the main entrance point to the city centre was implemented in Bologna in 2003. The system is very efficient for cars but it's not accurate in detecting motorbikes on streets with a width of more than 3 metres.

The proposed technical improvement should allow the control of motor vehicle entrance to the gates in the so-called "T" area (consisting of the three streets Via Ugo Bassi, Via Rizzoli and Via Indipendenza in the heart of the historic centre). These streets have a width of about 6 metres.

The measure includes an update of hardware and software technology used. The technical solution foresees to add a second camera to the gate and to adapt the software to enable the detection of motorcycles and mopeds: in particular, the road is virtually divided in two sections and each camera controls one of these sections so that can work with optimum coverage conditions.

Furthermore with regards to motorbikes it is planned to create an automatic control and enforcement system based on emission levels. The idea is to permit access to the "T" area in the city centre only to motorbikes with a sustainable level of emissions. The exact standard was not clearly identified. The first hypothesis was to forbid the entrance to "NON EURO" motorbikes. Precondition for the implementation of this system is the knowledge of the emission standard for each motorbike type, which would need to be linked with the licence plate.

B Measure Implementation

B1 Innovative Aspects

Use of new technology: first automatic control and enforcement system for motorbikes based on emission pollution levels.

B2 Research and Technology Development

Feasibility analysis

From the technical point of view there are no problems in implementing the system as described in section A.

There are, however, difficulties with respect to the creation of a reliable database to link the motor vehicle licence plate and its emission standard. This activity is difficult, time consuming and does not guarantee an accurate result:

1. Data concerning Motorcycle (over 50cc) can be retrieved from Automobil Club Italia with an automatic acquisition
2. Data concerning Mopeds (up to 50cc) registered after 1/7/2007 can be retrieved from Motorizzazione Civile with an automatic acquisition
3. Data concerning Mopeds registered before 1/7/2007 should be asked directly to the vehicle owner

Data concerning vehicles of category n. 3 has to be communicated by their owners: the possible procedure could consist of asking citizens to communicate data directly to the municipality or through a web application. Spot checks at the gates should be done by the local police in order to verify correspondence of vehicle characteristics to the declaration of the owner. Through this manual procedure a lack of information, inconsistencies in the data base and wrong fines are risked.

Furthermore it is necessary to give wide information concerning the new measure and the obligation for citizens to communicate data concerning mopeds. This procedure could include:

- Sending letters to all holders of two-wheeled vehicles actually circulating: the list can be drawn from the archives of the Region concerning payment of the circulation tax.
- Communication campaign through local/national newspaper, TV, information leaflets to reach also students of the University and non-residents people

The information campaign for non-residents, such as students, through main communication channels may be insufficient. The risk is that non-residents don't know about the obligation to give information on their moped Euro standard to the municipality and they could receive fines despite their mopeds complying with the pollution standards.

Furthermore, the procedure to collect data concerning mopeds registered before 1/7/2007 could be contestable from a legal point of view. Legal arguments against fines could be numerous. Also the acceptance of the system by citizens would be compromised.

In addition, the situation concerning the composition of the motorbike fleet in Bologna has tremendously changed since the proposal of this measure: thanks to national economic incentives to scrap old vehicles, the fleet of non-euro motor cycles was extremely reduced. The restrictive measure planned could therefore have only a limited impact.

B3 Situation before CIVITAS

Since 2003, the access control cameras with the Automatic Number Plate Recognition (ANPR) system have been progressively implemented in Bologna. Many arterial bus roads, semi-pedestrian areas and the Limited Traffic Zone (LTZ) in the historical centre have been provided with such ITS instruments that have led to important results:

- 25% decrease of access to LTZ;
- 70% decrease of non-authorized access to bus lanes;
- 30% decrease of access in 3 arterial roads in the city centre.

An important traffic reduction has also been achieved for motorbikes (where access is unauthorised) but the cameras are not optimised to efficiently detect the transit of motorbikes.

B4 Actual Implementation of the Measure

Stage 1: Feasibility study and technical analysis (*March 09 – July 09*) A study was conducted to verify the feasibility of the system:

The feasibility study conducted demonstrated that due to the lack of information of the national public registry of motorbikes concerning the emission level Euro standards, it is not possible to have a complete and accurate database of vehicles associated with Euro standard.

Furthermore the vehicle replacement, contributed to the transformation of motor vehicles in “Euro” so that the measure lost part of its initial meaning.

Stage 2: Stop in measure development

The measure was stopped after the feasibility study and technical analysis at the end of 2009.

B5 Inter-Relationships with Other Measures

Not applicable.

C Impact Evaluation Findings

Not applicable because the measure was stopped.

D Process Evaluation Findings

D1 Deviations from the Original Plan

The measure was stopped after the feasibility study.

D2 Barriers and Drivers

D2.1 Barriers

Preparation phase

- After the analysis of the National Public Registry of license plates ATC the Municipality discovered that the database of motorbikes is not homogeneous. In order to create an effective and realistic data base, the Municipality of Bologna should collect the data on the typology of some class of motorbike owned directly from the users.
- In order to collect these data, the Municipality has to inform citizens of new circulation restrictions for motorbikes and then they have to communicate their license plate, if they own an “Euro” vehicle, because it is authorised to access to the LTZ area. This procedure involves a large number of citizens, including non residents. This is difficult and expensive and it is not ensured that all motorbike owners are reached. Consequently this would constitute legal problems related to the enforcement procedures.
- The situation concerning the composition of the motorbike fleet in Bologna has tremendously changed since the proposal of this measure: thanks to national economic incentives to scrap old vehicles, the fleet of non-euro motor cycles was extremely reduced. The restrictive measure planned could therefore have only a limited impact

D2.2 Drivers

Not applicable.

D2.3 Activities

Preparation phase

- **Measure Stopped** – Measure stopped after the feasibility analysis

D3 Participation

D3.1 Measure Partners

- **ATC spa** – local transport
- **Comune di Bologna** -

Comune di Bologna and ATC developed the feasibility study together

D3.2 Stakeholders

- **Municipality**
- **Citizens** – (owners of motorbikes)
- **Motorizzazione Civile**

D4 Recommendations

- **Better ban motorcycles than control access:** The access control of motorbikes based on emission level is extremely difficult to realize. Local policies for mobility should aim to completely ban all motorbikes in particular areas/streets. This choice will allow simplifying the system implementation.
- **Stakeholder involvement:** It's extremely important for this kind of system to involve all the stakeholders from the beginning of activities in order to focus and solve eventual criticisms since the preliminary feasibility study.

D4.1 Recommendations: Measure Replication

Not applicable.

D4.2 Recommendations: Process (Related to Barrier-, Driver- and Action Fields)

Not applicable.