

<b>DELIVERABLE KEY INFORMATION</b>	
Document Code	D3.3.1 (BOL) Final report on technologies circulation measures and results.
Title of Document	Final report on technologies circulation measures and results.
Reference Workpackage	WP3
Reference Measure	3.3.1
Contractual Date of Delivery	15.12.2012
Actual Date of Delivery	10.01.2013
Dissemination Level	PU
Date of Preparation	10.01.2013
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## Context and Purpose

The Municipality of Bologna set out to create a new flexible system to manage access to specific central zones of the city which are already part of the Limited Traffic Zone (LTZ) but are considered of particular historical prestige. They therefore needed further restrictions to increase their value and touristic appeal. Given their particular historical prestige and popularity as visitor destinations, these central zones needed more flow restrictions than the LTZ, in order to guarantee better conditions and improve the quality of visits. Eight pedestrian areas were protected by 23 electronic pillars, which were installed in the year 2000 (see Picture A.2.1).

This measure was aimed at updating the previous software for controlling the pillars, in order to further protect the city centre from unauthorised access and improve semi-pedestrian roads which ensure a low environmental impact in the city. The new system was designed to respond more successfully to the growing demand for movement. The growth of flows in the city centre has also increased demand in these restricted zones. To govern these particularly restricted traffic zones, the Municipality needed a more user-friendly tool which could be monitored using the internet, collect data to improve future strategies and be easily integrated with the Municipality's other technological tools.

Purpose of the present Deliverable is to give a complete overview of the efforts undertaken by the Municipality of Bologna on technologies circulation measures implemented within those specific areas and results obtained.

PICTURE A.2.1: Pedestrian areas in Bologna protected with electronic pillars



Source: Municipality of Bologna

## Summary Contents:

The Measure was implemented in the following stages:

**Stage 1:** Definition of new system features, including technical analysis on how to use the existing infrastructure by modifying the management software; establishing technical requirements/functional mode of access to pedestrian areas; and preparatory work for the tender for the new software.

**Stage 2:** Test and application of the new system (from February to April 2012) involving the pillars which protect the controlled areas.

**Stage 3:** Implementation of the new system (2012). Access via contactless smart card was maintained, but the technology was updated to include new services for users. The system was integrated into Bologna's "mobility card" (known as "MI MUOVO") which brings together different services (e.g. public transport, electronic pillars, car sharing and parking payments) to create synergies between Bologna's mobility tools. The smart card was made compatible with the Calypso protocol, an international electronic ticketing standard for microprocessor contactless smartcards, originally designed by a group of European transit operators from Belgium, Germany, France, Italy and Portugal.

The new smart card was actually developed as part of other Mimosa measures (BOL

2.1 and BOL 2.4) on public transport services: by introducing e-ticketing and integrating different transport services (bus, train, car sharing) and operators, it allows a single ticket to be used for all mobility needs. This provides multiple sources of compatible products, and makes it possible for several transport operators to operate in the same area. And measure 3.3 was designed to add a new feature to MI MUOVO facilities.

Together with ATC/TPER (local Public Transport companies), 3,000 Calypso smart cards were distributed to residents and parking space holders to replace their old ones to.

In particular the new software needed:

- to be fully integrated with other mobility tools (MI MUOVO, smart card),
- to be controlled via the internet,
- to collect reports and charts on user habits,
- to monitor every single electronic pillar for every single time slot.

The new software was connected to a database that manages access permits (developed under the Measure 3.1, which covers this activity) and was installed on all electronic pillars. The contactless access feature was maintained, but the technology was updated to integrate it with other mobility tools available in the Municipality (specifically the new MI MUOVO smart card).

The Measure was designed to create a synergy between other mobility solutions already implemented during Mimosa (see Measures 2.1 and 2.4). By integrating the smart card with this Measure, the Municipality aimed to give residents a unique tool which manages all mobility activities and integrates multiple transport modes and all operators, thereby simplifying everyday life for residents. The new smart card system, including different services such as public transport, electronic pillars, car sharing and parking payment, will simplify the problems connected to mobility.

## Functional Use

The purpose of the present Deliverable is to give a complete overview of the efforts undertaken by the Municipality of Bologna on technologies circulation measures and results. The Measure was introduced with Contract Amendment 2 and the activities progressed to schedule. After testing on one electronic pillar, the new software was extended to all other electronic pillars and has been operative since the middle of May 2012. In September 2012 Measure results were collected for comparison with the baseline. A satisfaction questionnaire was produced to determine whether the implementation of the Measure really had improved and facilitated access for the authorised users.

## Lessons learned

The Municipality of Bologna, after electronic pillars software improvement, can now control access more effectively. The key result of the Measure was a 42% reduction in access to limited zones with multiple passwords between 2009 and 2012, which means that around 250 fewer vehicles accessed the zones each week day.

In fact, regarding the effectiveness of the Measure in controlling access to limited zones, the results show significant differences in the number of entrances. This is probably due to the fact that in the past, multiple passwords were improperly used by unauthorised people. The new system, which uses personalised passwords, allow the

public administration to track those responsible for any future misuse.

One of the main lesson learnt thanks to this measure implementation, is that cities interested in these kinds of interventions must consider and evaluate in advance several aspects related to the everyday habits of people living and using the zone in question. These include mobility characteristics linked to commercial activities and working needs. The aim is to ensure that the implementation of the measure will be really useful and will not restrict the freedom of residents.

Following in-depth market analysis and studies on the best available technology, the public administration would then be able to appoint one firm to maintain the pillars and another firm to implement and manage the software. The core business of a software developer is not maintaining existing infrastructure, but rather improving the software itself.

## **Attachment**

None

## **Contacts**

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