Deliverable Summary

DELIVERABLE KEY INFORMATION	
Document Code	D 3.2.2
Title of Document	Report on technologies implemented to access and park in Bologna city centre
Reference Work-package	WP3
Reference Measure	3.2
Contractual Date of Delivery	November 2011
Actual Date of Delivery	December 2011
Dissemination Level	PU
Date of Preparation	October 2011
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Context and Purpose

The deliverable follows and completes the previous D3.2.1 by describing the technological tolls implemented for on street parking management in the city centre within the general purpose of improving the mobility of the city.

Summary Contents

In order to achieve the goal of **realizing new barcode permissions for access and parking in the Limited Traffic Zone**, the following objectives have been pursued:

a) Improvement and rationalization of permissions management by introducing a bar code that allows to associate all data regarding the permission and its owner to a central data base easily updatable without the need to substitute the card.

b) Reduction of users need to go physically to the permission office by giving the possibility to use Internet, e-mails, fax and letters to communicate variations concerning the permissions.

c) Saving costs of card production and administrative costs for service management.

The new permissions consist of a plastic card (8.5x5.4 cm, 0.4 mm thick), with a hologram and the bar code. The types of permission are identified by different colour and text. The

plastic material and the colours of the card are resistant to high temperatures and sunlight exposure.

The bar code contains an alphanumeric string identifying the permission owner, while all the data are stored in the so-called permission database.

Data are updated by the permission office operators in real time; the complete architecture foresees also the integration with the Motorizzazione Civile database that provides data concerning vehicles emissions standards, and possible change of vehicle owner address or number plate.

The permissions modifications are transmitted to the parking controllers palmtops at the beginning of the work shift.
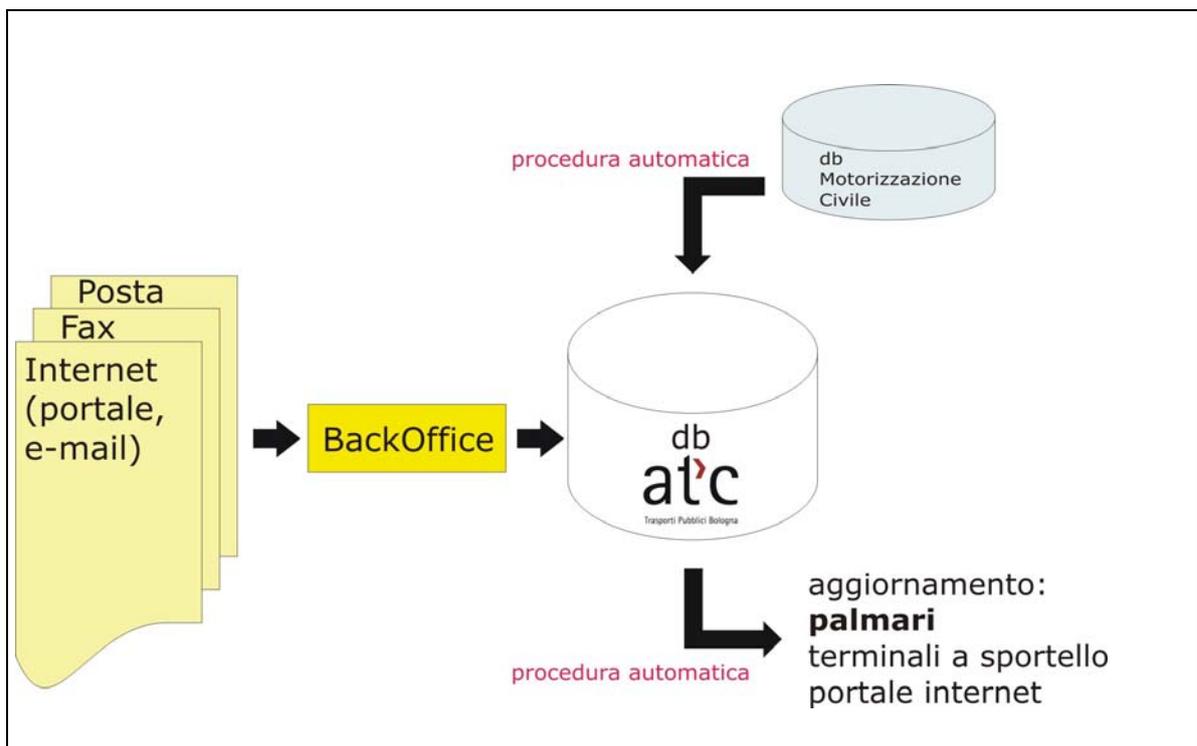

Figure 1 – The system architecture

Figure 2 – New access permission cards

As already described in the Deliverable 3.2.1, ATC realized in cooperation with the local police a complete system for controlling the parking tickets/permissions and fining by using portable devices.

The palmtop is a CASIO product (166x82x23 mm size) with a 3,7" colour screen.

It's equipped with a barcode reader: by means of a laser scanner the device reads the permission/ticket barcode placed behind the windscreen.

Figure 3 – Palmtops for parking controllers

Additionally, a new software tool for licence plate number optical recognition has been developed. For this reason the palmtop has been equipped with a photo appliance provided with a Charged-Coupled Device (CCD) sensor. The SW functionality allows the automatic reading of the licence plate through an Optical Character Recognition (OCR) algorithm that identifies the alphanumeric string of the licence plate.

This tool consents to speed up the fining procedure and avoid human errors in digitizing the plate number.

Figure 4 – Licence plate preview

Figure 5 – Licence plate recognition

Functional Use

The deliverable summarizes the technological innovation implemented for access and parking management in the city centre.

The next phase of evaluation will be of great interest because we will have a real feedback on the measures implemented.

Lessons learned

It's very interesting to note how technologies have a fundamental role in improving efficiency also in a sector like parking management where the main problems seem to be organizational and operative ones.

The introduction of technologies really allows to reduce the operational costs, optimise the system control, collect data on parking usage (e.g. the average parking time).

The parking management has to be considered as a part of the general mobility management in order to find technological and organizational synergies; only in this way a real integration among different transport modes could be achieved.

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