For EETS, read ITS

Is **Antonio Politano** suggesting that the ITS world can learn from the development of EETS, the European Electronic Toll Service?

A decade ago, the road transport world was facing a situation in which the increasingly intelligent vehicle regarded the road infrastructure sector as a second-class citizen due to its seemingly slower rate of development. At this stage the roads were taking uncertain (some would say tentative) steps towards integration with other physical and virtual infrastructures to guarantee continuity of services both for end-users and operators.

The problem was that data did not integrate itself in order to create information that could be exchanged or directly communicated to end-users. In other words, the road was not lacking neurons, but synapses.

Compared to a road infrastructure, the dimension of a vehicle allowed it to become an advanced and well-equipped ready-to-speak communication means but it did not know who to communicate with. At the same time, in a parallel track, the development of highly ambitious standards related to mobile communications and architectures (e.g. CALM) was moving fast and gave more than a reliable suggestion that this would be the solution in order to connect everyone with everything.

TALES FROM THE PLAYGROUND

In the European Union vision, transport should become more comfortable, safe and secure in an acceptable amount of time. In particular, Road Transport and Traffic Telematics will have to develop in order to tackle challenges like the reduction of injuries and deaths as well as pollution, giving drivers and passengers the idea of travelling across Europe where borders are only virtual and facilities and frontline procedures do not differ from country to country, giving the impression of having to deal with the same interface, whichever the country.

To do so, first of all EU Recommendations and Directives have been promulgated through the European Commission in order to create a framework which Member States shall take into consideration to become part of their national legislation, while the standardisation bodies have the chore to

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create technical frameworks to be followed in order to integrate the latest technologies with the existing ones.

ITS AND THE AUTOMOTIVE

The wide and complex world of the Intelligent Transport Systems is not only linked to Road and Transport and Traffic Telematics, but it takes into consideration every kind of transport – road, rail, air and water. Nonetheless, Road Traffic and Transport Telematics systems are undoubtedly the most well-known systems because they are dedicated to the everyday user, who can take advantage of their benefits and diffusion (ie Electronic Toll Collection).

For some years now toll collection has been an issue that concerned infrastructure operators and one that the automotive industry did not want to directly deal with (largely because of what were then unstandardised aftermarket products like on-board units for electronic toll collection). But as mobile communications and satellite location applications and devices started to be standardised and became affordable, the vision changed and little by little the automotive world began to understand the importance of designing vehicles with native devices dedicated to mobility applications to tackle after-market products.

In parallel newly born Service Providers started to understand that the new business model should come from the creation of platforms capable of filling the gaps between final users' requests and operators' needs. The automotive industry has nowadays a leading role in the ITS diffusion, in particular due to the proliferation of satellite-based application and integration with wireless network which may guarantee continuous web-based services delivery.   >>>

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DBA Lab's Antonio Politano

THE EETS WORLD

The description of the road map to create a Europe-wide new toll service started in 2002 when the Commission published the first version of the Directive 2004/52. EETS is based on these principles:

1) Any EETS road user may rely on an EETS provider able to supply the related OBU to pay the toll for every EU toll road within the scope of the Directive;

2) The EETS user will have only one contract to subscribe to the service and he/she will not need any other device within the EETS domains.

The EETS provider has the obligation to have a contractual relationship with all the EU toll infrastructure operators having domains within the scope the EETS; moreover, the EETS providers, in order to be officially recognized, shall have to provide the service on each and every toll infrastructure where an ETC system is based upon an on-board unit.

The definition of the EETS operational details became active after the adoption, by the EU authorities, of the Decision 2009/750/EU on 6 October 2009. Afterwards, the EU Commission asked some experts to write an Application Guide in order to gather details (e.g. technical standards, etc) that could not be included in the Decision. The timescale for the application of the Directive is for it to start by October 2012 for Heavy Goods Vehicles and by October 2014 for all other vehicles.

FROM EETS TO ITS SERVICE PROVIDER

Road tolling has been the preferred way to finance the construction and maintenance of motorway infrastructures and thanks to toll collection revenues, there have been numerous improvements and upgrades to the road network in terms of safety and security.

All the sensors in the road infrastructure are capable of creating data (e.g. for management and statistic purposes) to be exchanged among Operators and, when applicable and convenient, delivered to the end user in a variety of ways. Among them, pre-trip and on-trip information, radio stations, web services, video walls in comfortable service areas in which the user can rest and get further details about traffic conditions along the trip. What, for years, has been considered as the simplest, most reliable and fastest way to collect money by the Motorway Operators is now becoming only one of the many ways to collect money by a Service Provider - signing a contract with Operators in order to guarantee them the requested income.

On the other hand, the Service Provider has the potential of a huge amount of possible combinations to offer to the end user especially considering applications linked to mobility in general (and not solely restricted to the motorway environment). The secret is the integration of payment and mobility applications in different environments with the financial circuits and payment means. Toll collection, therefore, will likely become only another application among those requested by the end user and, ideally, can be seen as a plus by those providers offering a wide variety of applications linked to mobility (e.g. information about local parking lots, traffic information, and other services linked to mobility).

CONCLUSIONS

We are only at the beginning of a new era in which the role of the end user (once peripheral) is centric for the creation of new applications dedicated to mobility, for the data collection to be integrated in existing databases formed by the data coming from fixed sensors and for the new frontier of vehicle-to-vehicle communication in which the dynamic collection of information will be used to intrinsically monitor and control the traffic itself. 🅷