# iTETRIS

iTETRIS – The Integrated Platform for Large Scale Simulation of Cooperative ITS Strategies

The most important question raised today by road authorities is: how can road traffic engineering applications be estimated in terms of the actual worthiness of investment and effectiveness in large-cities? V2V/V2I communication technologies promise to improve traffic management through Real-Time exchange of Traffic Information (RTTI). However, before cooperative ITS systems are widely deployed and evaluated in Field Operational Tests (FOTs), road authorities need clear evidence at city level on the benefits and impact of these solutions for their own particular scenarios.

The iTETRIS FP7 project (http://ict-itetris.eu/) has developed an open, ETSI standard compliant, and flexible simulation platform to satisfy this need within a close collaboration between engineering companies, road authorities, and communications experts.

iTETRIS integrates wireless communications and road traffic simulation platforms in an environment that is easily tailored to specific situations allowing performance analysis of cooperative ITS at city level. The accuracy and scale of the simulations leveraged by iTETRIS will clearly reveal the impact of cooperative ITS assisted-traffic engineering on city road traffic efficiency, operational strategy, and communications interoperability.
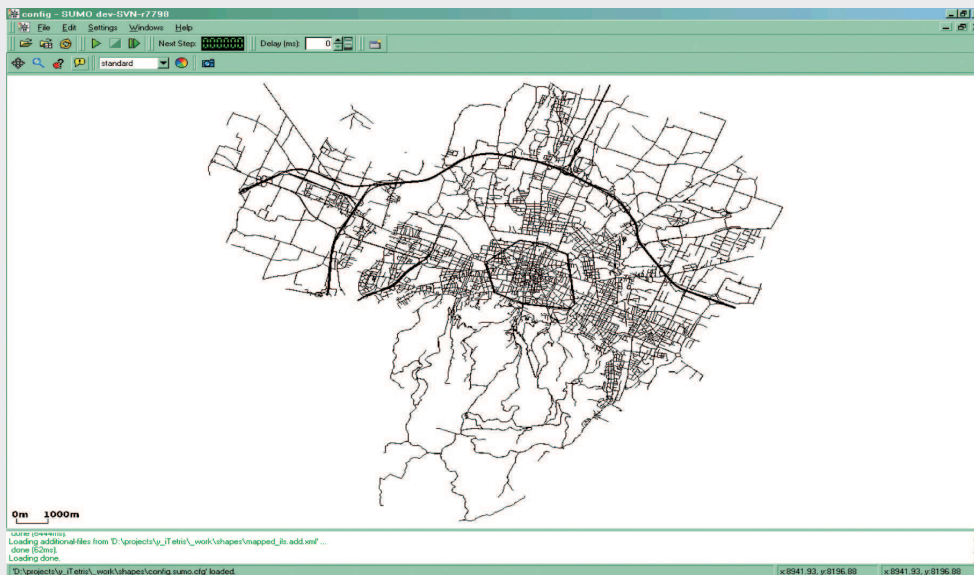

The Large Scale Issue

The potential for enhanced traffic management solutions behind cooperative ITS have been analyzed only over small scales.

Small scale evaluations could exhibit high effectiveness at a local level but hide resulting effects like traffic congestion re-allocation at a wider scale.

Hence, traffic engineering companies and road authorities demand more powerful platforms for the evaluation at city level of this new type of traffic management strategies.

Technical Features

Cooperative ITS city level evaluation.
Large scale evaluation of Cooperative ITS strategies (25.000+ vehicles and city level) pose unprecedented challenges in terms of simulation complexity and wireless communication modelling accuracy. iTETRIS through its unique architecture meets such challenges.
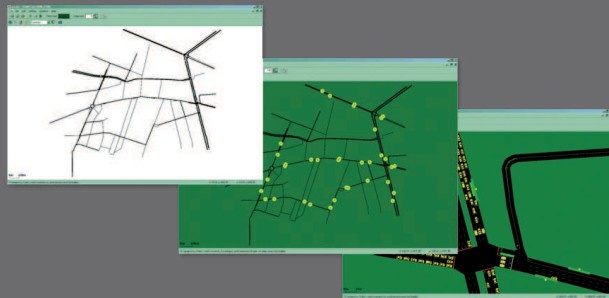

iTETRIS ETSI ITS Architecture Compliance.
iTETRIS is aligned with the communication architecture defined by ETSI for Intelligent Transport Systems (ITS). The standard specifications concern a communication system designed for various types of traffic applications which can use several coexistent communication technologies. The architecture assumes three different actors communicating in an ITS scenario, each representing a given subsystem: vehicle, roadside and central subsystems.
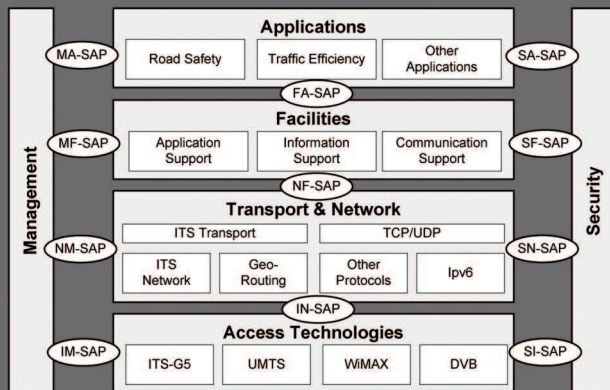
## Easy integration of traffic and network simulators.
iTETRIS architecture is highly modular and flexible and permits the integration of a wide variety of network and traffic simulators through an open APIs. The operation of the simulators is governed through a general module, the iTETRIS iCS.
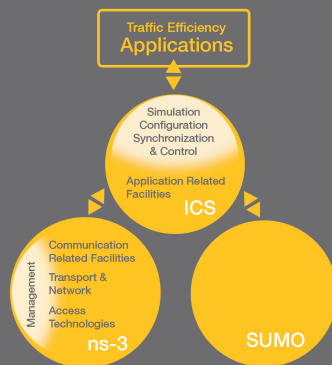

Technical Specifications

Traffic Management

SUMO traffic simulation platform support.

Emission & noise modelling.

Intelligent re-routing support.

TLS algorithm support.

ADAS modelling support.
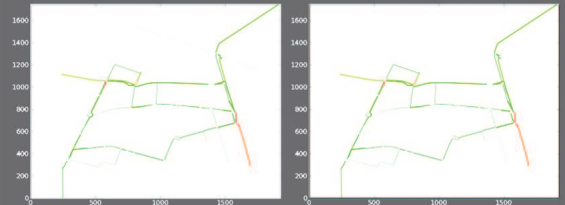
Coloured by normalised CO_2 emissions; green: 0, red~=1100g/m/s

Communications

Dynamic and adaptive communication technology and transmission mode selection.

WAVE (802.11p), WiMAX, DVB-H and UMTS wireless communication support & channel modelling.

C2C-CC & IP communication stack implementation V2V/V2I Single-hop broadcast/multicast/unicast communication.

V2V/V2I Multi-hop Geo-networking information exchange.

Support for Opportunistic Networking.
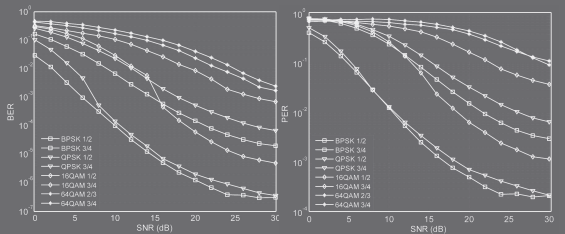
ITS Facilities Support

LDM Facilities.

Messages Facilities.

Mobile Stations Facilities.

Location Referencing Facilities.

Relevance Check Facilities.

Join the **iTETRIS** community

iTetris Consortium