SWARCO MIZAR S.p.A.

Strategy Management
Towards Resilient Transport Systems

Outline

- **Challenges and needs**

- **Evolutions in Traffic Management**

- **Strategy Management**

- **Best practices**

- **Towards Resilient Transport Systems**
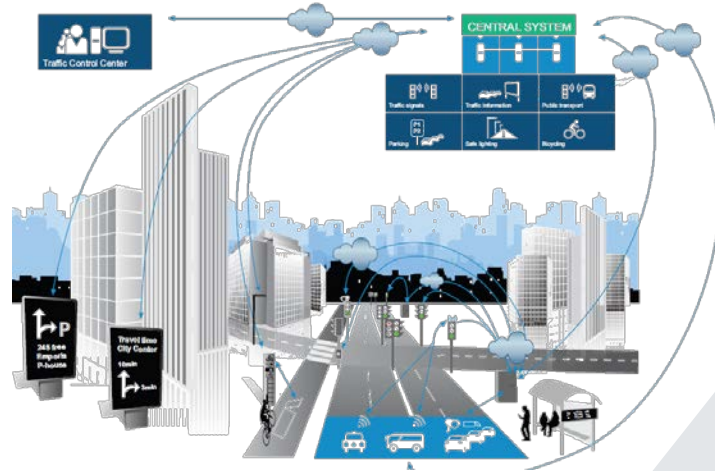
> **Challenges**

> > Increasing world urbanisation
> > Quality of life
> > Environmental impact

> **Needs**

> > Faster movements from A to B
> > Low cost transport
> > Timely and effective Info-mobility
> > Intelligently combine the huge amount of existing mobility-related information
> > Improvement of infrastructure capacity and incident management by means of added-value mobility services
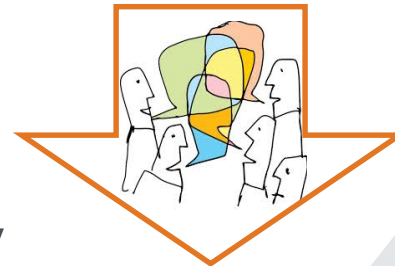
> Modern mobility users make use of ICT technologies: wireless communication systems, nomadic devices, positioning techniques, vehicle-to-infrastructures cooperative systems, 'Future Internet' etc. to improve "quality of" and "access to" services

> The "APPs-centric era" is moving focus to individuals strongly linked by "social networks". The end user can be in the same time a service/content provider not just a service consumer

> Such concept to Road Traffic Management will give advantages for both operators and end-user

Evolutions in Traffic Management
From classic to interactive

Peripheral units:

❯ Implement new communication technologies

❯ Are enabled for Future Internet architecture

Traffic Control Centers:

❯ Real Time Algorithms reacting to changing situations and predicting

> ❯ More responsive and more accurate
> ❯ Big Data and Cloud technologies
> ❯ Less dependency on legacy

❯ Dispatch Traffic and Travel Information area wide

❯ Latest and accurate situation data

❯ Control strategies

❯ Single point of data access for travelers

Evolutions in Traffic Management
Semi-automated scenario management

Traffic management

- **System integration**
- **Data processing**

Semi-automated scenario management

- **Traffic status prevision**
- **Real-time network monitoring**
- **Corrective actions implementation**

- It **acts** on on-field systems in answer to a **trigger** coming from the recognition of a specific (**traffic) condition**

- Graphical interface makes an operator able to

  - Define **traffic scenarios**
  - Define the **strategy** to activate, after triggering
 - Select **actuators** (TLC, VMS, …)
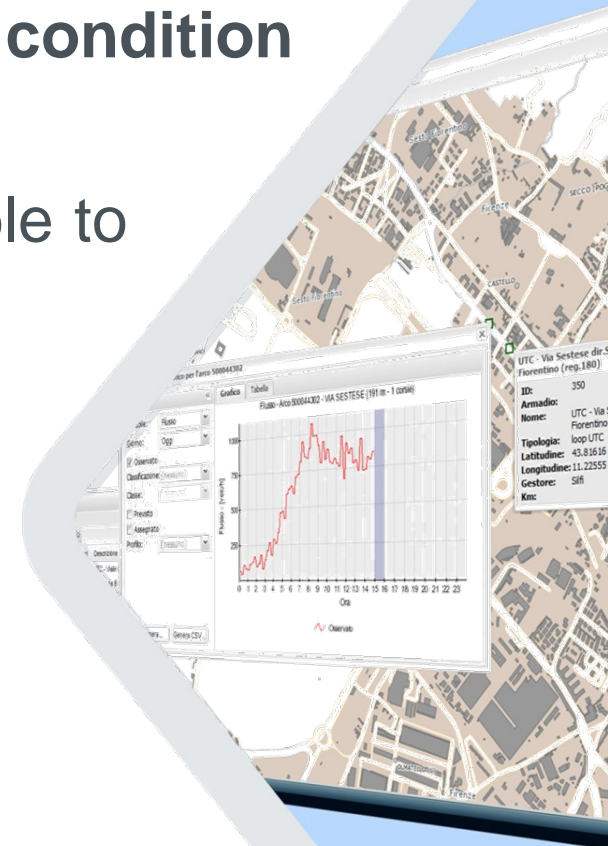
> Strategy Manager: decision support tool, baed on scenario concept which helps the operators in taking the proper actions in order to reach the service goals and policies related to traffic, environment and urban life.

> Every scenario is defined providing:
> > control points
> > activation conditions for the control points
> > activation conditions for the strategy
> > activation type (automatic, semi-automatic, manual)
> > actions (operations control for assigned objects)
> > priority
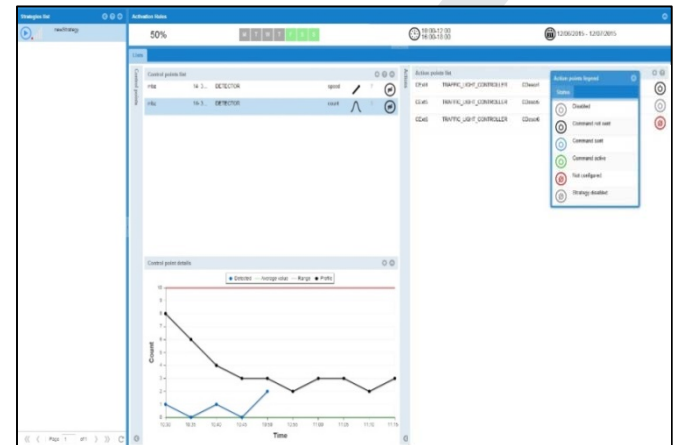
Galway

- Deterministic association traffic scenario-strategy
- Strategy involves VMS and UTC systems
- Trigger depends on
  - Flow on a set of links
  - Congestion on a set of links
  - Incidents on a set of links
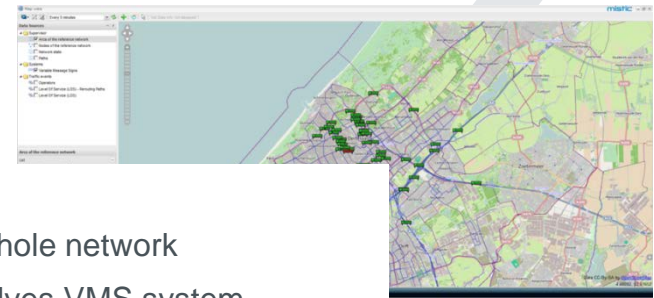
Den Haag

- Observation is done on the whole network
- Strategy implementation involves VMS system
- Strategy configuration steps:
  - Identification of paths which will help the relieve of traffic congestion
  - Association of messages to VMS on that paths
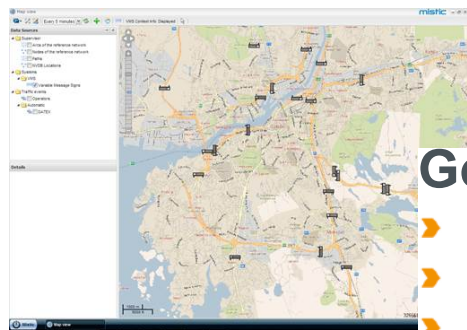
Gothenburg

- The solution works on the whole network (not on specific arcs)
- Strategy implementation involves VMS system
- Non-deterministic association action-event (strategy-scenario):
  - If an event is detected SM identifies a set of "effective panels"
  - The message on the VMS is automatically composed (algorithm)

Best Practices
Florence Supervisor

❯ **Description of the solution**

Mobility Supervisor
- ❯ More than 20 heterogeneous systems coming from different technology suppliers integrated
- ❯ Standard interfaces that allows to add at any time new systems
- ❯ Collects and presents in homogenous manner data that comes from different sources
- ❯ Elaborates collected data in real time and defines a predictive scenario of the traffic situation

❯ **Systems integrated**
- ❯ 244 Centralized intersections
- ❯ 80 VMS
- ❯ 146 PT lines

❯ **Strategy Actuation channels**
- ❯ PMV , UTC
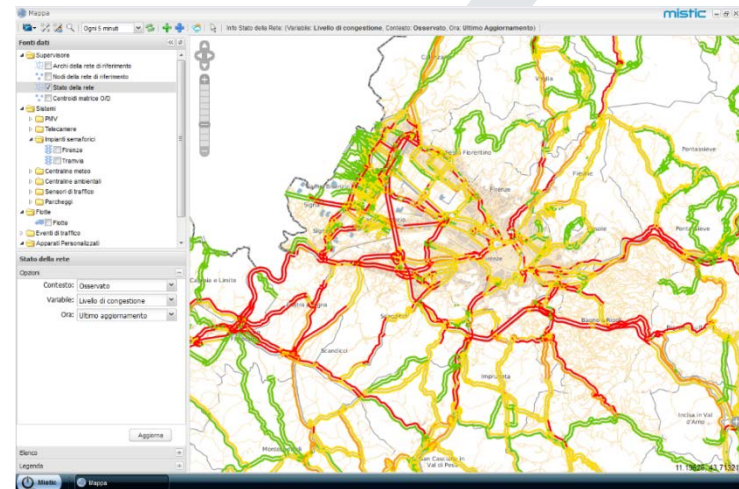
> **Define/ implement protocols/ interfaces for the interaction with authorities and first responders in strategy actuation phase**

> **Extension of the actuation channels (TLZ, preferetial lanes, network itself)**

> **Resilience DASHBOARD**

> **Integration with RESOLUTE components**

>> **CRAMMS: semi-automated DSS**

>> **Data acquisition&analysis modules: triggering conditions**

Thank you for your attention!

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