

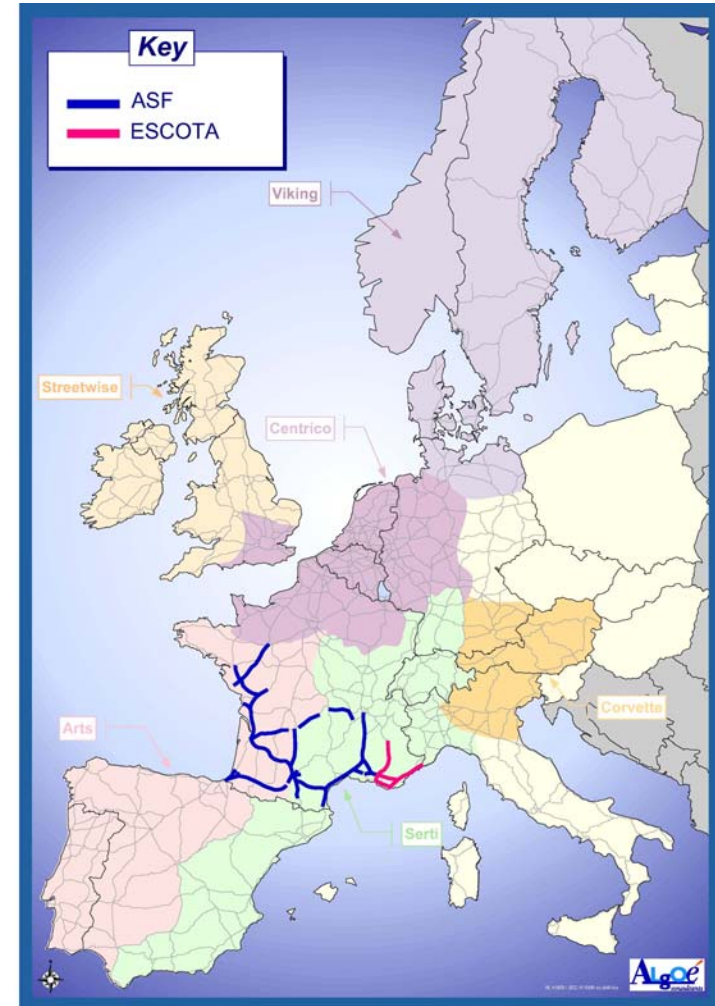
Traffic management on the TERN :

A road operator point of view

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- ASF -

ASF and ESCOTA companies are partners of the 2 Euro-Regional Projects ARTS and SERTI, since 1998

- A 3000 km long network, with the following characteristics :
 - A strategic European corridor between north and south of Europe
 - Heavy traffic, especially during holidays period
 - High proportion of HGV
 - Several Cross-Border connections with Spain and Italy
 - Important proportion of foreigners



The past challenges on traffic management

ASF as road operator had to face in the past years :

❖ A continuous and important increase of traffic volumes :

Over the last 15 years (1990-2004),

– total traffic increased by 60 % (ie annual evolution rate of 4%) while the network length increased by 40%

– a quicker evolution of the HGV traffic :

▶ +6%/year

▶ some sections with higher evolutions (cross-border areas : +10%/year on the A9, +15%/year on the A63)

– HGV traffic reaching 18-20% of the total traffic (35% in the cross-border areas)

– foreign traffic reaching 30% during summer migrations (50% on cross-border)

–Some difficult sections to operate :

– A7 (Lyon-Marseille) / A8 (French Riviera)

/ A9 (Mediterranean coast) / A63 (Basque country)



The past challenges on traffic management

ASF as road operator had to face in the past years the following challenges :

➤ **A will to improve road safety :**

– **Accidents data on the ASF network (1900 km long) in 1995 :**

- ▶ **4500 damage-only accidents**
- ▶ **711 bodily injuries accidents**
- ▶ **84 people killed**

A strategy to face these challenges

- This strategy was based on ITS deployment in order to :
 - Optimise the use of the road infrastructure
 - Reduce injuries and accidents risks on the network

- More precisely, within the frame of SERTI, the following equipments and traffic management systems were deployed :
 - **Monitoring** : traffic counting and weather stations, video-surveillance
 - **Data processing** : DATEX nodes, creation of TCCs and upgrade of TMS
 - **Alert systems** : emergency call boxes networks
 - **Feedback to the user** : iso-radio, RDS TMC, VMS, web info, travel time

 - (Traffic management Plans, notably on cross-border areas)

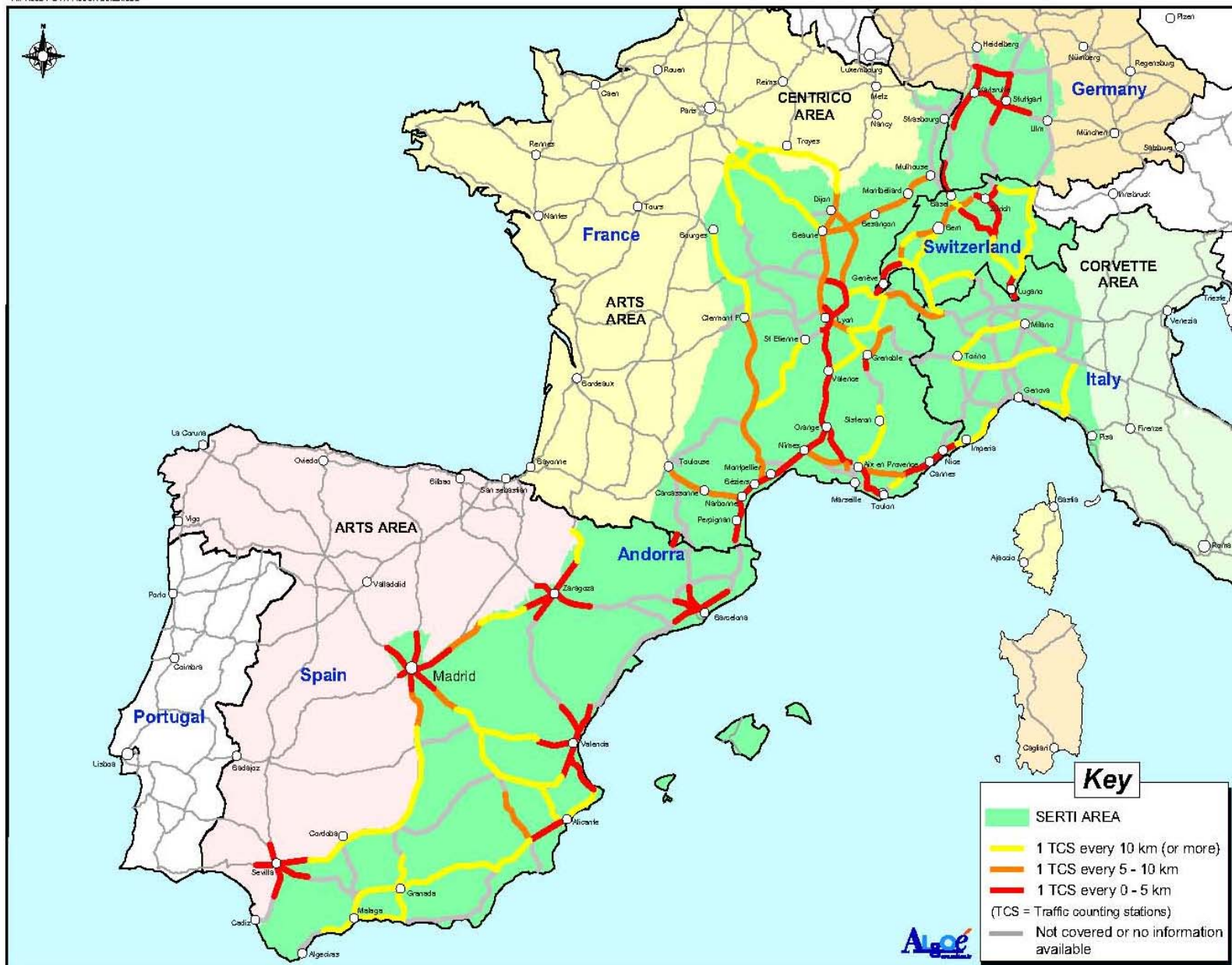
➤ Monitoring

- From 1997 to end of 2003, 55 M€ were invested in «monitoring infrastructures» within the SERTI project
- The level of monitoring has considerably improved :
 - ▶ More than 60 weather stations
 - ▶ More than 400 videosystems

SERTI - Domain 1 - Monitoring Infrastructure

Density of traffic counting stations - December 2003

At: H569 / GTR-A008R-sc.dsf@ceba



The strategy

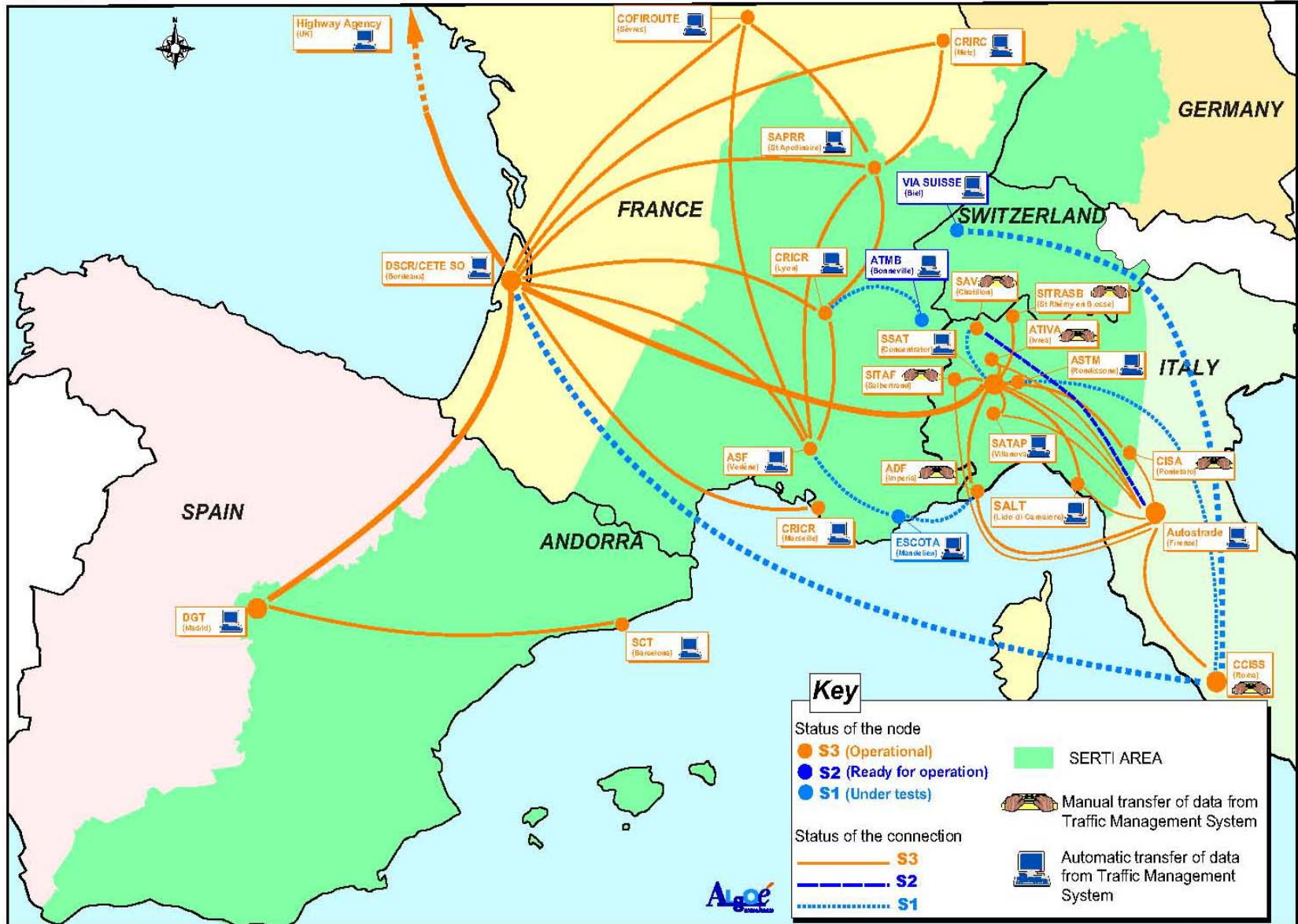
➤ Data processing :

- Since the beginning of the programme, 40 M€ have been invested in the domain «European Network of Traffic centres»
- More than 20 Traffic Control and Information Centres have been installed or upgraded
- 20 DATEX nodes are operational to exchange traffic data

SERTI - Domain 2 - European network of traffic centres

DATEX nodes and connections - December 2003

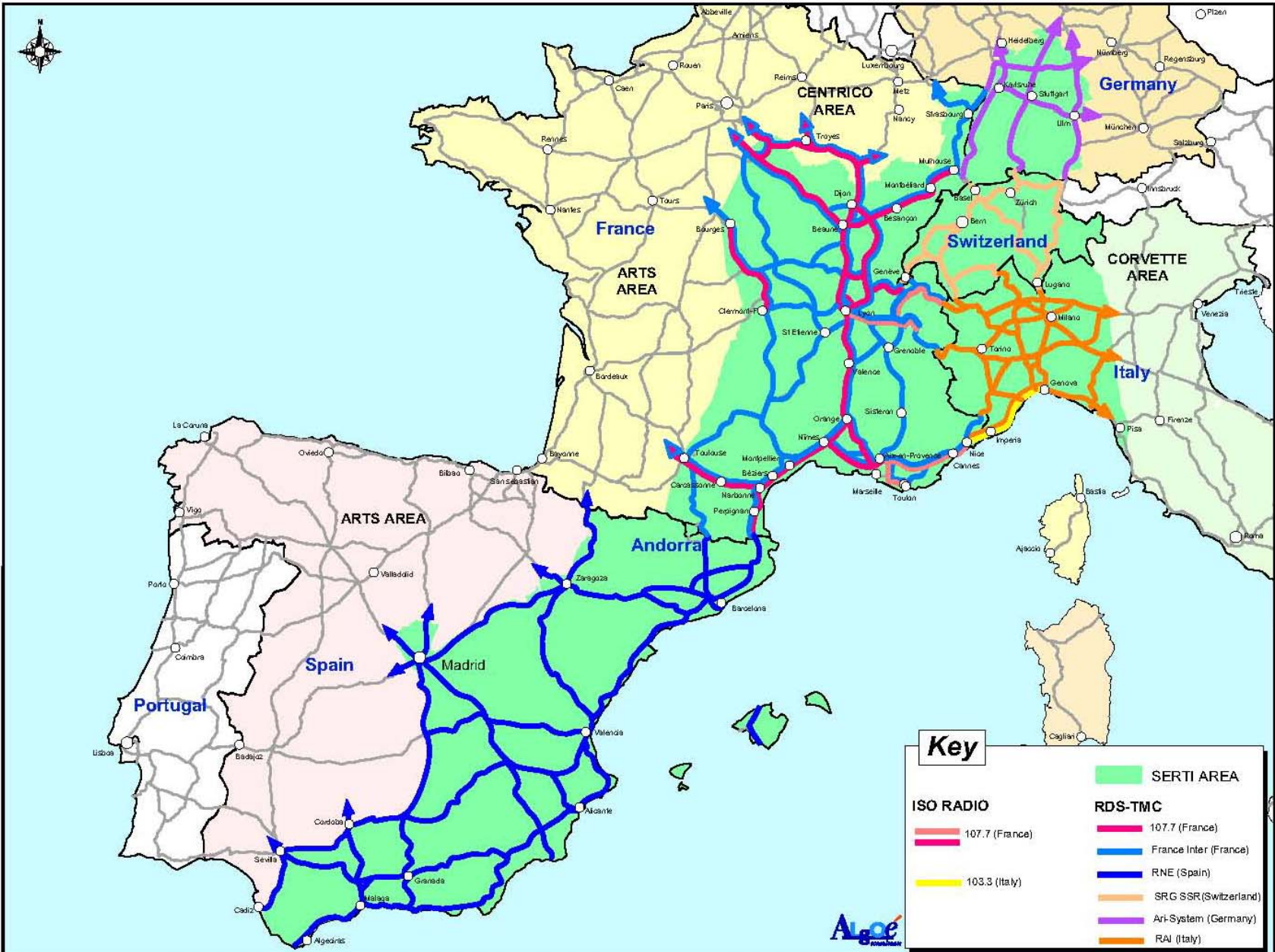
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The strategy

➤ Feedback to the user

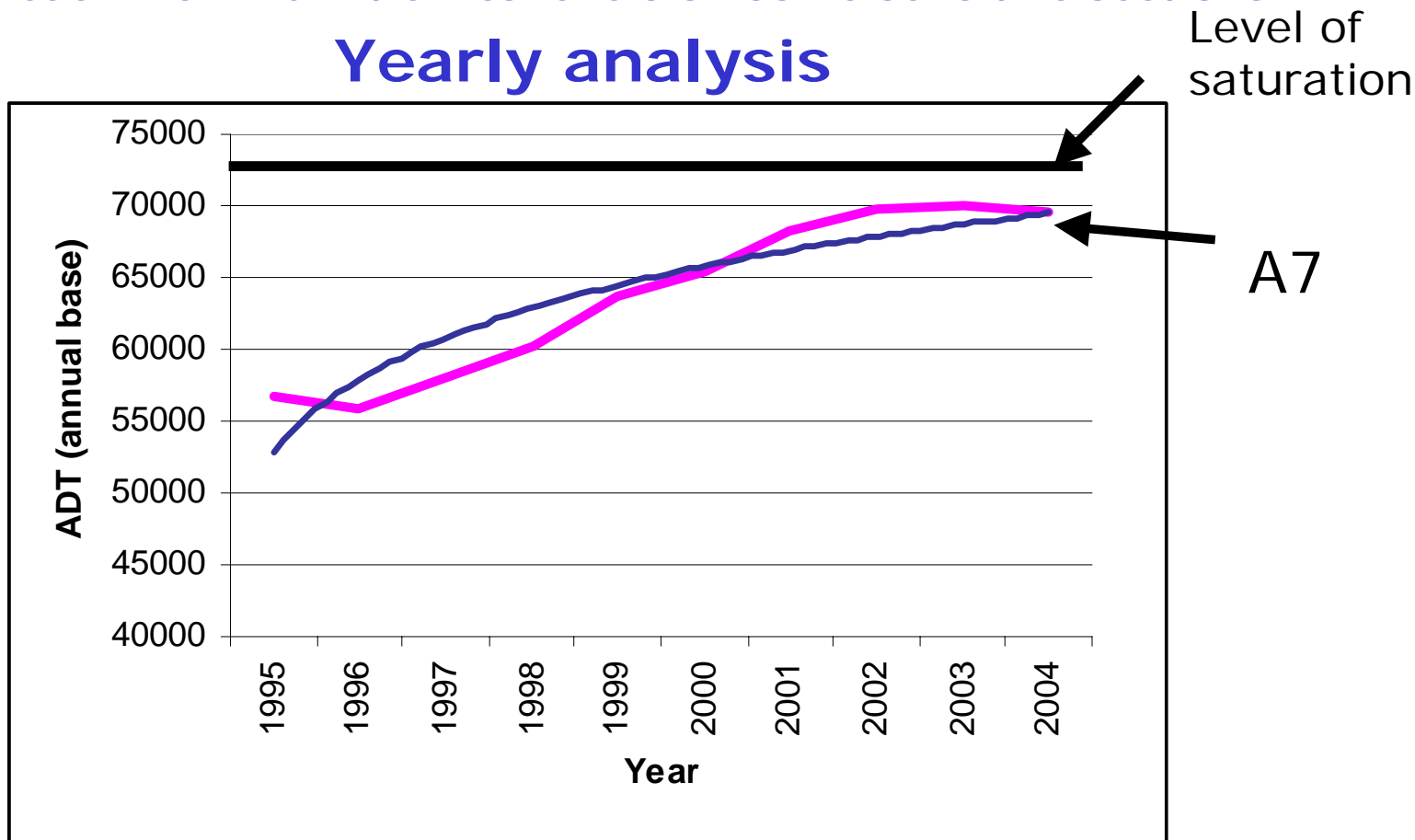
- Since the beginning of the programme: 50 M€ have been invested in «Travel Information Services»
 - Around 2200 km of highway have been covered by Isoradio
 - The overall French, Spanish, Swiss, NorthWest of Italy and Baden Württemberg territories are covered by RDS-TMC.
 - Approx 250 Variable messages signs were installed



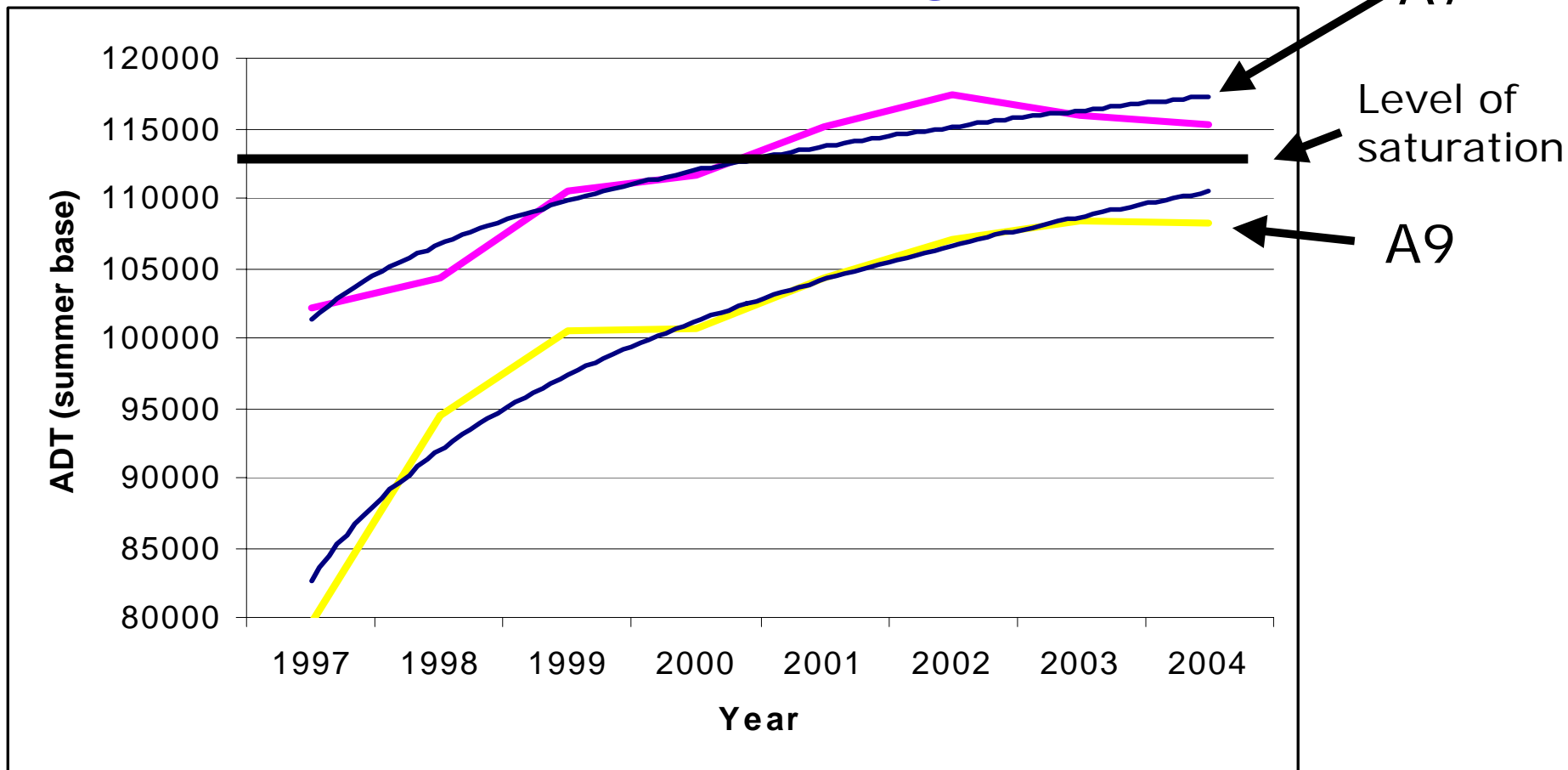
The overall results

- Today we consider that (1):
 - ITS helped to optimise the use of the existing infrastructures and reach maximum traffics levels on some sensitive sections

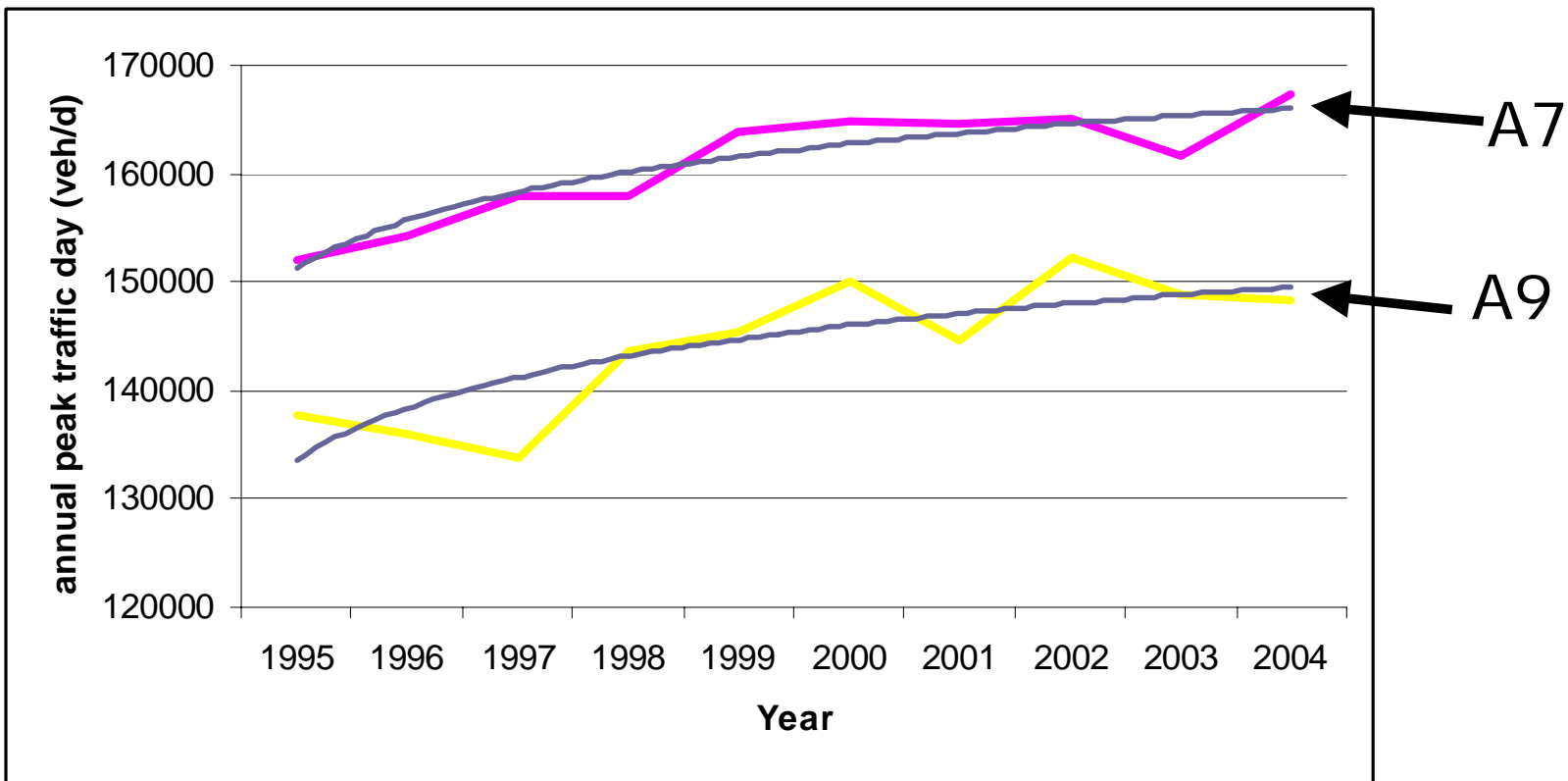
Yearly analysis



Summer analysis



Peak days analysis



The overall results

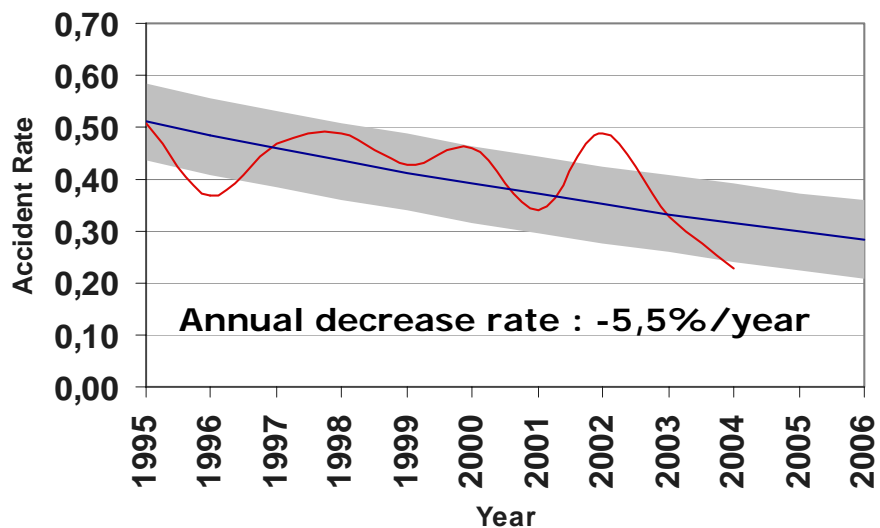
➤ Today we consider that (2) :

– ITS helped to achieve a significant enhancement of road safety :

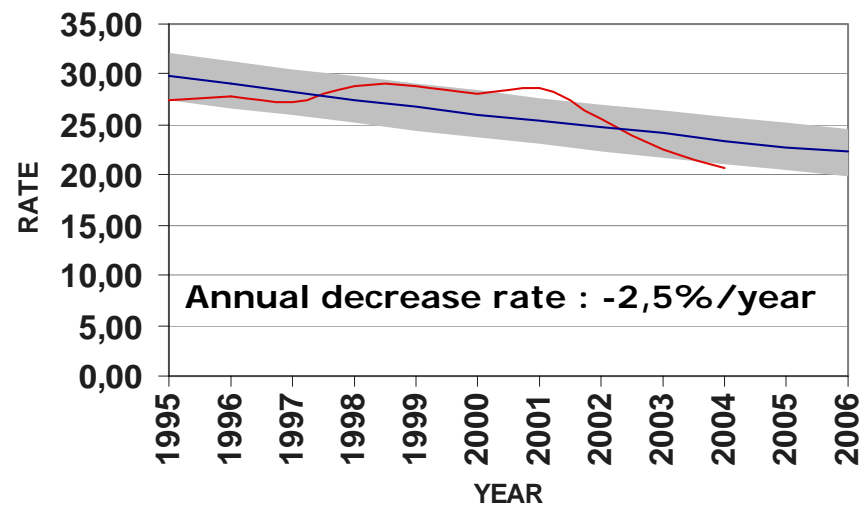
▶ Over the 95-2004 time period, accidents and victims rates have strongly decreased on the ASF network :

- -5,5 %/year concerning killed people
- -2,5%/year concerning material-only accidents
- In 2004, « only » 58 killed people vs 84 in 1995

**EVOLUTION OF THE KILLED PEOPLE RATE
(10⁸) - ASF**



**EVOLUTION OF MATERIAL-ONLY
ACCIDENTS RATES
(10⁸) - ASF**



The overall results

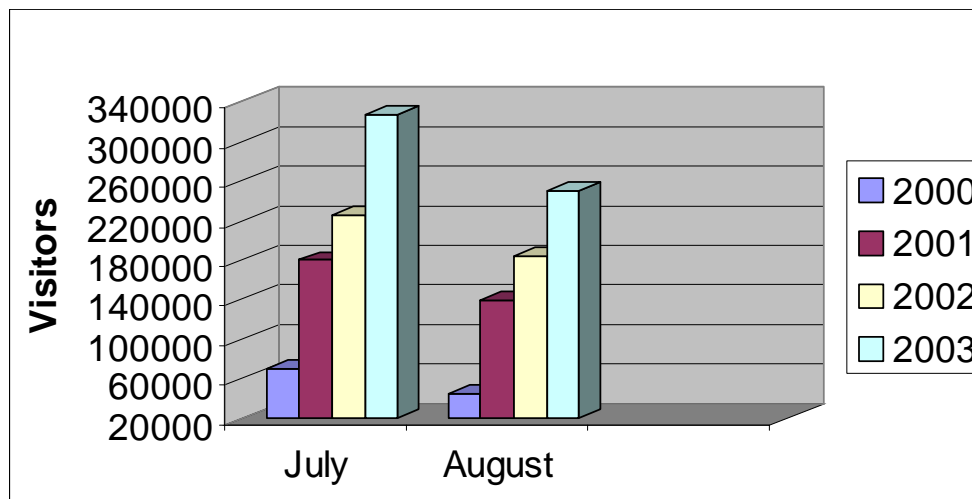
➤ Moreover, the use of ITS was extended from TM purposes to TIS purposes :

- High performance services were set up : 107.7, web traffic, pictograms on VMS, RDS-TMC, travel times information....
- End user satisfaction is regularly assessed :

➤ Examples of TIS end-user appreciation :

1/ web traffic site (www.asf.fr) :

- ▶ A constant increase of connections, since the service has been launched operationnaly
- ▶ 120 000 connections/month during off-peak periods, 300 000 during heavy traffic periods



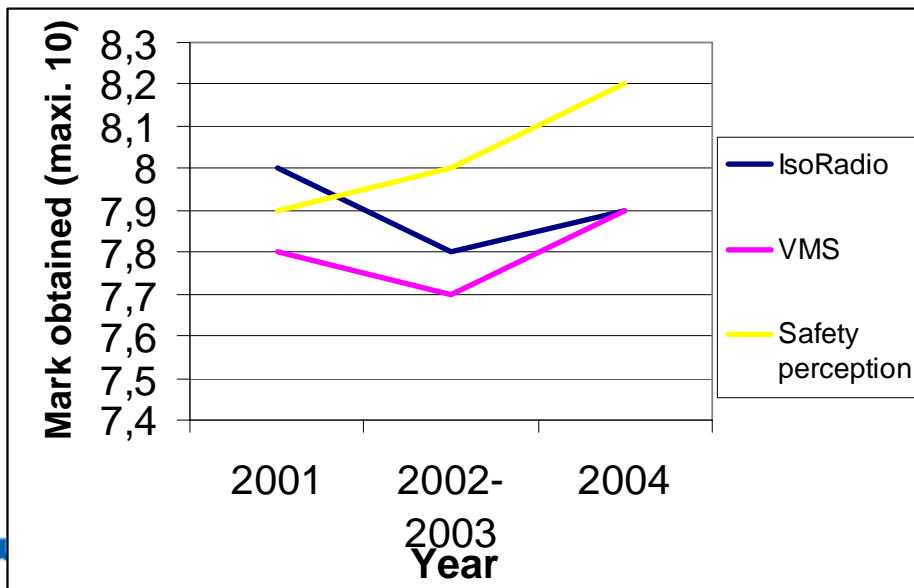
The overall results

2/ Travel times information : (surveys conducted in 1998)

- ▶ more than 90% of motorists satisfied
- ▶ The « travel time » information is memorised by 80% of them
- ▶ « travel time » information is used by 60% of motorists in their driving strategy
- ▶ 75% of motorists ask for the extension of such a service

3/ 107,7 IsoRadio and VMS real-time information :

- ▶ Surveys conducted annually by the ASFA
- ▶ Between 3000 and 5000 drivers polled each year
- ▶ Real-time info perceived as essential by drivers in their motorway trip



- ▶ > 7 : satisfactory
- ▶ between 7,5 and 8 : very good results
- ▶ > 8 : excellent mark
- ▶ Results on other topics ranging from 6,9 to 8,5
- ▶ Special requests : install more VMS !!
+ pbs to understand « foreign » VMS messages (→ Mare-Nostrum...)

The overall results

4/ 107,7 IsoRadio :

- ▶ Surveys conducted annually by ASF
- ▶ High level of satisfaction (85% of drivers satisfied by the quality and rapidity of the information transferred to them)
- ▶ Level of audience : between 35 and 40% during normal traffic periods, rising up to 80 to 90% during crisis or summer peak periods
 - ➔ This 107,7 FM is seen as a powerful mean to inform but also to manage traffic dynamically

➤ **Cost-effectiveness of these ITS applications :**

➤ **Exp 1 : the « speed control » experiment launched on the A7 :**

- **More than 30 000 hours of congestion « saved » corresponding to :**
 - ▶ **1,3 Million € of socio-economic gain**
 - ▶ **An average “time gain” per vehicle of 10% on the corridor**
- **Increase of « traffic volumes » flowed during peak periods by 10% on average**
- **Decrease of accidents by 48% (77% for bodily injuries)**
- **A very good appreciation of the operation :**
 - ▶ **87% of the drivers think the operation was useful or very useful**
 - ▶ **77% of the drivers think was a little or not restraining**
 - ▶ **75% think they (clearly or probably) benefited from the operation during their trip on the A7 motorway**

➤ **Cost-effectiveness of these ITS applications :**

➤ **Exp 2 : cross-border TMP :**

➤ **Objective : increase efficiency during crisis occurring on the cross-border area (France – Spain),**

➤ **definition of common operational procedures and development of exchange tools (bilingual fax)**

➤ **A pragmatic system, integrating local actors and competent decision-making levels**

➤ **in place since 2002, activated 15 times, 7 of which being for crisis (ie 2 major crisis to handle every year)**

➤ **exp in January 2003 (snow crisis in France) :**

- The border was closed to HGV traffic in less than 30 minutes after French partners asked it to Spanish ones
- 5000 HGV were stocked in Catalonia for about 12 Hours
- Closure of motorway in France has been avoided due to this excellent reactivity
- Socio-Economic cost of half-day closing of a 50km section: approx 150 k€

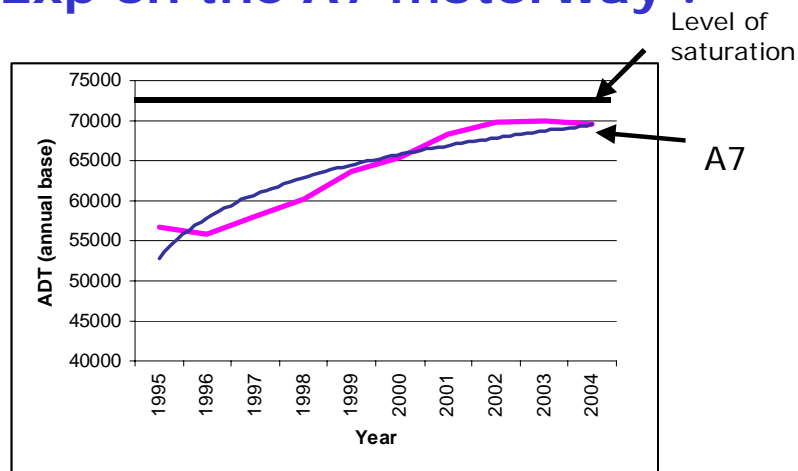
The results : synthesis

➤ That shows that ITS are

- A good tool for road safety and optimisation of the infrastructure capacity
- An efficient tool for helping TM purposes
- Reliable equipments, (technologically mature), (quite) easy to deploy
- Cost effective

The future stakes

- Medium-term (2020) traffic forecasts anticipate, at national level, traffic evolution comprised between 1.5 and 2%/year on the road system
- Exp on the A7 motorway :



▶ « normal » scenario :
92 300 veh/d in AADT in 2020

▶ Voluntarist scenario (better balance of transport modes, enlargement of existing infrastructures, better management of traffic demand)
: 76 000 veh/d in 2020

- Another element of context : the massive arrival of eastern countries traffics (HGV notably), which are not modelled yet :
 - Appearance of the phenomom mainly in 2004 – survey ongoing on the topic
- ➔ That calls for action from public authorities and road traffic managers

The future stakes

- **More precisely, we expect and plan the following for the coming 5 / 10 years (1)**
 - **An increasing demand for reliable on trip information services**
 - **An important increase for HGV services and management of this category with a long distance perimeter :**
 - ▶ Need for operational coordination between european operators
 - ▶ Need for information services in cooperation with fleet managers
 - ▶ Need for specific services for HGV drivers

The future stakes

➤ **More precisely, we expect and plan the following for the coming 5 / 10 years (2)**

– A need to increase safety linked to the HGV traffic :

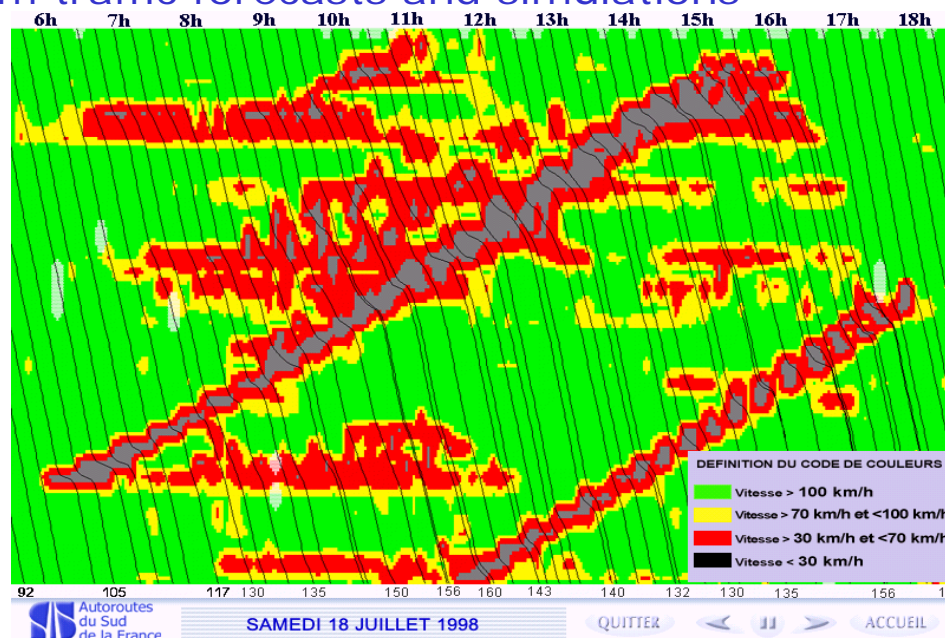
- ▷ improving the safety of the LV/HGV cohabitation, in order to lower accident risks
- ▷ Particular emphasis on hazardous goods vehicles treatment

– A willingness to lower secondary accidents :

- ▶ Integration of the e-call : for a better detection
- ▶ Improvement of alert systems : for a better information

The future stakes

- More precisely, we expect and plan the following for the coming 5 / 10 years (3)
 - A necessity to enhance traffic manager tools and systems for more reactivity and accuracy especially for :
 - ▶ Short term traffic forecasts and simulations



- ▶ Integration of tactical traffic management : speed control, ramp metering, toll modulation
- ▶ Integration of « Action Plans » : for quicker and better reaction to the event, activation of TMP measures

Need for future programs

- **The future stakes, call for a follow up of european coordination and support on both research and deployment on ITS**
- **Tempo 2007-2012 ?**