Our interest in a model for Spain

Francisco Aparicio Izquierdo
Director of INSIA
INSIA IS COMPOSED OF A GROUP OF **90 PERSONS**

- **15 LECTURERS OF THE UPM**
- **38 ENGINEERS AND GRADUATED STAFF**
- **17 SCHOLAR STUDENTS**
- **20 ADMINISTRATIVE AND SERVICES STAFF**

DOCTORS IN THE INSTITUTE **13**
NERDS-RSVP WORKSHOP, INRETS 30 MAY, 2007

DIVISIONS

SAFETY AND INTELLIGENT SYSTEMS RESEARCH IN VEHICLES.
- ACCIDENTOLOGY AND VEHICLE DYNAMICS UNIT.
- BIOMECHANICS, COLLISIONS AND PASSENGERS PROTECTION UNIT.
- VEHICLE INTELLIGENT SYSTEMS UNIT.
- TRANSPORT RESEARCH UNIT.

COLLECTIVE, INDUSTRIAL AND SPECIAL TRANSPORT.
- BUSES, COACHES AND ACCESSIBLE TRANSPORT ENGINEERING UNIT.
- INDUSTRIAL AND SPECIAL VEHICLES ENGINEERING UNIT.

ACOUSTICS R&D.

OFFICIAL APPROVAL AND TESTS.

TRAINING, DIFFUSION AND DOCUMENTATION.
ROAD SAFETY IN SPAIN

Number of road fatalities. 1960-2005.

NOTE: From 1993, the number of fatalities comprise all persons killed within 30 days from the accident (previously: 24 hours).

NOTE: Persons killed within 24 hours days from the accident in intercity network.
INTERNATIONAL COMPARISON

Number of fatalities per million inhabitants. EU-25, 2005.
INTERNATIONAL COMPARISON

ITALY

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SPAIN

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Number of fatalities per thousand vehicles.
INSIA: TRANSPORT RESEARCH UNIT

RELEVANT PROJECTS:

**SETISMO**: STUDY OF THE TRANSPORTATION SECTOR IN SPAIN.

**SETRAM**: SAFETY IN GOODS TRANSPORT: INFLUENCE OF MODAL SHIFT AND TECHNOLOGICAL EVOLUTION.

**MEITRAM**: GOODS TRANSPORT IMPACT ON ENVIRONMENT AND ENERGY CONSUMPTION. INFLUENCE OF MODAL SHIFT.

**DRAG-SPAIN**: INTEGRATED METHODOLOGY FOR THE EVALUATION OF THE IMPACT OF TECHNOLOGICAL AND SOCIOECONOMIC VARIABLES ON SAFETY.

**BIG**: DATABASE OF INFORMATION ABOUT MOBILITY, SAFETY AND ENVIRONMENT.

**BAROMETERS OF SAFETY AND EMISSIONS**.

**DGT AGREEMENT**: DEFINITION, ESTIMATION AND ANALYSIS OF SAFETY INDICATORS.

**MIEVA**: INTEGRATED METHODOLOGY FOR THE EVALUATION OF THE IMPACT OF GOODS TRANSPORT ON SAFETY.
SETISMO PROJECT

Study of the transportation sector in Spain. Development and application of models for the analysis of the conditions for a sustainable growth of mobility (SETISMO project).

FUNDING: NATIONAL R&D PROGRAMME, ANFAC, RACE, AOP, AEC.

√ TRANSPORT DATABASE
√ COST OF ROAD ACCIDENTS
√ POLLUTANT EMISSIONS
√ FORECASTS 2000-2010:
  ✓ MOBILITY
  ✓ VEHICLE FLEET
  ✓ FUEL CONSUMPTION AND EMISSIONS
  ✓ ROAD FATALITIES
SETRAM: SAFETY IN GOODS TRANSPORT: INFLUENCE OF MODAL SHIFT

FUNDING: NATIONAL R&D PROGRAMME, MINISTRY OF TRANSPORT.

- STATISTICAL ANALYSIS OF FREIGHT TRANSPORT AND IDENTIFICATION OF RELEVANT TRANSPORT CORRIDORS
- STATISTICAL ANALYSIS OF ACCIDENTS WITH HGVs
- MODELLING OF HGVs TRAFFIC IMPACT ON SAFETY (POISSON MODELS)
- INFLUENCE OF MODAL SHIFT
- APPLICATION TO RELEVANT TRANSPORT CORRIDORS

\[
P(y(r,t) = m) = \frac{(\lambda(r,t))^m \cdot e^{-\lambda}}{m!}
\]

\[
\lambda(r,t) = \exp(\sum \alpha_i \cdot x_i(r,t))
\]
**DIRECTORATE-GENERAL FOR TRAFFIC (DGT):**


For the first time it sets a quantitative target: 40% reduction of road fatalities in 2003-2008. Not based on any scientific assessment, but rather on the adaptation of the EU objective to the government’s current term.
MOTIVATION:

√ Need of a scientific tool for:

√ Assessing the influence of socioeconomic, technological and legislative variables.

√ Evaluating the impact of different scenarios.

√ Designing and evaluating road safety policies.

√ Setting and monitoring national quantitative targets.

√ Lack of similar research in Spain.

√ Existence of a methodology successfully applied in several countries and regions: DRAG models.

FUNDING:

National R&D Programme  Directorate-General for Traffic  Spanish Association of Automobile Manufacturers
CURRENT STAGE: FINISHING DECEMBER 2007

FUTURE APPLICATIONS AND DEVELOPMENTS:

→ APPLICATION OF THE DRAG-SPAIN MODEL TO ASSIST THE SPANISH DGT IN DESIGNING AND EVALUATING SAFETY POLICIES.

→ UPGRADE OF THE CURRENT VERSION OF THE MODEL.

→ DEVELOPMENT OF A `TRUCK ACCIDENTS DRAG MODEL`:

**MIEVA PROJECT:**
- Funding: Ministry of Transport, Directorate-General for Traffic.
NERDS-RSVP WORKSHOP, INRET 30 MAY, 2007

MIEVA PROJECT

DATABASES

- ROADS
- VEHICLES
- ACCIDENTS DATABASE
- SAMPLES
- TACHOGRAPH DATA
- OPERATORS
- DRIVERS
- FREIGHTS
- SOCIO-ECONOMIC VARIABLES
- OTHER

DRAG

COSTS

ANALYSIS OF SCENARIOS
COST MODEL
SPECIFIC DATABASE
CONCLUSIONS RECOMMENDATIONS

ACCIDENTS

IN-DEPTH STUDIES