



# Introduction to AIMSUN and TSS-Transport Simulation Systems

September 2007



## TSS Mission

- Provide to traffic and transportation engineers with an integrated software environment for modelling, analysis and management purposes



- Offer additional services, such as a consultancy in traffic and transportation projects, technical support, software maintenance, training and customisation



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## TSS Origins

- Founded in 1997 by members of LIOS, a transport research group within the Dept. of Statistics and Operations Research, Universitat Politècnica de Catalunya, Barcelona, Spain
- AIMSUN is the outcome of more than 15 years of research through the participation in the R&D Programs of the European Union, as well as in national R&D programs and in real life projects



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## European Research Projects (I)

### 1989-1991 DRIVE I Programme

- **ASTERIX**: System and Scenario Simulation for testing RTI (Road Transport Informatic) Systems
- **SOCRATES**: System of Cellular Radio for Traffic Efficiency and Safety

### 1992-1994 DRIVE II (ATT Programme)

- **GAUDI**: Automatic Debiting and Zone Access Control for Demand Management
- **ARTIS**: Pilot Project on the Application of Advanced Transport Telematic Applications to Traffic Management
- **KITS**: Knowledge Based Intelligent Traffic Control Systems
- **SAVE**: Avoiding High Fuel Consumption in Congested Cities (Evaluation of the benefits of an intelligent supervisor for UTCS)

### 1996-1998 4th Framework Programme

- **ENTERPRICE**: Integrated traffic management and information systems
- **IN-RESPONSE**: Automatic Incident Detection and Management
- **CAPITALS**: Advanced Wide Area Traffic Management



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## European Research Projects (II)

 Transport  
RTD Programme



- **SMARTTEST**: Simulation Modelling Applied to Road Transport European Scheme Tests: Future Developments in Traffic Simulation (1997-1999)



- **PRIME**: Prediction of Congestion and incidents in Real-Time for Intelligent Incident management and Emergency Traffic Management (1999 - 2000)



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## European Research Projects (III)



- **INTRO**: Intelligent Roads. Combined use of real-time network technologies, road databases and sensor technologies to improve road safety and capacity. (2005 - 2007)
- **eMOTION**: Europe-wide multi-Modal On-trip Traffic InformatiON (2006-2007)



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## US Research Projects



- **NG SIM** FHWA Next Generation Simulation
  - TSS belongs to the NGSIM Software Developers Group
  - Co-sponsor of FHWA Modeling & Simulation Conferences
  - **Task Order 6**: Commercial Validation of Freeway Lane Selection Models, developed by MIT (2005)
  - Validation of new Oversaturated Car Following model, developed by the University of Berkeley
- **SSAM** Surrogate Safety Assessment Model (2004-2006)
  - assessment of surrogate measures of safety from existing traffic simulation models. With **SIEMENS** ITS for FHWA



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## AIMSUN Development

### LIOS – Universitat Politecnica de Catalunya

- 1989 – 1997 From GETRAM v1.0 to v3.1

### TSS – Transport Simulation Systems

- 1998 **GETRAM 3.2 (Tedi + AIMSUN)**
  - 1999 Version 3.3
- 2000 **GETRAM 4.0** *Public Transport*
  - 2002 Version 4.1 *3D animation*
  - 2003 Version 4.2
- 2005 **AIMSUN NG 5.0** *Join Tedi & AIMSUN, Planner*
  - 2006 Version 5.1
- 2007 **AIMSUN 6.0** *Macro-Meso-Micro, Logistics*



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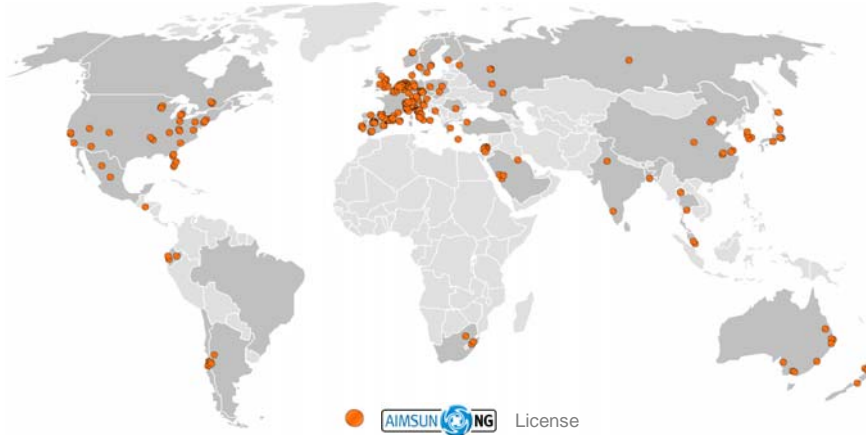
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## AIMSUN licenses worldwide

375 Organizations => 850 Users



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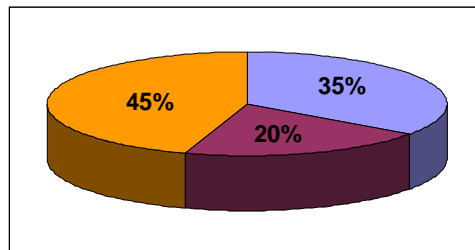
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## AIMSUN Users Typology

- **Private Companies**
- **Universities and Research Centers**
- **Governmental and Public Entities**



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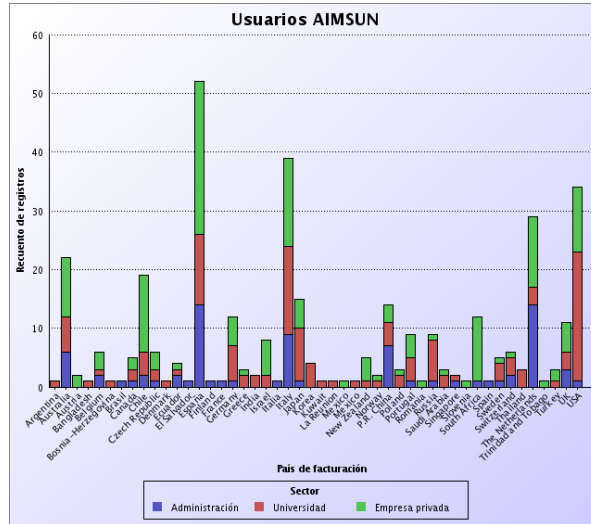
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## AIMSUN Users / country



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## AIMSUN Users in Australia & NZ

- 24 Organizations / 54 Users
- 7 Universities
- 4 Traffic Authorities
- 13 Private companies



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## AIMSUN Technical Approach

- **Integrated Model: AIMSUN Macro-Meso-Micro**
- **AIMSUN: open software architecture**
  - To program user applications
  - To built interfaces with other systems
- **AIMSUN Interfaces**
  - EMME/2, SATURN, CONTRAM, CUBE, Paramics, GIS
  - SCATS, VS-PLUS, UTOPIA, TRANSYT, Synchro
- **Strategic Alliance TSS - Legion**
  - Integration of Traffic and Pedestrian Simulation



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## TSS – AIMSUN Image

- **AIMSUN: the highest technical quality**
  - **Best software environment**
  - **Best traffic models**
  - **Fully integration of traffic models: macro-meso-micro**
  - **Fastest simulator: real-time applications**
- **TSS: the best service to users**
  - **High quality technical support**
  - **Shortest response time**
  - **Take into account users needs**



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## Thank you



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