CENTRE FOR RESEARCH AND TECHNOLOGY HELLAS
CE.R.T.H.

HELLENIC INSTITUTE OF TRANSPORT
H.I.T.

# ANNUAL REPORT

# HELLENIC INSTITUTE OF TRANSPORT

# 2004



MAY 2005

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# 1 A NOTE FROM OUR DIRECTOR



*Prof. G. Giannopoulos*

The year 2004 was a very important year for the Hellenic Institute of Transport, from many aspects. Firstly, its research work was increased sharply both in terms of the number of research projects and the annual turnover, which was 67% higher than in 2003. Secondly, there was a wider recognition and acknowledgment of HIT as a center of high quality services provision and a center of excellence in the field of Transport at Greek and European level.

Thirdly, Greek governmental services in the field of transport and related fields have increasingly turned to HIT for scientific documentation and advise on policy formulation, a fact that fully complies with HIT's original terms of reference.

On the internal front, the year 2004 was a year of internal re-organization and regrouping of services (project sectors) in order for them to better correspond to the needs for integrated research programs, research partnership programs, networks of excellence, common research goals and more efficient operation.

I would like to thank all our research and administrative personnel, which together with the externals experts, has contributed to the Institute's rapid development and its pan-European recognition as a center of excellence for transport research. I would also like to thank the central administration and the administrative personnel of CERTH (the National Center for Research and Technology of Greece in which HIT belongs) for the constant support and excellent cooperation, at all levels.

Prof. G.A. Giannopoulos
Director Hellenic Institute of Transport

January 2005

# 2 PREFACE

Research in the field of Transport, as in many other scientific fields in Greece is in need of capable research organizations that will be able to play a key role in research activities using the needed research infrastructures. The research in the field of transport in Greece is entering a new era of development and maturity that is being characterized by:

- The establishment of high quality research infrastructure at national level
- The financial subsidy of research programs by national organizations - mainly General Secretariat for Research and Technology and ministries as the Ministry of Transport and the Ministry of Environment, Public Works and Planning
- The structure improvement of Greek research organizations from the aspect of project realization and monitoring
- The substantial participation of Greek research organizations in the field of Transport at European Level and mainly due to the establishment of the European Research Area by the EU

In 2004, HIT's main areas of activities were in the following areas:

- Implementation of Intelligent Transport Systems.
- Impact evaluation of the use of Transport Systems, especially in the field of security, environment and energy consumption.
- International cooperation
- Strengthening its position as the National Center for research and document support to policy making

All sectors of HIT continued the realization of projects initiated either in previous years or in 2004. It can be said that overall the year 2004 was a year of intense and substantial scientific activity at all levels.

# 3 SHORT PRESENTATION OF THE INSTITUTE

## 3.1 LEGAL STATUS/HEADQUARTERS



**Figure 3-1: H.I.T. premises**

The Hellenic Institute of Transport (HIT) is an Organization devoted to the promotion and execution of Transport research in Greece. It was established in March 2000, by Presidential Decree 77/2000 as part of the National Centre for Research and Technology Hellas (CERTH). It is a "private status" legal entity under the supervision of the General Secretariat for Research and Technology of the Ministry of Industry.

Its headquarters are in Thessaloniki, Greece. HIT is located in the Thessaloniki Technology Park – Charilaou - Thermi Avenue.

## 3.2 MISSION STATEMENT

Our fundamental mission is to provide the services of a centre of excellence in the field of Transport with highly specialized research expertise offered to government and other public and private organizations and bodies, and to provide support for the conduct of Transport research in Greece. It is also devoted to providing support to Ministries and other governmental bodies for the formulation of Transport policy.

The scope of services covers all areas of Transport and in particular the organization, operation, planning and development of infrastructure, standardization, economic analysis, management, vehicle technology and impact assessment of land, maritime, air, and multimodal transport services. HIT co-operates and interacts with similar organizations and Institutes in the EU and other countries, and represents Greece in relevant international fora.

The specific areas of HIT's priority activities, can be described as follows:

- Scientific and research support for transport policy formulation to Ministries and other Organizations involved in Transport Policy and Control in Greece.
- Specialized research in the field of Transport.
- Organization and operation of a documentation centre in the field of Transport.
- Development and maintenance of databases covering important areas of Transport Operation in Greece.

- Transport research evaluation and appraisal.
- Support of standardization work in the field of Transport and issuance of handbooks, rules and guidelines concerning the operation of the Transport system.
- Investigation of user requirements and adaptation of transport research results to industry.
- Technology transfer and dissemination of research results to the transport industry and the transport users.
- Facilitate exchange of personnel, especially young scientists, between relevant organizations and companies.



**Figure 3-2: CERTH headquarters with HIT's building in the middle**

- Promotion of bilateral as well as multilateral co-operation between Greece and other countries in the field of Transport, with emphasis on the countries of South East Europe.
- Representation of Greece, in Transport Research and other relevant scientific fora abroad
- Organization of training and professional education Seminars and Programmes.
- Contribution to quality control in the field of Transport.
- Publication and dissemination activities (including Conferences and regular publications).

# 4 ORGANIZATIONAL STRUCTURE

## 4.1 ORGANIZATION CHART

The current organigramme of the Institute, valid from mid 2004, is shown in Figure 4-1:

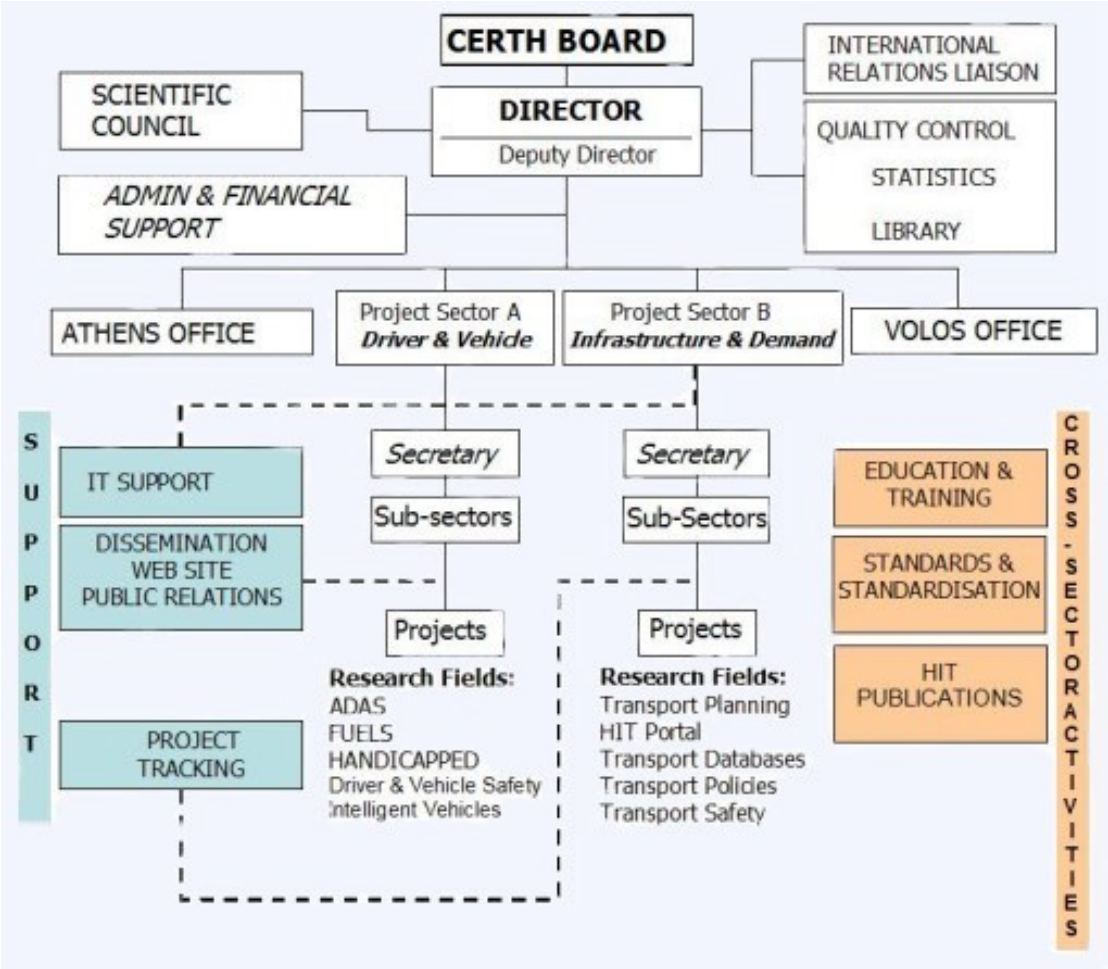



**Figure 4-1: HIT organization chart**

The mission statements and the activities description of the organizational units in Figure 4-1 are presented in Annex A.

HIT's Director, substituted by a deputy Director, manages the Institute in consultation with a five member Scientific Council of the Institute (SCI). The SCI members are senior members of the Institute's scientific personnel. The ultimate deciding body is the Board of Directors of CERTH.

More specifically, the Director of the Institute is responsible for the composition of the strategic development plan of the Institute, management of the human resources issues, the employment of new personnel or personnel discipline issues, the composition of the annual budget, the annual financial report and the annual review and the presentation of these statements to the Board of Directors. He is elected after

a procedure of public proclamation and nomination and an evaluation, which is done by an independent external committee. His post is held for five years. This procedure was done for the first time in 2003 and as HIT's first Director was elected Prof. G. Giannopoulos.

In 2004, HIT' s SCI consisted of: Prof. G. Giannopoulos, Prof. G Kanelaidis, Prof. M. Pitsiava - Latinopoulou, Dr. E. Bekiaris and Ass. Prof. A. Ziliaskopoulos.

In the beginning of 2004 five (5) Operational Sectors formulated the HIT's organizational structure. These were the following:

- Documentation and Databases
- Dissemination of research results, evaluation, and training
- Standards and standardization activities
- Quality control and safety promotion
- Specialized research and analyses

On June 1st, these sectors were consolidated to two (2) according to the new organization chart. The description of Sectors A and B is given in detail in Annex A. The notion of an "Operational Sector" is that of a large unit dedicated to a specific scientific field and equipped and staffed appropriately for this purpose. The size of an Operational Sector depends on the number of projects it has at any given point in time.

## 4.2 HUMAN RESOURCES 2004

HIT employed in 2004:

- Elected research personnel of A, B, C, and D category
- Administrative and scientific personnel under a private contract of specified or unspecified time duration
- External experts and counsellors under research contracts

Short CVs of the personnel of the first two categories, as well as some of the main external experts for 2004, are presented below:

### PROF. G. GIANNOPOULOS, CIVIL ENGINEER -TRANSPORT PLANNER, DIRECTOR

Prof. Giorgos Giannopoulos has been involved in the last 30 years in a number of activities in the field of Transport in Greece and the EU, and has been widely known as an expert on a number of Transport fields (especially Public Transport, Freight Transport and Intermodality and Transport policy issues especially European policies).

### *PROF. G. KANELLAIDIS, CIVIL ENGINEER – TRANSPORT PLANNER, DEPUTY DIRECTOR*

Prof. Giorgos Kanellaidis has more than 30 years of professional experience in the areas of Highway Design, Road Safety, Transportation Planning and Engineering. He has provided consultancy services to Greek organizations (Ministry of Environment, Town Planning and Public Works, PATHE Motorway, "Egnatia Odos") as well as international organizations (European Commission, ARRB Transport Research, Danish Road Institute, etc.).

### *DR E. BEKIARIS, MECHANICAL ENGINEER, H.I.T. PRINCIPAL RESEARCHER B'*

Dr. Evaggelos Bekiaris holds a degree and PhD of Mechanical Engineering Department of the National Technical University of Athens. His field of expertise ranges from Road Safety to specialized telematics applications for private vehicles, public transportation, even ships. He has also profound experience in technology for the integration of people with special needs, with emphasis on accessible transportation systems. Up to now, he has been Project Coordinator in 12 big research projects and has participated in 70 research projects funded by the EU.

### *DR. G. AIFADOPOULOU, CIVIL ENGINEER – TRANSPORT PLANNER, H.I.T. PRINCIPAL RESEARCHER C'*

Dr. Georgia Aifadopoulou holds a degree in Civil Engineering – Transport Planning of the NTUA. She specializes in the following sectors: Transport policy, Traffic Management, Telematics application in the filed of maritime, road and combined transport, fleet management and routing and in Operations Research emphasizing on its optimization. Her professional experience covers a wide range of studies and research projects concerning the study of big Transport Projects Feasibility implementation, the Design of Telematics Systems' Architecture in Transport and Operation Evaluation, Transport Systems Standardization and Monitoring (infrastructure and provide services quality), Road Safety, Combined Transports and Logistics.

### *DR. F. STERGIOPOULOS, ELECTRICAL ENGINEER, RESEARCHER D' (LEFT HIT AT THE END OF 2004)*

Dr. Fotis Stergiopoulos obtained his degree with honors in Electrical Engineering in 1995 and his PhD in Electrical and Electronic Engineering from the University of Birmingham, UK in 1999 working on power electronics applications for electric drives and power transmission. During 1998-1999 he worked as an R&D engineer at the Asea Brown Boveri (ABB) center in Sweden, in the area of power electronics. As a result of his work, he contributed in one patent and 3 other invention disclosures at ABB.

### *DR. YANNIS TYRINOPOULOS, TRANSPORT PLANNER – RESEARCHER D'*

Dr. Yannis Tyrinopoulos graduated from the Department of Mathematics of the University of Ioannina in 1992. In 2002, he obtained his Ph.D. at the Aristotle University of Thessaloniki, Greece with thesis "Telematics Applications in Public Transport: Development of an Integrated Management Information Model for the Planning and Management of Information Systems in Public Transport" and he is specialized in the application of IT solutions at the cutting edge of technology to the wider public and freight transport and logistics sectors as well as the Intelligent Transport Systems (ITS).

### *M. MORFOULAKI, DIPL. CIVIL ENGINEER – TRANSPORT PLANNER*

Ms. Maria Morfoulaki, Dipl. Civil Engineer AUTh, Transport, is Research Associate of HIT. Graduated from the Polytechnic School of AUTh, Department of Civil Engineer, in 1995 while in November 2004, she obtained her Ph.D. at the same sector, with thesis: "Research in the quality measures and the role of benchmarking in the public transport system of Thessaloniki".

Until now she has worked in many Research Programs and Transport Studies as cooperator of AUTh, TRIAS S.A, TRUTH S.A and from October 2001 as research associate of the Hellenic Institute of Transport (HIT).

She specializes in traffic forecasts using transport models and network simulation but she is also interested in fields of Public Transport Systems, Road Safety and Freight Transports.

### *A. TSIOUTRAS, CIVIL ENGINEER, MSC ENVIRONMENTAL – TRANSPORT PLANNER*

Mr Athanasios Tsioutras has graduated from the Polytechnic School of AUTh, Department of Civil Engineering, in 1996. In 1999 he got a M.Sc. Degree in Environmental issues and since 2001 he is working on his PhD Thesis in the field of Advanced Driving Assistance Systems (ADAS). He is being specialized in transport models and network simulation in the field of Advanced Driver Assistance Systems (ADAS) concerning transport and environmental conditions.

### *M. PANOU, ELECTRONICS ENGINEER & COMPUTER ENGINEER*

Ms Mary Panou is an Electronics Engineer (honours degree) of the University of Liverpool, UK, since 1997, with MSc on Advanced Control (in 1998) from the University of Manchester Institute of Science and Technology, UK (UMIST) and a PhD student at the Aristotle University of Thessaloniki in the Transport Engineering department. Her main fields of expertise are Telematics Applications for Transport, Transportation of E&D, Environmental Control Systems, Development of Training Tools and Training Programs especially for PSN.

### *M. GEMOU, MECHANICAL ENGINEER*

Ms Maria Gemou**,** is a Mechanical Engineer from the University of Patras. Her main fields of expertise include VR Applications for Transport, CAD modelling, Transport Economics, Development of training tools and training programs especially for PSN, Safety Analyses of critical situations within the Transports field.

### *A. MOUSADAKOU, MATHEMATICIAN*

Ms Andriani Mousadakou is a Mathematician (honours degree) of the University of Wales, Swansea, UK, since 2001, with MSc in Computer Modeling and Finite Element Methods in Engineering Mechanics (in 2002) from the University of Wales, Swansea, UK. Her main fields of expertise are: Application methods in Reservoir simulation, Development of training tools and training programs especially for PSN, development of Multimedia programs, and development of Database.

### *F. MIKIKI, MSC CIVIL ENGINEER - TRANSPORT PLANNER*

Ms. Mikiki, Civil Engineer – Transport Planner graduated from the Civil Engineering Dept. of the Aristotle University of Thessaloniki (AUTH). She then followed a postgraduate course on Transportation, 'DEA Transport', in the Ecole Nationale des Ponts et Chaussees and the Universite Paris XII.

She worked at the Institut d'Urbanisme of the Universite Paris XII, where she had a research contract on behalf of the French Ministry of Environment and Viable Development.

Her scientific interests are in issues concerning passenger transport, transport policy and environment while she is envisaging a PhD thesis in AUTH.

### *P. VOUDOURIS, SURVEYING ENGINEER, MSC GIS*

Working as a freelance consultant to HIT, he has over 10yrs of international experience designing, developing, and implementing GIS solutions with a focus on transportation applications. He holds a Surveying Engineering degree from the University of Thessaloniki, Greece and a M.Sc in GIS from the University of Leicester, UK.

Through his previous work, he offered consultancy services to a number of major transportation institutions in the US, the UK and Australia. He was appointed Product Manager for a major new GIS-based software which given him a thorough understanding of the business and commercial issues that underlie the software development and implementation cycles. He has presented papers on Transportation issues and GIS in a number of Greek and international conferences.

### *E. GAGATSI, MSC CIVIL ENGINEER – TRANSPORT PLANNER*

Ms. Eliza Gagatsi, Dipl. Civil Engineer AUTh - Msc in Transport graduated from AUTh, Department of Civil Engineering. She acquired an MSc diploma in Transport at the Aristotle Univercity of Thessaloniki, Greece.

Her scientific interests are orientated in issues concerning transport and environment while she has a strong involvement in many national and EU funded research projects.

### *G. HARALAMPOUS, MSC. CIVIL ENGINEER – TRANSPORT PLANNER*

Haralampous George, Dipl. Civil Engineer AUTh - Msc in Transport, graduated from the Civil Engineering Department of AUTh and acquired his MSc diploma in Transport at the same University.

His scientific interests are orientated in issues concerning Intermodal and Maritime Transport while he has a strong involvement in many national and EU funded research projects.

### *ST. NIKOLAOU, SOFTWARE PROGRAMMER*

Ms Stella Nikolaou is a software programmer and she is involved in the research team of the Hellenic Institute of Transport dealing with driver behavior monitoring and human factors impact on road safety. She has been involved in various national and European research projects, whereas her main research focus includes the monitoring of the driver behavior for the enhancement of road safety through the use of Advanced Driver Assistance Systems (ADAS), studies of human sleep for safety enhancement in industrial applications and the reduction of accidents attributed to operator's lack of alertness and the development of high-end user interfaces for several industrial applications.

### *ST. DIMOPOULOU, ADMINISTRATIVE RESPONSIBLE*

Mrs Stavroula Dimopoulou graduated from the Faculty of Law of the Democretus' University of Thrace. She worked in Mr T. Zerva's office, Lawyer in Thessaloniki, for seven months (January-July 1993) as assistant Lawyer and secretarial support. During the period of October 1993 until April 1995 she worked as a trainee lawyer in Mr N. Kaisari's office, Lawyer in Thessaloniki. Since January 2001 she has been working in H.I.T. as administrative personnel at the Projects Administration Department.

### *V. PAPADIMITROPOULOU, BUSINESS ADMINISTRATION, ADMINISTRATIVE SUPPORT*

Mrs Valia Papadimitropoulou graduated from Aristotle University of Thessaloniki, Faculty of Law and Economics, Division of Business Administration. She has

acquired a Diploma in Marketing from the South Bank University, London U.K., and holds an M.B.A. Postgraduate Degree from the University of Sheffield. She worked as a teacher of English from 1989 to 1995 and as a financial executive and Supply Manager for "S Glass" Papadimitropoulos SA, Imports & Trade of Container Glass from 1995 to 2002. Since 2003 she has been working for HIT at the Projects Administration Department.

### *I. KOUKOULOUDI, EXECUTIVE SECRETARY*

Mrs Ioanna Koukouloudi has been working as an executive secretary of the Hellenic Institute of Transport since 2001. She holds a diploma from the Pasteur technical school and a certificate from the Organisation of Office and Secretarial Support. She speaks English and German and she is software and database literate. Mrs. Koukouloudi worked in posts of secretarial support and P/C operation in the Lucent Technologies Ltd, Netherlands during 1998-1999. From 1999 to 2000 she worked for the Environment - Technologies Company, in Greece.

### *A. KOSTOULI, ADMINISTRATIVE SECRETARY*

Ms Anastasia Kostouli is an Executive Secretary of the Hellenic Institute of Transport. She obtained the Certificate of Proficiency in English Language (1998) and has authorized teaching ability. Anastasia Kostouli attended a "Teacher Training Course" in the British Council of Thessaloniki - educational course in Teaching Methods of English Language - and took "CEELT"(Cambridge Examinations for English Language Teachers) Certificate (2000). Ms Kostouli graduated from the Company of Management and Informatics (E.DI.P) and obtained the Certificate Specialization of Informatics. She has made her practice on Informatics in the technical company "ATHONIKI TECHNIKI'' and has dealt with private teaching of English. She has worked as a secretary in "AKMON" Business Consultants and as a Telephone Operator in the advertising company ''EXODUS''. She worked in the technical company "Egnatia Odos A.E."– Document Control Unit (October 2000-April 2002)- as well as in the consortium "ELTER-GETEM" for a construction of "Egnatia Odos A.E." as a member of the Finance Department (April 2002-November 2002).

# 5 RESEARCH INFRASTRUCTURES 2004

## 5.1 PREMISES

HIT is currently housed in the Thessaloniki Technology Park – 6th Km Charilaou - Thermi Road. The current housing is considered to be temporary and the necessary procedures (through the Centre for Research and Technology Hellas) for the construction of new buildings in an area of 20 acres that has been purchased next to the premises of the Technological Park, are under way.

The new buildings will contain 1500 square meters of office space and 1000 square meters of underground laboratories.



**Figure 5-1: Virtual representation of CERTH's future premises with HIT's building in the front**



**Figure 5-2: Virtual representation of CERTH's future premises (the first being HIT's building)**

## 5.2 CENTER OF EXCELLENCE FOR DRIVING BEHAVIOUR

Within the framework of the operational programme COMPETITIVENESS of the Ministry of Development, Measure 3.3, Action line 3.3.1, Act 3.3.1.2 "Excellence in Research and Technological Organisations supervised by the Greek General Secretariat for Research and Development" a Centre of Excellence on driving behaviour issues was created within the Hellenic Institute of Transport. The Centre is equipped with a research vehicle able to record and analyse on-line driving behavioural parameters as well as able to simulate advanced driving assistance systems, a semi-dynamic driving simulator and a virtual reality system with software specific for transport applications.

### 5.2.1 RESEARCH VEHICLE FOR DRIVING BEHAVIOUR

The research vehicle is a Lancia Thesis 2.4 20V Emblema model. It is equipped as follows:

- Front obstacle detection radar, providing information about front obstacles (distance, relative speed).



- Lane recognition camera, providing information about vehicle position relevant to the lane.
- GPS.
- Eyelid sensor and software, providing information regarding eyelid movements, which are useful to estimate level of driver's hypovigilance.
- Eye gaze sensor and software, providing information on the focus of attention of the driver at each specific time moment.
- Electronic unit, which collects information from the vehicle electronic system and exports them to the central PC for processing. Such information include: acceleration pedal position, brake cylinder pressure, vehicle longitudinal speed and acceleration, yaw rate, steering wheel angle, lights status, wipers status, external temperature, etc.

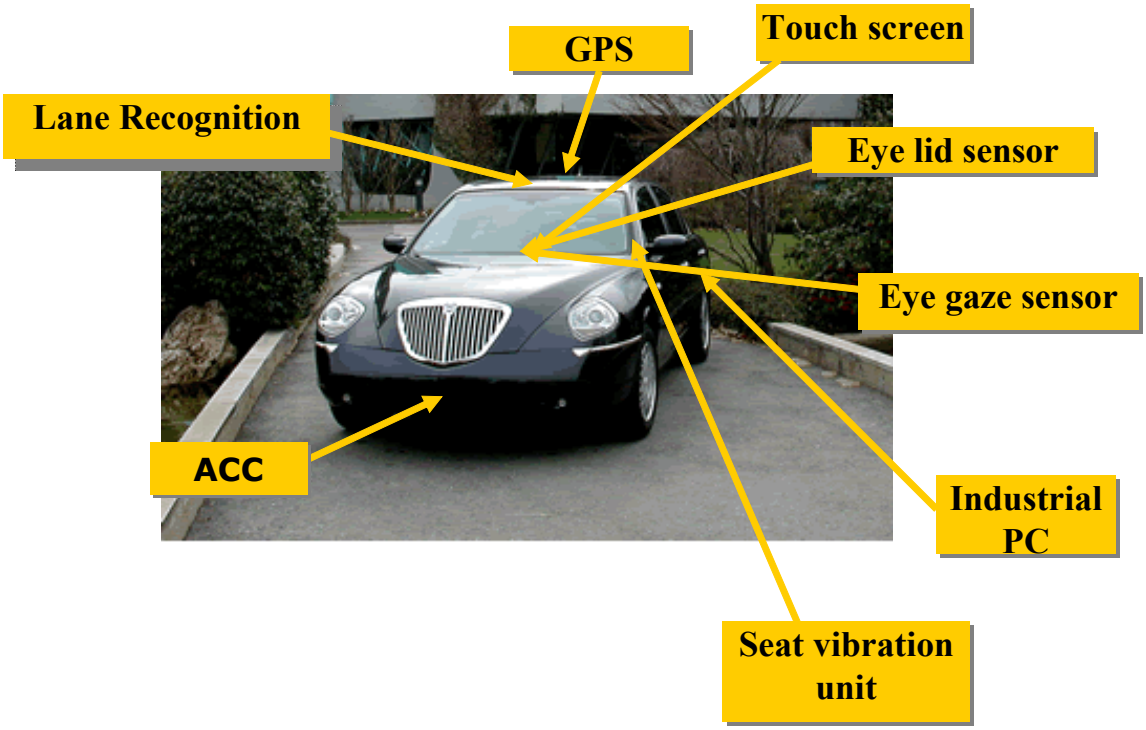



**Figure 5-3: Overview of the research vehicle for driving behaviour**

- Main PC to record and store all information as well as on-line process it.
- Touch screen integrated in the vehicle dashboard driven by the main PC, so as to provide warnings to the driver.
- Special warning lights integrated in the central mirror and seat vibration unit, both driven by the main PC so as to provide adequate warnings to the driver.




**The touch screen**



**The central mirror**




**The eyelid sensor**

Using the systems of this research vehicle, the functionalities of several advanced driving assistance systems can be simulated as well as their HMI. In this way, it is possible to perform ergonomy studies for such systems as well as studies on user acceptance. Furthermore, the driving behaviour can be analysed in detail and safety studies regarding vehicle and road interventions can be conducted.

### 5.2.2 *VIRTUAL REALITY SYSTEM*

This is a single wall cave system and is used for the realization of structural, ergonomical and other safety and assessment analyses, which require the simulation of a series of various procedures, performed by the Hellenic Institute of Transport.

For the implementation of the above research scopes, the VR system has adapted a number of software tools, which give the potential for the visualization and manipulation of 2D and 3D CAD files in immersive environment, which includes cuts, disassemblies, measurements, rotations, lightning, etc. in real time. This application framework may prove to be useful for engineers during the phase of design and revision and moreover for the products marketing and exploitation, by means of their demonstration.

By means of the use of human models and their multiple parameterisations, there is also the potential for Human Factor and Risk Analyses, before the final physical product is to be produced and commercially exploited. It is a cost-effective and flexible tool aiming at the qualitative product advancement.





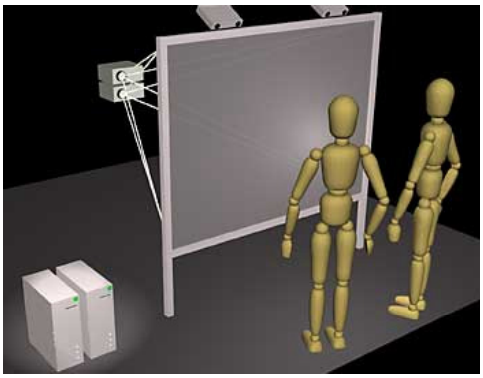


**Figure 5-4: General overview of the HIT virtual reality system**

There are a lot of software tools that could be adapted in the HIT VR system aiming at the implementation of more complex and sophisticated analyses, whereas the potentials for the system advancement to a three, four, five or six walls system (VR cave) is considered as a foreseen and feasible perspective within near future.

### *5.2.3 DRIVING SIMULATOR*

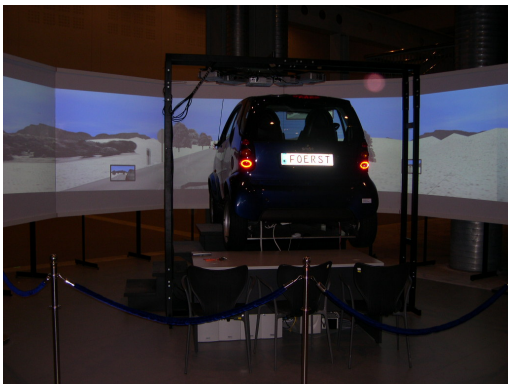
The HIT driving simulator is built around a Smart cabin equipped with sensors. The position of all control levers, windshield wipers, blinker, ignition key and light switch is transmitted to the driving computer. All operational elements, steering wheel, accelerator pedal, brake pedal, gearshift lever and handbrake lever, provide nature-true force reactions. The gearshift functions like in the real car either as automatic or "softtip" with incrementing and decrementing the six gears and with reverse gear.

The sight system includes five large-screens, each having a width of 2 m. There is on-screen projection with consumer video projectors with 2500 ANSI-lumen. The sound system generates original sounds according to the situation (starter, engine noise, horn, screeching of tires, drive wind, rain, etc.). The vibration device creates nature true vibrations of the car according to the revolvation of the simulated engine.

The simulator is equipped with specialised software which allows the development of special driving scenarios, according to the purposes of each study. There is surrounding traffic with at the most 30 road users with artificial intelligence, comprising passenger cars, trucks, pedestrians and cyclists. They observe the traffic rules, the distance to the foregoing vehicle and observe the speed limits, come to a stop before red lights and crossing traffic, accelerate and decelerate in a natural way and may be passed. For traffic education and training the behaviour patterns may be modified, so that also aggressive, very slow, unskilled or drunken drivers may be simulated.

The software includes various courses (standard course, hill course, round course, roadnet, highway), sight- and roadsurface conditions (nice weather, fog, rain, snow, night) and various modes (i.e. driving under various alcohol consumption rates). There are also specific software modules related to elderly drivers behaviour assessment.

The simulator is adequate to study dangerous situations, which would not be safe to test on real traffic conditions, like for example overtaking, driving under the influence of alcohol, etc.



**General overview of the driving simulator**



**Driver's field of view**

## 5.3 RESEARCH VEHICLES

The basic vehicle research equipment of HIT is a number of clean vehicles that were acquired in the framework of various research projects. They are used to survey the impacts from the introduction and of clean vehicles in the urban traffic. These vehicles are described below.

### 5.3.1 ELECTRICALLY ASSISTED BICYCLES

The electrically assisted bicycles are used so as to assist the rider in propulsion. Each bicycle weights approximately 38.5 kg and can carry up to 80 kg. The maximum speed is 20 km/h and the maximum driving range is 35-50 km.





**Figure 5-5: The electrically assisted bicycles**

### 5.3.2 ELECTRICAL MOPEDS

The electrical moped EVT combines high technology with environment protection, easiness of use, smooth acceleration and portable charges. It includes a motor on the wheel for greater efficiency and reduced power consumption, a smart digital controller, overheating protection systems and two modes of operation (economy and reinforced), energy level LEDs and negligible noise.



**Figure 5-6: Electrical moped during charging**

### 5.3.3 HYBRID VEHICLE TOYOTA PRIUS

The hybrid vehicle TOYOTA PRIUS is being used – in parallel to the electric two-wheelers – in surveys regarding technologies of clean vehicles as well as for drivers' pilot training.

A special recording device was installed on the vehicle, which stores data regarding fuel consumption and driving behaviour. These data can be sent via GPS to a center for monitoring and consulting purposes. The vehicle was also equipped with a wireless smart card reader. This smart card is used so as to activate the automatic operation of the entrance bar to a dedicated parking place.



**Figure 5-7: HIT's hybrid vehicle**



**Figure 5-8: System recording driving and consumption data**

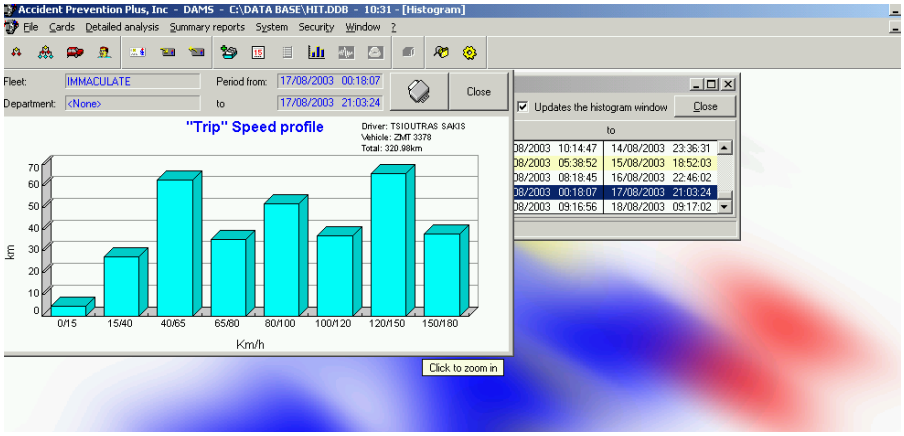



**Figure 5-9: Analysis of driving data**

# 6 RESEARCH ACTIVITY

## 6.1 RESEARCH PROJECTS

Table 6-1 shows in brief HIT's scientific activities in 2004. Its on-going projects for 2004 were 41, of which 16 started within 2004 while the rest 25 are projects that were launched before 2004. At the same time 16 proposals were submitted in 2004, 11 of which were approved. Of the 41 active projects in 2004 15 will expire within 2005. Thus, HIT's on going projects for 2005 will be at least 31, not including the proposals that will be submitted in 2005 and their possible approvals.

**TABLE 6-1: Brief presentation of HIT's projects 2004**

| *BRIEF PRESENTATION OF HIT'S PROJECTS 2004* | |
|---|---|
| **ON-GOING PROJECTS 2004** | **41** |
| **PROJECTS WITH STARTING DATE IN 2004** | **16** |
| **PROJECTS WITH STARTING DATE IN 2001-2003** | **25** |
| **PORJECTS PROPOSALS 2004** | **21** |
| **APPROVED PROPOSALS 2004** | **11** |
| **PROJECTS EXPIRING IN 2005** | **15** |

Table 6-2 shows in summary the details of the active projects in 2004, while in chapter 9 we give some more detailed presentations of each project.

**TABLE 6-2: Active projects 2004**

| *ACTIVE PROJECTS 2004* | | | | | | | |
|---|---|---|---|---|---|---|---|
| ***NO.*** | ***ACRONYM*** | ***FINANCIAL INITIATIVE & PROGRAM*** | ***FULL TITLE OF PROJECT*** | ***RESPONSIBLE FOR HIT*** | ***HIT BUDGET (EURO)*** | ***DURATION*** | ***ROLE OF HIT*** |
| 1. | AWAKE | IST (IST-2002-28062) | System for effective Assessment of driver vigilance and Warning According to traffic risk Estimation | E. Bekiaris | 579.941 | 01/09/01 31/08/04 | COORDINATOR |
| | AGILE | QoL (QLK6-CT2002-00118) | Aged People Integration, mobility, Safety and Quality of Life Enhancement Through Driving | E. Bekiaris | 432.538 | 01/04/02 31/03/05 | COORDINATOR |
| | NOVEL | GSRT | Center of Excellence on Driver Behavior Issues in the Centre for Research and Technology Hellas | E. Bekiaris | 400.000 | 01/05/02 30/04/05 | LEAD PARTNER |
| | CONSENSUS | IST (IST-2001-37092) | Promoting CONSENSUS in Assessing Driving Ability of PSN Through Common Methodologies and Normative Tools | E. Bekiaris | 115.000 | 01/09/02 31/08/04 | PARTNER |
| | SPORT4ALL | TEN TELECOM (C27980) | Provision of telematic services to the disabled for the diffusion of information on athletics events | E. Bekiaris | 393.000 | 01/09/02 31/03/04 | PARTNER |

| ACTIVE PROJECTS 2004 | | | | | | | |
|---|---|---|---|---|---|---|---|
| ***NO.*** | ***ACRONYM*** | ***FINANCIAL INITIATIVE & PROGRAM*** | ***FULL TITLE OF PROJECT*** | ***RESPONSIBLE FOR HIT*** | ***HIT BUDGET (EURO)*** | ***DURATION*** | ***ROLE OF HIT*** |
| | IMMACULATE | LIFE ENV (LIFE02 ENV/GR/000359) | Improvement of urban environment quality of air and noise levels. | E. Bekiaris | 586.000 | 01/09/02 31/08/04 | COORDINATOR |
| | INFORMED | LEONARDO (EL/02/B/F/PP-114010) | Integrated system for an advanced and life-long training methodology of dangerous goods drivers and trainers | E. Bekiaris | 188.961 | 30/12/02 29/12/05 | COORDINATOR |
| | IDEA | LEONARDO (B/02/B/F/PP-110.350) | An Innovative vocational training scheme for assessing the Driving ability of Elderly and disAbled | E. Bekiaris | 68.589,59 | 15/12/2002 14/12/2005 | PARTNER |
| | BOB Campaign | DG TREN | "BOB"- Campaign in Greece | E. Bekiaris | 144.876 | 1/1/2004 31/12/2004 | PARTNER |
| | ISLANDS | QoL (QLRT-2001-01637) | Integrated System for Long distance psychiatric Assistance and Non-conventional Distributed health Services | E. Bekiaris | 20.000 | 1/1/2003 31/12/2005 | ΥΠΕΡΓΟΛΑΒΙΑ |
| | ADHIRITO | GSRT | Human Network for the Strong Promotion of Road Safety in Greece | E. Bekiaris | 70.000 | 10/5/2003 10/5/2005 | LEAD PARTNER |

| *ACTIVE PROJECTS 2004* | | | | | | | |
|---|---|---|---|---|---|---|---|
| ***NO.*** | ***ACRONYM*** | ***FINANCIAL INITIATIVE & PROGRAM*** | ***FULL TITLE OF PROJECT*** | ***RESPONSIBLE FOR HIT*** | ***HIT BUDGET (EURO)*** | ***DURATION*** | ***ROLE OF HIT*** |
| | CREDIT | SOCRATES (110311-CP-1-2003-1-GR-GRUNDTVIG) | Valuing Knowledge and competencies acquired through experience and their accreditation for elderly workers | E. Bekiaris | 51115 | 1/10/2003 1/10/2005 | COORDINATOR |
| | SENSATION | IST (IST-507231) | Advanced **sens**or development for **at**tent**ion**, stress, vigilance & sleep/wakefulness monitoring | E. Bekiaris | 1.395.744 | 1/1/2004 31/12/2007 | COORDINATOR |
| | IM@GINE IT | IST (IST-508008) | Intelligent Mobility AGents, Advanced Positioning and Mapping Technologies, INtEgrated Interoperable MulTimodal location based services | E. Bekiaris | 560.711 | 1/1/2004 31/12/2005 | COORDINATOR |
| | ASK-IT | IST (IST-2003-511298) | Ambient Intelligence System of Agents for Knowledge-based and Integrated Services for Mobility Impaired users | E. Bekiaris | 1.337.618,36 | 1/10/2004 30/9/2008 | TECHNICAL MANAGER |

| *ACTIVE PROJECTS 2004* | | | | | | | |
|---|---|---|---|---|---|---|---|
| ***NO.*** | ***ACRONYM*** | ***FINANCIAL INITIATIVE & PROGRAM*** | ***FULL TITLE OF PROJECT*** | ***RESPONSIBLE FOR HIT*** | ***HIT BUDGET (EURO)*** | ***DURATION*** | ***ROLE OF HIT*** |
| | HYWAYS | DG TREN (DG TREN 502596) | The Development and Detailed Evaluation of a Harmonised „European Hydrogen Energy Roadmap“ | E. Bekiaris | 116.800 | 1/4/2004 31/3/2007 | PARTNER |
| | PREMIA | DG TREN (TREN/04/FP6 EN/s07.31083/5 03081) | R&D, demonstration and incentive programmes effectiveness to facilitate and secure market introduction of alternative motor fuels | E. Bekiaris | 198.800 | 1/6/2004 31/5/2006 | PARTNER |
| | AIDE | IST (IST-1-507674-IP) | Adaptive Integrated Driver-vehicle InterfacE | E. Bekiaris | 546.810 | 1/3/2004 28/2/2008 | PARTNER |
| | PREVENT | IST (FP6-507075) | Preventive and Active Safety Applications | E. Bekiaris | 267.500 | 1/2/2004 31/1/2008 | PARTNER |
| | INTUITION | IST (IST-NMP-1-507248-2) | Network of Excellence on V**I**rtual Reality a***N***d Vir**TU**al Environments Appl**I**ca**TION**s for Future Workspaces | E. Bekiaris | 216.500 | 1/9/2004 31/8/2008 | PARTNER |

| *ACTIVE PROJECTS 2004* | | | | | | | |
|---|---|---|---|---|---|---|---|
| ***NO.*** | ***ACRONYM*** | ***FINANCIAL INITIATIVE & PROGRAM*** | ***FULL TITLE OF PROJECT*** | ***RESPONSIBLE FOR HIT*** | ***HIT BUDGET (EURO)*** | ***DURATION*** | ***ROLE OF HIT*** |
| | HUMANIST | IST (507420) | HUMAN centered design for Information Society Technologies | E. Bekiaris | 320.000 | 1/3/2004 28/2/2008 | PARTNER |
| | APROSYS | SUST DEV-TRANSPORT (FP6-PLT-506503) | Integrated Project on Advanced Protection Systems | E. Bekiaris | 50.000 | 1/4/2004 31/3/2008 | SUBCONTRACTOR |
| | ESTO | ESTO | ESTO Study "State-of-the-art review of hybrid vehicle technology" | E. Bekiaris | 10.500 | 1/7/2004 31/10/2004 | PARTNER |
| | | GSRT | Laboratory Signing Materials Photometric & Visibility Control | M. Boile | 29.000 | 06/2003 05/2004 | LEAD PARTNER |
| | SARTRE III | SUBV-B2702B-E3 | Social Attitude to Road Traffic Risk in Europe, phase 3 | E. Bekiaris | 70.500 | 01/10/02 31/05/04 | PARTNER |
| | GIFTS | IST-2002-29364 | Global Intermodal Freight Transport system | G. Giannopoulos | 392.462 | 01/09/01 31/08/04 | PARTNER |

| *ACTIVE PROJECTS 2004* | | | | | | | |
|---|---|---|---|---|---|---|---|
| ***NO.*** | ***ACRONYM*** | ***FINANCIAL INITIATIVE & PROGRAM*** | ***FULL TITLE OF PROJECT*** | ***RESPONSIBLE FOR HIT*** | ***HIT BUDGET (EURO)*** | ***DURATION*** | ***ROLE OF HIT*** |
| | UPTUN | G1RD-CT-2002-00766 | Low-cost durable innovative Upgrading methods for fire safety in existing tunnels | P. Papaioannou | 237.006 | 01/09/02 31/08/06 | PARTNER |
| | IMONODE | INTERREG | Integration of cargo transport Modes and Nodes in the CADSES area | G. Giannopoulos | 1.200.000 | 1/12/2002 1/6/2005 | COORDINATOR |
| | CITY PORTS, INTERREG IIIB CADSES | INTERREG IIIB | CITY PORTS | G. Giannopoulos | 401.334 | 1/7/2001 31/12/2004 | PARTNER |
| | GILDANET. INTERREG IIIB CADSES | 2A031 | GILDANET INTERREG IIIB CADSES | G. Giannopoulos | 808.700 | 1/12/2002 30/6/2005 | PARTNER |
| | INTELLECT | GSRT | INTELLECT | G. Giannopoulos | 34.840 | 1/11/2003 30/4/2006 | PARTNER |
| | OASA | Services | Integrated System For the Quality Assessment of the OASA Passenger Services | G. Giannopoulos | 162.750 | 9/6/2003 29/2/2004 | LEAD PARTNER |
| | OSE – INFRASTRUCTURE | Services | Management and Maintenance of the Integrated Infrastructure Quality System of OSE for the years 2003-2005 | G. Giannopoulos | 190.000 | 21/4/2003 20/12/2006 | LEAD PARTNER |

| *ACTIVE PROJECTS 2004* | | | | | | | |
|---|---|---|---|---|---|---|---|
| ***NO.*** | ***ACRONYM*** | ***FINANCIAL INITIATIVE & PROGRAM*** | ***FULL TITLE OF PROJECT*** | ***RESPONSIBLE FOR HIT*** | ***HIT BUDGET (EURO)*** | ***DURATION*** | ***ROLE OF HIT*** |
| | OSE – SERVICES | Services | Management and Maintenance of the Three Years Duration Integrated Control System of the Passenger Transport of OSE | G. Giannopoulos | 199.000 | 04/2003 04/2006 | LEAD PARTNER |
| 2. | PREVENT | LEONARDO | Develop a training programme to improve work zone safety | G. Giannopoulos | 90.500 | 1/10/2003 30/9/2005 | LEAD PARTNER |
| 3. | Supply Chain Survey | PREDIT (French National Funded | Analysis of the Yogurt Supply Chain in Greece | G. Giannopoulos | 16.000 | 1/1/2004 31/12/2004 | SUBCONTRACTOR |
| 4. | ROSE 25 | | INVENTORY AND COMPILING OF A EUROPEAN GOOD PRACTICE GUIDE ON ROAD SAFETY EDUCATION TARGETED AT YOUNG PEOPLE | E. Bekiaris | 1.500 | 7/4/2004 31/3/2005 | SUBCONTRACTOR |
| 5. | EUR2EX | 6th FP NOE | European Rail Research network of Excellence | Ch. Pyrgidis | 20.300 | 1/1/2004 31/12/2007 | PARTNER |
| 6. | TRANSFORUM | 6th FP POLICIES-3.2 | Scientific forum on transport forecast validation and policy assessment | G. Giannopoulos | 76.660 | 15/12/2004 14/2/2007 | PARTNER |

| *ACTIVE PROJECTS 2004* | | | | | | | |
|---|---|---|---|---|---|---|---|
| ***NO.*** | ***ACRONYM*** | ***FINANCIAL INITIATIVE & PROGRAM*** | ***FULL TITLE OF PROJECT*** | ***RESPONSIBLE FOR HIT*** | ***HIT BUDGET (EURO)*** | ***DURATION*** | ***ROLE OF HIT*** |
| 7. | BP HELLAS SA | BP HELLAS SA | TRAFFIC STUDY FOR THE ESTABLISHING OF FUEL DISTRIBUTION IN ASPROPYRGOS OF BP HELLAS SA | G. Giannopoulos | 25.000 | 10/6/2004 31/12/2004 | SUBCONTRACTOR |
| 8. | | Ministry of Aegean | Feasibility Study for the Organization of Shipping Links for the Small Aegean Islands | G. Giannopoulos | 275.000 | 27/11/2002 30/4/2004 | LEAD PARTNER |

## 6.2 PARTICIPATION IN THE POSTGRADUATE STUDIES PROGRAM «PLANNING, ORGANIZATION AND MANAGEMENT OF TRANSPORT SYSTEMS»

HIT's contribution in training and educational activities in the field of Transport is expressed through its participation in the Postgraduate Course: "Planning, Organization and Management of Transport Systems", which is jointly organized by HIT and the Civil and Rural & Surveying Engineering Departments of the Aristotle University of Thessaloniki. The educational scopes of the program are:

- Coverage of the country's needs in high-level scientific personnel, which will contribute to the economic, social and technological development of Greece and the enhancement of competitiveness in the field of Transport.
- Provide specialized education to the companies and Organizations in the field of Transport in Greece, such as Local Government, the Public Transportation Companies, the Carrier Firms, Consultancies, Planning Offices etc.
- Promotion of know-how and research in the field of Transport and its related scientific areas.
- Qualitative enhancement of the post- graduate studies in the field of Transport, in Greece so as to render them competitive to similar programs in other countries.

For more information please visit: http://hermes.civil.auth.gr/pgtransport

## 6.3 PUBLICATIONS IN BOOKS AND JOURNALS (2004)

1. **Giannopoulos, G.A.** and **Aifandopolou-Klimis G.**, (2004), "The Inland Maritime Transport in Greece after the lifting of the Cabotage and Full Liberalisation – Part I : The Situation "Before", and Expected Impacts", Transport Reviews, , Volume 24 – Issue 4 (July 2004).
2. **Giannopoulos, G.A.**, (2004), "Towards a Common Surface Transport Policy for S.E. Europe", Transition Studies Review, Volume 11, No 3, 2004, Central Eastern European Universities Network. Also published in electronic form in the electronic version of Transition Studies Review by Springer (publishers) at: http://www.springerlink.com/index/10.1007/s11300-004-0016-
3. **Giannopoulos, G.A.**, Durr, E. (2004), "SITS: A system for uniform Intermodal Freight Transport Information Exchange", International Journal of Transport Management 1 (2003), p.175-186, accepted 8 January 2004.
4. Sommer, S., **Bekiaris, E. & Panou, M.**, "The AGILE project: an interdisciplinary European research project for the development of a new older driver assessment

and rehabilitation system", International Journal of Rehabilitation Research, Vol. 27, Supplement 1, pp. 71 – 72, 2004

5. Sommer, S., Falkmer, T., **Bekiaris, E. & Panou, M.**, "Toward a client-centred approach to Fitness-to-Drive Assessment of Elderly Drivers", Scandinavian Journal of Occupational Therapy, 2004
6. **E. Bekiaris, M. Gemou**, "IST tools development for the advanced training of the dangerous goods drivers and trainers", Conference ITS Europe 2004, Hannover (προς δημοσίευση)
7. A. Amditis, U. Kaiser-Dieckhoff, A. Polychronopoulos, M. Miglietta, **E. Bekiaris**, «Integrated drivers' lateral support system: the lateral safe project", Conference ITS Europe 2004, Hannover.
8. **Tyrinopoulos Y.**, "A Complete Conceptual Model for the Integrated Management of the Transportation Work", Journal of Public Transportation published by the National Center for Transit Research at the University of South Florida, Volume 7, No. 4, 2004.

## *6.4 PUBLICATIONS IN CONFERENCES*

1. **Giannopoulos, G.A**, (2004), "Towards a new national transport for Greece in the light of its new geopolitical importance", 2nd International Conference on Transport Research in Greece, 26-27 February 2004, Institute of Transportation Engineers (SES) - Hellenic Institute of Transport, (HIT), Athens 2004.
2. **Giannopoulos, G.A.** and **Aifadopoulou-Klimis G.**, (2004), «Analysis of the System of "unprofitable" lines in the Aegean sea», 2nd International Conference on Transport Research in Greece, 26-27 February 2004.
3. **Giannopoulos, G.A.**, (2004), "The demand for transport and the outlook for the consumption of energy", Sustainability – Energy in Transport, Economics University of Athens, April 2004.
4. **Giannopoulos, G.A.**, (2004), "The prospects for Combined Transport in Greece today", Journal "Warehouse and Transport", May 2004.
5. **Giannopoulos, G.A.** and **Aifandopoulou-Klimis G.**, (2004), "Mobile Internet Applications for Freight Transport Operation: The "Gifts" Platform", 10th World Conference on Transport Research (WCTR), Istanbul 2004.
6. **Giannopoulos, G.A.**, (2004), "Re-Balancing Surface Transport in S.E. Europe: Opportunities and Prospects", 10th World Conference on Transport Research (WCTR), Istanbul 2004.

7. **Giannopoulos, G.A.** and **Aifandopoulou-Klimis G.**, (2004), " Monitoring and Forecasting the Impacts in the New Maritime Transport System in the Aegean Sea-Greece, Under the New Liberalized Regime", 10th World Conference on Transport Research (WCTR), Istanbul 2004

8. **Giannopoulos, G.A.**, (2004), "Integrating Research in Eastern Europe: The case of Transport Research", Mobilita '04 Conference, Technical University of Slovakia, Bratislava, 2004.

9. **Giannopoulos, G.A**, (2004), "Opportunities and prospects", 10th World Conference on Transportation Research, Istanbul, Turkey, July 2004.

10. **Giannopoulos, G.A.**, Koukouloudi, E. and Georgiadis, K., 2004, "Integrated multimodal freight solution – from research to practice", 10th World Conference on Transportation Research, Istanbul, Turkey, July 2004.

11. **Tyrinopoulos Y.**, "Information Systems Integration in Urban Public Transport and its contribution to the welfare of Public Transport Providers and the improvement of the provided services". 2nd International Conference on Transport Research in Greece, 26-27 February 2004.

12. M. Theologidou, **Y. Tyrinopoulos**, **G. Aifadopoulou**, "Quality Control Indicators for the passenger services provided by Athens Urban Transport Organization (OASA)". 2nd International Conference on Transport Research in Greece, 26-27 February 2004.

13. **Y. Tyrinopoulos**, M. Shinakis, **G. Giannopoulos**, "Key elements towards Freight Transport and Traffic integration – The contribution of the Multimodal Freight Functional Framework". 10th WCTR 2004 Congress, Istanbul, Turkey, 4-8 July 2004.

14. M. Boile, **M. Morfoulaki**, **F. Mikiki**, "Develop a Training Program to Improve Work Zone Safety", 2nd International Conference on Transport Research in Greece, 26-27 February 2004.

15. P. Papaioannou, **M. Morfoulaki**, **G. Giannopoulos**, "Public transport customer satisfaction in Thessaloniki", 9th International Scientific Conference MOBILITA ´04, Bratislava, May 6 – 7, 2004.

16. **G. Giannopoulos**, P. Papaioannou, **M. Morfoulaki**, "Quality and benchmarking of public transport systems: Customer satisfaction survey in Thessaloniki", 10th WCTR, July 2004.

17. Faburel G., **Mikiki F.**, "Valuation of aircraft noise social costs: policy and science implications", World Conference on Transportation Research 2004, Istanbul, July 2004

18. Boilé M., **Mikiki F.**, "Environmental impact of maritime transport: call for actions", 10th World Conference on Transportation Research 2004, Istanbul, July 2004

19. **Mikiki F.**, Faburel G., Internalization of aircraft noise social cost for a better insertion of airports in their host areas: beyond the technical issues, 2nd International Conference on Transport Research in Greece, Athens, 26-27 February 2004.

20. **Dr. E. Bekiaris**, **A. Tsioutras**, **Dr. F. Stergiopoulos**, **M. Panou**, "Development of a novel center of excellence on driver behavior issues in S.E. Europe", 2nd International Conference on Transport Research in Greece, 26-27 February 2004

21. Sommer S., **Bekiaris E.**, **Panou M.**, "The AGILE Project: An Interdisciplinary European Research Project for the Development of a New Older Driver Assessment and Rehabilitation System", 8th Congress of the European Federation for Research in Rehabilitation, Ljubljana – Slovenia, 13-17 June 2004

22. **Bekiaris E., Panou M.**, Foerst K., Falkmer T. & Sommer S., "The use of driving simulator and adequate scenarios as a means to assess the driving ability of elderly drivers", Driving Simulation Conference 2004, Paris – France

23. Marberger C., Dangelmaier M., **Bekiaris E., Nikolaou S.**, "User centred HMI development for the AWAKE vigilance monitoring system", FISITA 2004, World Automotive Congress, 23-27 May 2004, Barcelona - Spain

24. Muzet A., Pebayle T., Otmani S., Peters B., **Bekiaris E., Nikolaou S.**, "Driver drowsiness at the wheel: can steering grip sensor measurement contribute to its prediction?", 4th ITS in Europe Congress and Exhibition, 24-26 May 2004, Budapest - Hungary

25. Polychronopoulos A., Amditis, A., **Bekiaris E.**, "Information data flow in AWAKE multi-sensor driver monitoring system", Intelligent Vehicles Symposium (IV) 2004, 14-17 June 2004, Parma – Italy

26. **Bekiaris E.**, "ADAS risk assessment: Safety methods and countermeasures", 4th ITS in Europe Congress, Budapest – Hungary, 24-26 May 2004

27. **Bekiaris E. (HIT)**, Mizaras V. (TREDIT), Kauber M. (PTV), Spanoudakis N. (SISO), "Integrated, Interoperable and Multimodal Location-based ITS Services", European Congress and Exhibition on Intelligent Transport Systems and Services, Budapest – Hungary, October 2004

28. V. Mizaras, G. Aifadopoulou (TREDIT), **A. Bekiaris (HIT)**, C. Holm (MTC), "Location based Multi-modal Transport information services based on the use of intelligent software techniques", 10th World Conference on Transport Research (WCTR 2004), July 2004, Istanbul - Turkey

29. **Bekiaris A., Nikolaou S.**, "Advanced sensor technologies for industrial applications - The European Project SENSATION", SCI 2004 Conference, 18-21 July 2004, Orlando – USA

30. **Bekiaris A., Nikolaou S.**, "Sensors for driver monitoring: Current limitations and towards new sensor concepts", ITS Europe 2004 Congress, 24-26 May 2004, Budapest – Hungary.

31. **Bekiaris E., Panou M.**, "ITS as a Tool Towards Forgiving and Self-explanatory Road Infrastructure", European Congress and Exhibition on Intelligent Transport Systems and Services, 24-26 May 2004, Budapest - Hungary.

# 7 FINANCIAL RESULTS

The basic economic data of HIT's activity for 2004 are shown in Table 7.1 and schematically presented in Figure 7.1.

**TABLE 7-1: Financial results 2004 (Euros)**

| *FINANCIAL RESULTS - 2004* | |
|---|---|
| *INCOME RESOURCES* | *2004* |
| **On going projects (no of projects)** | **41** |
| **Total Budget of EU funded research projects** | **1.264.719** |
| **Total Budget of National funded research projects** | **1.187.573** |
| **Income from Services** | **196.244** |
| **Total annual turnover** | **2.648.536** |

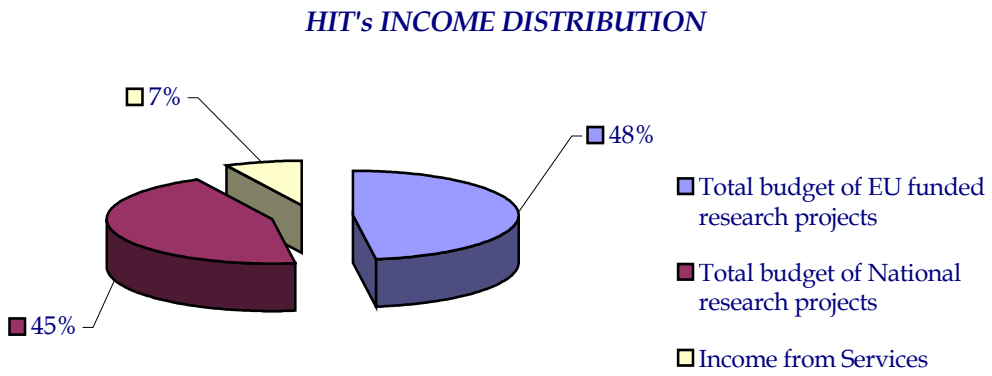



**Figure 7-1: HIT's income distribution by source**

In Table 7-1 we observe that the main income resource of HIT for 2004 was the EU funded research projects (48%), while the National funded research projects constituted 43% of the total budget. These are almost exclusively projects funded by the General Secretariat for Research and Technology (GSRT).

It's worth mentioning that in 2004 the Institute achieved a much higher (than in 2003) percentage of fully funded projects and showed an improvement as far as its economic viability is concerned. This fact is substantiated by the increase of the fully funded National projects by almost 50% over 2003.

When compared to 2003 the Annual Turnover of 2004 was increased by 67%.

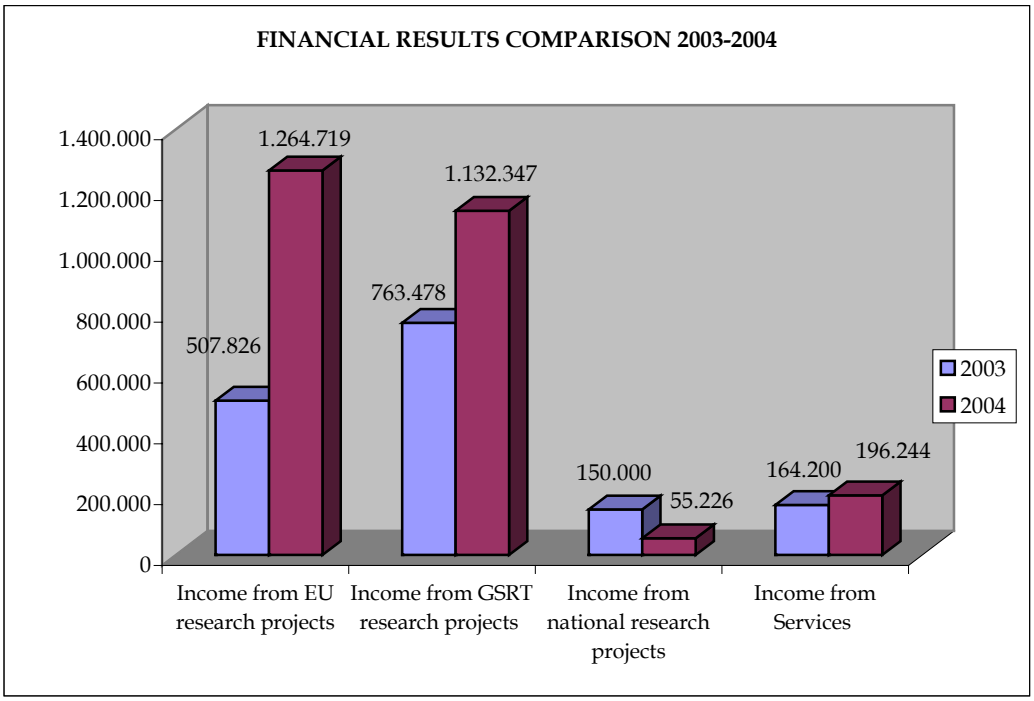



**Figure 7-2: Income comparisons 2003-2004 by source**

# 8 INTERNATIONAL COOPERATION AND DISSEMINATION ACTIVITIES

## 8.1 INTERNATIONAL COOPERATION

### ECTRI – EUROPEAN CONFERENCE OF TRANSPORT RESEARCH INSTITUTES

In January 2003 the European Conference of Transport Research Institutes- ECTRI was officially established as an international non-profit Association under French law, in Lyon, France. HIT constitutes a founding member of ECTRI.

ECTRI's mission is to:

- To actively promote cooperation in the field of surface transport and participate in the creation of the European Research Area.
- To provide a platform for the development of research networks
- To participate in the structuring of the European Research Area with networks of mobility and training, and research infrastructures
- To participate in the integration of the European Research Area by preparing networks of excellence.
- To stimulate and facilitate the participation of its members in European R&D projects in the field of transport.

In the long term ECTRI will develop a European Network of Excellence (NOE), in a broader sense than the NOEs of the 6th FRDP but in line with the concept developed by the European Commission, where integration and common activities are dynamic.

For more information please visit: http://www.ectri.org

ECTRI's members for 2004 were:

- AVV - Transport Research Center (Netherlands)
- CDV - Centrum Dopravního Výzkumu (Czech Republic)
- DLR - Deutsches Zentrum für Luft und Raumfahrt (Germany)
- DTF - Danmarks TransportForskning (Denmark)
- FHG-IVI - Fraunhofer-Gesellshaft, Institut fuer Verkehrs und Infrastruktursysteme (Germany)
- HIT – Hellenic Institute of Transport (Greece)

- INRETS - Institut National de Recherche sur les Transports et leur Sécurité (France)
- KTI - Közlekedéstudományi Intézet Rt. (Hungary)
- POLITO - Politecnico di Torino, Department of Hydraulics, Transports & Civil Infrastructures (Italy)
- TNO - Netherlands Organisation for applied Scientific Research (Netherlands)
- TOI - Transportøkonomisk Institutt (Norway)
- TRL - Transport Research Laboratory Limited (United Kingdom)
- UPM - Universidad Politecnica de Madrid (Spain)
- VTI - Statens Väg-och Transportforskningsinstitut (Sweden)
- VTT - Technical Research Centre of Finland (Finland)

In January 2003 the Director of HIT, Prof. Giannopoulos, was elected president of ECTRI for the period 2003-2005 and in March 2005 was re-elected for the period 2005-2007.

### *SETREF – South East European Transport Research Forum*

The South East European Transport Research Forum (SETREF) is an international non-governmental and non-profit association of organizations in South East European countries devoted to the promotion of transport research and education. It was established in Thessaloniki, Greece, in April 1997 and its headquarters are in Thessaloniki within the building of HIT.

SETREF has currently 33 member Organizations, with most of which HIT has close relations (see Table below).

SETREF's scope covers a wide range of activities in the field of transport, such as those of planning, evaluation, design, construction and operation of the transport systems and all transport modes (road, rail, air and maritime).

**SETREF Organization-Members**

| No | Name of Institution | Country | Type of Membership | Representative |
|---|---|---|---|---|
| 1. | Technical University of Vienna (TU)<br>Institute for Transport Planning and Traffic Engineering | AU | FM | Prof. H. Knoflacher |
| 2. | Bulgarian Academy of Sciences<br>Institute of Information Technologies | BG | FM | Prof. D. Dimov |
| 3. | Technical University of Sofia<br>Faculty of Transport, Chair of Railway Engineering | BG | FM | Prof. D. Stoyanov |

| No | Name of Institution | Country | Type of Membership | Representative |
|---|---|---|---|---|
| 4. | Technical University of Varna - Bulgaria | BG | M | Associate Prof. K. Ivanov Tenekedjiev |
| 5. | BOURGAS MARINE ASSOCIATION | BG | M | Mr. Atanas Dernev |
| 6. | KONCAR-Elektricne Lokomotive, d.d. | Croatia | M | Mr. Zvonimir Cvijin, B.Sc. |
| 7. | Aristotle University of Thessaloniki Transport Engineering Laboratory | GR | FM | Prof. G.A.Giannopoulos |
| 8. | University of Piraeus Department of Maritime Studies | GR | FM | Prof. E. Sabrakos |
| 9. | TRANSCEM Transport Study Centre for Eastern Mediterranean | GR | M | Mr. Ch. Skyrgiannis |
| 10. | BUTE - Budapest University of Technology & Economics | Hungary | M. | Dr. Csaba Orosz (PhD) |
| 11. | Technical University of Budapest – Faculty of Transportation Engineering | Hungary | M | Prof. Dr.Katalin Tanczos |
| 12. | ISTIEE Institute for Transport Studies of University of Trieste | Italy | M | Prof. Giacomo Borruzo |
| 13. | UTCB-Technnical University of Civil Engineering | Romania | M | Mr. Valentin Anton, Ph.D.Ceng. |
| 14. | INCERTRANS- Transport Research Institute | Romania | M | Mr. Sorin Honc |
| 15. | Gestionnaires Sans Frontieres Romania | Romania | M | Mr.Ovidiu Romosan |
| 16. | Slovak University of Technology | SL | FM | Prof. B. Bezak |
| 17. | Istanbul Technical University TEDDRC Technological and Economic Development Research Centre (TEDRC) | TR | M | Prof. Y. Candemir |
| 18. | Odessa State Maritime University | Ukraine | M | Academician Yuriy Vorobyov |
| 19. | Southern Scientific Centre of the Transport Academy of Ukraine | Ukraine | M | Academician Yuriy Vorobyov |
| 20. | Centre for Maritime and On-Shore Studies and Consulting | Ukraine | M | Mr. Sergiv Fillipov |
| 21. | University of Belgrade, FTTE - Institute of Transport and Traffic Engineering | YU | FM | Prof. S. Vukanovic |
| 22. | Nautical and Technical College - Kotor | YU | M | Prof. Stevan Popovic, D.Sc. Principal |
| 23. | Centre for Urban Development Planning- | YU | M | M. Zoran Rubinjoni General Manager |
| 24 | Institute of Transport Problems, Russian Academy of Science (IPT RAN) – Russia | Russia | M | Prof. Beliy Oleg Victorich Director of Institute, Academician |
| 25. | Hellenic Institute of Transport (H.I.T.) | Greece | M | Prof. G. Kannelaidis Deputy Director, Hellenic Institute of Transport |
| 26. | Institute of Traffic and Transport Ljubljana, p.l.c. Prometni Institut Ljubljana, d.o.o. – Slovenia | Slovenia | M | Ms. Mojca Tomsic, Researcher |

| No | Name of Institution | Country | Type of Membership | Representative |
|---|---|---|---|---|
| 27. | Euroteam Logistics Consultants S.A. Alimos | Greece | M | Mr. Giannakenas, Managing Director |
| 28. | D.P. LUKA "BEOGRAD" – BEOGRAD – FR YUGOSLAVIA Port of Belgrade | Yugoslavia | M | Mrs. Miroslava Drobac General Manager |
| 29. | STATE SHIPPING AGENCY "TAULANTIA" | Albania | M | Mr.Dushi Arben |
| 30. | DROMOS Consulting LTD | Greece | M | Mr. Constantinos Zekkos General Manager |
| 31. | Mechanical Engineering Faculty – Mechanical Department-Transport Section-, Polytechnic University of Tirana | Albania | M | Prof. Andonaq Londo Lamani Dean of Mechanical Engineering Faculty |
| 32 | Transport Research Laboratory-Department .of Planning | Italy | M | Assoc.Prof.. Marco Mazzarino Coordinator |
| 33. | Ovedius Maritime University of Constanza | Romania | M | Prof. Eden Mamut |

***FM Founding Member*** ***M Member***

The principal objectives of SETREF are to:

- Advance co-operation in transport research and education
- Promote intermodal transport concepts in S.E. Europe
- Promote exchange of research personnel.
- Facilitate exchange of information and ideas
- Facilitate the harmonization of the basic research and education activities
- Provide support services for transport studies and policy formulation in the area of S.E. Europe, including formulation and maintenance of data banks for traffic and transport related data
- Provide specialized advisory services

Its focus area covers not only S.E. Europe but also eastern European countries in general, as well as those around the Black Sea.

SETREF's Executive Committee constitutes of distinguished scientists who are the following:

- Ass. Prof. Ch. Orosz, Hungary, Budapest University of Technology and Economic, President
- Prof. G.A. Giannopoulos, Vice-President (President 1997-2004)

- Prof. S. Vukanovic, Secretary General, Former Yugoslavic Republic, Institute for Transport and Traffic Engineering Transport and Traffic Engineering Faculty, University of Belgrade
- Prof. Stoyanov, Member, Bulgaria, Technical University of Sofia
- Prof. Knoflacher, Member, Austria, Technical University of Vienna (TU) Institute for Transport Planning and Traffic Engineering
- Prof. Y. Candemir, Member, Turkey, Istanbul Technical University
- Mr. Ioan Cuncev, Member, Romania
- Prof. Doubrovski, Member, Ukraine, State Maritime University of Odessa
- Ass. Prof. M. Mazzarino, Member, Italy, University of Venice

For more information please visit: http://hermes.civil.auth.gr/setref

### *ERTICO – EUROPEAN ROAD TRANSPORT TELEMATICS IMPLEMENTATION CO-ORDINATION ORGANIZATION*

ERTICO is a Europe-wide, not-profit, public/private partnership for the implementation of Intelligent Transport Systems and Services (ITS) in Europe. It was established in 1991 at the initiative of the European Commission as well as key members of the European ITS industry and national governments, ERTICO is open to any European organisation or international organisation operating substantially in Europe. ERTICO's mission is to promote and support the implementation of ITS in Europe, ensuring sustainable mobility, travel satisfaction and high economic returns. By joining ERTICO, organisations can work more effectively together and achieve vital synergies across sectors and across national boundaries to create a dynamic and successful European ITS market.

CERTH became the first Greek institution joining ERTICO in 2003 with its two Institutes, HIT and ITI.

### *FERSI – FORUM OF EUROPEAN ROAD SAFETY RESEARCH*

The Forum of European Road Safety Research Institutes (FERSI) was established in 1991 to bring together these national research organisations to provide a common focus for road safety research at the European level.

In order to promote its aims and objectives, FERSI and its members:

- Initiate and carry out research projects in direct support of EU policy work (eg SARTRE) and Framework projects (eg DUMAS, SAFESTAR, GADGET)

- Provide advice on road safety research matters to national governments and European institutions
- Promote and support relevant Conferences, Seminars and Workshops
- Encourage the exchange of researchers between European road safety institutes
- Establish and maintain strong links with national and international clients for road safety research
- Establish and maintain close liaison with other worldwide bodies with a responsibility for road safety research and implementation

The Forum's activities include the expediting of research programmes for the EU and other international organizations, the consulting services provision on road safety issues to international organizations and the EU, the promotion and support of relevant conferences and seminars, the creation and maintenance of strong affiliation with national and international clients for the research on transport safety, the creation of coopeations with international organizations responsible for exercising policy on the above-mentioned subjects. HIT became a member of FERSI in 2004.

## 8.2 COOPERATIONS IN GREECE

In Greece HIT has a permanent cooperation with AUTh and specifically with the Transport Research Laboratory, Civil Engineering Dept., as well as with the Transport Research Team of the Rural and Surveying Dept. This cooperation constitutes mainly on the participation of HIT in the organization and conduct of the Postgraduate Program on Transportation, which was launched (for the first time in Greece) in September 2003, but also in common research projects.

HIT also cooperates systematically with the Hellenic Institute of Transportation Engineers (SES) co-organizing the International Conference on Transportation Research in Greece that takes place every two (2) years. They also cooperate for a number of other Conferences and events.

Finally, by carrying out for them studies and research programs HIT cooperates with all the main institutions of the country in the field of transport., such as the Ministry of Transport, the Ministry of Aegean, the Ministry of Environmental, Planning and Public Works, the Region of Central Macedonia, OSE, OASA, SASTh, OLTh, etc.

## 8.3 DISSEMINATION ACTIVITIES

HIT successfully organized, in cooperation with the Hellenic Institute of Transportation Engineers (SES), the **International Conference on Transport Research in Greece**. The 2nd International Conference took place in 2004, while the next one is scheduled for April 2006.

Two other big events took place in 2004 with the active cooperation and participation of HIT. These were:

- the ASIAMAR / IMONODE Workshop, and
- the 10th World Conference on Transport Research

***ASIAMAR / IMONODE Workshop - "Organization – operation – monitoring of Maritime and Intermodal Freight Transport: the European and Asian experience" - Thessaloniki, 12 May 2004.***



The objectives of the Workshop were to highlight the current status of Intermodal Freight and Maritime Transport in the regions of Europe and Asia and to investigate areas of cooperation between the two regions. In the event participated scientists from Europe and Asia with long presence in the Intermodal Freight Transport sector, professionals of the Maritime and Freight Business, Transportation Engineers, Representative of Authorities and Major International Organizations, Universities etc. Some of the key results and conclusions of the Workshop are the following:

- The coordinator of the Workshop, Prof. G.A. Giannopoulos stressed the important role of the rail transport in order to achieve in practice the Intermodal Transport, pointed out that in major intermodal transport chains there are no major differences between Europe and Asia, and underlined the role that the recent technological developments can play in the quality of the transportation services.
- The representative of the United Nations (ESCAP division), Mrs. Geetha Karandawala, referred to the rapid development of port infrastructure in Asia, to the Transnational Agreements for the Highway and Rail Networks in Asia, while

stressed the need for a more close cooperation between Asia and Europe in intermodal freight transport related issues.

- Some of the basic problems that prevent the development of Intermodal Freight Transport in Europe are the lack of standards, the integration of conventional with advanced information systems, the high investment costs in infrastructure and equipment, and the lack of cooperation between the public and the private sector.
- Finally, it was highlighted the need for a more efficient and harmonized procedures especially at the borders, the inability of rail to interoperate with the rest intermodal freight transport system, the need for increased investments in infrastructure and the promotion of standards and standardized procedures, etc.

### *10th WCTR World Conference on Transportation Research, Istanbul, July 2004*

HIT successfully participated in the organization of the 10th World Conference on Transportation Research (WCTR) in July 2004, in Istanbul. WCTR constitutes an upmost world event on Transportation Research. HIT participated in the organization of two sessions, while its associates presented a number of scientific papers as well as presided some sessions.

The Conventioneers represented research centers and institutions acting or are interested in transport research in a worldwide level and covered almost the whole international scientific personnel of the field. Apart from the number of conferences, distinguished foreign and Greek Transportation Engineers from abroad (mainly from EU countries and the USA) participated in parallel events and educational meetings.

# 9 SHORT DESCRIPTIONS OF HIT'S MAIN PROJECTS IN 2004

## 9.1 AWAKE: SYSTEM FOR EFFECTIVE ASSESSMENT OF DRIVER VIGILANCE AND WARNING ACCORDING TO TRAFFIC RISK ESTIMATION

AWAKE was a European research project funded by the IST initiative of the 5th Framework programme, which focused on driver hypovigilance issues, aiming to actively contribute in the enhancement of road safety in European and International level. AWAKE project started in September 2001 and has been successfully finished in September 2004.

Within the AWAKE Consortium participated, among others, main industrial partners (SIEMENS, FIAT, DaimlerChrysler, AUTOLIV, ACTIA), Institutes of transport and road safety (Hellenic Institute of Transport, VTI, TRAIL, et al), Universities (University of Stuttgart, ICCS-NTUA), under the umbrella of the AIT&FIA (International Automobiles Federation). **The head of this Consortium has been the Hellenic Institute of Transport (HIT), which is established in Thessaloniki, Greece and the Project Coordinator is Dr. Evangelos Bekiaris, Mechanical Engineer, Principal Researcher of HIT**.

AWAKE consists of several 'smart' systems, which monitor the driver, totally unobtrusively. Those systems, among others, can monitor the driver's eye-blinking rate, the driver's hands force on the steering wheel and the vehicle's position in relation to the road lane and the surrounding vehicles. For this reason, a variety of sensors are used (radar, cameras) inside and outside the vehicle.

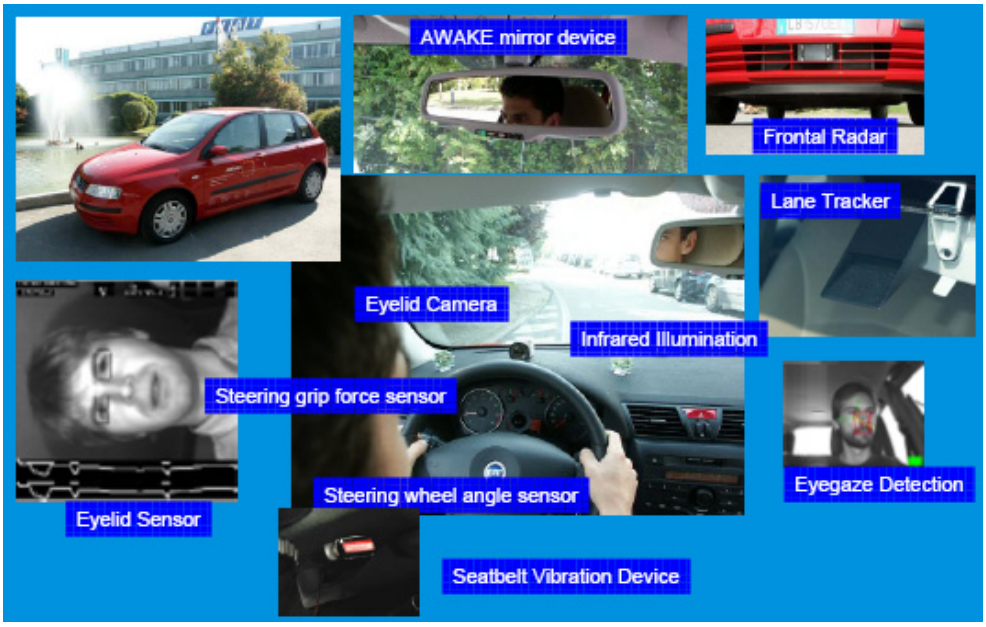





**Figure 9-1: AWAKE city-car demonstrator components**

In addition, the AWAKE system is equipped with enhanced driver personalization, developing the normal driving profile of the driver, aiming the best possible diagnosis and handling of the current state in case of emergency. In few words, AWAKE can adapt to each driver using the system, records and updates his/her driving profile in a smart card which is personal and unique for each driver, and functions according to the driver type and the current traffic situation.

The AWAKE warning system adapts automatically to the current driver behaviour, traffic situation and driver vigilance state and is adjusted according to the driver type (new driver, professional driver, driver suffering from sleep disorders, shift-worker, et al). The AWAKE warning system consists of the following functionalities:

- use of special acoustic and visual warnings,
- variety of warning sounds and speech messages,
- visual warning in the rear-view mirror of the vehicle for improved performance,
- use of seat belt vibration,
- use of sound emulation of the rumble strips sound for lane drifting warning.

Special emphasis has been given in the design of the warning methods, which do not irritate the driver and can be adapted in each driver's reaction time, as well as at his/her vigilance state.




**Figure 9-2: AWAKE truck demonstrator components**

AWAKE targets all driver categories, with special focus on the professional drivers and drivers suffering from sleep disorders. AWAKE is expected to have a significant impact to the reduction of traffic accidents attributed to driver drowsiness or else 'sleeping at the wheel', by stimulating the activation of the technological development in the field of 'smart cars', by developing a friendly, comfortable and reliable system for the user-driver and by contributing to the official 'e-safety' programme of the European Commission aiming to reduce traffic accidents in the European roads by 50% by the year 2010.

Within the framework of the project AWAKE, three prototypes have been developed, one for city-cars (Fiat Stilo), one for luxury-cars (Mercedes S-Klass) and one for heavy vehicles (Mercedes Actros). The components of each prototype vehicle are presented in the figures above (Fig. 9-1, 9-2).

A general conclusion is that the AWAKE system is a potentially high performance technical system for real time detection of drivers' vigilance state, which is highly accepted among the test drivers. Through a number of pilots conducted within the AWAKE project, important steps have been made for further improvement and updating of various drowsiness detection algorithms to different vehicle environments (truck environment, compact car), which contribute to the increase of reliability performance of the overall AWAKE system.

On the other hand, taking into account the big differences between individuals in relation to their hypovigilance progress as well as the numerous experimental settings with different sensors, it is apparent that these factors posed some limitations to the full achievement of the desired level of sensitivity and specificity.

These limitations are currently surveyed within the framework of the SENSATION FP6 integrated project, which is expected, among many others, to develop a high reliability drowsiness detection system, which will manage to enter the European car industry and therefore constitute an optional system in the vehicle market.

## 9.2 AGILE: AGED PEOPLE INTEGRATION, MOBILITY, SAFETY AND QUALITY OF LIFE ENHANCEMENT THROUGH DRIVING

AGILE is an EC co-funded project, with a multi-disciplinary team of 13 Participants, representing 7 European countries.

AGILE aims to develop a new set of training, information, counselling and driving ability assessment and support tools for the elderly, evaluating their full range of physical, cognitive, behavioural and interactional abilities and not just checking a few sensory and motor functions (as is currently the case). More specifically, the project aims are the following:

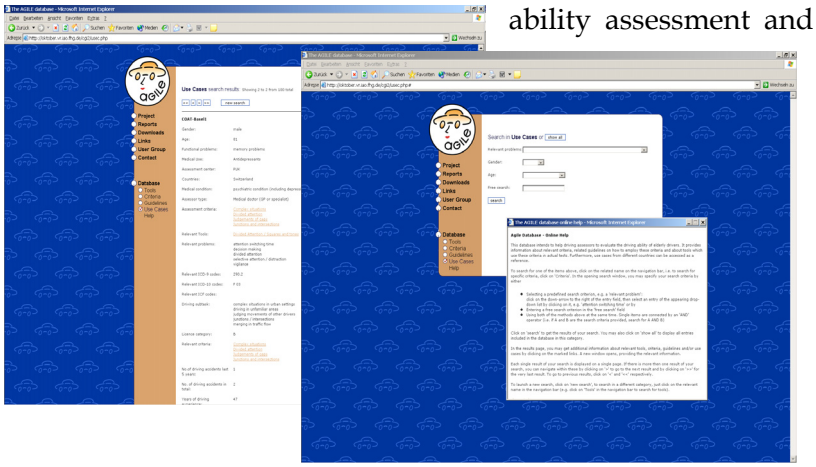


**Figure 9-3: Images from the database user interfaces**

a) developing the required knowledge to establish rational policies for delivering certification of fitness to drive, and

b) helping as much as possible older age groups to continue driving safely as enhanced mobility leads to increased well-being for them.

It should be emphasised that the assessment methods targeted are not meant to present a new barrier for elderly drivers, but instead should simplify the assessment process for most of them and help the rest to find appropriate methods and aids to allow them to remain safe drivers.

Initially, a study was performed for the definition of the critical driving problems of elderly drivers. (using specifically designed questionnaires for the elderly drivers themselves as well as for experts, and performing a literature review on the reasons for the most often accidents, where elderly drivers were at fault). Two types of tools have/will be developed by the end of the project, namely support tools and evaluation tools.

Support tools:

- Assessment parameters database. It includes 43 assessment criteria, 33 assessment tools, 4 guidelines (to be finalized after pilot testing), 373 use cases (from 6 different sites).
- Decision and consultation tool.
- Elderly drivers re-training course.
- Guidelines on vehicle design.

The pilots have been performed in three European countries: Belgium, Greece and Sweden, with 243 elderly drivers. In Greece, tests took place in Thessaloniki with 98 users. The analysis of the results is under process.

For more information you can visit the project we site at: www.agile-eu.org.

## 9.3 NOVEL: CENTER OF EXCELLENCE ON DRIVER BEHAVIOR ISSUES IN THE CENTER FOR RESEARCH AND TECHNOLOGY HELLAS

NOVEL is developing a Centre of Excellence on driver behaviour issues, which is a key element of road safety. In order to achieve this goal, the Centre has been equipped with a series of sophisticated research tools, such as:

- A Virtual Enviroment tool, for simulation of car systems and the surrounding environment.
- A Research Vehicle equipped with Advanced Driver Assistance Systems (ADAS), (radars, cameras, sensors etc).

The sensors into the research vehicle are:

- ✓ black-box recorder with basic vehicle inputs (i.e. speed, acceleration, braking, steering output at any given time);
- ✓ frontal laser sensor;
- ✓ automotive display(s);
- ✓ navigation system;
- ✓ lane recognition camera;
- ✓ driver face looking camera used for driver eye-lid movements monitoring;
- ✓ eye gaze sensor;
- ✓ visual and audio human interfaces;



**Figure 9-4: Driving simulator in operation**

✓ GPS antenna.

A Semi-Dynamic Driving Simulator for simulation of various driving conditions that would be difficult or even dangerous to be tested in real conditions (e.g. driving in a highway, city environment driving in rain, snow, ice, etc).

## 9.4 CONSENSUS: PROMOTING CONSENSUS IN ASSESSING DRIVING ABILITY OF PSN THROUGH COMMON METHODOLOGIES AND NORMATIVE TOOLS

CONSENSUS aims to develop a Network of Excellence to systematically exchange information on driving ability assessment of Disabled people, promote relevant technology transfer within EU and access to expertise and resources of highly specialised Centres to other less specialised country authorities, using state of the art Telematics tools and procedures and experimenting new IT support tools (database and expert knowledge tool).

The objectives of the project are the agreement on a concise pan-European adapted PSN functional classification, with reference to driving ability, the agreement on a common set of PSN driving assessment criteria, assessment tools and procedures, the specification and use of a benchmarking database on used and proposed PSN driving assessment tools and methodologies, as well as an expert decision tool, to support evaluators and improve and standardise the quality of assessment, the identification of relevant gaps in existing assessment tools as key issues for future research, the establishment of a coherent group of experts and centres of excellence Europe-wide, that facilitate the state of the art in IST networking technologies to stay in close contact and be able to draw from each other's experience in the field and the proposal of a code of good practice on PSN driving ability assessment, recommendations to authorities and the industry and achievement of relevant users acceptance and public awareness enhancement.

## 9.5 SPORTS4ALL: PROVISION OF TELEMATIC SERVICES TO THE DISABLED FOR THE DIFFUSION OF INFORMATION ON ATHLETICS EVENTS

Sport4All is a European project co-funded by the General Directory DGINFSO (Information Society) of the European Commission, under the framework of the eTen initiative. It's aim is the provision of services to people with disabilities in relation to sports events, providing to Sport4All service users wide distribution of sports information through the use of ICT technologies. The main project objectives are:

- The development of a holistic approach for the creation, collection, management and diffusion of information and telematics services targeted at the disabled and elderly population, in the context of athletic events.

- The utilization digital economy techniques for the diffusion and exploitation of services targeted at the disabled and elderly throughout Europe.
- The development of a web-based pool of information that will allow wide access on seamless and dynamic information regarding accessing and attending athletic events, in compliance with the special needs of the target population.
- The establishment of a distributed network, including travel agents, providers of accommodation services, local, regional and trans-European transportation agents, finance organizations and sport factors. This network will provide access to quality support services for a wide range of disabled users.
- The design of a complete e-guide on sport conduct and attendance based on the universal design principles that will allow the customization of the information delivery and content in strong correlation to each user's needs.

## 9.6 IMMACULATE: IMPROVEMENT OF URBAN ENVIRONMENT QUALITY OF AIR AND NOISE LEVELS BY AN INTEGRATED, COST EFFECTIVE AND MULTI-LEVEL APPLICATION OF CLEAN VEHICLE TECHNOLOGIES

The IMMACULATE project aim was to demonstrate the positive effects of the use of clean vehicles in the urban environment of Thessaloniki, Greece's second largest city and a major business and trade centre of the Balkans. It is notable that never before have such vehicles been introduced in the city, having a population of around 1 million people and experiencing a great degree of urbanisation. It was therefore the project's objective to demonstrate possible contribution of clean vehicles for mitigation of air pollution and excessive noise levels in the city by performing pilot tests with a small fleet of clean vehicles.



**Figure 9-5: Reserved parking place in the city centre for exclusive use by the clean vehicles of IMMACULATE**

The vehicle fleet included hybrid vehicles and pure electric vehicles. Besides, special training courses have been developed and used and special incentives have been established so as to promote the use of such vehicles, including the provision of special parking places in the city centre using a contactless smart card system for vehicle recognition. Furthermore, through its dissemination activities and pilot studies, IMMACULATE has worked towards formulation of an "eco-consciousness" in the citizens of an urban environment, such as the city of Thessaloniki. It has also contributed towards standardisation and policy recommendations, especially for Greece.

## 9.7 INFORMED: INTEGRATED SYSTEM FOR AN ADVANCED AND LIFE-LONG TRAINING METHODOLOGY OF DANGEROUS GOODS DRIVERS AND TRAINERS

Over a number of years the quantities of dangerous goods transported nationally and internationally have increased considerably, increasing the risk of accidents. On the other hand, the risk of accidents related to the transport of dangerous goods may cause irreversible damage to the environment and serious injury to other persons who may come into contact with them. Besides, the continual evolution of different sorts of dangerous goods, as well as the enhancement of traffic risks (increased traffic volume, increasing markets in Eastern Europe without a respective improvement of the traffic net, adverse weather conditions) are additional factors that intensify the need for accident prevention measures. A great number of the accidents, which occur when dangerous goods are transported, may be caused by insufficient knowledge of the risks inherent in such transport.

Training of drivers on transporting dangerous goods is currently considered still in a static manner (training as well as skills certification is only once in a life-time performed), and is based on conventional and insufficient practices. It is necessary, in the context of road safety concerning all three components of it, i.e. the road user, the vehicle and the environment, to adopt measures to improve the prevention of the risks inherent in such transport.

The transport and the related loading or unloading of dangerous goods should be required to comply with the rules on the prevention of the risks inherent in the transport of dangerous goods, whether by road, rail or inland waterway. It is a responsibility of the member states to set up a common minimum framework for vocational training, this resulting not only in the enhancement of road safety but to the wide and free trade of such goods throughout the Community.

INFORMED is a Pilot project aiming exactly at the targets set by the European Commission with regard to road safety during the transport of dangerous goods, i.e. the development of a new training curriculum and innovative multimedia tools, to support the training of drivers and their instructors on transporting dangerous goods and handling them efficiently in case of an accident. The new curriculum is intended to extend to a wider training content, in order to meet the increased demands for safety in the field. It will thus include new elements such as ecological driving and anti-skid, defensive and other advanced driving techniques, focused on particular types of vehicles and cargos.

The most efficient training modules to promote and facilitate the learning process will be selected through a state of the art survey that will result in:

- An easy-to-use multimedia training package (e.g. CD-ROM) that would provide access to databases of multimedia files, including pictures, video and audio, self-assessment facilities, while enabling self- and distance learning.
- A learning centre, accessible through internet, that would offer facilities such as, downlodable multimedia training courses and curricula, interactive information and courses, on-line tutors support for learning / consulting / assessing skills, teleconferencing, self- and interactive assessment facilities, open and distance learning.

In this way INFORMED aims at achieving a significant improvement of the skills and competences of drivers involved in dangerous goods transportation, thus enhancing road safety. Initial vocational training of significantly improved quality and mostly a lifelong acquisition of skills and competences wisely tailored to the dynamic needs of the dangerous goods haulage sector are the projects' two key components.

## 9.8 IDEA: AN INNOVATIVE VOCATIONAL TRAINING SCHEME FOR ASSESSING THE DRIVING ABILITY OF ELDERLY AND DISABLED

IDEA aims at developing a flexible, continuing and standardised vocational training scheme for the personnel assessing the driving ability of elderly and disabled (E&D) people. This personnel may include medical doctors, physiotherapists, psychologists, engineers checking car adaptations, etc. Through this training scheme the personnel will be able to use common, ICT-based assessment tools, such as Internet databases, psychomotor test batteries, driving simulators and expert knowledge tools. For this reason, IDEA adopts a separate structure of diseases related to driving capacity by reorganizing the categories and codes of the ICD-9-CM. This new structure is intended to be the basis of the new training curriculum and tools. Within IDEA scope lies the development of a modular training curriculum (easily adaptable according to

the assessment personnel expertise and educational background), innovative, ICT-based training tools (i.e. multimedia training software, particular PC and driving simulator scenarios for training and testing, etc.) and an open, lifelong learning scheme for its users.

## 9.9 BOB CAMPAIGN IN GREECE (ALCOHOL - NOT TONIGHT – I AM DRIVING)

The Centre for Research and Technology Hellas (C.E.R.T.H.) / Hellenic Institute of Transport (H.I.T.) has implemented the necessary work for the implementation of "Bob" Campaign in Greece for the second time. During the period 2002-2003 the campaign has been realized in Greece according to the specifications for implementing the Bob Campaign in European Union Countries, developed by IBSR.

In the second release of the campaign in Greece, the HIT tried to find as many sponsors and supporters as possible in order to target a great variety of Greek people, such as middle aged people who also drink and drive very often in Greece. The final concept of the Greek message indicates a virtual situation, in addition to the main message, that alcohol and driving cannot exist together. **The Ministry of Transport and Communications** is the **Grand Sponsor** of the BOB-Campaign in Greece for the period 2002-2003 with a grand of 100.000 Euros, which will be spent in the next implementation of the BOB-Campaign in Greece. The **Association of Alcohol Drink Beverages Enterprises** acts also as a **Sponsor** granting the amount of 22.000 Euros for the dissemination of the Campaign. The **NISSAN** car motor company granted a **Sponsorship** of 10.000 Euros via the purchase of the BOB mini van. **Aristotle University of Thessaloniki** acts as a **Supporter** of the BOB-Campaign in Greece giving the authority to HIT to put advertising material (posters, leaflets and stickers) at the University Campus, which spans across 150 acres and has 40.000 students. **AVIS Rent a Car** acts a **Supporter** providing BOB-material in all car rental stations in Greece, which count more than **80 Car Rental Stations**. **BP** acts as a **Supporter** providing BOB-material in all BP Greek stations. In fact more than **1500 BP stations** will promote the message**. "4Wheels" Car Magazine**, the highest circulation car




**Figure 9-6: BOB campaign flyer**

magazine in Greece acts as a **Supporter** and will carry a full-page colour advertisement of the campaign in "4 Wheels" for a period of **two months**. "4Wheels" is a part of Technical Press S.A. Group – publisher of a large number of specialized magazines with various science and technological content. **Automobile and Touring Club of Greece (ELPA)** acts as **Supporter**, and will provide material in toll stations and automobile clubs in Greece. The non-profit **Hellenic Association of Driving Instructors (POEEOA)** acts as a **Supporter,** via the wide distribution of the material developed within the project to the candidate drivers all over Greece. More than **2.000 driving schools** will promote the message. **The Public Transport Services of Athens** acts as **Supporter** in different ways for each company. The **two million bus tickets** with the campaign message displayed at the back side of the ticket will play a significant role in this part of supporting. **The Public Transport Services of Thessaloniki** acts as **Supporter** promoting material to **500 buses in the city of Thessaloniki for a period of one month**. **The Hellenic Association of Car Mechanics** acts as a **Supporter,** promoting the message to **more than 2000 car mechanics.**

## *9.10 ADHRITO: A HUMAN NETWORK FOR THE POWERFUL PROMOTION OF ROAD SAFETY IN GREECE*

This specific Human Network aims the growth of suitable communication channels and collaboration between academic institutions and enterprises of Public and Private Sector, with final aim the **training of the inquiring potential of the country on issues like defence, improvement and promotion of road safety in Greece.**

The main activities of this network **are focused on issues of education through the use of multimedia, as well as driving simulators and skid-cars.** In order to be achieved, **the introduction of new and modern methods of education** for new drivers, already existing drivers, and other special categories of drivers, such as elderly or disabled people, becomes a necessity. These methods and training curricula have already been developed throughout transeuropean research and development programs.



In the frame of its development, the new network is expected to **be informed and keep up to international scientific and technological progress,** participate in seminars and applicative practice.

More specifically **ADHRITO** will be composed of six **(6) Training Seminars**:

1. **Training of driving school instructors in the use of new technologies for the training of new (candidate) drivers.**

The new training technologies converge in the following technologies: Base Simulators (dynamic and semi-dynamic), non road-holding simulators and in the new methods of learning through the use of multimedia.

2. **Training of driving school instructors in retraining of elderly drivers.**

The possession and dispose of new educational standards from the network to the public is of great importance. In the frame of AGILE (a research project of H.I.T., aiming in the development of a new educational system, information, consultation and evaluation of driving ability of elderly people) the provision of a driving simulator with special software adapted to elderly drivers and generally disabled people.

3. **Training of postgraduate students in applications of Advanced Driver Assisting Systems (A. D. A. S.)**

The existence of a research vehicle at H.I.T. with sensors, radar, and powerful electronic processors, of total equipment 200.000 €, necessitate the training of postgraduate students in advanced driving support systems.

4. **Training of postgraduate students in designing, use and support of clean vehicles.**

At November 2002 the research project IMMACULATE began, which aims in the improvement of the air quality and the reduction of noise levels in urban areas. The equipment which will offer to H.I.T. in the frame of the above project (hybrid vehicles and electrified motorbikes) will constitute the beginning of similar seminars.

5. **Training of driving school instructors on issues of ecological driving (eco – driving)**

In the same frame and for the development of ecological consciousness and new ways of driving, ways that will target in fuel economy and therefore in lower emissions of pollutants, cleaner atmosphere and better quality of life in urban environments, will be designed and will implemented relevant driving seminar.

6. **Training of postgraduate students in evaluation of macro-micro simulation programs**

The simulation of road circulation was imported when the calculation of circulatory need and flow via computers was still in the beginning. Computer simulation became a widespread tool in transport engineer with wide field of applications, from scientific research, until planning, education and operation.

## *9.11 SENSATION: ADVANCED SENSOR DEVELOPMENT FOR ATTENTION, STRESS, VIGILANCE AND SLEEP/WAKEFULNESS MONITORING*

SENSATION (Advanced Sensor Development for Attention Stress Vigilance and Sleep/Wakefulness Monitoring) is an FP6 Integrated Project co-funded by the European Commission under the 'micro and nano sensors' area of the Directorate-General 'Information Society' (DGINFSO). The total project effort reaches the amount of 17 MEuro, of which 10 MEuro are funded by EU. SENSATION was officially launched in January 2004, accompanied by a kick-off meeting held in January 14-16, 2004.

SENSATION aims at promoting the health, safety and quality of life of people and protect the environment by reducing relevant accidents and thus the impact on environment through the application of novel micro and nano sensors and related technologies, of low-cost and high-efficiency, for physiological state monitoring. The focus of the work will be the physiological activity, including the sleep and wakefulness states and their boundaries, stress, inattention and hypovigilance states, for hypovigilance detection, prediction and management as well as diagnosis, treatment and remote monitoring of sleep disorders.

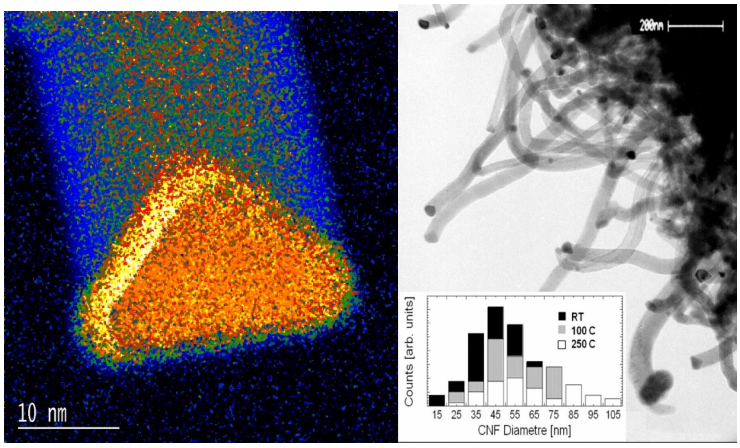



**Figure 9-7: Carbon Nano-fibres (Un. of Surrey)**

The SENSATION Consortium aims to offer insights into the realm of sleep, stress and other emotions, striving to make it:

- **Safer**: Sleep and Alertness monitoring systems will assess behavioural and physiological measures to reduce sleep-related critical incidents. From aircraft pilots to sleeping babies, we can all benefit.

- **Better**: Accurately and routinely monitoring sleep will provide clues on how to enhance diagnosis of sleep disorders and to improve sleep quality. We can also learn to use our sleep time in a better way. Can we also learn while we sleep? Can we optimise our well-being and daytime performance? Understanding the mechanisms behind sleep will also lead us to understand if and when we can do with less sleep.




**Photo. 1: SENSATION exhibition stand during the IST Event 2004 Exhibition held in October 2004 in Den Haag, the Netherlands**

In conclusion, if we manage to primarily analyse the human physiological activity in order to identify the sleep to wakefulness stages and subsequently develop the required micro and nano sensors in order to monitor, predict and detect human physiological states, we will then have reached a new horizon towards the enhancement of the quality of life and the reduction of all accidents related to sleep, by applying new, innovative and totally unobtrusive systems for medical, industrial, transport and tourism applications. SENSATION aims to achieve the long-awaited breakthrough on sleep studies and offer to the European society and each individual European citizen safety, comfort and 'better way of living'. Notwithstanding that the aim is high and the road to its achievement is tough, the SENSATION Consortium is ready to accomplish it.

The project aims to design, develop and extensively test 2 new nanosensors and 17 new or miniaturised microsensors. Project sensors, actuators and their processing and telecommunication units are integrated in a wide range of materials (bed/pillow, cloths, textile), such as plastic for wrist applications, seat foils and glasses, etc.. A specific power consumption optimisation module is also developed at a miniaturised level.

Concluding, the project targets the following visionary applications:

- Improved (more reliable, more cost-effective, quicker) medical diagnosis and treatment of many sleep-related diseases (such as sleep apnoea, insomnia, hypersomnia, restless legs syndromes, narcolepsy, hypoglycemia treatment for diabetics, etc.).
- Treatment migration from the hospital to the home environment.

- Improved patient monitoring.
- Real-time hypovigilance detection of operator, in a variety of industrial applications (i.e. nuclear / chemical factories, air traffic controllers, etc.).
- Real-time hypovigilance prediction of operator in a variety of industrial applications (i.e. while driving a vehicle, a crane, an airplane or performing other critical tasks).
- Real-time operator effective warning.
- Reliable sleep assessment and management for improved working conditions of shift workers.
- Sleep quality enhancement schemes for patients and non-patients (QoL enhancement of all people).




**Photo 2: 1st SENSATION European Workshop on "New Ways of Measuring Sleep" held in March 2004 in Warsaw, Poland**

During the first year of its research life, SENSATION was twice officially reviewed by the European Commission with success. In addition SENSATION actively participated in the IST 2004 Event Exhibition which was held in October 2004 in Den Haag, the Netherlands (Fig. 1) and organized its 1st European Workshop which was held in March 2005 in Warsaw, Poland (Fig. 2).

## 9.12 IM@GINE IT: INTELLIGENT MOBILITY AGENTS, ADVANCED POSITIONING AND MAPPING TECHNOLOGIES, INTEGRATED INTEROPERABLE MULTIMODAL LOCATION BASED SERVICES

Existing infomobility services are only local, incomplete and offered by varying user interfaces and service delivery platforms.

IM@GINE IT project aims to develop one and single access point, through which the end user can obtain location-based, intermodal transport information (static and dynamic), mapping and routing, navigation and other related services everywhere in Europe, anytime, taking into account personal preferences of the user. Thus, IM@GINE IT targets the facilitation of seamless travel in Europe.

Key innovative features include the design of a user preference and context of use, issue of guidelines towards on-board compatible and off-board user interfaces, the

possibility to provide the service through many different mobile devices (mobile phone, mobile PC, PDA, in-car device), a Multi-Agent System that recognises and even learns user preferences and guides the systems ambient intelligence, an intelligent user localisation technique (combining GPS, Cell ID and logical localisation techniques), a common data management module for interfacing a wide range of contents, the independency from transport mode (covering car, bus, train, metro, tram, ship, airplane, airport facilities and even touristic POI's), an integrated route guidance approach (combining in-vehicle, pedestrian, PT-based and within-building route guidance modules), the development of common transport and tourism ontologies for semantic web applications, the centralised provision of integrated and dynamic services and the open interface to many existing systems; all within a common, modular and intuitive concept. Thus, IM@GINE IT intends to become a universal platform, covering urban, interurban and crossborder areas.

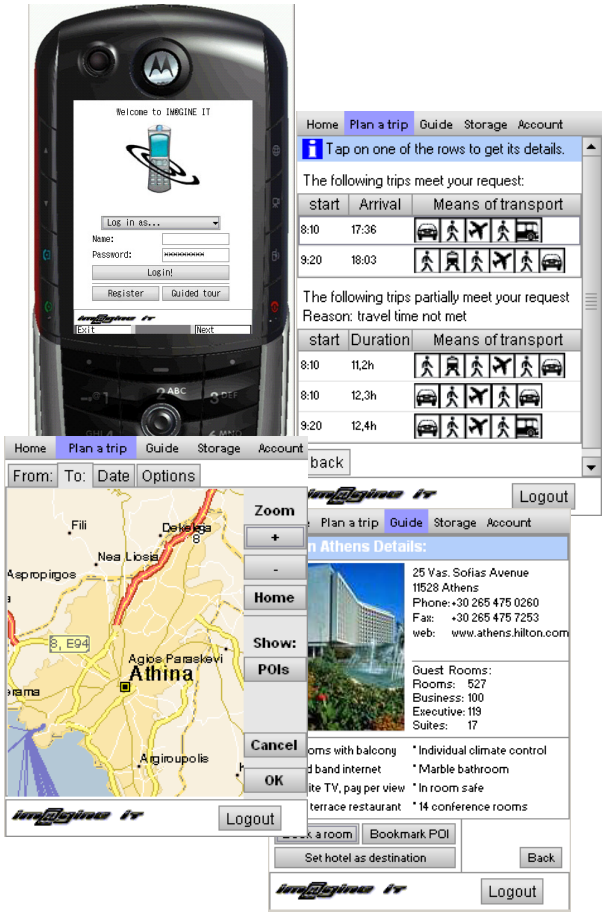



**Figure 9-8: Information service via the cell phone**

The IM@GINE IT system scenarios and use cases have been determined. Some of the services are ready and the development of the intelligent agents software is under process. The pilot sites, including Greece are prepared for the tests. For the Greek pilot, the research vehicle of HIT will be used for the in-car information and route guidance.

The first international workshop of the project was successfully held in October 2004 in Budapest. Many external bodies attended (such as universities, service providers, etc.) and cooperation with NAS countries was achieved.

IM@GINE IT supports the eSafety initiative by performing research in distributed intelligent agents, secure communications and advanced positioning and mapping

technologies and their integration for supporting the provision of location-based value-added services.

## 9.13 ASK-IT: AMBIENT INTELLIGENCE SYSTEM OF AGENTS FOR KNOWLEDGE-BASED AND INTEGRATED SERVICES FOR MOBILITY IMPAIRED USERS

Mobility Impaired (MI) people have a wide variety of functional limitations, from different types of physical impairments to activity limitations. ICT systems following the "design for all" ethos and adequate content are required, so as to take advantage of both internet and mobile-based services.

ASK-IT integrated project aims to establish Ambient Intelligence (AmI) in semantic web enabled services, to support and promote the mobility of Mobility Impaired people, enabling the provision of personalised, self-configurable, intuitive and context-related applications and services and facilitating knowledge and content organisation and processing.

Within it, MI people related infomobility content is collected, interfaced and managed in Sub-Project 1 (Content for All), encompassing transport, tourism and leisure, personal support services, work, business and education, social relations and community building related content.

To offer the content, a number of advanced tools are developed within Sub-Project 2 (Tools for All), such as enhanced accuracy localisation, accessible intermodal route guidance modules and interfaces to e-Commerce / e-Payment, domotics, health and emergency management, driver support, computer accessibility, e-Working, e-Learning systems and assistive devices.

Content and tools are integrated within an Ambient Intelligent Framework (Sub-Project 3), by a Multi Agent System of Intelligent Agents and a self-configurable User Interface, that offer service personalisation according to user profile, habits, preferences and context of use. This framework is interoperable in terms of mobile devices, local and wide area networks used, entrusted and based on intuitive web-semantics; thus offering seamless and device independent service everywhere.

The integrated ASK-IT service and system will be tested in 7 interconnected sites Europewide in Sub-Project 4 (Accessible Europe), to prove that full travel accessibility for MI users can be achieved in a reliable, seamless and viable way using a range of available technologies and communications networks.

For more information you can visit the project we site at: www.ask-it.org.

## 9.14 HyWays: The Development and Detailed Evaluation of a Harmonized «European Hydrogen Energy Roadmap»

HyWays is an integrated project to develop the European Hydrogen Energy Roadmap. The HyWays partners closely interlink with the European Commission to investigate the techno- and socio-economic conditions for introducing hydrogen as a future energy carrier and fuel. A toolbox from well known, widely accepted and tested simulation tools with well defined interfaces is used for the consensus process to identify the technical, macro-, meso- and micro-economic and policy framework conditions for the establishment of a sustainable hydrogen energy system. It comprises a comparative analysis of regional hydrogen supply options and energy scenarios, including renewable energies.

HIT participates in HyWays so as to assist in the specification of the Greek profile regarding the use of hydrogen. The goal is to present and analyse the national perspectives for the development of hydrogen energy systems as discussed within the HyWays project to date. The country profile has the following objectives:

1. to provide a context for the choice of parameters for input in the HyWays Markal model.
2. to provide a qualitative basis for the interpretation of the outcomes of HyWays models.
3. to highlight gaps to date in the discussion of this context.
4. to suggest lines of future research, in particular in the face of a second run of HyWays models.
5. to give an account of the individual methodology followed for decision-making in each member state, thus recording the successes and contributing to the common HyWays "toolbox".

The main chains selected for Greece regarding the use of hydrogen and their proportional share are presented below.

| | | 2010 | 2010 - 2020 | 2020 - 2030 | 2030 - 2050 |
|---|---|---|---|---|---|
| 1 | RES electricity+Central Electrolysis+ GH2 pipeline CGH2 FS+FC car | - | 5 | 8 | 19 |
| 2 | RES electricity+De-central Electrolysis***+ CGH2 Fuelling Station+FC car | 10 | 14 | 16 | 19 |
| 3 | Natural gas+Central SMR*+GH2 pipeline+ CGH2 FS+FC car | - | 45 | 24 | - |
| 4 | Hard Coal+Gasification*+GH2 pipeline+ CGH2 FS+FC car | - | 2 | 4 | 4 |
| 5 | RES Electricity+Central Electrolysis+ GH2 pipeline+local H2 grid+CHP system | 71 | 14 | 16 | 19 |
| 6 | RES Electricity+De-central Electrolysis+ Local H2 grid+CHP system | - | - | - | 19 |
| 7 | Natural Gas+Central SMR*+GH2 pipeline+l ocal H2 grid+CHP system | 14 | 14 | 16 | - |
| 8 | Hard coal+Gasification*+GH2 pipeline+ local H2 grid+CHP system | - | 2 | 2 | 2 |
| 9 | Natural Gas+Central SMR**+GH2-NG pipeline+ Regular Boiler | 5 | - | - | - |
| 10 | Biomass / Centralised / Decentralised | - | 5 | 12 | 19 |

## 9.15 PREMIA: R&D, DEMONSTRATION AND INCENTIVE PROGRAMMES EFFECTIVENESS TO FACILITATE AND SECURE MARKET INTRODUCTION OF ALTERNATIVE MOTOR FUELS

The European Commission has set the objective to substitute 20% of motor fuel consumption by new and alternative fuels by the year 2020. The objective of PREMIA project is to assess initiatives to facilitate and secure the large-scale introduction of alternative motor fuels and alternatively fuelled vehicles in the EU, in relation to the market maturity of the technology and the country dependent situation. The focus is on biofuels as ready-to-market alternative fuels and hydrogen as a fuel further away from market maturity. An assessment framework is being developed to monitor different initiatives. Current and past initiatives (both in the EU and worldwide) to facilitate and secure the market introduction of alternative motor fuels (R&D support, demonstration actions and direct incentives) are being assessed for their role in the process towards market introduction of alternative motor fuels. Scenario calculations will be done to look at the impact of specific measures in specific countries. As a result, country-specific policy options and suggestions will be formulated to indicate the most effective approach to introduce alternative motor fuels. These policy options and suggestions will be disseminated to various stakeholders through regional and EU-level workshops.

Within this project, HIT is responsible for the assessment of short-term options in the EU - biofuels and large-scale natural gas and for reviewing and analysis country-specific situations including eastern european countries.

## 9.16 AIDE: ADAPTIVE INTEGRATED DRIVER-VEHICLE INTERFACE

Today, a wide range of new in-vehicle technologies are being introduced on the market, including Advanced Driver Assistance Systems (ADAS) and In-vehicle

Information Systems (IVIS). Moreover, the in-vehicle use of nomad devices (e.g. mobile phones, personal digital assistants and other portable computing devices) is increasing rapidly. These new technologies have great potential for enhancing road safety, as well as enhancing the quality of life and work, e.g. by providing in-vehicle access to new information services. However, the safety benefits of ADAS may be significantly reduced, or cancelled out altogether, by unexpected behavioural responses to the technologies, e.g. system over-reliance and safety margin compensation. Moreover, IVIS and nomad devices may induce dangerous levels of workload and distraction.

The general objective of the AIDE IP is to generate the knowledge and develop methodologies and human-machine interface technologies required for safe and efficient integration of ADAS, IVIS and nomad devices into the driving environment. Specifically, the IP will design, develop and validate a generic Adaptive Integrated Driver-vehicle InterfacE (AIDE) that employs innovative concepts and technologies in order to: (1) maximise the efficiency, and hence the safety benefits, of advanced driver assistance systems, (2) minimise the level of workload and distraction imposed by in-vehicle information systems and nomad devices and (3) enable the potential benefits of new in-vehicle technologies and nomad devices in terms of mobility and comfort, without compromising safety. The AIDE concept will be implemented, demonstrated and validated in three different test vehicles: a city car, a luxury car and a heavy truck.

HIT developed a Quality Manual for the quality control and assessment of the project, which is followed by the IP (Deliverable 4.1.2). It has also submitted its pilots plans for the study of the long-term effects of drivers using ADAS. Furthermore, it has concluded the study of the user needs on ADAS/IVIS HMI of drivers (for various driver cohorts). The relevant results are reported in Deliverable 3.1.2.

## *9.17 PREVENT / LATERAL SAFE: PREVENTIVE AND ACTIVE SAFETY APPLICATIONS CONTRIBUTE TO THE ROAD SAFETY GOALS ON EUROPEAN ROADS*

PReVENT will help drivers to avoid accidents. Depending on the significance and timing of the danger, the systems will alert the drivers as early as possible, warn them and, if they do not react, actively assist or ultimately intervene. PReVENT consists of a set of 8 vertical subprojects and 3 horizontal subprojects which commence from the beginning of the project. During the course of the project, new subprojects will be added to the programme, and subprojects starting from the beginning will end. New subprojects will be proposed from within as well as outside the consortium following calls to be held regarding new priorities on vertical and cross-functional topics.

HIT is participating in LATERAL SAFE subproject.

LATERAL SAFE introduces a cluster of safety applications of the future vehicles in order to prevent lateral/rear related accidents and assist the driver in adverse or low visibility conditions and blind spot areas. LATERAL SAFE applications will be built in a common multi-sensor platform and include a lateral and rear monitoring system, a lane change assistant and a lateral collision warning, extending the operative scenarios of existing systems to all weather conditions and congested urban areas. Its results will be evaluated and demonstrated in a city car equipped with all LATERAL SAFE applications, a luxury car equipped with a lane change assistant and a truck tested in a driving simulator.

**Objectives**

Technological objectives of LATERAL-SAFE are to meet e-safety priorities for active safety applications in European roads for lateral safety functions. The target application (functions) for LATERAL-SAFE is threefold, developing:

a) A Lateral and rear area monitoring system

b) A Lateral collision warning system and

c) A lane change assistance system with integrated blind spot detection

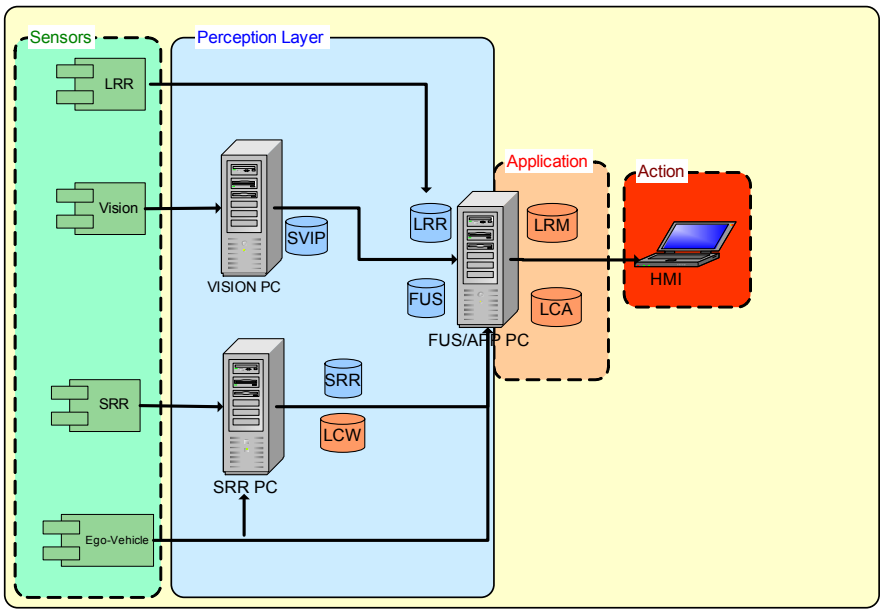



**Figure 9-9: Lateral Safe processing units**

The technological means, with which the objectives will be achieved include:

- A Multi-sensor platform based on short range radar sensors, long range radar sensor and/or vision sensor including H/W and S/W interfacing for the integration of all sensor and system technologies needed for lateral and rear monitoring and warning in an open and reconfigurable architecture switching

between different applications. The initial design of the platform will be delivered in M12, while the final architecture is to be released at month 18.

- Data/sensor fusion and synthesis techniques for obstacle detection and tracking from various but synergistic sources. By month 24, synthesis S/W will be released for the applications development.
- Selection of a reliable and flexible sensor array (short and long range radars, vision sensors, etc.) and development of a sensor network interfaced to the above-mentioned automotive platform. By month 12, the array will be selected, while at month 24 the sensorial system will be developed and interfaced to LATERAL SAFE platform.
- Heavy truck simulator where the application for lateral and rear monitoring will be evaluated by human factor tests. The full developed simulator will be available at month 24, while the simulator tests will be finished by month 30.
- A Visualization tool for lateral and rear monitoring to be used for evaluation, namely for the visualization of the lateral and rear scene in a virtual environment adding also sensor data.
- An HMI, where lateral monitoring application will be combined with warning strategies implementation for all LATERAL SAFE applications. The HMI will be delivered by M24.

The developed applications will be implemented, demonstrated and evaluated through human factor tests at a passenger vehicle of CRF, whereas the lane change assistant will be demonstrated in a luxury car from Bosch. Additionally, lateral and rear area monitoring application will be evaluated in an advanced driver simulator from VTEC.

## 9.18 INTUITION: NETWORK OF EXCELLENCE ON VIRTUAL REALITY AND VIRTUAL ENVIRONMENTS APPLICATIONS FOR FUTURE WORKSPACES

Virtual Reality (VR) technology is still a rapidly evolving and diversifying field. The massive research and development process has reached a degree, which makes a pan-European structuring and integrating effort an absolute necessity. In addition, VR technology has started being used to an extent in industrial applications; this has been processed though an unorganised way, lacking of long-term vision and dealing with case-by-case scenarios. Thus, a critical milestone is facilitate the adoption of Virtual Environments (VEs) in industrial processes and assess the impact of its "penetration" into the workplace and everyday life in terms of cost-effectiveness, health hazards and side-effects of the users and its impact on the actual working environment, on an individual and organizational level.

INTUITION's major objective is to bring together leading experts and key actors across all major areas of VE understanding, development, testing and application in Europe, including industrial representatives, SMEs and key research institutes, universities and major international organisations or associations in order to overcome fragmentation and promote VE establishment within product and process design. Its major objectives include the integration of resources and VR equipment all around Europe, the structuring of European Research Area at VR and the promotion of Europe as a leading force in this filed world-wide.

To perform this, a number of activities will be carried out in order to establish a common view of VE technology current status, open issues and future trends. These activities will include integration of human and infrastructure resources, research structuring, spreading of excellence and dissemination tasks. The quite large consortium is controlled by a firm managerial structure. Strong links with National relevant Networks, current National and EU-funded projects and clustering activities with new initiatives as well, will assist in structuring the VR European Research Area.

## 9.19 HUMANIST: HUMAN CENTRED DESIGN FOR INFORMATION SOCIETY TECHNOLOGIES

The goal of the HUMANIST NoE is to create a European Virtual Centre by setting up strong connections between partners inside the NoE, in addition to exchanges with Universities and Academic World outside the NoE through training programmes and welcoming young researchers. Outputs from NoE will also be targeted toward other relevant stakeholders such as National and European public authorities, Standardisation Bodies, National and European RTD Projects. Diffusion and transfer of knowledge, in addition to common partnerships between NoE and these entities will ensure flow of information in order to set up adequate coordination.

The knowledge gathered and produced by the HUMANIST Consortium will contribute to the eSafety initiative, which is a joint industry-public sector initiative for improving road safety by using new information and Communication technologies.

To progress towards the creation of this European Virtual Centre, the HUMANIST Consortium has built a coherent joint program of activities, gathering integrating, research, and spreading activities.

A set of Integrating Activities has been created in order to manage and to consolidate the NoE research structure:

- by promoting the mobility of researchers inside the network.
- by optimising the pool of existing experimental infrastructures through sharing.

- by setting up an electronic internal network in order to share easily and quickly the knowledge inside the network (forum, web-conference, common database) and in order to set up e-learning initiatives.

A set of Spreading Activities has been created in order to spread widely the knowledge from the NoE towards the relevant stakeholders:

- by organising debates and transfer of knowledge through identified activities with other FP6 projects on eSafety and relevant stakeholders and by promoting harmonisation with other Networks as standardisation and pre-normative bodies.
- by setting up training programmes towards European students and young researchers in the area in addition to professionals of industries, governmental bodies and other organisations in the automotive domain.
- by promoting and disseminating concepts, activities and results of the NoE to a wide audience.

During the first stages of the project, the jointly executed research activities is focused on the production of different state of the art research to identify the main gaps in scientific knowledge and to define new relevant research issues. Furthermore, the annual programs of researchers exchange and of infrastructure sharing are used as inciting means to converge towards a harmonious research programme with complementary approaches.

## *9.20 APROSYS: INTEGRATED PROJECT ON ADVANCED PROTECTION SYSTEMS*

APROSYS project focuses on scientific and technology development in the field of passive safety (crash safety). The general objective of APROSYS is the development and introduction of critical technologies that improve passive safety for all European road users in all relevant accident types and accident severities.

APROSYS objectives/outputs are:

1. Development of new injury criteria and injury tolerance.
2. Development of new mathematical models of the human body (crash & pre-crash phase, arbitrary body sizes).
3. Development of a new world-wide harmonised crash dummy for representation of a small female car occupant (side impact).
4. Development of knowledge and tools enabling the design, implementation and evaluation of intelligent safety systems.

5. Enhancement of virtual testing technology for design and evaluation of crash protection methods.
6. Development of test methods and advanced protection systems for injury reduction in most relevant accident types involving car occupants, motorcyclists, pedestrians and cyclist (including accidents where the accident partner is a heavy vehicle and other compatibility issues).

HIT participates in this project as a subcontractor to TNO, with the task to analyse data from an in-depth Greek accident database and perform required cross-tabulations, extracting requirements for the APROSYS development work. Until now, data analysis includes statistics and in-depth analysis regarding side crashes, belted occupants injuries, ESP effects on accidents and injuries severity, rear-seated occupants injuries types and causes, crashes with poles injuries, and others.

## 9.21 ESTO STUDY: «STATE-OF-THE-ART REVIEW OF HYBRID VEHICLE TECHNOLOGY»

The objective of this ESTO (European Science and Technology Observatory) study was the analysis of the potential applications of hybrid vehicles and energy regeneration technologies in road transport. The main goal was to collect up-to-date information concerning the techno-economic characteristics of these technologies, their potential areas of application and the outlook as regards the future evolution of efficiency and costs.

HIT was responsible for the description of technological options for hybrid vehicles and energy regeneration in road transport as well as for reviewing the efficiency gains under different driving conditions for different hybrid vehicle technologies. The gains were classified in terms of hybridisation concept, the vehicle type and the different driving conditions (urban, highway, standard driving cycles etc.). The information used has been taken from measurements that were taken from CERTH-HIT, from official data issued by the auto industry and from scientific research results and studies as well as projects. Several measurements and tests were analysed to show the efficiency gains in terms of fuel consumption and emissions followed by relevant data. The information and the results have been used to derive aggregate results in order to determine the potential of the hybrid technology regarding fuel consumption and emissions. An estimation of the total gains of hybrid technology was analysed for actual savings in terms of fuel and emissions at an average fleet on EU level.

## 9.22 LABORATORY OF SIGNING MATERIALS PHOTOMETRIC AND VISIBILITY CONTROL

Laboratory's mission is to produce photometric and visibility laboratory services that allow the evaluation of the photometric and colorimetric properties of signing and marking materials. Additionally, laboratory's main task consists of the measurement of retro reflective materials through the execution of specific controls for their certification and the study of the lighting conditions that optimises the visibility of these materials under particular circumstances (night driving, mist etc). Specifically, laboratory's services characteristics are:

- The elaboration of quality certificates for vertical signing marking materials.
- The elaboration and promotion of new advanced materials and construction methods for such devices.
- The damage control of already installed in signs.
- The pure scientific laboratory section can provide its services to the ones dealing with driver behaviour issues and road safety such as automobile industry, road construction companies etc.

## 9.23 SARTRE III: SOCIAL ATTITUDE TO ROAD TRAFFIC RISK IN EUROPE, PHASE 3

On the basis of a Pan-European survey on a representative sample of 1000 European drivers, an investigation of the actual car drivers' attitudes and reported behaviour will take place. Beyond this primary objective, the work will allow the identification of any changes occurring between the surveys carried out in 1991, 1996 and 2002 in the related countries (Greece participated only in 1996). Considering on the one hand the increasing level of mobility between EU and its various neighbours and the consequences for traffic safety, and on the other hand the imminent enlargement of the EU, it has been considered very important to compare driver's attitudes not only within the various EU countries but also within EU countries and their neighbours. The project comprises pan-european surveys of car drivers (task 1), which together with the related contextual analysis (task 2) will allow for the first analysis of survey principle results (task 3), followed by in-depth analyses of selected topics (task 4). Finally, emphasis should be given to the wide dissemination (task 5) of the project results in order to allow the useful exchange of experience among the various European countries

## 9.24 GIFTS: GLOBAL INTERMODAL FREIGHT TRANSPORT SYSTEM

The main GIFTS aim is to design and develop for the pilot cases, a fully Integrated Operational Platform, the GIFTS Integrated operational Platform – GIP, for the use of systems that manage door-to-door freight transport in an intermodal as well as unimodal sense. GIFTS aim is to provide the blueprint of a system that will be provided for an integrated service to freight transport operation that will be particularly accessible to the Small and Medium "players" in the field. It will provide applications for the operational (e.g. track, trace and monitor the door-to-door journey, aid in trip management, goods tracing and tracking, fleet management, etc), as well as all the e-commerce functions and insurance of a door-to-door freight transport chain, in the fullest sense (i.e. including order matching, e-document transfer, e-payment, etc). The GIP will also have its own administrative functions based on a CORBA platform for registration, secured access, customer profiling, etc. The use of GIP will be mode independent i.e. it should be applicable to both unimodal as well as multimodal transport applications.

GIFTS Integrated operational Platform, will be demonstrated during three pilots (road freight transportation, rail freight transportation and e-commerce), capable of handling registration, authentication, audit trails, security, billing etc, for the users of GIFTS, and which is independent of the mode used, i.e. applicable also to intermodal freight transport situations.

## 9.25 UPTUN: COST-EFFECTIVE, SUSTAINABLE AND INNOVATIVE UPGRADING METHODS FOR FIRE SAFETY IN EXISTING TUNNELS

The UPTUN Project aims to present cost efficient methods for fire safety in existing tunnels. The study will provide information to enable cost efficient decisions on detection, inspection, monitoring or mitigating to be made by European tunnel administrations. Simple and usable rules will be provided for an initial assessment. Furthermore, specifications for a possible computer program will be presented in order to be used in more complex fatigue calculations and assessment.

## 9.26 IMONODE: EFFICIENT INTEGRATION OF CARGO TRANSPORT MODES & NODES IN CADSES AREA

The IMONODE project aims at studying the options and suggesting solutions and solid actions that will enhance the greater use of, and the accessibility to the transportation axes no V and X for freight transport with priority on rail. The emphasis is on rail because if no specific actions are taken it will continue to loose ground against road transport and this is contrary to the declared Transport policy of

the EU. For the areas of CADSES countries that had a long tradition of rail supremacy over road, this is a crucial issue and a very urgent objective to pursue.

Secondary aims concern the optimisation and rationalisation of transport and handling systems for freight transport, reducing environmental impacts of road traffic, increasing the quality of cargo logistics services, reducing pollution, and saving energy along the two axes no V and X. The project proposals will be fully compatible with all relevant national and EU policies regarding structural funds policies, environment legislation, etc.

## 9.27 CITY PORTS

The general target of the CITY PORTS project is the re-organization and process reengineering of city logistics solutions in medium and small size urban systems. Secondly, another target is to make some nodes (urban systems) of EU infrastructure and information networks to work in coherent, efficient and sustainable way by integrating the main EU policies and priorities active at local level, namely the EU policies and measures for the sustainable spatial development, the improvement of social-economic cohesion, the reduction of greenhouse gas emissions the EU policies on transport.

Thus the CITY PORTS proposal is mainly addressed to establish an information network on city logistics solutions and to improve the transfer of management skills and know how in the field of urban freight transport and "city logistics" among the 21 participants through piloting actions.

The network and the methodology proposed are also strongly oriented to encourage the investments and improve durable results in several urban systems affected by the freight transport problems. At local level, the proposal deals with the preparation of public and/or private investments.

## 9.28 GILDANET: GLOBAL INTEGRATED TRANSPORT LOGISTICS DATA NETWORK

The prime aim of the GILDANET project focuses on the evolution, extension and consolidation of the GILDA/TRANSLOGNET systems, prototypes developed under the INTERREG IIC Programme as a widely accessible IT support solution for the information and document exchanges among authorities and operators of the intermodal transport. GILDANET will introduce an integrated and open information network between the partners of the transport chain and other relevant parties. Emphasis will be put on the real time electronic transactions, Tracking and Tracing of cargo and vehicle, information dissemination, Decision Support Systems, interfacing

with the end users, interconnected/interoperable ICT systems at a transnational level and adoption of advanced communication protocols.

## 9.29 INTELLECT: SYSTEM FOR COMBINED PASSENGER TRANSPORT INTELLIGENT INTERMODAL TRAVEL PLANNING AND RESERVATION

The project INTELLECT proposes the development of platform which will be addressed mainly in the final user of traveler, but also in enterprises that are activated in the area of reservations and will be able to interlink databases of different means of transport (air – marine - ground), composing scenarios of travel with combined transport means, based on the profile of traveler and parameters as the cost, the time and the comfort. Such a system will offer also information to the traveler for his ways of passage between stations of re-embarkation (harbor – airport – railway station) and will undertake to fulfill the reservation of all tickets and of all means that intersect in the scenario that will be selected by the traveler.

## 9.30 INTEGRATED SYSTEM FOR THE QUALITY ASSESSMENT OF THE OASA PASSENGER SERVICES

The research project involves the measurement of a series of quality/performance indicators, supporting OASA in the process of monitoring and improvement of the quality of the services provided to the passengers. This goal will be achieved through the implementation of the following three stages:

*Stage 1*: The quantification of the quality indicators commonly accepted and measurable by all three OASA affiliates (ETHEL S.A. (thermal busses), ILPAP S.A. (trolleybuses) and ISAP S.A. (Metro Line 1)).

*Stage 2*: The design and development of an Integrated System for the Monitoring and Assessment of the OASA Passenger Services Quality.

*Stage 3*: The support of OASA in the organization of the best procedures for the collection and archiving of the necessary data involved in the quantification of the indicators defined at the Integrated System and thus in the flexible "maintenance" of the quality control process in the future.

## 9.31 MANAGEMENT AND MAINTENANCE OF THE THREE YEARS DURATION INTEGRATED CONTROL SYSTEM OF THE PASSENGER TRANSPORT OF OSE

The project aims are the management and maintenance of the system and computation of real indicators for the periods 2002-2003, 2003-2004, 2004-2005, the computation of theoretical estimation indicators for the years 2006 and 2010, and the

modification of the software for the computation of the qualitative indicators for the railway routes.

## 9.32 MANAGEMENT AND MAINTENANCE OF THE INTEGRATED INFRASTRUCTURE QUALITY SYSTEM OF OSE FOR THE YEARS 2003-2005

The project constitutes the continuation of a previous study concerning the quality system of O.S.E for the year 2001 and the main targets are the management and maintenance of the system and computation of the indicators for the years 2003, 2004, 2005 as well as the control of the system's tools, collection of the basic elements of the indicators for each year, input of data, computation of the actual estimation indicators for each year, and presentation - evaluation of the results.

## 9.33 PREVENT: DEVELOP A TRAINING PROGRAM TO IMPROVE WORKZONE SAFETY

The objective of the project PREVENT is to provide appropriate training to the main actors involved in work zone accidents: the workers and the drivers. In order to achieve this, PREVENT develops dedicated and life-long vocational training schemes for highway repair and maintenance worker training personnel, and driving instructors. The ultimate goal of PREVENT is to increase safety around work zones and reduce the number of work zone related accidents. PREVENT brings numerous benefits to the economy and society.

## 9.34 SUPPLY CHAIN SURVEY: ANALYSIS OF THE YOGURT SUPPLY CHAIN IN GREECE

The Hellenic Institute of Transport (HIT) has undertaken a survey aiming to analyze the supply chain of yogurt in Northern Greece and the logistical costs associated with that, with emphasis on energy and environmental impacts. This initiative is a response to the proposal by DEST / INRETS to participate in a research on supply chain and energy consumption.

In this work, we aim to assess the energy consumption of all activities performed along the supply chain including transportation, refrigeration, handling, etc.

The method is based on making comparisons between different logistical chains with different organizations with regards to the volume of transport generated by a given level of activity and the associated energy consumption.

Research will be conducted in three phases:

Phase 1: specification of the method for analyzing flows and energy consumption for different supply chains;

Phase 2: conduct of a survey within the firms in the chains selected in Phase 1;

Phase 3: analysis of the surveys and synthesis.

## 9.35 ROSE 25: INVENTORY AND COMPILING OF A EUROPEAN GOOD PRACTICE GUIDE ON ROAD SAFETY EDUCATION TARGETED AT YOUNG PEOPLE

In the year 2003 in EU 15 about 1,200 children and 3,500 adolescents had fatal traffic accidents1. Up to the age of four, most fatal accidents occur at home. Once past this age, the most severe accidents of children are caused by and happen in road traffic.

In many countries at European level but also worldwide traffic accidents are the most significant single cause of death for children, adolescent and young adults.

National efforts to prevent road traffic accidents reveal a broad variety of strategies and approaches such as road engineering, legislation and enforcement, training and education but also combinations of these measures.

The ROSE project aims at road safety education and training.

Nevertheless we do not focus only on education of children and adolescents, but also on the education and awareness rising for parents who play a pivotal role in road safety through the transfer of behaviour patterns and active teaching.

## 9.36 EUR2EX: EUROPEAN RAIL RESEARCH NETWORK OF EXCELLENCE

The basic objectives for this World Class NoE for rail research are:

- Excellence in Rail research
- Integration of research activities in a network of mutually shared facilities, tools and platforms
- Sustainable and trusting long lasting cooperation
- Flexibility regarding new challenges for Rail research in a shared process
- Reflecting and further developing the new culture of cooperation between Rail operators, Rail industry, Rail researchers / Rail institutes and international associations and bodies.
- Confidence building measures from the very beginning to get the researcher together

A sustainable NoE reflecting these objectives will support the EU transport policy and aim to enhance rail system competitiveness. Within the achievement of these basic objectives EUR2EX has mainly to focus on the overall topics:

- Elaborate a common and complementary education and training program for railway engineers and scientists
- Set up research tools and platforms for common use to secure integration and harmonization of technical and operational interfaces of the railway systems
- Develop common and coherent methodologies for validation & testing methods and product qualification to ensure quality of interface, interoperability, safety and performance,
- Take any common decision-making to integrate, structure and support a joint programme of activities
- Railway research knowledge management including background know-how and new knowledge generated to extend the collective knowledge portfolio.

HIT is involved in the promotion of an innovative modular training program related to the rail transport sector and in the formation of poles of excellence in railway research.

## *9.37 TRANSFORUM: SCIENTIFIC FORUM ON TRANSPORT FORECAST VALIDATION AND POLICY ASSESSMENT*

TRANSFORUM aims to facilitate such 'checking' by researchers, policy-makers and stakeholders, by:

1. Establishing a scientific forum.
2. Facilitating the activities of the forum in terms of consensus-based assessment and validation of intermediate and final results of research in support of Common Transport Policy, and of results from national research.
3. Developing recommendations to ensure compatibility and convergence between tools used in transport policy assessment at European and national level and identifying best practice.
4. Disseminating the project results and encouraging their uptake.

To reach these objectives, TRANSFORUM will organize a number of forum sessions during its 36 months lifetime. Additionally, a virtual forum (E-forum) for on-line discussions will be organized. The forum will bring together relevant scientists, policy-makers and stakeholders. To guarantee that the consensus-based assessment and validation is performed in a verifiable way, special efforts will be made to develop a sound methodology for the process. The validation will focus on a wide variety of different elements of policy assessment methodologies, such as common definitions, indicators, frameworks and methods proposed for pan-European use, refined/integrated transport-related modeling and forecasting tools, baseline

forecasts produced for the short, medium and longer term, and the socio-economic assessment of selected transport policy options and packages.

TRANSFORUM intends to be a self-improving experience, offering relevant conclusions on developing innovative tools to increase participation in transport decision-making and on improving the dissemination and exploitation of knowledge among researchers and those involved in policy making.

The results of the project will be twofold:

- On the one hand, the results will take the form of interaction with on-going FP5 and FP6 projects through forum sessions regarding priority themes/clusters, and of feedback recommendations to these projects as they develop their activities.
- On the other hand TRANSFORUM will provide best practice recommendations, and descriptions of approaches to ensure compatibility/convergence between methods and models used in transport policy support and assessment at European and National level.

These results are to be disseminated to a wider audience and will target separately the stakeholders' representatives and the policy-support research community. Both the results of the project and relevant information on the projects looked at in TRANSFORUM, such as public reports and links to relevant URL's will be compiled in a database, which will be made available in electronic form (website and CD-ROM).

## *9.38 BP HELLAS S.A.: TRAFFIC STUDY FOR THE ESTABLISHING OF FUEL DISTRIBUTION IN ASPROPYRGOS OF BP HELLAS S.A.*

The necessity in carrying out this traffic study derived from the increased needs of the company for the distribution of fuels as regards the premises area in Aspropyrgos. The tank trucks that serve Attica as well as other regions of the greater area, such as the prefectures of Biotia, Fthiotida, Arkadia etc. refuel in the Aspropyrgos plant. The particularities met in the organization and operation of the plant for the distribution of fuels, regard mainly the type of tank trucks, the maneuver, traffic and parking requirements in the plant.

Main objective of the study was the rules and specifications validity control as regards the existing traffic arrangements necessary for the access and safe transit of the vehicles through the plant as well as the formulation of proposals for the improvement of access, traffic and parking conditions.

The proposals formulation for the improvement of the traffic infrastructure within the plant was based on the evaluation of the geometrical and operational characteristics of the existing road network that serve vehicles and pedestrians, the

area planning of the various installations and the available areas, aiming at the imminent improvement of the vehicles and pedestrians movement service level from/to the plant, even in peak demand periods.

The study was concluded with the formulation of final proposals in short- and long-term time horizon, depending on the scale of the proposed projects and their implementation timetable.

## 9.39 FEASIBILITY STUDY FOR THE ORGANIZATION OF SHIPPING LINKS FOR THE SMALL AEGEAN ISLANDS

The State, identifying the problem of the maritime connection of a number of small and isolated islands of the Aegean, between them, with their administrative centres and with the mainland, decided to assign to the Hellenic Institute of Transport (HIT) the in question study, in order to extend the above effort in the whole of the "unprofitable" network of the Aegean Sea, which is the responsibility of the Ministry of Merchantile Marine and the Ministry of Aegean, but also to draw up the detailed specifications issues which will constitute the basis for the declaration of the international contest for the vessels acquisition adjudication and their thereafter routing on certain "unprofitable" lines.

Special emphasis was given on certain lines of the study area that the new vessels will service. Initially, the classification of the 56 lines of the study area to "occasional" (17) and "permanent" (39) unprofitable lines was the result of applying the proper criteria on the above. Since the coverage of under study "new" service system of the "unprofitable" lines would be impossible, not only economically but also relatively to the existing legislation of EU, to be effective immediately for the whole system of the existing 56 unprofitable lines, there was a choice of those lines that are more likely to be included in the new system. The result of the investigation procedure for the satisfaction of each of the above-mentioned selection criteria for the lines that were studied for the routing of new vessels, led to the selection of 29 unprofitable lines that were studied at first for integration in the new system.

Thereafter, and having taken into consideration the desired service characteristics for these 29 lines and the determination of the number of vessels, the study focused on the organization issues of this service and its financing in order for the whole project to be viable and for the main goal of the offered service upgrade relatively to the existing system to be achieved of course.

The basic parameter of the various alternative "line systems" evaluation was to achieve the balance of the total operational cost and financing service of the new form with the total cost that corresponds today to the same (or somewhat the same)

groups of "unprofitable lines". In simple terms, the new system mustn't be more expensive than the old one.

In the context of meeting the above-mentioned basic parameter, 3 alternative and 1 pilot scenarios were formulated and their economo-technical "balance" was examined as far as the number and identity of lines that will be included in the system are concerned. The first one concerned the integration of all 27 lines that were selected at first. The second one concerned the integration of 20 out of the 27 lines, while the third one concerned the integration of only 9 out of the 27 lines. Part of the latter scenario (3 lines in total) was the one that considered for the pilot application of the whole system, and is the one that will be forwarded immediately for implementation.

The application of "new" operational "form" of the "unprofitable" lines of the Aegean described above and for the above-mentioned lines firstly, and then in the total of lines, is expected to bear a series of indirect social benefits as a result of the higher offered level of maritime service.

# *ANNEX A*

# *DESCRIPTION OF SCOPE AND CONTENTS OF HIT'S ORGANIZATIONAL UNITS*

With reference to the Organigramme of the Institute (see Chapter 4, Figure 4-1), the goals and objectives of the various Sectors and Departments of the organization chart are the following.

**SECTOR A:** *Driver and Vehicle*

The main objectives of this sector are all issues relating to driver-vehicle behaviour and the design of applications, which enhance their performance, and generally any research activities that relate to the driver-vehicle system

Some indicative research activities are:

- Vehicle telematics applications ("intelligent" vehicle)
- Advanced fuel technologies ("clean" vehicle)
- Advanced Driver Assistance Systems (ADAS)
- Drivers and Driver Instructors training
- Advanced Driving and Vehicle Emulation Systems
- Disabled Drivers assistance systems
- Road Safety (from the driver-vehicle system perspective)

Sector A is divided in the following sub-sectors:

*Sub-sector A1*: Vehicle (emulatiors, ADAS Vehicle, VR)

*Sub-Sector A2*: Vehicle technologies (clean vehicles, intelligent vehicle)

*Sub-Sector A3*: Education and Training

**SECTOR B:** *Infrastructure and Demand*

Sector B deals with matters relating to Planning, Design, Management and Operation of the Infrastucture-Traffic system. It also deals with the Transport "demand" and the assessment of the overall Transport System, both as a whole and on a sub-system basis (modes of transport).

Some indicative research activities are:

- Development and Management of Transport Planning processes on National and Regional levels
- Analysis, Design and Data collection on Transport and Traffic related data
- Telematic Applications and advanced technologies
- Infrastructure ("intelligent" roads)
- Transport Policy issues

- Transport Systems Management and Operational issues
- Financial and Technical evaluations of Transport projects
- Transport Safety (Policies and Statistics)
- Other Transport related fields (e.g. environment, energy)

**REGIONAL OFFICES**

Following a decision by CERTH's Board of Directors and the Scientific Council, HIT can establish 'Regional offices' to other cities. These offices have the same status as that of a Project Sector but are organized and operated independently and are funded through the projects they undertake. The Regional offices are not competitive to each other on indeed to HIT itself but instead are complementary by developing specialized skills.

**INTERNAL QUALITY CONTROL – HIT STATISTICAL DATA – LIBRARY**

This unit's objective is the evaluation of the productivity and quality of the work of HIT's personnel. The «monitoring» takes place through certain Quality Indices and parameters specified in a separate document.

**LIBRARY**

This unit is responsible for the bibliographic support of HIT.

More specifically, it:

- searches and provides articles, books and references required
- cooperates officially with CERTH's library as well as with various Greek or foreign libraries or databases for the above both in Greece and abroad
- represents HIT in the soft infrastructure group of ECTRI
- supports and cooperates with the results diffusion and publications department for HIT's publications
- monitors citations for all personnel – permanent and external experts
- diffusions and informs internal personnel about information brochures and other printed material
- organizes regular personnel meetings
- maintains proposal and deliverables records
- maintains projects and proposals list

- draws up HIT experience record

**CENTRAL ECONOMIC AND ADMINISTRATIVE SECRETARIAT**

The economic monitoring, on a central level, of the various projects and the audit and further accomplishment of the economic and administrative issues relating to HIT's personnel including external experts and contractors constitutes the objective of this department. Many of the department's responsibilities in primary level can be carried out by the Sectors' Secretariats. This department's duties include the contact and cooperation with the Central Directorate of CERTH as well as the preparation of the Scientific Board and the Board of Directors meetings issues.

**INTERNATIONAL RELATIONS AND ORGANIZATIONS**

The objective is the representation of HIT to international fora and the monitoring and execution of certain projects and actions for which HIT is responsible as regards the International organizations.

Priority is given to the following organizations:

- ECTRI
- FERSI
- SETREF
- ERTICO

Other organizations whose work is monitored are: TRB, WCTR, UITP etc.

**COMPUTERIZATION – TECHNICAL SUPPORT**

The technical support of the relevant hardware and software used in HIT is the main objective of this department as well as the technical support of HIT's web site.

**TRAINING**

Each Sector and Sub-Sector is responsible for monitoring the existing opportunities for the training of its personnel. This unit undertakes the organization of periodic horizontal Educational Seminars, and generally provides support for training at all levels.

**SECTORS' SECRETARIATS**

The secretariat of each sector or regional office is responsible for its imminent administrative support. It draws and supervises the contracts (i.e. third parties contracts) of the Sector or regional office and cooperates with the Central Economic and Administrative Secretariat of HIT for the required audits and their further accomplishment. It also supports the Sector or the regional office in its various "horizontal" actions and looks after the collection and submission to the library of HIT of the various project deliverables.

**WRITING OF STANDARDS AND MANUALS**

Each Sector and Sub-Sector is responsible for monitoring the evolutions of its related standards or manuals. It also assumes initiatives for the writing of standards or manuals on issues of its know-how. The later includes the draw up of proposals for the economic support of such standards or manuals writing.

**PROJECTS AND PROPOSALS MANAGEMENT**

The objective of this "horizontal" procedure is the creation of a management system for the projects and proposals of HIT, giving thus the possibility to the project managers to efficiently carry out their duties and to all interested parties a better picture of HIT's activities, as well as the stepping up and setting up of actions for the monitoring of the various declarations for the proposals submission.

**INTERNET SITE, RESULTS DIFFUSION, PUBLIC RELATIONS, HIT PUBLICATIONS**

This Unit's objective is the diffusion of the results and various projects' products by every means and expedient way as well the Institute's Public Relations. Special importance and stress for this department have HIT's publications, the maintenance and update of the site and the organization and promotion of the various Meetings and Conferences of HIT in cooperation with the departments' secretariats or the Central Economic and Administrative Secretariat.

In specific, this department's objectives include:

- The maintenance of the Institute's web site
- The maintenance and update of the contact list with journalists and printed material
- The list of achievements and HIT's promotion in general in the media with all expedient means

- The on time preparation of the various regular or special editions of HIT
- The monitoring and expediting of the regular HIT cooperations with magazines and other publications.

**HIT PUBLICATIONS**

The following publications have been made:

1. HIT annual report (Greek – English)
2. Results worksheets (Greek – English). One-page description and results (or expected results) of each project.
3. Research Reports. In specific report on projects with great importance and range (Greek – English)
4. HIT brochure.

# *ANNEX B*

# *PROJECT PROPOSALS SUBMITTED IN 2004*

| *PROPOSALS SUBMITTED IN 2004* | | | | | | |
|---|---|---|---|---|---|---|
| *No.* | *ACRONYM* | *CONTRACTING AUTHORITY* | *DATE OF SUBMISSION* | *FULL TITLE OF PROPOSAL* | *ROLE* | *PERCENTAGE OF FINANCING* |
| 1. | **Tender** | EU | 15/01/04 | Exploratory Study on the potential socio-economic impact of the introduction of Intelligent Safety Systems in Road Vehicles | Partner | 100% |
| 2. | **ZIPPER** | INTERREG III C | 29/04/04 | Zones of Integral Plans and Projects of European regions | Partner | 75% |
| 3. | **e content** | e content | 06/05/04 | On-line distributed travel service & support European wide system ODiSSEUS | Coordinator | 50% |
| 4. | **International Access** | Australian government | 01/07/04 | International Access Programme-International S&T Application | Partner | 75% |
| 5. | **Road sector** | EuropeAid / National Programme for Romania | 19/07/04 | Enforcement of the management and professionals training for the road sector | Partner | 100% |
| 6. | **MISS** | 6th FP EU | 23/08/04 | Monitor Integrated Safety System | Partner | 50% |
| 7. | **APROSYS** | 6th FP EU | 08/08/04 | Advanced Protection systems | Subcontractor | 100% |
| 8. | **ESTO** | EU | 09/08/04 | State of the art review of hybrid vehicle technology | Subcontractor | 100% |
| 9. | **Asia Pro Eco** | EU | 27/09/04 | Europe And Asia Exchange of Best practices Experiences in the field of Eco-sustainable urban mobility management | Partner | 83% |

| *PROPOSALS SUBMITTED IN 2004* | | | | | | |
|---|---|---|---|---|---|---|
| *No.* | *ACRONYM* | *CONTRACTING AUTHORITY* | *DATE OF SUBMISSION* | *FULL TITLE OF PROPOSAL* | *ROLE* | *PERCENTAGE OF FINANCING* |
| 10. | **GRACE** | EU | 29/09/04 | Integrating Environmental Concepts in the Asian Maritime Transport Policy | Coordinator | 75% |
| 11. | **ESCAPE II** | EU | 18/10/04 | ESCAPE II | Partner | 50% |
| 12. | **MATT** | INTERREG III C-EAST | 15/11/04 | Metropolitan Area Telematics and Traffic Management | Partner | 75% |
| 13. | **N/A** | INTERREG III C-EAST | 18/10/04 | Network of knowledge and dissemination of training and research Institutes Information in the field of transport, in order to develop a common co operational framework for the upgrade of the international transport infrastructure. | Partner | 75% |
| 14. | **URBANET** | EU | 26/11/04 | A knowledge and learning network in urban transport behavioral change, pricing and mobility management | Coordinator | 100% |
| 15. | **DISSEMINATION** | EU | 26/11/04 | Dissemination and promotion of transport research results | Partner | 100% |
| 16. | **TRANS-AID** | EU | 06/12/04 | Transfer of Knowledge in Transport Infrastructure Financing | Partner | 100% |
| 17. | **ΚΑΤΑΚΤΗΣΗ** | ΚΠ EQUAL | 27/09/04 | Development of training and lifelong knowledge, in order to upgrade the work in the field of transport | Partner | 100% |
| 18. | **ΕΥΕΛΙΚΤΗ ΕΡΓΑΣΙΑ** | ΚΠ EQUAL | 27/09/04 | ΕΥΕΛΙΚΤΗ ΕΡΓΑΣΙΑ | Partner | 100% |

| *PROPOSALS SUBMITTED IN 2004* | | | | | | |
|---|---|---|---|---|---|---|
| ***No.*** | ***ACRONYM*** | ***CONTRACTING AUTHORITY*** | ***DATE OF SUBMISSION*** | ***FULL TITLE OF PROPOSAL*** | ***ROLE*** | ***PERCENTAGE OF FINANCING*** |
| 19. | **HIT PORTAL** | GSRT | 01/04/04 | Infrastructure for the support of the research: HIT PORTAL of data management and analysis | Coordinator | 100% |
| 20. | **ΑΚΜΩΝ** | GSRT | 30/06/04 | Routing and distribution Integrated services provider | Coordinator | 100% |