Results from the ATLANTIC ITS Forum Activities

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ATLANTIC Thematic Network

INTRODUCTION

The ATLANTIC Thematic Network on Intelligent Transport Systems (ITS) research and deployment issues was established under the Fifth Framework Programme of the European Union commencing in 2001. It has attracted interest from professionals, researchers and decision-makers in Europe, the USA and Canada. Eight Working Groups operated in 2002-3 to identify and research key problems in ITS in a coordinated and structured way, and to communicate results to stakeholders.

Funding for the ATLANTIC project up to 31 May 2003 came from the European Commission's Information Society Directorate-General, as part of the Information Society Technologies Programme, with parallel funding of Canadian partners by the Federal Government of Canada (Transport Canada) and the Provincial Governments of Ontario and Quebec. The USA Federal Highway Administration (FHWA) provided funding for ATLANTIC partners in the USA between November 2001 and November 2002. The Canadian project has been extended into 2004 and is now reaching its conclusions. Further activities of the network are on hold pending decisions on the future requirements for an international network of ITS practitioners and researchers.

The outputs from the activities of the ATLANTIC Working Groups are covered in ATLANTIC Deliverables 1.2 (TTI services, Network monitoring and traffic management and control and Intermodal collective transport), 2.1 (Freight and fleet management, Intelligent vehicles and Electronic fee collection) and 3.2 (Evaluation and assessment of ITS and Human machine interface). The project Final Report, Deliverable 4.3, concentrates on the operational aspects of the group's activities, including number of members and the methods employed by each group. Summaries of the groups' recommendations on RTD priorities and subjects for possible future trans-Atlantic research collaboration are included here.

TELEMATICS-BASED TRAVEL AND TRAFFIC INFORMATION SERVICES

As of 31st May 2003, 108 members were registered in this Working Group and 93 documents were available in the group's library. The TTI Services Forum had strong links to the work being undertaken in ATLANTIC Workpackage 5 (e-Europe Transport Initiative -TTI State of the Art and Best Practice) and members included all participants of the e-Europe focus groups, who were encouraged to continue the discussions raised in the groups on-line. The group also included a very active USA-based contingent, consisting of experts working in the area of Advanced Traveller Information Systems (ATIS).

Four main discussion topics were initiated in this group:

1. ATIS business models

Should the public sector look to private sector revenue sharing to support ITS?

Should a business model be abandoned just because its implementation has failed?

Public investment in traffic sensors in view of the rate of development of FCD

Where should the line be drawn between free public information and paid private information?

2. e-Europe transport activities
3. Infostructure

4. 3G mobile communications

In terms of the ITS Forum as a whole, members of this group were fairly active, although contributions made were still much lower than had been hoped. Topic 1d) 'where should the line be drawn between free public information and paid private information'? attracted the most response, with 17 contributions from 12 members. Members of the USA ATIS group preferred to communicate via email and their email comments were subsequently posted onto the website to provide access for all. Research on topic 4, 3G mobile communications and their potential for TTI service provision, was conducted largely via a programme of interviews (face/face and telephone) with a number of experts, including consultants, industry bodies and product and service providers.

Main Findings and Recommendations:

ATIS business models

The core objective of making a comparative analysis of TTI/ATIS practices, including business models, between Europe and North America was met during the year of US participation in the ATLANTIC Project. Key findings were:

- Both Europe and North America need to have a complete information value chain for delivery of TTI/ATIS services.
- Broadcast traveller information supported by advertisement has been proven to be viable.
- The public objectives in ATIS (safety and traffic management) are the same in both continents.
- Public sector agencies should be prepared to underwrite all costs of specific information services they wish to provide.
- Compared to Europe, North American TTI/ATIS services put much greater emphasis on integration of traffic information across jurisdictions than across modes (e.g., between mass transit and automobile traffic).

e-Europe transport activities

Research is needed aimed at obtaining a wider picture of European TTI requirements. The following topics are recommended for investigation. Further recommendations are contained in ATLANTIC deliverable D1.2.

- Demonstration at a number of city-regions of the feasibility of using Personal Advisor Terminals for TTI, specifically integrated Inter-modal and multi-modal pre-trip and on-trip journey planning, also combining location-based added-value services.
- An analysis of the public policy, commercial and legal requirements in the various countries of Europe for facilitating the creation of ad hoc brokers of TTI information who will be able to supply TTI information in all the major European languages.
- Understanding user requirements for the different market segments. This would enable the EC to understand the potential offered by ITS applications in the future to inter-modal and multi-modal journeys across Europe for business or tourism.
- Study of the different requirements of pre-trip and during-trip information, including the need for information at interchange (park and ride; inter-modal connections). New research should focus on what is really essential to develop brokerage at a mass level.
- Trials aimed at understanding and demonstrating interoperability and data exchange requirements from a TTI business models / organisational perspective including integration of TTI with information/booking/payments and the integration of smart cards with phones, mobile networking and the Internet).

INFOstructure

The discussion was initiated as a result of the USDOT's declared interest in developing the INFOstructure to help meet the information needs for operating the surface transportation system. The proposed national roadway information infrastructure "The Roadway INFOstructure" is intended to have a pivotal role in:

- Meeting public expectations for 21st century transportation
- Addressing transportation-related US homeland security needs
- Addressing the growing problem of congestion
- Supporting improved response to weather events
- Facilitating national and regional traveller information

The discussion topics have general significance for future research priorities, not merely for homeland security in the USA:

- How the Roadway INFOstructure should be developed and operated
- Data ownership and privacy
- Addressing ITS data needs through the INFOstructure
- Addressing transportation security needs through the INFOstructure
- Performance and information security requirements
- Technical, institutional, and policy challenges

It was concluded that one needs measures of cost-benefit and cost-effectiveness to guide public investment decisions in this area. The public benefit and utility of the infostructure facility should be reasonably high compared with the costs of providing that facility. In addition to the discussion on the ATLANTIC the TRB and ITS America sponsored a workshop during August 2002 that addressed all the above questions.

3G mobile communications

Clarification of the business case for investment by all the parties involved is essential. No organisation will be prepared to invest if they can see gaps in the information supply chain, nor if they can see a high probability that competition for their role is likely to lead to this not becoming profitable. For this reason TTI must not become locked exclusively into 3G – there are alternative communications media that should continue to be reviewed. It was concluded that the EC could consider commissioning demonstration projects to simulate specific features of TTI provision via 3G. Effort would be best directed at achieving results at the national or metropolitan scale. ATLANTIC Deliverable D1.2 Part B includes detailed recommendations.

NETWORK MONITORING, TRAFFIC MANAGEMENT AND CONTROL

By the end May 2003, 80 people had been registered as members of this Working Group and 12 documents were contained in the group library.

Discussions were initiated with a single, general discussion thread, with the idea to focus on different topics one after the other. However, as there was no response on this, five discussion threads were set up in parallel:

5. Integrated Information and Control Strategies
6. Network Data Monitoring
7. Incident Detection and Emergency Management
8. System Architecture Issues
9. Feedback Information and Control Strategies

Again, however, except from one or two responses from project partners, there was virtually no activity from the signed up members. Initialisation of a trans-Atlantic discussion was

hampered by the fact that most members came from the EU. In addition, unfortunately, this group did not have a USA sponsor and inputs from the Canadian group were largely asynchronous.

To compensate for the slow start, the MCM forum management decided to move forward with a position paper covering the European view on the relevant issues. The Canadian group also produced a similar paper, looking at this topic from a Canadian perspective.

Main Findings and Recommendations:

Future research and development should produce several iterations on achievements within the Canadian, European and USA regional sectors. Two categories of activities are envisioned:

Joint or parallel transatlantic activities (projects) to improve the respective approaches on both sides of the Atlantic, e.g.

- Data Modelling Issues: data processing, completion, filtering, fusion, harmonisation, common database arrangements.
- Performance requirements for traffic monitoring vis-à-vis level of quality of service provided.
- Compatibility of traffic control and information measures at a tactical and strategic level.
- Development and derivation of integrated traffic control and information strategies across various systems and jurisdictions (co-operative, centralised control)
- Urban/motorway integrated traffic control and management schemes
- Business plans for Floating Car (probe vehicle) Data acquisition, processing, and services provision, addressing technical and organisational issues.
- Innovative and high-performance self-learning Incident Detection tools and linking to traffic control measures
- Environmental traffic management for co-ordinated pollution and congestion management measures.
- Driver information via Variable Message Signs (standards, protocols, message sets, etc) and integration with other collective information services (radio, RDS-TMC, internet, etc.)
- Telematics application highway-railroad intersections.

Disjoint (Information Transfer) activities where European, US or Canadian research and best-practice experience is transferred to respective problems into areas which do not have the same level of experience, e.g.:

In Europe, North American experiences can help in:

- Motorway access control: single and co-ordinated Ramp Control and linking to other control and information measures
- Adaptation of national system architecture guidelines.

In North America, European experiences can help in:

- Multi-modal traffic management services for passenger and goods transport
- Cross-border traffic control centre data exchange and harmonisation
- Location-based services: business models for public/private partnerships
- Line control Systems on motorways (driver information and speed harmonisation by lane) and linking to incident detection and traffic management
- Parking guidance and information and link to urban control systems.

INTERMODAL COLLECTIVE TRANSPORT INFORMATION

Sixty five members were registered for this Working Group by the end of the project. In terms of available information, 43 documents were available in the group's information store and the group Rapporteur had set up links to other research projects, general research reviews, relevant websites and official European documents.

Seven discussion topics were initiated:

10. The electronic bus stop
11. Best practice design of public transport information websites
12. Electronic initiatives to influence travel behaviour
13. Transfer of public transport data – optimum information flows
14. Intermodal journey planners – design/technical issues
15. The business case for providing/funding intermodal information
16. Bus stop coding – issues especially relating to standards

The group Rapporteur produced 'kick-off' discussion papers for all 7 topics but web-based responses to all discussions was very poor, despite a number of email 'e-nudges' sent to all members. Again, members preferred to communicate via email and in person during ATLANTIC-related workshops and group discussions. In terms of trans-Atlantic exchanges, this group also suffered from not having an 'official' USA counterpart group.

Main Findings and Recommendations:

It is difficult to propose trans-Atlantic RTD in this field because of the very different characteristics of land-use patterns, attitudes to the car and collective transport usage patterns between North America and Europe. Different technical standards regarding ITS may also mean that joint technical research is comparatively unproductive, whilst different collective transport operating regimes affect the value of collaborative research in this area. However, there are perhaps opportunities for collaboration in terms of the following:

Joint or parallel transatlantic activities (projects) to improve the respective approaches on both sides of the Atlantic, e.g.:

- Car sharing practices, analysis and evaluation
- Lift-sharing practices, analysis and evaluation
- Effect of Intermediate Transit in boosting the image and ridership of Collective Transport

Information transfer activities where European, US or Canadian research and best-practice experience is transferred to respective problems into areas which do not have the same level of experience, e.g.:

- Developments in fully integrated inter-modal websites. Transfer of experience from both (e.g.) Oregon and Basle
- Experiences of providing information on collective transport to different ethnic and language groups. Experience in the US, with strong minority language groups, and in Canada, with its two main languages, may be helpful to Europe in this respect.

INTER-MODAL FREIGHT INFORMATION, PRE-CLEARANCE AND LOGISTICS

Web-based activity in this group was extremely poor. Membership reached 25 by the end of the project but only 5 documents were available from the information store. No discussions took place via the website, the members preferring email and 'in-person' exchanges. This group did have a USA counterpart. The methodology employed by this group was for the European experts to prepare a draft consultation document on the key issues, which was

circulated via email to the European members and Canadian and USA counterparts for comment. A final paper was prepared (see Deliverable 2.1 Part A) based on the comments received.

Main Findings and Recommendations:

The outcome of this cooperation is a future common research agenda on inter-modal freight which is detailed in ATLANTIC Deliverable D2.1 Part A. Overall, the experience gained of EU/North American cooperation was positive, not least in identifying a number of common research interests. The project has had a positive impact in reinforcing and expanding technical cooperation in this domain.

Priority in future research needs to be given to the issues identified as being of the greatest interest on both sides of the Atlantic, i.e.:

- The identification and development of technologies and practices relevant to the safety and security of intermodal freight and logistics.
- The development of information and communications technologies (ICTs) that will support the efficient and cost-effective performance of modern intermodal freight and logistics operations.

INTELLIGENT VEHICLES AND INTELLIGENT VEHICLE-HIGHWAY SYSTEMS

Membership of this group reached 52 by the close of the project – this included a number of funded USA and Canadian-based correspondents. Seventeen documents were stored in the group's library. As with all groups, most communication took place via email, with comments being posted on to the website later by the group Rapporteur.

Topics included:

- International differences
- Relationships between interested groups
- Terminology
- Sensor technology
- External enhancement of ACC
- Intersection collision avoidance
- Assumptions
- Cost-benefit
- Cooperative systems

Main Findings and Recommendations:

The competitive and industrial nature at the heart of the auto industry is a prime driver within R&D and policy within this subject area; and, although interpretations are possible, no definitive comparison is realistically possible without the involvement of government and high-ranking industry representatives. The following are recommendations for further action derived from the results of surveys carried out by this Working Group

- Seed evaluation panels and steering groups with experts from both sides of the Atlantic, to provide a joint perspective.
- Compare the prevalence of stop-controlled and signal-controlled intersections in the US and Europe; analyse to understand similarities/contrasts between intersection collisions in the US and Europe.

- Compare the motivating factors for Intelligent Speed Adaptation in Europe and see to what degree those factors exist in the US, and what are the options for handling them.
- Develop a joint roadmap for safety-focused advanced driver assistance systems.
- Develop a joint roadmap for traffic flow improvement using Intelligent Vehicle systems.
- Develop a joint roadmap for inter-vehicle cooperation using communications.
- Increase US public support for standards development for active safety systems (and related communications standards) so as to accelerate this process globally.
- Governments on both sides of the ATLANTIC to coordinate their public-oriented agendas on standards for safety systems.
- Share evaluation results of field operational tests in a common database, using a common format.

ELECTRONIC ROAD USER CHARGING AND INTEGRATION WITH OTHER PAYMENT SYSTEMS

By May 2003 there were 38 members of this forum, of whom four were part of the ATLANTIC project management and dissemination team, rather than technical experts. Experts were invited to join the Forum with a personal approach and were initially enthusiastic about participating. In practice, many found it difficult to devote time to participating actively in the forum. Those who were not known personally to the project team were less likely to be interested in joining the forum.

The web-based forum proved to be a very effective way of making documents available immediately to a group of experts, avoiding the need to send documents by email. The forum also provided an accessible tool for launching discussion topics, and the method of structuring discussion with an introduction to the topic and a series of threads each containing a few specific questions was successful. Although responses were limited, the quality of the responses that were made to the discussion topics was good.

Main Findings and Recommendations:

The forum included a few members from North America, Asia and Europe, but the majority were based in Europe. Funding from the US and Canada for experts to take a lead in this area of the project was not forthcoming until a late stage in the project, and it was difficult to attract leaders on a self-funded basis, so the objective of building trans-Atlantic links and developing trans-Atlantic research proved difficult to achieve.

Many Member States in Europe are working on policies for road user charging. There is an existing HGV charging scheme in Switzerland and several more are being installed in Germany and Austria. The UK, Netherlands and Sweden have all been developing ideas and policies for charging HGVs and France has just made a policy statement to indicate that HGVs may be charged on the presently free motorways.

Most information on the schemes being developed is confidential and therefore it not easy to obtain suitable material for wide publication.

The European Commission has recently issued a new directive on interoperability of EFC and has established a European Telepeage Committee. This is expected to provide the basis for co-operation of EFC within Europe. This committee will involve all Member States, including the 10 new Accession Countries and will have proper governance with voting rights. This is substantially more powerful that previous European initiatives (e.g. CARDME). As part of this process, the EC expects to commission particular pieces of work required to facilitate the work of the committee.

Motorway Operators are planning to continue their collaboration through the new CESARE III project, which is expected to have participation from non-ASECAP countries, such as Netherlands, UK, Switzerland, Germany and Sweden.

Sub-group 5 of Technical Committee 278 within CEN is working (jointly with ISO TC204) on the draft standard for charging systems based on cellular networks and satellite positioning. This has involvement from Netherlands, Switzerland, Germany, Norway, Sweden, Japan and UK.

Given the level of existing activity, there do not appear to be much scope for further international co-operation and research on the established payment technologies. However there may be scope for comparative work on the behavioural aspects of Electronic Road User Charging, and on the means of integration with other payment systems.

ITS USER ACCEPTANCE AND IMPACTS OF ITS

Discussions on evaluation and assessment took place mainly via workshops and special sessions at international conferences, which were well attended, including:

- ITS World Congress, Sydney, October 2001
- TRB Conference Washington, January 2002
- ITS America Conference, April/May 2002
- ITS World Congress, Chicago, October 2002

The group maintained close links to the ITS America Benefits Evaluation and Costs (BEC) Committee and as a result of ATLANTIC collaboration activities, a new group, the International Benefits, Evaluation and Costs (I-BEC) Group, was established during the ITS World Congress in Chicago in October 2002. The objectives of I-BEC are to provide support and a global perspective on BEC issues, promote the development of BEC methodologies and to provide and share information. Key roles for the I-BEC group are the setting up of a specialist website (www.ibec-its.org) and holding I-BEC sessions at ITS World Congresses, the next of which is planned for Nagoya, Japan in October 2004.

Main Findings and Recommendations:

In general, the active and frequent participation of experts from around world has been less than originally planned. However, a major success has been the establishment of the I-BEC Group. This has led to a series of separately funded activities regarding avenues of on-going or planned trans-Atlantic research collaboration:

- I-BEC with funding for the Secretariat from the UK Department for Transports for European involvement;
- Training Course on ITS Performance Measures and Evaluation Techniques with funding from the US DoT for European involvement in updating the current documentation on the US training course on ITS Performance Measures and Evaluation Techniques so that it is appropriate to an international audience; and
- Funding to augment the US-funded ITS Benefits and Unit Cost Database with European content to enhance the coverage of the database to include a range of benefits and costs results from a variety of European research and development activities in ITS.

The continuation of the I-BEC activity is a major success of this forum. The development of I-BEC, as a platform for the exchange of expertise and know-how in measuring ITS user acceptance and the impacts of ITS is one of the strongest legacies of the ATLANTIC project. I-BEC has utilised the idea of a web-based forum to launch a specific website and associated

discussion forum using Yahoo. ATLANTIC contributed heavily to getting people interested in, and accustomed to, participating in a web-based forum.

HUMAN MACHINE INTERFACE / USER-FRIENDLY ITS

Initial topics for discussion in this group were:

- The future of the European Statement of Principles
- Driver distraction
- Standards for visual demand
- In-vehicle systems

This group failed to attract sufficient interest. There was European, but no American or Canadian leadership. Very few members registered and contributions to the topic discussions via the website or via email were extremely poor. Consequently, it was decided to close this group at the mid-way point in the project, with the agreement of the EC project Officer.

Main Findings and Recommendations:

Given the relatively low level of participation in the HMI discussions and the lack of funding for lead experts in North America, the forum was closed in mid-2002 and resources re-allocated. So, whilst the outcome was disappointing, this should not be interpreted as a "failure" for this part of the project as the experience can inform future collaborative research undertakings, and provides useful input to the operational recommendations.

FURTHER DEVELOPMENT OF AN ITS THEMATIC NETWORK

The ATLANTIC Legacy

ATLANTIC has created momentum supporting trans-Atlantic ITS collaboration. It has provided:

- a forum for experts to share information and develop ideas and solutions;
- access to a wide range of key reference documents;
- a resource for policy and decision-makers, academics, researchers and those interested in learning more about the current state of development of ITS;
- access to a broad network of key ITS personalities;
- the IBEC working group;
- numerous international friendships and opportunities for future collaborative work;
- the foundations for education and guidance to the EU candidate countries;
- valuable input to help the EC formulate policies and guidance;
- a recognised brand "ATLANTIC" with a solid reputation;
- an operational website;
- good quality project reports and information dissemination material; and
- considerable experience in building, operating, motivating and sustaining a diverse international network, producing and publishing targeted relevant results and publishing.

Future opportunities and alliances

Within Europe, networking has so far been under the umbrella of the POLIS Group of Cities but positive links have also been established with:

- Transportation Research Board ITS Committee;
- World Road Association (PIARC), in particular Committee C.16 on road network operations;
- The American and Canadian ATLANTIC project partners who developed their work under the umbrella of their national ITS Associations, ITS America and ITS Canada;
- Some contact has been made with national ITS Groups in Europe, particularly ITS France and ITS UK, and
- the Euro-Regional projects through contacts with CENTRICO, STREETWISE, TEMPO and DG TREN.

Continued networking within Europe could be achieved via research and development activities and input to high level ITS policy development, with support for experts involved in EC programmes to meet each other, and outreach to Central European and Baltic countries, with possibly also some participation in international events.

Maintenance of Trans-Atlantic and International Links

In general, despite the best efforts of the ATLANTIC team to encourage participation, contributions via the website were very disappointing. It has to be stressed that, although modern communication technologies can provide an efficient medium for exchanging technical information, they are not sufficient in themselves to trigger and support an in-depth transatlantic technical dialogue. Much more activity took place via email exchanges, over the telephone and during face/face meetings at focus groups and workshops organised by the project. A number of reasons for this and the lesson learned are discussed in ATLANTIC deliverable D4.3.

Plans are under consideration for continued networking with a wide range of different audiences, including the I-BEC group, technical and political leaders in POLIS, PIARC, UITP and others, university academics and researchers, policy makers, practitioners and other key stakeholders. A number of approaches as to how this might be accomplished have been considered, including building on the STELLA network to continue the trans-Atlantic forum on ITS research issues, working under the umbrella of National ITS Groups, linking with the US Transport Research Board and/or the ITS World Congress Supervisory Board, and linking with the European Transport Conference and via participation in other international events.

ABBREVIATIONS

3G	Third Generation (Mobile Communications)
ACC	Adaptive Cruise Control
AHS	Automated Highway Systems
ATIS	Advanced Traveller Information Systems
ATLANTIC	A Thematic Long-term Approach to Networking for the Telematics and ITS Community
B2C	Business to Consumer
BEC	Benefits Evaluation and Costs
BRIDGE	European project proposal on ITS knowledge transfer to EU accession countries
CEE	Central and Eastern European
DG	Directorate General
DG INFSO	European Commission Directorate General for Information Society
DG TREN	European Commission Directorate General for Energy and Transport
EC	European Commission
ELTIS	European Local Transport Information Service
ERTICO	European Road Transport Telematics Implementation Coordination Organisation
EU	European Union
FCD	Floating Car Data
FHWA	Federal Highway Administration, United States Department of Transportation
FRAME	Forum for the European ITS Framework Architecture
GALILEO	European project dealing with satellite radio navigation
HGV	Heavy Goods Vehicle
HMI	Human Machine Interface
I-BEC|	International Benefits Evaluation and Costs Group
ICI	ITS Common Infrastructures
ICT	Information and Communication Technologies
IFDM	Inter-modal Freight and Distribution Management
IST	Information Society Technologies
ITC	Integrated Ticketing and Charging
ITPI	Inter-modal Trip Planning and Information
ITS	Intelligent Transport Systems
IUTM	Integrated Urban Transport Management
IVHS	Intelligent Vehicle-Highway Systems
MCM	Monitoring Control and Management
MIP	EC Multi-Indicative Programme for the Trans-European Road Network
OECD	Organisation for Economic Co-operation and Development

PC	Personal Computer
PIARC	Permanent International Association of Road Congresses (The World Road Association)
POLIS	European Network of Cities and Regions Networking for innovative transport solutions
RDS-TMC	Radio Data System/Traffic Message Channel
ROSETTA	European project (accompanying measure) dealing with ITS futures
RTD	Research and Technical Development
RTTI	Real-Time Traffic and Travel Information
SIGIRL	Special Interest Group for International Research and Learning
STELLA	Sustainable Transport in Europe and Links and Liaisons with America
STM	Strategic Route Management
SWOT	Strengths Weaknesses Opportunities and Threats
TEMPO	Trans-European Intelligent Transport Systems Projects
THEMIS	A Thematic Network focusing on ITS for Freight Transport
TRB	Transportation Research Board
TTI	Traffic and Travel Information
UITP	International Union of Public Transport
US DOT	United States Department of Transportation
VOYAGER	A Thematic Network dealing with public transport
WG	Working Group