

IBEC Secretariat



Proceedings of the IBEC Workshop “Improving Travel Using Intelligent Transport”, Dublin, September 2005

Issue 1

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Abbreviations

| | |
|-----------------|---|
| AMS | Arterial Management Systems |
| ATIS | Advanced Traveller Information Systems |
| DCC | Dublin City Council |
| EC | European Commission |
| EMS | Electronic Management Systems |
| FHWA (USDOT) | Federal Highway Administration, United States Department of Transportation |
| FMS | Freeway Management Systems |
| IBEC | International Benefits, Evaluation and Costs Working Group |
| ITS | Intelligent Transport System |
| NRA | National Roads Authority |
| ROI DoT | Republic of Ireland Department of Transport |
| SCADA | Supervisory Control and Data Acquisition |
| SMS | Short message Service (text message) |
| TEMPO | Trans-European intelligent transport systems PrOjects |
| TI | Traveller Information |
| TIS | Traveller information services |
| VIKING | Project for Co-ordination of ITS implementation in northern Europe – in TEMPO programme |
| VMS | Variable Message Signs |
| VSL | Variable Speed Limits |

Executive Summary

Background

IBEC is the International Benefits Evaluation and Costs working group. The objectives of the group are set out in its Charter. These concern providing support to decision-makers on cost-benefits and cost-effectiveness analysis of ITS, promoting consistent and reliable evaluation methodologies, providing information to a wide range of stakeholders on ITS costs and benefits, and sharing information across the profession on non-technical and institutional issues and lessons learned. The group organised a joint workshop "Improving Travel Using Intelligent Transport" as part of the Euro-Regional Conference held in Dublin in September 2005 for projects in the European Commission's TEMPO programme. The workshop was jointly hosted with the Irish Department of Transport and the National Roads Authority.

The workshop followed a series of workshops organised each year at the ITS World Congress. Previous workshops had been organised by members of the IBEC group in Turin in 2000, Sydney in 2001, Chicago in 2002, Madrid in 2003 and Nagoya in 2004; the Sydney and Chicago workshops being organised as a joint effort with the EU-sponsored ATLANTIC project. This year IBEC also organised a session at ITS Europe in Hannover. The workshops aim to develop links between evaluation communities around the world, and are one of the ways in which the objectives of the IBEC Charter are met.

IBEC organises the workshops by setting out the main themes to be covered, and then inviting specific individuals who are known to be able to present high quality material, to present their ideas and findings. This introduces an element of 'peer review' to ensure that the workshops are of a high quality.

Overview of Content

This report summarises the proceedings of the Dublin workshop, in which managers of ITS and senior researchers from Ireland, Wales, France, The Netherlands, Finland and United States, shared their ideas and experiences.

The workshop was divided into two sessions, each tackled by a number of presenters

- Session One focused on the broad benefits and use of ITS. It provided an educational grounding on ITS and its evaluation from leading ITS Managers
- Session Two provided four project specific examples, from different parts of Europe, of the benefits and costs of ITS. The presentations provided an excellent insight into what is being achieved world wide through the implementations of ITS.

For each session, the report provides a list of the presentations, a summary of the presentation and information on the discussions which were generated. There is also a summary of the closing statement from the Irish Minister.

1 Introduction

1.1 Background

IBEC is the International Benefits Evaluation and Costs working group. The objectives of the group are set out in its Charter. These concern providing support to decision-makers on cost-benefits and cost-effectiveness analysis of ITS, promoting consistent and reliable evaluation methodologies, providing information to a wide range of stakeholders on ITS costs and benefits, and sharing information across the profession on non-technical and institutional issues and lessons learned. The group jointly co-hosted a workshop, with the Irish Department of Transport and the National Roads Authority, to run alongside the EuroRegional Conference held in Dublin in September 2005.

The workshop followed a series of workshops organised each year at the ITS World Congress. Previous workshops had been organised by members of the IBEC group in Turin in 2000, Sydney in 2001, Chicago in 2002, Madrid in 2003 and Nagoya in 2004; the Sydney and Chicago workshops being organised as a joint effort with the EU-sponsored ATLANTIC project. This year IBEC also organised a session at ITS Europe in Hannover. The workshops aim to develop links between evaluation communities around the world, and are one of the ways in which the objectives of the IBEC charter are met. The proceedings of the Sydney and Chicago workshops are available from ATLANTIC (www.atlan-tic.net), and the proceedings of the Madrid, Nagoya and Hannover sessions are available from <http://ibec-its.org/library.htm>. The next event will be at the ITS World Congress in San Francisco.

IBEC organises the workshops by agreeing the main themes, and then inviting specific individuals who are known to be able to present high quality material, to present their ideas and findings. This introduces an element of 'peer review' to ensure that the workshops are of a high standard.

1.2 Overview of Content

This report summarises the proceedings of the Dublin workshop, in which managers of ITS and senior researchers from Ireland, Wales, France, The Netherlands, Finland and United States, shared their ideas and experiences.

The workshop was divided into 2 sessions with a total of 9 presentations

- Session 1
 - Towards Mobilising the Actors & Mainstreaming ITS
 - Why Invest in ITS?
 - National Roads Authority Experiences of ITS – improving travel using intelligent transportation
 - Why ITS is important to Dublin City Council
 - Towards Smarter Public Transport
- Session 2
 - The effects of Weather Controlled Variable Speed Limits on injury accidents in Finland
 - Reducing Accidents and Saving Lives on the French Motorway Network
 - Developing and Implementing an ITS Strategy
 - Benefits of ITS in the Netherlands

The workshop was set up to achieve the following objectives:

- Introduce ITS to Irish decision-makers and engage them in future developments;
- Provide a forum for discussion and debate;
- Encourage participation;
- Explain the potential of ITS; and
- Encourage involvement in IBEC and other ITS organisations.

1.3 Structure of Proceedings

For each session, the report describes the specific topic tackled and lists the presentations. The text which follows summarises each of the presentations, and the discussions which were generated. The promotional flyer used to invite people to attend the session is included in the annex.

2 Session 1

Moderator: Ms Julie O'Neill, Secretary-General, Department Of Transport, Ireland

Time: 13:30-15:00

| Presentation title | Speaker |
|---|--------------------|
| Towards Mobilising the Actors & Mainstreaming ITS | James Caffrey |
| Why Invest in ITS? | Joseph Peters |
| National Roads Authority Experiences of ITS – improving travel using intelligent transportation | David Laoide- Kemp |
| Why ITS is important to Dublin City Council (DCC) | Brenda O'Brien |
| Towards Smarter Public Transport | Tim Gaston |

This first session focused on the broad benefits and use of ITS. It provided an educational grounding on ITS and its' evaluation from leading ITS managers. Speakers discussed their experiences of ITS and described the benefits that can be achieved.

2.1 Presentation 1: Towards Mobilising the Actors & Mainstreaming ITS James Caffrey, Republic of Ireland Department of Transport (ROI DoT), Ireland.

James Caffrey provided a summary of traffic trends both nationally and in the Greater Dublin area which showed increases in road vehicle travel patterns. In Dublin there has been a 7.5% growth per annum of the use of the M50.

ITS was described to be the application of the engineering discipline to facilitate intelligent movement of people and goods. James emphasised the importance of obtaining data in order to gather information to output knowledge.

Applications of ITS were described (including transactions movement, infrastructure management, intelligent vehicles, user oriented information systems and regulation and enforcement). James provided some interesting examples of ITS projects in Ireland and features of ITS applications in Ireland.

James then raised a series of open questions:

- Can ITS investments on Irish transport systems deliver value for money?
- Does ITS investment make sense for Transport Information?
- Do we need an ITS strategy to mainstream ITS?

All these questions must be considered. James described his view on how to go about connecting together an ITS platform and described the next steps for DOT ROI.

2.2 Presentation 2: Why Invest in ITS? Dr Joseph Peters, USDOT, USA

Joseph Peters described his role in the US and the structure of investment in ITS. He provided his opinion of why we should invest in ITS. Joe believes ITS is capable of solving many pressing transport problems. His role is to obtain lessons learned from benefits and costs of ITS and post them on the Internet. During the presentation the US perspective of ITS was described (and the similarities between the Irish and US view were noted) In the US, ITS is split into Intelligent Vehicles

and Intelligent Infrastructure. Both of these were explained, together with a summary of how ITS benefits are measured.

Joe continued with an informative summary of several US examples of intelligent infrastructure projects under four categories:

- Arterial Management Systems (AMS)
- Freeway Management Systems (FMS)
- Traveller Information (TI)
- Electronic Management Systems (EMS)

For each project example, Joseph Peters describes what the intelligent infrastructure intervention was and what the benefits were.

Projects included:

- Transit Signal Priority in Portland Oregon (AMS)
- Electronic Transit Fare Payment in New York City, NY (FMS)
- Advanced Traveller Information Systems (ATIS), Phoenix, Arizona (TI)

In summary, it was concluded that there were several benefits to investing in ITS and examples can be found in a series of databases managed by Dr Peters.

2.3 Presentation 3: National Roads Authority Experiences of ITS' – improving travel using intelligent transportation, David Laoide- Kemp, National Roads Authority, Ireland

David Laoide-Kemp provided the National Road Authority (NRA) with experiences of ITS and described the concept of the 'Big Shift' which describes the shift in attention from road building to road network operations, in order to deliver high quality network services. The NRA sees ITS as a solution for the 'big shift' and believes the NRA are beginning to make that shift. David provided a brief summary of ITS experiences and examples. He noted that most are stand alone experiences and not co-ordinated, therefore in 2003 the NRA commissioned a programme 'High Quality Monitoring Study' (N7 scheme to review the current technology and provide recommendations for a monitoring system. This scheme was briefly described and the output was a website (www.n7.ie) The website collates all information for transport users including: VMS information and incident information, queues, roadwork's, CCTV, current and planned events, SMS and email alerts (via registration of details) The current status of the (N7) scheme was explained and the response from drivers has been very good but it was noted that the system is limited in its geographical scope. Therefore the next step is to increase coverage.

ITS is a fast developing concept, and David concluded by describing the need for an ITS strategy in Ireland and a National ITS forum (i.e. ITS Ireland), steps towards these may include:

- A National standard for ITS infrastructure VMS
- ITS deployment plan
- ITS maintenance agreement
- Network operations strategy
- Traveller information services (TIS)
- Interface with urban TIC and public transport

2.4 Presentation 4: Why ITS is important to Dublin City Council (DCC), Brendan O'Brien, Dublin City Council.

Brendan O'Brien explained that Dublin City Council (DCC) has a network management role and sees ITS and provision of an adequate control centre as a central part of this role. DCC refer to ITS as the application of technology in the field of transportation and a key means of implementing strategies and policies.

The council use ITS to:

- Manage accidents and incidents
- Monitor and control the network
- Provide information to users and professionals

Brendan provided examples of ITS projects in Dublin fulfilling the above three criteria. For example to manage accidents and incidents, CCTV is used to assess incidents in the control centre and share the information with relevant agencies, such as ambulance, fire brigade, Dublin buses, DCC radio station, maintenance contractors and the traffic signal control department. The benefits of this have been significant and have included faster response times for emergency services, clear view of the accident, faults automatically reported with a 2.5 hour repair time, the ability to track responses and online media for information. Mr O'Brien also described the impressive M50 project.

The benefits of ITS for the public of Dublin CC are also impressive. They provide vital radio information, a free phone number, CCTV on the web, car park information on city centre VMS, SMS (text message) services, VMS on the M50 and a network map containing relevant current information.

Brendan concluded his presentation by explaining that ITS is essential for DCC because it provides real benefits including safety, efficiency and information. However, it is clear to the council that ITS must be designed from the start of a project as it is expensive to retro fit. He noted the initial investment of cost and maintenance and upgrades are far out weighed by the benefits.

2.5 Presentation 5: Towards Smarter Public Transport, Tim Gaston, Railway Procurement Agency.

Tim Gaston described the two railway lines that serve Dublin. He then explained the importance of gathering information (in many cases using ITS). Data collected can be either fixed or real time. Fixed information is gathered by the Railway Procurement Agency (RPA) using the annual census, customer satisfaction surveys, focus group and revenue protection surveys. In contrast real-time data sources are collected using: ticketing, smart cards, automated vehicles systems and SCADA (Supervisory Control and Data Acquisition).

Tim explained that data collected by the RPA can be used for internal as well as external purposes. Internally the data is used for monitoring, revenue protection, revenue projections, identifying commercial opportunities and safety investigations. Externally, is used to provide information to tram and road traffic control, information to customers, service enhancements and integration opportunities with other modes. This integration opportunity is yet to be exploited.

Tim provided several examples of how data is presented. The high level data enables the following information to be assessed:

- Average daily use
- Weekly trends and patterns
- Operator performance
- Journey time analysis
- Smartcard statistics and transactions

It was clear from this presentation that ITS provides a means of collecting and acting on real time data, which has many uses, not least the opportunity to integrate several modes of transport.

2.6 Summary of Session 1: Provided by Julie O'Neill, Secretary General, Department of Transport (Session Chair)

There is a clear potential for ITS to help get better value from resources and the transport network. It is important to understand performance indicators, actors and stakeholders. From the presentations it can be seen that it is best to use ITS from the outset and to get the public, politicians and policy makers involved. The private sector has a large role to play in ITS. Although the complexity of ITS can be 'off putting' at first it is clear from the five presentations that there can be high value added. It should be remembered that there are also risks. ITS is not just a technical challenge, it is a change management challenge. There is still a way to go to inform people who need to know of ITS and its benefits.

3 Session 2

Moderator: Fred Barry, Chief Executive, National Roads Authority, Ireland

Time: 15:30-17:30

| Presentation title | Speaker |
|--|-----------------|
| The effects of Weather Controlled Variable Speed Limits on injury accidents in Finland | Pikko Rämä |
| Reducing Accidents and Saving Lives on the French Motorway Network | Steve Morello |
| Developing and Implementing an ITS Strategy | Leighton James |
| Benefits of ITS in the Netherlands | Caroline Visser |

Session 2 provided four project specific international examples of the benefits, and costs of ITS. The presentations provided an excellent insight into what is being achieved across Europe by the implementation of ITS. We should all endeavour to learn from such examples and develop ITS further.

3.1 Presentation 1: The effects of Weather Controlled Variable Speed Limits on injury accidents in Finland, Pikko Rämä, VTT, Finland

Pikko Rama presented a study on weather controlled variable speed limits, which she had been involved in. The aim of the study was to assess the Variable Message Sign (VMS) System in Finland and the effects of Variable Speed Limits (VSL) Systems on injury accidents. The presentation was very interesting, Pikko described how the study was conducted and briefly outlined the results. She explained that the system included two types of weather controlled systems in Finland.

In conclusion Pirkko explained that weather controlled (VSL) appeared to decrease injury risk and have positive effect on:

- efficient recognition of hazardous weather
- use of wearable slippery road
- choice of sign technology
- use of high speed limit (100 km/h)

3.2 Presentation 2: Reducing Accidents and Saving Lives on the French Motorway Network, Steve Morello, ISIS, France

Steve Morello began his presentation by explaining that road safety is a national challenge in France and requires a change of behaviour. The main aspects of this world leading research (which ISIS have been heavily involved in) were explained to be:

- centralisation and high level of automation (automation process)
- a legal framework adopted (new law)
- communication: strong corporation between all the Ministries concerned
- security and privacy issues being taken into consideration

This project is currently undertaking phase 2, but positive results have already been seen. The process of changing laws and installing an automatic speed ticket issuing system from VMS was described. The study included a user acceptance survey. Steve described the positive results of the study, which in short, have shown a decrease in average speed on French roads and decreased numbers of fatalities.

Steve concluded by stating that the French automated system allows for effective processing of a large number of traffic violations. Surely this example of implementation of new ITS technology will be followed to achieve such results in other countries.

3.3 Presentation 3: Developing and Implementing an ITS Strategy, Leighton James, Welsh Assembly Government, UK

Leighton James began his presentation by explaining what ITS means to the Welsh assembly: "A tool to assist the Highways Agency to manage and make better use of a network". The ITS strategy was developed to allow better use of existing transport and to develop new forms of transportation. Leighton described the history and development of the strategy from the 1970's to date. The vision of Traffic Wales was described, followed by a comprehensive summary of what the Welsh Assembly did and how they went about implementing the strategy. Some of the goals the Assembly achieved included:

- producing a "wish list"
- outlining timescales and finance needs
- providing a public launch for the strategy

Since publication of the strategy, the Assembly has achieved increased management of the network, increased integration of information services and demonstrated leading technology services. Leighton acknowledged that there has been no in-depth evaluation and the next step is to analyse benefits and ensure public and private authorities communicate and learn from other experiences.

3.4 Presentation 4: Benefits of ITS in the Netherlands, Caroline Visser, Rijkswaterstaat, The Netherlands

The benefits associated with traffic management achieved by ITS was the focus of this presentation. Caroline Visser described the road network, traffic accident statistics and typical traffic flows in The Netherlands. She then provided a summary of ITS developments in The Netherlands, these included:

- development of regional traffic control centres
- development of traffic and transport policy
- development of a utilisation programme between 1995 and 2000
- realisation of traffic management measures

Caroline provided an outline of the Dutch evaluation processes. The result of the evaluation showed network capacity gains and demonstrated that from 2001 onwards the benefits outweigh costs so ITS implementation is already paying off in The Netherlands. As with the French study, this demonstrates the role ITS has to play. The Netherlands have developed a 12-step procedure for Traffic Management. Caroline concluded on a positive and inspiring note: "Traffic Management is indispensable and ITS benefits are twice the cost".

4 Facilitated Discussion and Closing Statement

4.1 Facilitated Discussion

Jane Lappin facilitated a discussion to close the workshop. All 9 speakers were available for questioning. Jane led by asking the first question:

Question: (Jane Lappin) How has Wales developed evaluation data to make decisions both efficiently and politically?

Answer: (Leighton James) We had little data for costs and benefits, but have experiences of benefits from infrastructure, signs, CCTV. With a cheap working environment to access information and the opportunity of authorities talking to each other we were able to experiment and find benefits achievable. There is an increasing need for ITS so we are playing catch up like everyone else. We demonstrated to politicians that with investment more benefits can be thought-and they believed it!

Question: (unknown delegate) Have you looked at data outside your national borders (in The Netherlands)?

Answer: (Caroline Visser) Yes, our data is based on experience with operators in The Netherlands and abroad. It is the last two years where we have been looking abroad before then it was based mainly on The Netherlands.

Question: (Joseph Peters) There are problems in the US in enforcing speed limits, what happened in France to allow legislation to be altered?

Answer: (Steve Morello) First, we asked ourselves why we lose so many lives compared to other countries. In January 2003 the Prime Minister did a speech focused on "licence to kill"-the only way France could reduce casualties was to have enforcement. France finally decided to do something and with modern-day technology enhancements jumped straight into digital and it is working.

Comment: (Joseph Peters) The quality of your evaluation data is very good, we could use the data in the US to show the benefits of the system in saving lives.

Comment: If results from France can help others, then that is great, but France received evaluation from the UK and others therefore also gained benefits/knowledge and would like to give credit for this. In addition to the automated system France has also introduced on the spot alcohol testing, drug testing and blood tests.

Comment: (John Miles) Getting arguments and budgets across is difficult. This shows recognition of the need to get the homework done and have examples of other projects (how did it happen, how the implement? etc). In the UK we have "White Friday" which is a programme of investment from one event. Practitioners need to know what is available - that is how IBEC can help.

Question: (Jane Lappin) Brendan and Tim (Irish Speakers), it is obvious from your presentations that you have implemented automated systems. What would motivate you to work with the next region and internationally? What benefits come back to Ireland if you work from outside your borders

Answer 1: (Brendan O'Brian) In Dublin the regions are so close it is impossible not to coordinate. We have a regional Traffic Management Strategy. We have been motivated as we knew we had to consider the whole area with a co-operative approach in order to achieve the benefits.

Answer 2: (Tim Gaston) Commuters were taking longer and longer journeys and we knew there would be benefits for the agency to get together with other agencies (e.g. trams). By sharing information between "us" and users, we were able to generate knowledge and change.

Comment: (London Transportation Officer). I am concerned with the way ITS is going - ITS is best when reacting from problems - I think we should be less reactive and more towards prevention. Protection devices can only prepare to meet specific objectives. Could we collect more information and gain more control? An approach involving tracking vehicles and behaviours would provide the capability for more intelligent management of a network and increased control.

There was no more time for questions. A delegate list will be sent round so that people are able to follow up with speakers if they have further questions.

4.2 Closing Speech – Ivor Calley, Minister of State

Ivor Calley thanked the delegates and organisers. He stated that the workshop has highlighted the benefits of ITS, and he hopes that it has influenced ITS in Ireland. The Minister stated his interest in the role of ITS in increasing efficiency of a network as the number of vehicles in Ireland has increased massively. Ireland must move from isolated investment to a strategy approach. He stated that he will ask Department officials to identify opportunities of ITS and provide a budget to take account of the increasing need. The Minister recognises that travellers must be able to make informed choices. He noted that traffic management systems should not be dictated by Local Authorities regardless of the boundaries and that modal shift is a positive objective for Dublin.

He posed a question "What does it take to get public bodies to work together?". He recognises that it is important that they do. Ireland must meet travellers' needs and must achieve value for money from ITS investments.

The Minister congratulated his Agencies who have made strides in developing transport networks and stated "A lot has been done but there's more to do". The Minister said that he was looking forward to reading the outcome of meeting and hoped there would be meaningful output.

The Minister thanked everyone again and led the delegates to Dublin Castle for a formal opening of the exhibition of the EuroRegional Conference.

5 Annex 2: Session Flyer

Improving Travel Using Intelligent Transportation Dublin, 20th September 2005



IBEC will be sponsoring a workshop on the 20th September 2005 (the day before the EuroRegional Conference "I2TERN").

Venue:

- Dublin Castle:
 - Workshop: Bedford Hall
 - Registration: Crown Jewels Room
 - Refreshments: Guard Room

Theme:

Improving safety; Irish and international case studies will be used for illustration.

This workshop is about the contribution of ITS to realising transport policies with a particular focus on improving efficiency. The key focus in Ireland is on tackling congestion i.e. informing travellers on journey times, providing attractive alternatives to private car commuting through public transport priority at junctions and delivering convenient and integrated transport payment services.

Objectives:

- Introduce ITS to Irish decision-makers and engage them in future developments;
- Provide a forum for discussion and debate;
- Encourage participation;
- Explain the potential of ITS; and
- Encourage involvement in IBEC and other ITS organisations.

Timetable:

| | |
|-------|---|
| 12:30 | Registration, sandwiches etc |
| 13:30 | Introduction to workshop and ITS Seminar Chair: Ms Julie O'Neill, Secretary General of the Department of Transport |
| 13:45 | ITS Presentation by the Department of Transport James Caffrey DoT Republic of Ireland |
| 14:00 | Evaluation of ITS projects Joe Peters DOT USA |
| 14:30 | ITS in Ireland Local examples of ITS |
| 15:00 | Refreshments |
| 15:15 | ITS in Ireland |
| 15:30 | International Examples |
| 16:30 | Workshop discussions and conclusions IBEC Facilitator: Jane Lappin, VOLPE, USA |
| 17:15 | Conclusions Jane Lappin, VOLPE, USA |
| 17:25 | Closure by Seminar Chair |

I2TERN is the Conference of the Euro-Regional Projects. The 2005 Conference will be hosted by I2TERN in Dublin from 21st-23rd September 2005. If you would like to register to attend, please consult the conference website at www.i2tern.info.