

ITS – Transit Accessibility in Canada and Europe

by
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What is ICAT

- International not-for-profit NGO
- HQs in Montreal, Canada
- International Board and members made up of experts & practitioners
- Mission: “To promote a universally accessible transportation system”

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ICAT Activities

- Establish, maintain & disseminate information on accessible transportation
- Organize & participate in workshops and conferences
- Technology transfer & networking
- Promotion of new technologies and systems

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Outline

- Definition of ITS
- ITS applications on transit (bus, train, and subway) and paratransit in Canada & Europe
- Summary and Conclusions

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Definition of ITS

The application of information processing, communication, sensing and control technologies to bring together the transport user, the vehicle, and the traffic environment.

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Bus Passenger Impairments, Problems & ITS

<u>Impairment</u>	<u>Problem</u>	<u>ITS equipment</u>
Cannot stand for long	Waiting at stops	Display waiting time at home
Vision	Read service no.	Display at stop Audio announcement
Vision	Hail bus	Communication link
Vision	Identify destination	Display in bus
Dexterity	Pay fare	Smart card
Hearing	Announcements	Induction loop in bus

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Canadian ATAS Framework

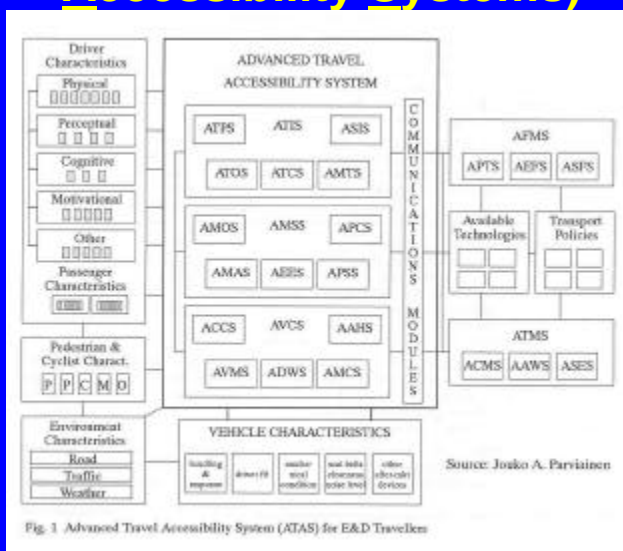
(Advanced Travel Accessibility Systems)

- Developed by Canadian Researchers 1993
- 5 Functional modules (ATIS, AMSS, AVCS, AFMS and ATMS)

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Advanced Travel Accessibility Systems



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AFMS – Paratransit Dispatch

- Telephone communications between passengers and the control center
- Computer-aided dispatching
- Automated Vehicle Location
- Trapeze Software and Transview software (by International Road Dynamics)

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ATIS - BUS

BusLine, Victoria, B.C

HandyLine, Vancouver, B.C

- Information on public modes
- Computerized databases
- Automated vehicle location
- Route, schedule, fare info, trip planning
- Telephone using interactive voice response system

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ATIS - AFMS BUS

Calgary Handi-Bus started mid 1990's

- Interactive Voice Response (IVR) set up in 1996 to reduce traffic and improve service
- In 2001, city created Access Calgary (Combination of Bus and Taxi)
- Uses the Trapeze PASS dispatch software

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ATIS - Subway & Bus

Montreal, Qc. Télécity Alstom

- Real time information for passengers
- Visual Communication Network (VCN) or AGATE displays information on board transit vehicles

Laval, Qc. Transit

- LED Displays on buses

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Bus Shelter in Sydney, Australia



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LED Displays



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Human Factors Studies

- All the Canadian developed ATIS systems involved definition of user needs and system evaluation
- Clear, simple design and direct, easy-to-access information systems are best for travelers with perceptual or cognitive disabilities

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ATMS - BUS

Hull, Qc and Halifax, N.S.

- Automatic Vehicle Location (AVL)
- Automatic Vehicle Identification (AVI)
- Communication between buses and control centre
- Above components of ATMS will allow preempting traffic signals for buses

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Canada Summary

- Began with computerized dispatching
- Interactive Voice Response Systems in paratransit & Trip Planning systems
- ATMS applying generally to transit
- ATAS framework development
- LED displays in vehicle and terminals
- Human factors studies on user acceptance and needs

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European Examples

- Direct systems for public transport users
- Systems that improve bus and train operation – Traffic Management (ATMS), train operation systems

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Systems for users in Europe (1)

- Integrated timetable information nationwide by web, by telephone, by kiosks
(routine for trains, coming for buses)
- Real time information at bus stops and stations, and via the web and telephones

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Systems for users in Europe (2)


- Smart cards for fare payment
(increasingly, multi-purpose smart cards or electronic purses)

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U.K. National rail timetable on-line (another site covers bus-rail info)

National Rail Enquiries Online: Journey options Page 1 of 1

 **National Rail Enquiries**

Timetable result: Basingstoke to Birmingham

Here are the trains that best match your requested journey. Some places may have more than one station. View details to check the actual departure and arrival stations.

***LINKS MARKED AS TUBE, MAY NOT OPERATE LATE AT NIGHT OR EARLY IN THE MORNING PLEASE CHECK WITH THE APPROPRIATE OPERATOR**

Outward journey

Tuesday 22 June 2004

	test me	test me	test me	test me	test me
Depart	09:44	10:05	10:44	11:05	11:44
Arrive	11:47	12:14	12:45	13:14	13:47
Changes	0	1	0	1	0
Duration	2:03	2:09	2:01	2:09	2:03

[EARLIER TRAIN](#) [VIEW DETAILS](#) [LATER TRAIN](#)

Return journey

Thursday 24 June 2004

	test me	test me	test me	test me	test me
Depart	17:03	17:33	18:03	18:33	19:03
Arrive	19:13	19:48	20:13	20:54	21:06
Changes	0	1	0	1	0
Duration	2:10	2:15	2:10	2:21	2:03

[EARLIER TRAIN](#) [VIEW DETAILS](#) [LATER TRAIN](#)

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U.K. National rail timetable on-line (continued) Provides fare options

Depart	17:03	17:33	18:03	18:33	19:03
Arrive	19:13	19:48	20:13	20:54	21:06
Changes	0	1	0	1	0
Duration	2:10	2:15	2:10	2:21	2:03

[test me](#) [test me](#) [test me](#) [test me](#) [test me](#)

[EARLIER TRAIN](#) [VIEW DETAILS](#) [LATER TRAIN](#)

Check availability and pricing for these times.

Once you have found the times you want, you can check the availability of tickets and the pricing of your journey. Provide us with more details of your journey in the form below, then click the ticket symbol.

Who is going?

Number of Adults: Number of Children: (aged 5 to 15)

What type of ticket and journey?

Type of ticket: Type of journey:

Search for:

Type of Railcard: Number of Railcards:

[Check fares and availability](#)

[Terms & Conditions - Contact Us - Help](#)
About National Rail Enquiries Online

file:///C:/US%20Conferences/APTA-FTA/National%20Rail%20Enquiries%20Online%2... 21/06/04

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European ATIS Applications - Transit

UK (widespread) Display of real time
information for passengers

- Real time information at bus stops and stations
- On board information displays and announcements

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European ATIS Applications – Transit

Madrid, Spain (2003)

- Planning, operations and passenger information systems for bus, rail and tram and for special needs services
- On board information displays and announcements

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Europe AFMS – Paratransit

- Jönköping, Sweden (book, schedule and dispatch trips more efficiently)
- Implemented in 2003, main purpose is time saving and capability to provide long-term support

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European Traffic Management - ATMS (1)

- Bus location systems (well established)
- Bus priority through UTC and bus detection / signal priority (widespread)
- Bus lane enforcement via cameras (in bus and at roadside in London)

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European Traffic Management - ATMS (2)

- Reducing urban traffic by a congestion charge, to improve bus service reliability (central London)
- Variable message signs to direct motorists to P & R services

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Europe Summary – ATAS (1)

- Real time information at bus stops and stations (very widespread)
- Real time information via the web and telephones (growing fast)
- Timetable information via the web and telephones (widespread)

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Europe Summary – ATAS (2)

- Smart cards for fare payment (growing fast)
- Bus location systems (well established)
- Bus priority through UTC and bus detection / signal priority (widespread)

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Conclusions

- ATIS and ATMS applications predominate in Canada and Europe
- ITS information is beginning to be perceived by passengers to be the required standard
- Need to discern between micro-electronics and ITS
- Need more human factors studies and ergonomic guidelines
- Need to emphasize on emergency and evacuation systems

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