

When will the bus come?

After a reliable service, what passengers most need is reliable service information. To meet this need, transport authorities have spent much of the past two decades developing a variety of information systems, tracking individual vehicles and predicting arrival times at later stops. The public response to this has been enthusiastic and positive.



Neil Scales

Chair, Real Time Information Group (RTIG)

Neil Scales is Chair of the Real Time Information Group (RTIG) and Chief Executive and Director General of Merseytravel. Neil's background is in transport engineering, where he has direct experience of all sides. From various engineering roles within Tyne & Wear Passenger Transport Executive, he moved to become Director of Engineering for GM Buses Ltd and then Managing Director of Northern Counties Motor & Engineering Company Ltd. He has also spent a period as an independent transport & engineering consultant, working inter alia for the World Bank, for the European Commission and as an Expert Witness for a number of clients in the UK. Neil is deeply involved in a wide range of UK coordinating groups. He is the Chairman of the Integrated Transport Smartcard Organisation (ITSO), Chair of the National Travelwise Association and Chair of the Passenger Transport Executive Group (PTEG). He is also a member of the Commission for Integrated Transport advising government on transport policy.

However, it became clear, as more and more systems were deployed, that different authorities were taking different technology approaches – and that this was beginning to cause problems. A bus with equipment suited to one system could not be moved to a different area without the old equipment being removed, and new equipment being installed. A bus service travelling from one area to another could not be tracked in both areas unless it had two sets of equipment. And what is more, each system was being specified from scratch, which added significantly to the time, cost and risk of each project.

Clearly, some kind of coordination and standardisation was necessary. The response of the UK's passenger transport community was to establish the Real Time Information Group, RTIG.

Getting together

RTIG first came together as a group in late 2000, with representatives from some of the country's large private sector bus operators and some key local authorities. The aim was to develop a common, UK-wide requirements specification for Real Time Information (RTI) systems. The technical work on this began shortly and ran for a couple of years.

In 2001 the UK Government, recognising its value to passengers, determined to promote RTI more actively, and set aside £20 million for investment in schemes around the country. The 19 projects supported by this investment ran during 2002 and 2004. This injection of funding represented a major acceleration for RTI in the UK, and dramatically increased the

need for technical coordination. During this period, therefore, RTIG recognised that it would need to strengthen its identity.

The first major step it took was to include the systems supply industry as full and equal partners, alongside the user community. Industry partners were involved for the first time in decision making, as well as contributing to the development of technical standards.

The second step was to create a more formal governance structure. In April 2004, RTIG reformed itself – after three years of a loose, informal collaboration – into a subscription body, with members paying an annual fee. Each year, members elect an Executive Committee, which appoints a General Manager to coordinate the Group's business during the year. Individual projects are delivered through a mixture of volunteer and contract effort.

RTIG's role has expanded since it began, making the most of the collaborative community that it has built up. Its projects, and its members, now cover all aspects of technology in public transport: as well as vehicle location and passenger information services, it covers ticketing, CCTV and security, audio-visual systems, vehicle health monitoring, etc.

RTIG activities

The overarching aim of RTIG is to help ensure that technology is used effectively within public transport, by encouraging common specifications and processes. Its constitution gives RTIG the following objectives:

- To enable technology to deliver better public transport services, cost-effectively
- To enable technology to deliver better information to the public about such services, at an affordable price
- To promote the role of technology in achieving these goals
- To support the production of specifications and guidelines for real time systems with a view to unifying the public transport real time information industry, facilitating the interoperability of RTI systems, and promoting innovation and competition in the supply market
- To promote professional liaison and exchange of knowledge relating to the design, implementation and use of such technology
- To provide a representative body of opinion for the public transport real time information community
- To co-operate with other bodies as necessary in the fulfilment of its goals

To achieve these aims and objectives, RTIG delivers publications and events in four key areas: specifications and guidelines, monitoring and research, community engagement, and organisational management.

Specifications and guidelines

The core of RTIG's work is the development of national specifications and guidelines. This has



RTI at bus stops can provide passengers with beneficial travel information

resulted in an extensive technical library which covers system architectures for on-bus, at-shelter and back-office equipment; interface specifications for bus priority, ticket machines and server-to-server exchange; design and operational guidance for project definition, CCTV and security, support for disabled travellers; and much else.

All of RTIG's specifications are held for the benefit of the UK as a whole, and it is important to make them as widely available as possible. Accordingly, most of these documents are freely available to RTIG members and available at a cost to non-members.

The majority of RTIG's publications are produced relatively quickly, responding to a dynamic marketplace, and are informal in nature. In a few cases, however, it has been appropriate to work through the formal

standards organisations at UK and European levels. For instance, RTIG has been a major contributor to SIRI, the specification for "Service Interface for Real-time Information" published by the European standards body CEN, working alongside colleagues from Germany, France, Sweden, Denmark, etc.

Monitoring and research

RTIG represents a national centre of excellence in the area of bus technology. It is therefore natural that UK Government makes use of this to get an accurate view of industry developments.

The main activity here is a comprehensive Annual Survey, undertaken since 2002. This survey covers the extent to which RTI and related systems are deployed around the UK, what functions are used and what problems are being experienced, and what the long term trends are. The Survey is described more fully below.

From time-to-time, a more specific issue is raised that requires monitoring, such as integration with local traffic management or support for disabled travellers. In these circumstances, a "case study" approach is adopted, in which a comparative review is undertaken for leading schemes.

Community engagement

Clearly an important function of RTIG is to talk to its members, both to gather their perspectives and to communicate its outputs. It achieves this through a mixture of events workshops and newsletters.

RTIG organises quarterly workshops discussing contemporary RTI issues. Members



RTI at bus stops can help passengers plan their journeys



Accuracy and reliability of RTI is very important

are given the opportunity to share their experiences with other RTIG members, and discuss any concerns they may have. Invited speakers on special topics are also included to ensure that RTIG continues to keep abreast of developments in the wider world. The workshops provide an opportunity for stakeholders to share their perspectives, free of any individual project or procurement.

RTIG also circulates a quarterly newsletter, not only discussing the workshop content, but also updates of the various activities and working groups RTIG is involved in. Past newsletters are archived within the extensive RTIG library which also provides RTI information to assist members implementing RTI systems.

Administration and management

Finally, it is important for RTIG to maintain a professional approach to its operations. It needs to maintain the intellectual property on its publications, as well as to manage income member subscriptions and contracts for support from central Government. To achieve this, a

company has been established: RTIG Ltd was set up in 2003 and has served as the commercial arm of RTIG ever since.

RTIG Ltd is a not-for-profit company. It is wholly owned by Merseytravel, one of the UK's major public transport authorities. Keeping RTIG Ltd in the public sector ownership is key to ensuring the credibility and impartiality of RTIG is maintained.

The state of bus technology in the UK

RTIG's annual Public Transport Technology Survey is one of its most widely read publications. It is cited by both Government in its development of policy, and by the private sector in the development of their business plans.

The survey is based on a questionnaire circulated during the Autumn to all local transport authorities in the UK. It covers the implementation of public transport technology and the dissemination of RTI on buses, at stops and other locations and on other vehicles. Data collected from the survey not

only investigates trends which have occurred across RTI systems over previous years, but also analyses contemporary issues affecting the RTI sector.

The 2007 survey report was published in January 2008. Drawing on previous surveys, it paints a picture of steady, long term investment around the UK, spiced up with bursts of innovation. Based on the 2007 questionnaires:

- The total investment in RTI schemes is in the region of £260 million
- Approximately 17,500 buses were fitted RTI tracking equipment, equating to approximately 44% of the bus fleet; the number of equipped buses had risen by around 470 since 2006
- By the end of 2007, an estimated 2.8 billion passenger journeys (58%) had taken place on RTI-equipped vehicles, a rise of approximately 239 million since the end of 2006
- Almost 7,500 signs were RTI-equipped, with the vast majority (97%) located at the stop itself. This is, however, barely 3% of the total number of bus stops
- The great majority of signs are still "traditional" three-line LED signs. However, around a third of new signs installed during the year were full-screen displays such as TFT panels
- "Virtual" mechanisms for distributing RTPI to the public gathered increased interest, with 25 schemes – around a third of them – making active use of mobile and internet technology. This is one of the most rapidly developing areas
- Approximately 60% of respondents had CCTV installed either on buses or in shelters. Almost all of these had internal bus CCTV, with 63% reporting external bus CCTV

What's hot

RTIG caters to a wide spectrum of user needs. Many of its members look to it primarily for advice on what might be called "mainstream" questions, which are answered by the open technical specifications or guidance it publishes.

Some issues, however, require more collective thought – where they call upon technology innovations, involve political

sensitivities or take bus systems into quite new directions. To address these issues we gather working groups of leading thinkers; the outputs of these working groups are often next year's specifications or guidelines.

In terms of information dissemination to travellers, there are a number of themes discernible.

Accuracy and reliability

The quality of information presented to travellers is still not high enough. Some problems are technical (e.g. inadequate radio coverage) but some are procedural: missing stop location information, out of date schedule information, buses not logging in to the system when the journey starts. There are also problems caused by the difficulty in getting third party data, such as roadworks or traffic congestion. All of these problems are soluble, but it takes time and effort to do this.

Accessibility

Providing information to travellers with impairments such as poor eyesight or the need for wheelchair access has been a key issue for public transport managers for several years. RTIG has a published technical "good practice guide" which is underwritten by both the Department for Transport and some of the UK's leading disability charities. We are currently working closely with these groups on facilitating wider deployment of on-bus audio-visual systems.

Whole-journey information

People travel for a reason, and their journey does not start and stop at a bus stop. The ability to provide contextualised information has potentially dramatic benefits, and some authorities already have the possibility to display such information: connecting services (including rail), flooding in town, last bus times, etc. For regular travellers they can also provide beneficial information about future travel: major sports events, say, or simply an upcoming change in timetable.

New channels

One of the most significant changes of recent years is the advent of consumer electronics as



The quality of information provided to passengers needs to be clear and efficient

a potential channel. The plethora of travel-related information on the web, especially for journey planning, is one side of this; currently, not much of this uses real time information apart from alerts to road network problems. The other side, for mid-journey information, is mobile devices, which allow vast possibilities from ticketing to personalised journey updates; the key challenges here are making it easy to use, and making it cost-effective.

Less publicly, there are some hot topics in the way systems are engineered that is changing how RTI is created and delivered, and even what it means.

Operator ownership

With most current RTI systems in the UK, the whole system is owned and managed by the public authority. As operators begin to see value in improved fleet management, there is a strong current towards them taking ownership of the on-bus location system – probably by integrating this into their ticket machines. This should make the logistics of maintaining a reliable system easier, but imposes a much stronger requirement for interoperability standards – especially given that UK operators are almost all commercial companies.

Vehicle health

A bus which is not working means a great loss of revenue to its operator. If a bus problem can be diagnosed early, it can be fixed more quickly

and there will be less loss of operational capacity. Real time vehicle health monitoring, using on-bus sensors, allows maintenance to be scheduled and even – if necessary – can prompt the control centre to terminate the bus early. It is clearly advantageous to respond to engine overheating before it causes permanent damage.

Digital radio communications

Current RTI systems mostly use analogue radio, specially engineered. A few use commercial digital communications such as GPRS, and there are one or two that are using broadband technologies including WiFi and even WIMAX. The much greater bandwidth, and compatibility with mainstream internet protocols, opens possibilities which have barely begun to be considered: real-time monitoring of on-bus CCTV, mobile WiFi hotspots, seatback entertainment systems etc.

Becoming a member of RTIG

While RTIG is a UK based organisation, it is not just for UK stakeholders. Members are drawn from across the world, as far afield as South Africa and Hong Kong, and we have a number of members from elsewhere in Europe.

It is RTIG's ambition to reflect as wide a range of interests as possible, and it is always open to new members.

Please visit www.rtig.org.uk for more information on any subject mentioned in this article. ●