Brief Report of a Winston Churchill Memorial Trust Travelling Fellowship

29th September - 22nd October 2000; and 6th - 28th November 2000

Public Transport in major cities - with a focus on electronic public transport travel information systems

Hong Kong, Australia and Singapore

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Introduction

Principal Aims
The Fellowship was to study Electronic Public Transport Travel Information Systems in Hong Kong and Australia; not only the technology but also the factors which made implementation a success or failure and which could have lessons for the UK. The Fellowship was timed to include a major international conference in Melbourne, which, it was hoped, would give insights into developments in other countries in the region. In the event, additional conferences were included in the itinerary, as were five days in Singapore at the end of the Fellowship.

The reason for choosing to study this particular topic was threefold. Firstly, it was to gain a general understanding of these systems in the context of other countries' environments and developments and therefore to increase my general understanding of this field; secondly to bring back specific lessons for the UK, particularly for the government's Transport Direct project; and thirdly to gain a wider understanding of public transport operations in these countries and to make contacts and create exposure for my business there.

Other Areas Studied
The Fellowship also gave significant valuable opportunities to study at first-hand several other aspects of public transport. These included smartcards and ticketing systems; busways - both guided and unguided; different ownership and regulatory models for public transport; use and operation of different-size public transport vehicles; relationship between urban public transport and taxis; interchange policies and operations; and the interaction of public transport with land-use planning.

Background
I started work as a public transport consultant in early 1995 following job redundancy as a consultant in another industry. With a strong, longstanding interest in public transport, and after an examination both of my skills and the marketplace, I decided to combine my earlier experience in bus industry management with more recent experiences, as a data researcher and analyst and as a strategy consultant, to set up as a consultant in public transport. Opportunities came to be involved in European research into public transport information, and in early 1996 I started the 'UK Public Transport Information' website, on my own initiative, partly as a means of publicising my business. I later sold this website to another company whilst still retaining a strong involvement in its development, and a new version of the website was then launched officially by a UK Government Transport Minister in late 1998. This established my reputation and opened doors to be involved in work in more aspects of public transport information. The opportunity to apply for a Winston Churchill Travelling Fellowship in this area coincided with a need to maintain a high profile in the industry, increase the value of my 'Unique Selling Proposition', and so offer more benefits to potential clients.

Outline
A large number of organisations were visited during the Fellowship, in addition to the many contacts made at the two conferences in Melbourne and the conference in Brisbane. In Hong Kong these visits included two of the main bus operators, both major railway operators, the Government Transport Department and the operator of the very large Octopus smartcard system. In Melbourne, I visited the largest of the bus operators, the organisation managing Victoria state's Internet journey planner, and a company providing travel information hardware and software.

In Sydney I visited the public transport information telephone call-centre, and in Brisbane visited several sections of the Queensland Department of Transportation, Brisbane City Council's Traffic
Control Centre and its real-time information at bus stops team, a supplier of public transport journey planning software, and Queensland Rail. As part of my attendance at the 'Smart Transport' conference in Brisbane I also had a guided tour of the new city Busway system, then being constructed. I was able to visit it again three weeks later after it had opened.

The Adelaide visit included meetings at the city rail operator, the largest bus operator in the city, and several departments of the South Australia Passenger Transport Board, including a personal tour of Adelaide's lengthy guided busway.

The Perth itinerary included visits to Transperth (the controller of Perth's public transport network), a major local bus operator, the taxi regulation section of Western Australia's Department of Transport, and WestRail, the state rail operator. I also visited some independent public transport consultants that I have been in correspondence with for a few years.

Finally, Singapore involved visits to SBS (the largest bus operator), the government's Land Transport Authority, Transit Link (the public transport operator's joint ticketing and marketing organisation), the major taxi operator on the island, and the Commercial Section of the British High Commission.
**The Main Report**

This report is based around the presentation by the author on "Recent Developments in the Far East and Australia", made to the ITS United Kingdom: Passenger Information Interest Group at its "New Channels for Delivery" Seminar, in London on 15th February 2001. Slides shown at that presentation are included here in the order shown:

1) Presentation to ITS United Kingdom - Passenger Information Interest Group  
   15th February 2001  
   **Recent Developments in the Far East and Australia**  
   John Austin

2) Australia, Hong Kong, Singapore  
   **Electronic Travel Information Systems for Public Transport**  
   Visiting:  
   – Government Departments and Agencies  
   – Major International Conferences - UITP (2), and 'Busways and Transitways'  
   – Bus, rail and taxi operators  
   – Professional Institutes

The visit to the Professional Institute referred to above was a visit to the Hong Kong section of the Chartered Institute of Transport where I gave a presentation on the UK's Traveline project. A photograph taken after my talk appears below.

*The author is photographed with members of the Committee of the Chartered Institute of Transport in Hong Kong, after giving his presentation on the UK's Traveline project. On the far left is Professor Timothy Hau, of the Economics Department, University of Hong Kong, and second from right is the organiser of the event, Mr Jonathan Yeung, of the Hong Kong Institute of Vocational Education. On the far right is Mr Andrew Wong, of the Aberdeen Maxicab Service Company, who later in the week showed me his company's use of the Octopus Smartcard system.*
Aim this afternoon

- A very brief overview
- Specific examples of recent developments from the three countries
- Publication of the Fellowship results expected to follow in 2001

Hong Kong Overview

Hong Kong Overview (1)

- **Hong Kong**
  - Both Private-sector-led and Government-led ITS-PTI initiatives
  - Extremely high public transport use
  - "Franchised competition" between PT operators

In Hong Kong a single government transport division covers the tunnels, expressways, other roads, public transport, taxis and paratransit. Hong Kong has probably the highest usage of public transport of any city in the world, with over 10.5 million journeys made by public transport and taxis each day.

The Hong Kong government expects operators to run commercially, but it seeks to discourage wasteful competition, and its policy could be described as ‘managed competition’. It seeks to avoid a situation where companies “go to the wall” because of too much competition, and is also very conscious of potential damage caused by environmental pollution, which it believes over-competition could bring.

There are three main franchised bus service operators, and also a large number of public light bus service operators (these run minibus services on fixed or flexible routes). I visited two of the main franchise operators to discuss their use of electronic PTI systems (Citybus, part of the UK-based Stagecoach group, and New World FirstBus) and also one of the fixed-route public light bus operators (Aberdeen Maxicab Service Company) to discuss its use of the Octopus smartcard system. Bus service franchises last for five years and are awarded according to a 'points' system based largely upon the potential franchisees' development plans. The Hong Kong government sees its system as midway between UK-style deregulation and London-style regulation.

Ferries are also an important public transport mode in Hong Kong, but their use has been declining in recent years, with the opening of the Cross-Harbour road tunnels, extension of the Mass Transit Railway, and reduction in tourism to the outlying islands. Modern urban railways play a very important part in Hong Kong's transport infrastructure, and significant issues for the future of public transport in Hong Kong relate to the extension of these railways and their integration with bus routes; and also to the future of the important taxi industry. Whilst electronic passenger information systems are not yet well-developed in Hong Kong, it is conceivable that they will emerge as a competitive tool used by operators to attract more passengers to their particular operations or mode.

The Government sees the role of passenger information systems as helping passengers to make an informed choice on route planning, and to make interchanges easier. It is planning to investigate the provision of real-time information (e.g. through Global Positioning Systems to tell the arrival of the next bus).
Australia Overview

6) In Australia the main regulation of public transport is carried out by the state governments. Public transport is strongly concentrated in the major cities. Passenger rail services are operated by state-owned organisations in Queensland, New South Wales, Western Australia and South Australia. The State of Victoria has privatised the operation of passenger rail services (but not ownership of assets) to three companies - V-Line Passenger, Connex (formerly Hillside Trains), and Bayside Trains, currently now being rebranded as M>Train. Finally, the Great Southern Railway (part of the British-owned Serco Group) runs very long-distance passenger trains linking Sydney to Adelaide and Perth, Adelaide and Melbourne to Alice Springs, and Melbourne to Adelaide.

Singapore Overview

7) Singapore's public transport system is a contrast both with Hong Kong and Australia. Usage is high, but less than in Hong Kong, whilst the main initiatives are strongly led by the government, as part of a clear strategy of integrating transport and land-use planning. There is competition between the few public transport operators but policy is clearly guided by the government. One significant characteristic of Singapore is its high taxi use and very well-developed taxi market.

Hong Kong - Octopus Smart-Card Scheme

This scheme was an operator initiative, and I visited its owners (Creative Star) partly because I wanted to explore the potential link between smartcards and providing personalised passenger information. However, I discovered that this link had not been made, largely because of commercial confidentiality issues which determined the design of the smartcard architecture.

8) Hong Kong - Octopus (1)

- PT contactless smartcard scheme, with 6 million cards in circulation.
- c.70% of bus passengers use it; higher for MRT
- Operator initiative / owned. Started 1996
- Multi-modal: bus, MRT, rail, LRT, ferry, minibus, cable tram
- An integrated Payment System - not an integrated multi-operator Ticketing System
- Card architecture designed so that each operator’s data is completely separate

9) Hong Kong - Octopus (2)

- Octopus used to deduct payment for 1st-class travel supplement: Fo Tan Station, Kowloon-Canton Railway
- Notice instructs passengers in its use in this unfamiliar application
My visit to Aberdeen Maxicab Service Company showed me how Octopus is used as a competitive tool to add value to the company's service offering and differentiate it from its competitors. This is in a situation where the government requires that all maxicab buses look identical with no external markings to display operator.

I was not able to visit the largest bus operator in Hong Kong during my visit (Kowloon Motor Bus) but it was demonstrating at the exhibition attached to the two conferences that I attended in Melbourne the following week, so I was able to gain an understanding of the various initiatives that it is undertaking. These include information over WAP phones, audio messages at stops, and next-stop information on-bus.

I also visited the Mass Transit Railway and Kowloon-Canton Railway to discuss their information strategies.

Melbourne Conferences

These were both organised by UITP (International Union of Public Transport) and had the themes of "Light Rail and Liveable Cities" and "Asia Pacific- Modern Cities on the Move".

At the "Light Rail and Liveable Cities" conference papers relevant to my Fellowship included ones on "Attracting more people to Public Transport" (which was based specifically on the experiences of one of the two Melbourne tram operators), "Breathing life into Public Transport in Melbourne, and also "And where are the passengers?", which described using electronic public transport information tools to build relationships between operators and customers.

Of particular interest to the theme of my Fellowship in the "Asia-Pacific" conference were presentations on "Progress and Prospects for Public Transport ITS" (from an Australian perspective, but viewed internationally), "Creating the Market for Public Transport", "Switching to Public Transport" (with particular reference to Perth), "Successful Public Private Partnerships to achieve a world-class Public Transport System in Singapore", "Assessing Performance - an operator's perspective" (again with particular reference to Perth), and "Smartcards & Transit - Reality, Rhetoric and Futures"

Another paper on "The Civis Rubber Tire Rapid Transit System for Rouen, France" provided some material for an article I wrote on my return which majored on the Adelaide guided busway visited later on the Fellowship.

Many useful contacts were made at these conferences, including representatives from countries that I wasn't able to visit, such as New Zealand, and companies where it had not been possible to
set up a meeting, such as ERG, the Perth-based Public Transport smartcard systems supplier and integrator. One particularly pleasant surprise was meeting another independent transport consultant from the UK who turned out to be a Churchill Fellow. Tony Young did his Fellowship in 1969 in the USA and Canada, on the topic of "Techniques of improving urban transport systems".

Enjoying a meal after the welcome reception for the Light Rail conference in Melbourne, are the author and Tony Young (independent transport consultant and Churchill Fellow 1969).

Organisations visited in Melbourne

After the Melbourne conferences had finished I visited National Bus Company (NBC), the largest bus operator in the city, to discuss with them their use of electronic travel information systems, and with the company's Business Development Manager visited Pixeltech, a systems designer, supplier and website specialist that is developing travel information software and hardware for use by NBC. I also met with the manager of Victrip, the state's public transport travel information call centre and website, to discuss the information policies of the Victoria Department of Transport. I also travelled on various parts of the network to observe electronic information systems in operation, particularly at rail stations.
Brisbane Conference
This conference on 'Using Transitways and Busways' was extremely useful as it focussed on delivering public transport travel information as a significant part of providing the 'smart urban transport' product. Several papers were of direct relevance to the Fellowship, and again many useful contacts were made. The conference included a site visit to the new south-east Brisbane Busway, which was fascinating as I was able to compare this with the British approach and, later, with the different Adelaide system visited later in the Fellowship.

I wrote a paper for the conference, on 'UK approaches to electronic public transport information', which made reference to my visiting the conference as a Churchill Fellow.

While attending the conference I also visited the Queensland Department of Main Roads to discuss with its Executive Director (Strategic Policy), who is Vice President of ITS Australia, the general policy and strategy issues regarding implementation of Intelligent Transport Systems in Australia.

Sydney Public Transport Enquiry Call Centre
As a result of a contact made at the Melbourne conferences I arranged to visit the Call Centre for the Sydney area on the Saturday morning following the Brisbane conference to observe its software in operation and to discuss with the Call Centre manager the use made of electronic systems there. This was prior to the two-week break in the Fellowship for a holiday.

Further Brisbane meetings
Following my return to Brisbane after my holiday I had meetings at Queensland Rail to discuss their use of electronic reservation and information systems, and with Opcom, a supplier of journey planning software used in Queensland and Perth as well as in the UK market. Further meetings were held with the Queensland Department of Transport to discuss the bus service regulatory regime and its relationship with use of the travel information call centre and website serving south-east Queensland. Queensland is embarking on an extensive programme of public transport investment in the urbanised south-east of the state, and as well as the programme of busway construction has an Integrated Ticketing Project to introduce smartcards. Unlike the situation in Hong Kong this is being driven by the (state) government and will lead to integrated fares, not just integrated payments. Brisbane has a project demonstration centre, which I visited and which is open to the public, which explains both the Integrated Ticketing Project and the Busways programme. With a move towards a more coherent and planned public transport product the Queensland proposals could potentially lead to the integration of information with payment, though this development is not part of the agenda for the short-term. I also visited the south-east Queensland call centre, and I was able to try out the interactive street kiosks supplying journey planning information, and also the different electronic kiosks used in Brisbane's unique underground central bus station.

Real-Time At-Stop Systems
I also met with Brisbane City Council for a demonstration of the BLISS Real-time traffic control system which is integrated with Brisbane's RAPID real-time information at bus stops system, and I was later able to see RAPID working at stops in Brisbane's suburbs. The slides below give an indication of the current extent of real-time information at bus stops in Australia and New Zealand.
Real-Time At-Stop Systems (1)

Australia
- Brisbane (RAPID)
- Melbourne (planned)
- Perth (small system, with voice message)

New Zealand
- Christchurch
- Auckland (RAPID)

Real-Time At-Stop Systems (2)

Brisbane - RAPID
- Currently uses On-vehicle tags and detector loops
- Plans for using 'Virtual Loops' currently being developed

Real-Time At-Stop Systems (3)

Melbourne
- 'Smart Bus' (from Tyco Integrated Systems): uses Intelligent On-Bus System
- Can use one or more technologies to determine its position
  - Built up areas: combination of RFID tag and vehicle odometer
  - Open areas: GPS, odometer and GIS grid positions
- Pilot over two bus routes in eastern Melbourne
  - from Autumn 2001
  - 45 buses, 60 bus stops / interchanges: 26 displays.
  - Priority at 35 Intersections
  - RF Tags & odometer used on route
  - GPS used for off route

Real-Time At-Stop Systems (4)

- Connexionz system recently installed in Christchurch, NZ.
- Expressions of interest from at least one Australian city
- Minor stops have linear electronic diagram indicating position of bus

Organisations visited in Adelaide

The most significant Public Transport feature in Adelaide is the Guided Busway. Extensive material on this was provided at the Brisbane conference, but while in Adelaide I visited people in the South Australia Passenger Transport Board who had been involved in the original system planning, and I was taken on my own tour of the Busway. I later re-visited it by myself the following day. Other officers of the Passenger Transport Board explained the organisation's plans for the provision of bus-stop-specific information through an interactive automated telephone enquiry facility, and its proposals for smartcards. I also visited the urban rail operator, TransAdelaide, to discuss its electronic passenger information systems, and met with a major local bus operator to discuss the impact of the franchising system there on operator innovation.

Organisations visited in Perth

After Adelaide I visited Perth, which has the most obviously unified public transport policy of any of the Australian cities I visited, and I began by meeting the government regulatory and planning agency, Transperth, to discuss its polices on electronic travel information systems.
Whilst in Perth I was also met with one of the bus operating companies to discuss how they saw the situation from the 'other side of the table'. I was also able to visit a number of purpose-built bus / rail interchanges and the modern Central bus station in Perth. A visit to Westrail, the operator of both passenger rail services in Perth and the southern part of Western Australia and also long-distance coach services in the state, was helpful in explaining their combined telephone information and booking system and the on-station electronic 'help' systems available to metropolitan passengers. Finally, a visit to the taxi regulation section of the state Department of Transport enabled a useful discussion on the issues regarding integration of information on taxis and other forms of public transport.

Singapore

An approach to the British High Commission in Singapore prior to my visit resulted in useful background information, and the High Commission were also very helpful in seeking out opportunities for publicity.

I met with the main bus operator, Singapore Bus Services, and was given an extensive guide to their operations, including the information systems at their bus stations, the experimental Automatic Vehicle Location system, their journey planning kiosks, plans for real-time information at bus stops and provision of information via WAP phones. SBS also demonstrated the electronic taxi booking systems used by their associated taxi company, the second largest in Singapore. Planned on-bus entertainment and information systems were also explained.

The government's Land Transport Authority explained the regulatory system and the plans for providing combined public and private transport information, while TransitLink discussed how integrated public transport travel information and ticketing solutions are delivered to users.

**Singapore Integration (1)**

**Transit.smart**

- Planned for 2001
- Electronic Travel Guide
  - will collect static and dynamic information from public transport operators
- Dynamic information will use GPS
- To be disseminated via
  - Internet
  - Hand-held PCs / Palmtops
  - Mobile Phones
  - TV
  - Kiosks

**Singapore Integration (2)**

**Route.smart**

- Planned for 2002
- Integration of real-time public transport and traffic information to provide multi-modal route advisory information
- Will combine transit.smart with traffic.smart
- Will advise mode of transport, and provide optimised route, cost of travel and transfer points
- Will be available prior to journey and en-route

**Singapore - Kiosks**

- Touch-screen kiosk provided by main bus operator (SBS) at a suburban bus station.
- A local Web portal also provided kiosks in main shopping area, with SBS information

**Singapore Taxi Systems**

The different taxi operators provide a range of innovative booking systems, e.g.:

- Taxi Order Terminal - searches for nearest cab
- Booking through PC
  - Pre-set button on mobile phone
  - Also cashless payment systems
The final visit in Singapore was to Comfort Group, who discussed and demonstrated their extensive range of electronic information and booking systems for their taxi users.

**Lessons Learned / Conclusions / Recommendations**

21) Lessons for the UK (1)
- UK policy of integrated Travel Information in Transport Direct is **bold** and **innovative**: others look to us
- The key ways in which our plans are innovative are in **integration of public / private modes** and in delivery of **real-time information**
- **Particular country strengths**:
  - **Hong Kong**: operator collaboration in some areas
    - Keys: **Market drivers. Critical Mass take-up**.
  - **Australia**: integrated **PT information in cities**
    - Keys: **Political Priorities. Limit to what can be done well**
  - **Singapore**: **PT / Private T integration, R/T Time Info**
    - Keys: **Vision, Joined-up thinking, Encourage Innovation**

22) Lessons for the UK (2)
- The mere presence of technology will not make ITS for PTI a success
- Success in introducing it requires:
  - Political Commitment
  - A healthy commercial environment for operators
    - land-use planning
    - traffic management
    - economic growth
  - Appropriate technological infrastructure, and regimes that stimulate take-up by consumers
    - technological regulation is important
      - Market and regulatory stimuli so that it is in operators’ commercial interests to introduce ITS for PTI wholeheartedly

**Websites recommended as being of interest to seminar participants**

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Appendix - Outline of Itinerary

1. Arrive Hong Kong, from London, Saturday 30th September 2000
   Visits in Hong Kong during w/c 2nd October 2000
   - MTR (Mass Transit Railway)
   - Hong Kong Department of Transport
   - Citybus Ltd.
   - Creative Star Ltd. (Octopus smartcards)
   - Chartered Institute of Transport (speaker at monthly meeting)
   - New World FirstBus
   - Kowloon - Canton Railway
   - Aberdeen Maxicab Service Co.

2. Travel to Melbourne, Australia, Saturday / Sunday 7th / 8th October
   International Public Transport Conferences and Exhibition in Melbourne: Sunday 8th to Friday 13th October
   - UITP 5th Light Rail Conference
   - UITP 2nd Asia - Pacific Congress
   - UITP Mobility and City Transport Exhibition
   Visits in Melbourne Friday 13th October to Tuesday 17th October
   - National Bus Company
   - Pixeltech Ltd.
   - Victrip

3. Flight to Brisbane Tuesday 17th October
   Conference in Brisbane
   - "Smart Urban Transport", Wednesday 18th October to Friday 20th October
   Visit in Brisbane Friday 20th October
   - Queensland Department of Main Roads

4. Flight to Sydney Friday 20th October
   Visit in Sydney Saturday 21st October
   - State Transit - Sydney Area Public Transport Call Centre
   Family Holiday Monday 23rd October to Sunday 5th November
   - Newspaper interview and photography session in Cairns Sunday 5th November

5. Train Cairns to Brisbane Monday 6th / Tuesday 7th November
   Visits in Brisbane Wednesday 8th to Friday 10th November
   - Opcum
   - Queensland Rail
   - Brisbane City Enterprises

6. Flight to Adelaide Saturday 11th November
   Visits in Adelaide Monday 13th to Tuesday 14th November
   - South Australia Passenger Transport Board (various departments)
   - TransAdelaide
   - SercoBus

7. Train to Perth Tuesday to Thursday 16th November
   Visits in Perth Thursday 16th to Wednesday 22nd November
   - Transperth
   - Transport Scheduling Services
   - Western Australia Department of Transport (Taxi Division)
   - Western Australia Government Railways
   - Southern Coast Transit

8. Travel to Singapore Wednesday 22nd November
   Visits in Singapore Wednesday 22nd to Monday 27th November
   - British High Commission (Public Affairs and Commercial directorates)
   - DelGro Corporation / Singapore Bus Services
   - Comfort Transportation
   - Translink
   - Land Transport Authority
   - Radio Singapore International (broadcast interview)

9. Return to London: Monday / Tuesday 27th / 28th November