

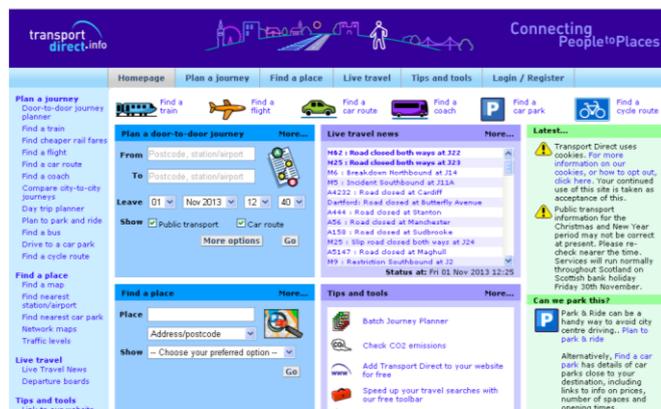
**Institution:** University of the West of England (UWE), Bristol

**Unit of Assessment:** 16 – Architecture, Built Environment and Planning

**Title of case study:** Informing travel choices

## 1. Summary of the impact

One third of a million people each week benefit from using the world's first door-to-door national multimodal travel information service by confirming, identifying or changing their travel plans. Developed by the UK Government, Transport Direct ([www.transportdirect.info](http://www.transportdirect.info)) integrates details of all travel modes and caters for over 100 billion potential routes. The service has been found to significantly influence intended modal choice. Since its launch in December 2004 it has handled over 110 million user sessions. Professor Glenn Lyons of UWE, and UWE research, played a key part in the shaping of the service design, cited by the Department for Transport (DfT) as an example of good practice in the use of research to support policy.



## 2. Underpinning research

In 2002, *Professor Glenn Lyons* was appointed as UWE's first transport professor and founded its Centre for Transport and Society (CTS). *Lyons* pioneered a research agenda for the emerging role of the web in travel information provision. He developed (with *Kenyon*), insights into information content and design, and the potential effectiveness of providing information on different transport modes in an integrated manner in order to inform and influence travel behaviour (R1). Integrated, multi-modal information draws together data from different sources (e.g. bus and train operators), allowing the traveller to plan a door-to-door journey using connecting services by different modes – a planning process which was cumbersome before the web and did little to encourage the consideration of alternatives to the use of the private car. *Lyons* (following competitive tendering) subsequently conducted a strategic review of travel information research – the first key piece of research to inform the development of a national, multi-modal traveller information system 'Transport Direct'. The civil service had been instructed to develop this system by Prime Minister, Tony Blair.

In recognition of his growing track-record in the field of web-based traveller information, *Lyons* was also, in 2002, seconded to the DfT's Transport Direct Division to form part of an 'expert client team' responsible for translating the Prime Minister's concept into a reality (see Section 4). Here *Lyons* performed a key strategic role in examining whether, and how, information is used before and during a trip, and how this affects behaviour. This found that, contrary to prior assumptions about decision-making and information-need, most people, most of the time, do not consult information services (R2).

*Lyons* (with *Campbell* and *Farag*) subsequently undertook major EPSRC-funded studies (2004-09) into information support for unfamiliar travel, and barriers to information use. The latter adopted a social-psychological approach which challenged conventional wisdom in the travel information industry: rather than usage of travel information driving consideration of public transport use, the reverse was true. Thus, encouraging greater information use to promote public transport was not the answer – public transport itself needs to be promoted, from which derives a demand for information use (R3,4).

Allied research from *Lyons'* group explored factors shaping travel decisions such as habit and 'satisficing behaviour' (decision-making which leads to satisfactory rather than optimal results). They found that such factors limit the use of information and its consequences for travel mode choice, as well as influencing the decision strategies which individuals employ when planning journeys (R5). With *Avineri*, *Lyons* won a competitive tender to lead the second government strategic review of travel information research (2007), which underlined key distinctions between

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the decision-making styles of *homo-economicus* (characterised by Star Trek's Mr Spock) and *homo-psychologicus* (characterised by Homer Simpson) (R6). This proved to be a simple but powerful portrayal of some complex behavioural processes, and was adopted and espoused by the Transport Direct team at the DfT.

Most recently Lyons led a major EPSRC/DfT/TSB study (2007-12) into user innovation in information service provision in the face of social media and open data, heralding a new era where government is increasingly seen as an enabler for, as well as a direct provider of, traveller information services. This has underlined the continuing temptation for service providers to underestimate the importance of understanding their end users and the contexts for information use in the face of an era of major social and technological change.

**Key research staff:** Glenn Lyons, 2002-date, Professor of Transport and Society; Susan Kenyon, 2002-2006, Research Fellow; Mhari Campbell, 2004-2008, Research Fellow; Sindy Farag, 2006-2009, Research Fellow; Erel Avineri, 2004-2012, Associate Professor in Travel Behaviour.

### 3. References to the research

#### Key publications

- R1. Kenyon, S. and Lyons, G. (2003) The Value of Integrated Multimodal Information and its Potential Contribution to Modal Change. *Transportation Research Part F - Traffic Psychology and Behaviour*, 6(1), 1-21. [http://dx.doi.org/10.1016/S1369-8478\(02\)00035-9](http://dx.doi.org/10.1016/S1369-8478(02)00035-9)
- R2. Lyons, G. (2006) The role of information in decision-making with regard to travel. *Intelligent Transport Systems*, 153 (3), 199-212. – Available through UWE. [http://ieeexplore.ieee.org/xpls/abs\\_all.jsp?arnumber=1706435](http://ieeexplore.ieee.org/xpls/abs_all.jsp?arnumber=1706435)
- R3. Farag, S, and Lyons, G. (2008) What Affects Use of Pretrip Public Transport Information? Empirical Results of a Qualitative Study. *Transportation Research Record: Journal of the Transportation Research Board*, 2069, Transportation Research Board of the National Academies, Washington, D.C., 85–92. <http://dx.doi.org/10.3141/2069-11>
- R4. Farag, S. and Lyons, G. (2010) Explaining public transport information use when a car is available: attitude theory empirically investigated. *Transportation*, 37 (6). <http://dx.doi.org/10.1007/s11116-010-9265-1>
- R5. Avineri, E. And Prashker, J.N. (2006) The impact of travel time information on travellers' learning under uncertainty. *Transportation*. 33 (4) <http://dx.doi.org/10.1007/s11116-005-5710-y>
- R6. Lyons, G., Avineri, E. and Farag, S. (2008) Assessing the demand for travel information: do we really want to know? *Proc. European Transport Conference*, Leeuwenhorst Conference Centre, The Netherlands. – Available through UWE. <http://abstracts.aetransport.org/paper/index/id/2964/confid/14>

#### Key grants (value to UWE shown)

- Highways Agency, 2003-05, Measuring improvements in network information and information services, £10k (Atkins, UWE and Southampton University – Lyons UWE lead)
- EPSRC, 2004-07, FUTURES: Navigating the city – supporting the unfamiliar traveller, £198k (UWE – Lyons as Principal Investigator)
- EPSRC, 2006-09, FUTURES: Traveller information services – assessing barriers to their use, £183k (UWE – Lyons as Principal Investigator)
- Department of Trade and Industry, 2005, Foresight Science Review – The role of information in decision-making with regard to travel, £6k (UWE – Lyons as lead and researcher)
- DfT, 2007, Strategic review of travel information, £20k (UWE – Lyons as project lead)
- EPSRC/DfT/Technology Strategy Board, 2007-12, Understanding user innovation - unanticipated applications of existing ITS, £585k (UWE, Loughborough University, Ordnance Survey and Ito World Ltd – Lyons overall project lead)

#### 4. Details of the impact

Travel information can empower individuals through raising awareness of travel options, informing travel choices and supporting the execution of journeys. With the information age moving into full-flight, Prime Minister Blair had a vision for a service, akin to NHS Direct, to support travellers.

Unusually, the concept of Transport Direct was not a recommendation from senior civil servants to ministers, but instead a top-down instruction from Prime Minister Blair. The Department for Transport (DfT) did not possess sufficient expertise internally to preside over transforming a Number 10 vision into a reality. Accordingly it established, in 2002, an 'expert client team' which involved seconding key external experts into DfT, one of whom was *Lyons* from UWE – the only representative of academia on the team. He was appointed Senior User on the Project Board of the multi-million pound Design-Build-Operate contract to develop and deliver the service, and was also Chairman of the DfT's Transport Direct Research Steering Group. His secondment lasted for two years with continued involvement as a consultant until 2007 – devising and presiding over a major research programme of over 13 projects tailored to support Transport Direct's delivery.

*Lyons* (with *Kenyon*) shaped early thinking on online travel information by developing key usability principles to ensure information was *useful, usable and used*. The work of *Lyons* and **CTS** colleagues has gone on to be a key factor in shaping Transport Direct throughout its lifetime of major developments and use to date. Building upon earlier impacts during the initial design, build and launch stages of Transport Direct, impacts - on the policy community, the public and the international community - have occurred in the following four areas within the REF census period (2008-2013).

##### **Design principles of the Transport Direct service and governance of service development**

DfT's Transport Direct Division had not originally appreciated the importance of the principles of usability of service design. Following *Lyons*' advice with supporting work by *Kenyon* on usability, a major investment was made to provide extensive usability-centred design and testing. This led to major changes in the design of the service including greater orientation towards users' needs, notably for those with disabilities such as dyslexia. *Lyons* played a significant role in re-orienting the service from a policy-driven approach (to encourage the use of public transport rather than cars) to one of empowering individuals to make informed choices (irrespective of outcome decisions): "Without Glenn Lyons' input in the early development of Transport Direct, it would have been driven solely by policy rather than by the needs of 'real people'" (Transport Direct Chief Executive) (S1).

DfT officials have pointed out that it would not have been possible to justify the sums of money and the risks of changing the main website design over time were it not for **CTS's** research expertise. This was able to demonstrate to senior civil servants and ministers that the service's development was based on academically sound principles and was capable of meeting business requirements. **CTS's** research insights have helped guide the service through its extraordinarily complex journey from conception as a pipe dream to today's reality which accommodates around 100 billion journey combinations.

The marketing strategy of Transport Direct has been influenced by the **CTS** research finding that promoting public transport *information* is not an effective way of promoting public transport *use*; on the contrary, public transport itself needs to be promoted, from which derives a demand for information use. The Transport Direct Division is now less concerned with marketing the service directly to users than with encouraging third party organisations to use it with their own branding ('white-labelling').

##### **Use of the service by the travelling public**

Since its launch at the end of 2004, Transport Direct had handled over 110 million enquiries (as at September 2012) and continues to address some 378,000 enquiries per week (S3). Transport Direct's own commissioned research (S4) has found that, of those individuals (nearly two thirds of respondents) who were seeking information on a journey they had made before, 7.7% intended, as a consequence of using the service, to use public transport instead of the car, while 2.3% intended to use the car instead of public transport. Thus not only is the information service being *used* by the public but is also *influencing travel behaviour*.

### **DfT's influence on wider developments**

In discussions with *Lyons* on 25 November 2011, DfT officials described the contribution of the research of staff at **CTS** as follows: "The ongoing research and interaction with service development has resulted in an accumulation of knowledge. It has taken time to bring about changes in the industry – waves of promotion of latest knowledge run up against the barriers of established/entrenched thinking. Only through successful waves building up can the barriers eventually be breached" (Transport Direct Chief Executive) (S1). This case study is seen by DfT as an exemplar of research and policy implementation working together. DfT has, through its explicit engagement with **CTS's** research, been able to operate as a voice of influence in the wider arena of travel information developments. This has been important in working with the many national stakeholders (data owners, travel information and transport service providers). *Lyons* has continued to be consulted as a source of expert advice both nationally and internationally (e.g. advising, in 2012, a major French-based public transport operator on its plans with an international technology company for developing an 'Intelligent Mobility' information service) (S5).

Wider influence has resulted in the UK being seen as a trail blazer in this field by other countries. Specific examples of Transport Direct influence include the US service 511 (a telephone/web resource for transport in the San Francisco Bay Area) and the Dutch online national public transport journey planner '9292'. Particularly poignant is the impact of the Transport Direct 'research and development journey' culminating with the London 2012 Olympics. Transport Direct was selected by the Olympic Delivery Authority to develop a bespoke online portal to guide event ticket holders to and from the Olympic venues. The Spectator Journey Planner had 2.75 million unique users (S3).

### **Ongoing repositioning of travel information provision as part of a national policy agenda**

At a time of huge financial pressures on public spending, it is significant that Transport Direct has not been disbanded in the push to make savings. This is seen to reflect the crucial change in perception from Transport Direct being seen as a 'toy' to it now being regarded as a critical tool in an era where the power of information and social media is being recognised, and where there is a need for governments to open up data to enable innovation and economic development to flourish. Transport Direct now sees itself as a major broker of data access with a focus on driving up data quality.

### **5. Sources to corroborate the impact**

- S1. Chief Executive, Transport Direct, Department for Transport - [main source of evidence on impact of UWE research on Transport Direct and wider travel information issues]. Testimonial available from UWE, Bristol. [1 on REF portal]
- S2. Data and Knowledge Manager, Transport Direct, Department for Transport - [alternative source of evidence on impact of UWE research on Transport Direct and wider travel information issues – has endorsed views of Chief Executive – testimonial above applies]. [3]
- S3. DfT (2012). Guidance Transport Direct key metrics and statistics - [Link](#) [evidence of service usage] - **Available through UWE.**
- S4. Transport and Travel Research (TTR), (2006) Transport Direct Evaluation Online Survey *Analysis*. November 2006 Final Summary Report. Department for Transport. [Link](#) [evidence of early effects of service usage – see page 9. Effects continue post-2006, with growing levels of use leading to greater reach] - **Available through UWE.**
- S5. Business Development Director, Transdev. Impacts and Benefits of Smarter Mobility (2012). [evidence of wider influence of UWE work on planning and development of information services]. Testimonial available from UWE, Bristol. [2]