The consumption of travel information: The influence of information source characteristics and use on travel behaviour

A range of new technologies are creating opportunities to gather and disseminate unprecedentedly detailed and up-to-date information about the transport system. This has resulted in a revolution in travel information services, transforming a field that was once characterised by printed timetables and maps into the focus of rapid technical and design innovation, with competing suppliers offering a wide variety of information formats and content of varying scope, quality and timeliness. As Information and Communication Technology (ICT) alter the travel information available to travellers, their travel decisions are also affected by their consumption of these information services and products.

The implications of this revolution have not been fully appreciated by the transport modelling community. In particular, *information* is still largely characterised in existing models as an abstract level of service attribute (e.g. a variance), rather than as a set of products and services that are sought, acquired and consumed by travellers. This renders existing models largely irrelevant to questions related to the design and pricing of information services and products. Moreover, since the impact of travel information on behaviour takes place through the mechanism of specific information services and products (which differ widely in the features of the information they provide and how it is provided), the current focus on information as an abstract attribute limits the degree to which existing models can fully take into account the impact of information on travel behaviour.

In this paper we propose a new modelling approach to the relation between travel information and travel behaviour which focuses on acquisition and consumption of specific travel information products and services, and the specific impact of these information consumption behaviours on travel behaviour. We hypothesise that individuals choose to acquire and consume a portfolio of travel information services and products (sources), based on the characteristics of each source, the characteristics of the underlying travel pattern and the anticipated contribution of the source(s) to the planning and/or execution of the travel pattern, as well as the demographic and attitudinal characteristics of the traveller. In turn, the consumption of the information provided by these sources interacts with the planning and execution of the underlying travel plan, through either corroboration or modification of the plan. Thus the acquisition and consumption of information sources occurs jointly with the planning and execution of travel behaviour. This framework is illustrated in Fig 1.

This paper presents an initial empirical application of this framework, using data from the Scottish Household Survey (SHS). The SHS is a cross sectional survey undertaken by the Government of Scotland that collects information on individual and household demographics, individual travel behaviour (via a 24-hour travel diary drawn from 8 waves conducted between 1999 and 2008) and, critically from perspective of the current study, information on the nature of the travel information sources consulted by travellers. The data used in this study consists of information on 27 238 households and 24 615 individuals from the 2007/2008 SHS dataset.

The framework is implemented through a set of multiple discrete choice models that characterise the consumption of information sources, taking account of the endogenous relationship between information consumption and expressed travel behaviour.
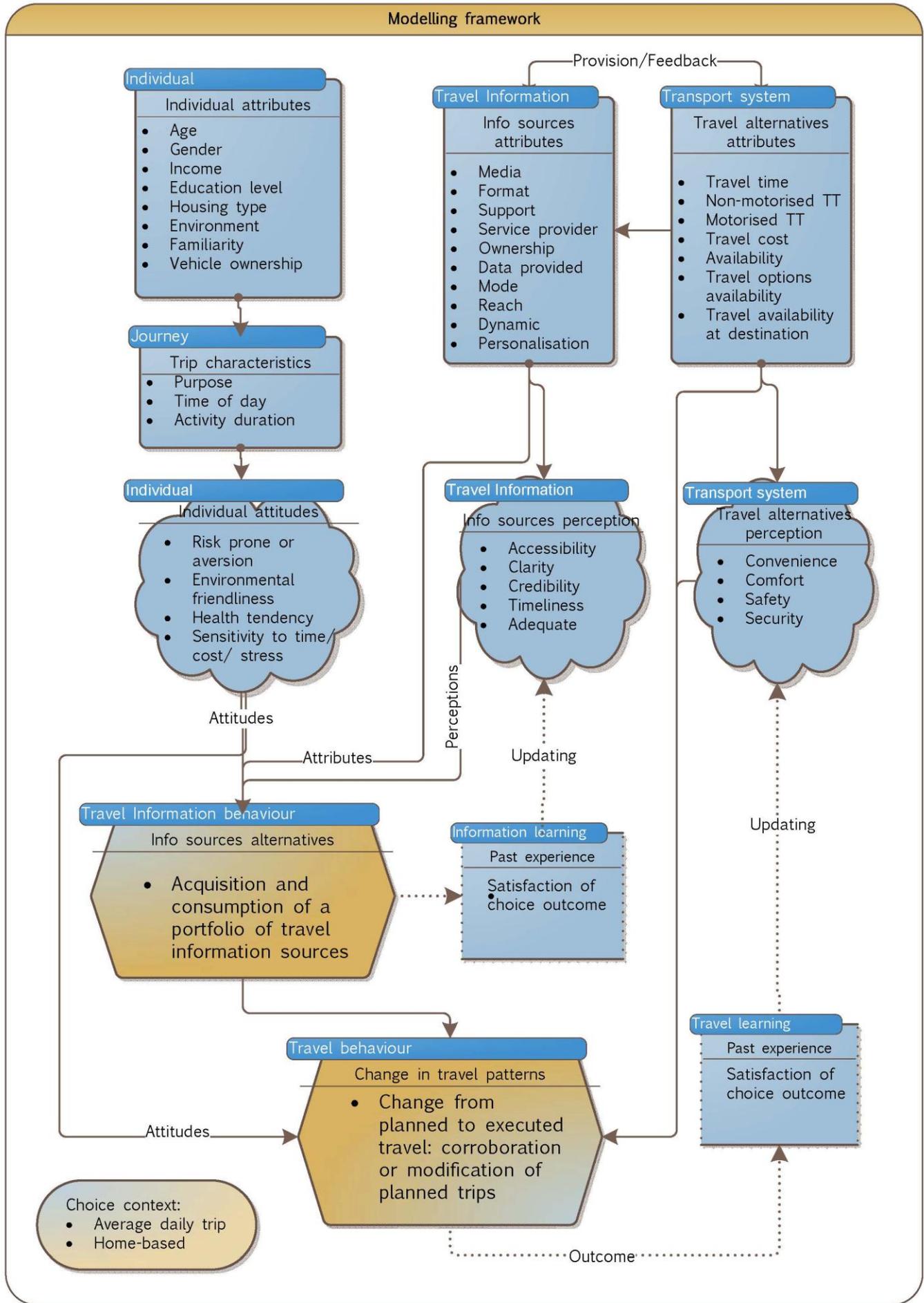
Figure 1 Modelling framework