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Internet: investigating new technology's evolving role, nature and effects on transport

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Abstract

In the space of only a few years the Internet has emerged as a mainstream communications medium providing a growing proportion of the population with virtual access to goods, people, opportunities and services. Against a backdrop of highlighting how teleshopping and teleworking alongside traveller information services are advancing as a consequence of the Internet, this paper suggests that the Internet and the virtual mobility it affords must in due course be explicitly addressed within an integrated transport policy. The paper explores the relationships between use of information and communications technology and personal travel highlighting the importance of social issues in gauging whether or not a net positive effect in terms of travel demand and tripmaking can arise from increasing use of the Internet. Suggestions for a policy approach are also made.

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1. Introduction

At the turn of the millennium the Internet is a legacy from the end of one century that holds the prospect of becoming a significant part of our lives in the next. To understand why this prospect exists it is necessary to consider the role information plays in the way we live and the way in which society functions. Most of our daily lives are concerned with information management, exchange and interpretation. Many of the activities that we partake in are primarily to obtain, access and/or exchange information. In turn, the reason we travel is in order to participate in activities. Therefore, to a degree, travel demand and flows of vehicular traffic and people are derived from the need or desire to exchange information.

This paper looks closely at the Internet in terms of how it is rapidly becoming, for a growing proportion of the population, a part of our everyday lives. In its 10 year spending plan for transport (DETR, 2000a) to support its integrated transport policy (DETR, 1998), the UK government states that “social and technological changes will also alter patterns of behaviour in unforeseen ways”. As the Internet becomes an integral part of our lifestyles so it will influence the nature of personal travel. Yet in terms of

transport policy it appears that this is not currently being confronted. The interactions between the Internet, society and transport are complex with the Internet's effects set to become increasingly significant as this paper seeks to highlight. There is an urgent need for transport researchers to improve our understanding of this evolving situation as in turn there is a need for transport planners and policymakers to begin taking greater account of and responding to the potential impacts of and role of the Internet within an integrated transport policy.

The paper first provides statistics reflecting to what extent the Internet is becoming a part of our lives and highlights the establishment of longitudinal surveys to monitor this over time. Examples of some key current uses of the Internet that are impacting upon travel demand and tripmaking are then considered. Subsequently the relationships between transport, the Internet and society are discussed in more detail drawing on views from commentators from both within and beyond mainstream transport studies. The paper concludes by returning to a consideration of how transport policy, planning and research is or should be addressing the role and impact of the Internet. There are a number of other papers that address the relationships between transport and telecommunications and these are cited later. However, this paper specifically presents a UK perspective whereas much previous research has originated in the US. It focuses particularly on the Internet and

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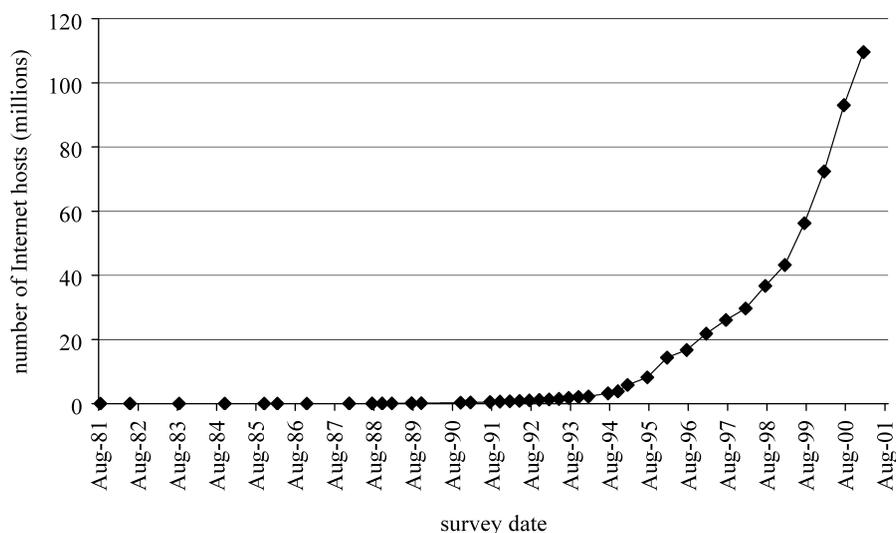


Fig. 1. Internet size measured over time (Internet Software Consortium, 2001).

personal travel rather than the broader fields of telecommunications and transport (though this is not to imply that the uses and impacts of the Internet do not extend into other aspects of transport).

2. Internet access

The Internet is at the heart of a technological revolution that presents society with the opportunity to manage, exchange and interpret information electronically. It represents an unprecedented opportunity for multimedia, global information exchange. In itself the Internet is the physical infrastructure over which information can move. It provides an increasingly dense electronic connectivity between people in our society. The capacity of that infrastructure to allow movement of information is important with a clear analogy between bandwidth and roadwidth. However, it is how that connectivity and capacity is used that is of greater interest—i.e. the ways in which information can be represented and accessed. The two principal forms of information exchange over the Internet are electronic mail (email) and the world wide web (web). The web was only invented in 1993 and yet web pages worldwide already number billions. The number of emails worldwide sent daily is now many billions. Just as physical mobility is undertaken to *access* people, goods, services and opportunities, so too is ‘virtual mobility’ using the Internet a means, increasingly, to achieve access.

Fig. 1 shows the worldwide number of Internet hosts (computers connected to the Internet) over time—it is a measure of the minimum size of the Internet. In the 6 year period from 1995 to 2001 the Internet’s size has increased by over 1700%. As of August 2001 one source (NUA, 2001) puts the number of Internet users in Europe at 155 million with Canada and the USA having 181 million.

One of the problems with trying to identify statistics assessing access to and use of the Internet, particularly with regard to determining trends over time, is that a vast array of different survey results and estimates are available from different sources making reliability and comparison difficult to judge. Fortunately more recently, national statistics institutes have begun to encompass Internet access and use within their surveys. The US Census Bureau includes computer use as a supplement to its Current Population Survey and since 1997 has also included questions on Internet use. In August 2000, 51% (54 million) of US households had at least one personal computer or laptop and 41.5% of households had at least one member of the household using the Internet at home (compared to only 18% in 1997) (US Census Bureau, 2001). In the UK, the Office for National Statistics is placing questions about the Internet and e-commerce in four surveys of households and individuals: the National Statistics ‘Omnibus’ Survey; the Family Expenditure Survey; the General Household Survey; and the Time Use Survey. Results are published in a quarterly release ‘Internet Access’ (Rowlatt, 2001). For the second quarter of 2001 it was estimated that 9.4 million UK households had access to the Internet (up from 2.2 million for the same quarter in 1998)—35% of households had access from home computers with 38% having access using all forms of access (survey figures from April 2000 onwards cover access via new technologies such as digital TV) (Office for National Statistics, 2001a). Fifty-one percent of adults have accessed the Internet at some time. The US and UK access trends are shown in Fig. 2.

Anecdotally, different views are expressed about the extent to which the elderly make use of the Internet. Official UK statistics show that whilst ‘silver surfers’ may be appreciable in their numbers, Internet use decreases with age (Fig. 3). Similarly in the US, Internet access at home is

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