FUTURE INTELLIGENT TRANSPORT SYSTEMS

Understanding user innovation - unanticipated applications of existing ITS

Introduction

At the end of 2006 an initiative called "Future Intelligent Transport Systems" was launched with an aim to address "*the challenge of delivering better passenger and freight transport services while at the same time reducing negative environmental impacts especially the carbon footprint*."

The initiative has led to the establishment of three projects. They are funded by the Engineering and Physical Sciences Research Council, the Department for Transport and the Technology Strategy Board with further investment from non-academic partners.

This briefing sheet provides an overview of the project "**Ideas in Transit**". This is a 5-year project running from October 2007 and involving: the University of the West of England, Bristol (UWE); Loughborough University; Ito World Ltd; and Ordnance Survey.

Examining what happens when people and the power of the crowd come together with technology to address the transport challenges faced by individuals and society

Background and justification

Modern lifestyles and patterns of travel are increasingly permeated and supported by information and communications technologies (ICTs). Our transport systems are similarly dependent increasingly upon ICTs to manage system capacity and the demands placed upon it. ICTs are the facilitators of new opportunities to address present and future needs, desires and problems. The field of Intelligent Transport Systems (ITS) has traditionally looked to realise such opportunities through innovation that is *top-down* and commercially led (e.g. satellite navigation systems) or government led with commercial companies implementing systems to its specification through a tendering process (e.g. real-time information systems for bus services).

Ideas in Transit stems from the contention that there may be another significant, but largely over-looked, source of innovation - specifically where *transport system users are conceiving of uses of existing forms of ICTs and ITS in innovative ways and different contexts than those anticipated by their providers*.

This points towards a *bottom-up* approach. By attempting to study and discover 'user innovations' there is the prospect of being able to identify, develop and exploit new opportunities for existing technologies and services to address challenges facing transport systems and users.

This is not something altogether new in concept - the term 'user innovation' was coined/used by von Hippel as far back as the 1980s. More recently, Leadbeater from the National Consumer Council observed that "passive consumers are becoming adaptors, inventors and innovators" in software, leisure fields, public services and journalism. What is certainly new is the increased opportunity for user innovation to engage the masses through online communities and mobile communications. Already this global connectivity has spawned user-*generated* content through conduits such as wikis and blogs.

Objectives

Ideas In Transit aims to address the underpinning theme of FITS by looking to users of the transport system as a source of inspiration. Such inspirations relate to how problems concerning the use of our transport systems may be overcome in innovative ways that draw upon ICTs as facilitators. Specifically, the objectives of the project are:

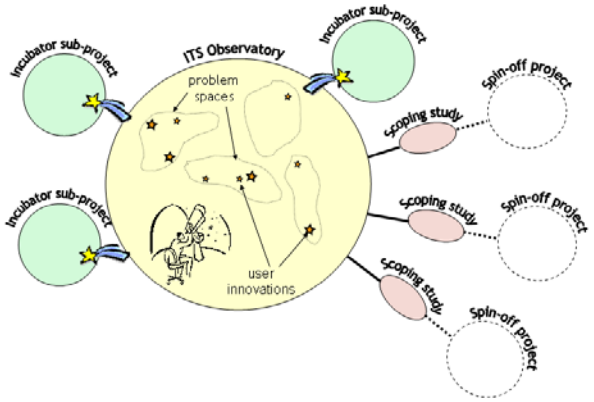
1. to examine the potential for the field of ITS to be advanced in terms of its applications and their effectiveness (commercially, economically, environmentally and socially) by studying the creativity and innovation of users;
2. to develop an understanding, through the application of a mixed method approach, of how user innovation related to ICTs can be searched for, identified, understood and potentially exploited;
3. to develop an 'ITS Observatory' which is used, for given types of individuals and/or contexts, to search for and catalogue instances of innovation and to enable cross-comparison of case studies to draw out common features;
4. to take forward a selected number of innovations as sub-projects to develop a deeper and/or accelerated understanding and to critically examine in what ways such innovations can lead to

derivative commercial innovation and exploitation; and

5. to work in the wider context of the FITS programme of projects to ensure the understandings and insights from the project are widely promoted for greater (future) take up.

Methodology

In overview there are two key elements to the project – an ITS Observatory and a reserved budget for sub-projects and scoping studies.



The ITS Observatory is a metaphor for a mixed method approach to develop an ability to *identify* and *understand* the occurrence of user innovations and how they might trigger a process leading to the development of products, services or policies that generate positive outcomes.

An early challenge will be to determine a means by which to narrow down the vast scope of 'where to look for innovations' using the Observatory. Where to look is expected to be defined through a combination of *problem spaces* and *user contexts*. A problem space is a situation which reflects a problem to be overcome or a situation to be improved upon, for example: dealing with a lack of mobility options; coping with unreliability; or co-ordinating movements in time and space for one's own activity schedule and those of others with whom one interacts. A user context refers to the characteristics of individual users which could lead to a greater likelihood of prompting innovation, for example: people with learning difficulties for whom current systems and services may not readily cater; teenage technophiles with a curiosity and willingness to 'play' with possibilities; or time-pressured knowledge workers compelled to develop coping mechanisms.

Development of the Observatory approach began with desk-study work: a multi-disciplinary literature review coupled with the cataloguing of existing 'discovered' examples of user innovation – which is available online as an Innovations Portal. Through examining existing examples we aim to better understand how innovations initially occur and what has arisen as a result in terms of any pathway to exploitation. The desk-study is intended to inform subsequent steps to look for current user innovations, as well as looking for 'problem spaces' where innovation may occur in the future. This will employ a number of methods such as: interviewing; focus groups; creativity workshops; participatory design in the wild; ethnography; cyber ethnography; and competitions. In due course a publicly accessible website will be developed around which to build a community of interest relating to the concept of user innovation in transport.

Currently interviews are being arranged with individuals responsible for innovation and a diary study is being undertaken to gain a greater understanding of how people use technologies in their everyday lives; the connection between people's mobility and ICTs; and the possibility of people 'doing something different with something ordinary'. Creativity workshops may then be used to explore the problems faced by people in this context and the potential 'what if' solutions technology could provide them.

The purpose of the Observatory's development and use is thus twofold. Firstly, it aims to understand how user innovation occurs, how to locate it and the possible subsequent processes that can lead to exploitations. The purpose here is to enable over time the ITS industry to (more fully) employ user innovation in its own business practices. Secondly, the Observatory is to be used to identify specific examples of user innovations which can then be taken forward in more detail with the possibility for exploitation and, ideally, realising such exploitation. Such examples are likely to be developed as incubator sub-projects or scoping studies leading potentially to spin-off projects. These will be funded using the reserved budget, subject to approval from the project sponsors.

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