

The  
**ISSUES**  
Project

# The I-Journey Planner

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The power of persistence

*October 2010*



## Quality Control Sheet

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## Table of Contents

|                             |    |
|-----------------------------|----|
| Executive Summary .....     | 5  |
| Introduction.....           | 6  |
| The I-Journey Planner ..... | 7  |
| Drivers and Barriers .....  | 8  |
| The Impact of HADRIAN ..... | 9  |
| Conclusion.....             | 10 |
| References .....            | 11 |

## EXECUTIVE SUMMARY

People with disabilities often find travelling by public transport stressful because of their reduced ability to adapt to unpredictable situations, such as a crowded station or out of order lifts. Journey planners are tools which travellers can use to plan new journeys or optimise their travel by a particular factor such as cost or time. The HADRIAN researcher team (based in Loughborough University and part of the AUNT SUE Consortium) used their knowledge of accessibility issues facing disabled people to recommend ways in which journey planners could be adapted to reduce stress for disabled people travelling by public transport.

These suggestions formed an inclusive or “I-Journey Planner” which was taken up by Transport for London and adopted into their existing journey planner, used over half a million times each month by users of their website. The persistence and adaptability of the HADRIAN research team were key to overcoming the barriers posed by the project. The success of this work has led to further impacts of the I-Journey Planner, improving access for disabled people across the UK beyond the original plans of the project.

## INTRODUCTION

Planning journeys can be a stressful experience due to uncertainties such as the presence of steps, crowd levels and navigation between journey stages. Journey planners are online tools which suggest transport options and travel details for a particular journey requested by the user. People can utilize these tools to optimise their route depending on their own priorities, whether that is time, cost or mode of transport, and to plan journeys being made for the first time.

Planning journeys to limit uncertainty and enable preparation is particularly important for travellers with disabilities. These people may be less able to adapt to unknown barriers which may occur along their journey (Marshall, Porter et al. 2009). Some people may be put off making a journey at all for this reason, further isolating them from society. Anticipating barriers can reduce stress therefore allowing someone to choose the most suitable route may increase access for disabled people. The Inclusive Journey Planner or I-Journey Planner is a prototype of a web interface which was designed by the Human Anthropometric Data Requirements Investigation and Analysis (HADRIAN) research group to make existing journey planners more inclusive by fulfilling the needs of disabled people (Davis 2009).

The Accessibility and User Needs in Transport for Sustainable Urban Environments (AUNT SUE) is a cross disciplinary research project focusing on urban transport, design and social inclusion (AUNT SUE 2010). The HADRIAN research group is one of the research teams within the AUNT SUE project which focuses on improving public transport for disabled people through a software database based on the physical restrictions facing 103 disabled people (Design Ergonomics Research Group 2010). This database allowed the HADRIAN team to make recommendations for existing journey planners to better suit the needs of a range of physically disabled people.

This investigation has studied the impacts of the Inclusive Journey Planner has had on sustainable urban development in the UK. The findings in this report are based on background research and interviews with the key players involved in the project.

## THE I-JOURNEY PLANNER

The HADRIAN research team applied their database and the knowledge the team gained from other areas of the project to design an “inclusive journey planner” which gives disabled people the information they need to make less stressful journeys (Marshall, Case et al. 2010). The team also conducted interviews and a trial with inexperienced journey planner users to improve the web design interface of journey planners. The I-Journey Planner would be used to demonstrate to the developers of existing journey planners how they could adapt their tool to reduce travel uncertainty and stress. This research led to three main recommendations:

- **Personal profiles:** These would allow users to save preferences (e.g. only use train stations with disabled lift access). This would mean that every time the journey planner is used only relevant choices are suggested rather than exposing users to a long list of inappropriate journeys.
- **Genuine Journey Choice:** Existing journey planners often only present a limited choice of journey options repeated at different times of travel. Since the time of travel has already been chosen by the user, it is unhelpful to offer a few alternative route choices at many different times and can cloud the real choices available. The journey planner should only present journey options which fit with the user profile, including time constraints, and which give essential information about the route (mode, duration, cost and walking time) without overloading the screen.
- **Rich journey plans:** A good planner will give additional information such as whether there are steps, lifts, escalators and ramps at a station. It will provide maps and warnings about likely crowding. Users should be able to highlight the information they require in their personal profiles.

(AUNT SUE 2010)

Based on background research on existing journey planners, the HADRIAN team contacted Transport for London (TfL), the local government body responsible for most aspects of the transport system in London. TfL provides a journey planner on its website which covers all types of public transport and routes available in London (Transport for London 2010). HADRIAN suggested that the Inclusive Journey Planner could increase accessibility for disabled people using the TfL journey planner. TfL agreed to adapt their journey planner using HADRIAN’s suggestions and so the two teams began to work together to improve the TfL tool.

## DRIVERS AND BARRIERS

### Persistence of the HADRIAN team

The research leaders on the HADRIAN team were Dr Russell Marshall and Dr Steve Summerskill, both leading members of the Design Ergonomics Research team at Loughborough University (Design Ergonomics Research Group 2010). They supervised the I-Journey Planner work, whilst most of the web-interface design was conducted by Pete Davies. Davies was the main contact for TfL journey planner staff (Davis 2010). He was the most persistent driving force of the project – maintaining TfL contact and feedback throughout the project which lasted several years.

### Practical insight

Working with TfL directly gave the HADRIAN team practical experience of the capabilities and constraints of practitioners, particularly those of large organisations which work directly with the public (Davis 2010). For example, the team learnt how transport data is collected, stored and applied by TfL, allowing the research team to adapt their data into more compatible modes. For Pete Davies the project gave him: “a deeper insight into the workings of the real world” (Davis 2010). The team also developed an appreciation of end user concerns about timing and resources.

### Resistance to novel ideas

The HADRIAN team found that TfL were reluctant to adopt new ideas (Davis 2010). This led to long delays in moving the project forward as TfL considered the advantages and disadvantages of the new approaches and the practicalities of delivering under strict time and resource constraints. Although frustrating for the research team, they came to understand and appreciate the reasons for delay. The research team were forced as a result to consider these constraints as well, forcing HADRIAN to extend the original time span of the project.

## THE IMPACT OF HADRIAN

The I-Journey Planner has been taken up by TfL who have adapted their existing journey planner using the recommendations made by the HADRIAN team. The journey planner can be found on the homepage of the Transport for London website. It receives 560,000 visits a month from people planning journeys across London (Transport for London 2010). With so many users of this journey planner, the HADRIAN team hope their improvements will increase accessibility for many people travelling around London by public transport, particularly those people with disabilities.

Journey planners are a widely used tool across the UK meaning that the I-Journey Planner could also be used to improving public transport access throughout the country. The HADRIAN team are planning to set up a website from which the HADRIAN tool can be easily and freely downloaded, as there have already been several requests for the tool (Summerskill 2010). Currently, the team are working on making the tool easily accessible for new users. They plan on using their existing network of contacts in the manufacturing industry and with transport authorities to increase interest in their work.

The success of the application of HADRIAN to this area may be mimicked in other fields. For example, the team are currently in contact with the London 2012 Para-Olympic committee about the design of athlete rooms in the Olympic village. The contact between HADRIAN and the Olympic committee was established through a workshop demonstrating the work done on the I-Journey Planner for TfL (Summerskill 2010).

## CONCLUSION

The I-Journey Planner is an example where a research team has successfully transferred knowledge from their research to have an impact on wider society. The main impact has been to persuade TfL to remodel their widely used journey planner to improve accessibility for disabled travellers. This success has led to further impacts – promoting the I-Journey Planner to other transport authorities across the UK and adapting their knowledge to new applications such as the design of rooms for the London 2010 Paralympics.

The reason for their success stemmed from their persistence and willingness to adapt their work to their end user audience. The research team persisted in their contact with TfL, even though there were often long delays between decisions. Working with a practitioner helped the researchers to realise this was due to resource constraints and therefore adapted their work to practical applications faced by TfL staff. The research team were then able to adapt their own work more suitably to their end user.

A number of recommendations to increase knowledge transfer and impact of research projects can be drawn from the HADRIAN case study:

- To create an impact, researchers must seek out end users, be persistent in their contact and be prepared to overcome delays and barriers to co-operation with end users.
- Researchers should be prepared to adapt their outputs to practitioner needs which may mean spending more time considering how to transfer the knowledge to practical applications. Researchers should treat interactions with end users as learning experiences which will allow them to make their research more applicable to the needs of practitioners.
- Researchers should be aware that one successful impact can be used as a spring board to further impacts. Practitioners may see potential applications in research findings that have not been considered by the researchers themselves.

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