The role of social networking sites in changing travel behaviours

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Executive Summary

This research explores the potential impact of social networking sites on travel behaviours. The aim was to obtain an indication of whether social networking sites can encourage low carbon travel behaviours, thereby complementing other policies and initiatives that aim to reduce the energy intensity of the sector. It also aimed to formulate a set of design recommendations, based on user engagement and on the experience of initiatives to date, that if applied to social networking sites may enhance their impact on travel behaviours.

This study comprised four research activities: a scoping review of selected academic databases and of social networking sites; interviews with owners of social networking sites; an online survey and focus groups with users of social networking sites.

The review of TRL’s transport-focused databases of scientific literature did not identify any evaluations of the possible impact of social networking sites on travel behaviours. There was also little evidence of evaluations of social networking sites and their ability to change behaviour in general. Two studies were identified although their small sample size means that it is not possible to use them to draw firm conclusions about the possible impact of social networking sites on behaviour. A previous (unpublished) scoping study conducted by TRL did, however, identify a number of psychological theories and behavioural change models (including social dilemma theory, social value orientations, and collective action models) that support the hypothesis that social networking sites, if appropriately designed to exploit certain motivational ‘triggers,’ can have an impact on attitudes, values, and ultimately behaviours.

The research within this project has shown that social networking sites are useful platforms for reaching large numbers of people, and for targeting specific user groups. The focus group participants were in consensus that social networking sites could act as a platform to spread information and raise awareness about low carbon travel behaviours and the benefits of adopting them, and in doing so make members consider changing their behaviours. The interviews with developers of social networking sites also indicated that social networking sites are a good way of engaging with individuals.

The engagement with users of social networking sites identified that a large proportion of the sample (46% of respondents to the online survey) are members of a group or information stream on a social networking site. It also found that 20% of respondents already use social networking sites to access information about public transport, and 15% to arrange car sharing (44% and 27% respectively thought that they would do so in future). This indicates that groups are a popular feature of social networking sites, and that such sites are already being used to support low carbon travel behaviours.

Focus group participants and online survey respondents stated that they are more likely to be influenced by information that they receive via personal networks (such as friends and family) than via formal networks (such as from the Government, a commercial organisation or independent body or charity). This reinforces the potential value of communicating to individuals via social networking sites, as does the fact that information displayed on pages of contacts (for example in the form of groups that they belong to, information streams that they subscribe to, or pages that they ‘like’) can be seen by their contacts who may not have actively sought out such information.
In the online survey, more people either ‘disagreed’ or ‘strongly disagreed’ (40%) that social networking sites could change their own travel behaviours than ‘agreed’ or ‘strongly agreed’ that they could (30%). This seems to relate to the fact that: 82% of respondents have not seen any information on a social networking site that has changed their travel behaviours; some respondents feel that there is not the appropriate low carbon transport infrastructure to enable them to make a change; and that some respondents already use low carbon modes of transport wherever possible. The survey also, however, highlighted examples of how social networking site users have adopted more pro-environmental or pro-social behaviours as a direct result of information received from a social networking site.

The changes in travel behaviours that survey respondents reported making in response to social networking sites largely related to one-off or irregular events, for example in relation to delays, weather, or special occasions. Many of the changes were in terms of route used and car journeys shared rather than a shift in mode of transport. This is reflected in the fact that when asked about the type of journey that social networking sites may have the most potential to change, the most popular answer was day to day leisure trips (36% of responses). This was followed by commuting (26% of respondents) and shopping trips (21%).

There are many design restrictions for social networking sites, although the focus groups, interviews and online survey conducted in this project identified strong preferences with regard to design features of these sites and their relative effectiveness in encouraging low carbon travel behaviours. Recommendations include the following:

- **Exploit the ‘social’ aspect of social networking sites** (for example, two-way communication and dialogue to encourage collective action should be encouraged – sites should be interactive, comments should be responded to in a timely manner, and it should be easy to invite others to join)

- **Communicate wider benefits of low carbon travel behaviours**

- **Regularly update the content of the social networking site**

- **Inform to spark interest rather than to impart detailed knowledge**

- **Convey professional credibility**

- **Encourage active participation**

- **Make the site easy to navigate**

- **Carefully consider the tone of writing used**

- **Tailor information to the level of the individual** (both in terms of benefits to individuals and in terms of providing practical and relevant advice).

- **Capitalise on the motivating effect of collective action**

- **Invest resources in ensuring that the site has an immediate impact**

- **Make the site design accessible via smartphones.**

Stakeholders that seek to communicate low carbon behaviour messages to the general public should adopt strategies that exploit the engagement opportunities associated with social networking sites. In order to optimise their potential impact on travel behaviours sites should not be developed quickly but as part of a comprehensive process, and ideally one that involves engagement with potential end-users.
Abstract

This report provides an overview of research that was conducted to explore the potential for social networking sites to encourage changes in travel behaviours, and to provide recommendations for how any identified potential could be optimised through their design. A scoping review identified that there is not a robust empirical research base from which to draw conclusions about the possible impact of social networking sites on behaviour. The study sought to develop the evidence base by conducting original research, which included: three focus groups, two interviews with developers of social networking sites that could potentially trigger a change in travel behaviours, and an online survey with a sample size of 141 social networking users. This report presents the findings of these research activities, and concludes that they are a good way to communicate messages to a broad demographic. They seem likely to increase awareness of the impact of travel behaviours and of more sustainable alternatives. This may not lead to a direct change in travel behaviours, but it potentially impacts on attitudes and values that could change travel behaviours in the longer term. There are a number of design considerations that, if built into the development (and continued maintenance) of a social networking site, could increase this impact.
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1 Introduction

1.1 Background

This background section introduces two issues that are central to this report: the use of social networking sites, and the need for the carbon intensity of transport behaviours to be reduced.

1.1.1 Social networking sites

The internet provides unparalleled access to a wide range of information and evidence indicates that this is being accessed by all sectors of society. In 2011, approximately 77% of the UK population was online, and 93% of these households had broadband (high-speed internet access) (ONS, 2011). As these figures suggest, the internet is being used by all sectors of the population (see also Table 1-1). The Office for National Statistics (2011), for example, stated that in 2010, 95% of adults who voted in the General Election had internet access at home, and that 77% (38.3 million people) had used the internet in the three months prior to polling, 60% of whom said that they went online either every day or almost every day (Abrams and Rengert, 2010).

Table 1-1: Internet usage by UK internet users by age. Source: ONS, 2010 in Abrams and Rengert, 2010.

<table>
<thead>
<tr>
<th>Age group</th>
<th>Every day or almost every day</th>
<th>At least once per week (but less than once a day)</th>
<th>Once a month or less</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 to 24 (years)</td>
<td>82%</td>
<td>15%</td>
<td>3%</td>
</tr>
<tr>
<td>25 to 44</td>
<td>81%</td>
<td>16%</td>
<td>3%</td>
</tr>
<tr>
<td>45 to 54</td>
<td>80%</td>
<td>15%</td>
<td>5%</td>
</tr>
<tr>
<td>55 to 64</td>
<td>74%</td>
<td>19%</td>
<td>7%</td>
</tr>
<tr>
<td>65 and over</td>
<td>59%</td>
<td>28%</td>
<td>13%</td>
</tr>
<tr>
<td>Total</td>
<td>78%</td>
<td>17%</td>
<td>5%</td>
</tr>
</tbody>
</table>

The UK Online Measurement company (UKOM) states that in November 2011 internet users in the UK each had an average of 53 ‘sessions’ online, during which time they visited an average of 81 sites and an average of 2,518 different pages1 (UKOM, 2011b). The way that people consume information is therefore changing. Research has indicated, for example, that people in Europe now spend more time online than they do reading newspapers or magazines (eMarketer, 2007). A survey also showed that nearly

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1 These data are based on an analysis of the internet use of over 35,000 individuals in the UK both at home and at work. The composition of the panel is balanced to increase the representativeness of the data generated, and weighting is also applied against the National Readership Survey (NRS) to enhance representativeness further.
a third (30%) of 18 to 24 year olds is choosing to obtain news via Facebook rather than via more traditional channels (Bearne, 2011). Survey data from the ONS (2011) indicates that the range of activities that individuals are conducting online is increasing.

It has been estimated that almost a quarter of time spent online in the UK (one in every four and a half minutes) is spent on social networking sites (UKOM/Nielsen, 2011). A survey conducted by Gadsby (2010) identified that 15% of all internet visits in the UK in February 2010 were to social networks and forums (Figure 1-1). A review of internet user activity for the month April 2011 indicates that at certain times of day as much as 38% of internet site visits are to social networks (Figure 1-2).

![Figure 1-1: Distribution of internet visits in the UK. Source: Gadsby, 2010.](image)

![Figure 1-2: Percentage of online users by time of day and category of site. Source: UKOM, 2011a.](image)

Facebook is the second highest rated ‘web brand’ in terms of audience figures, exceeded only by Google (UKOM/Nielsen, 2011). Facebook does, however, have a higher number of total page views per visit than Google (Goad, 2010). In November 2011 26.01 million people from the UK accessed Facebook (UKOM, 2011b). Internationally, Facebook has 800 million active users (if it were a country it would be the third largest, after China and India), over half of which access the site every day. The average user has 130

---

2 This is based on data from November 2010 to December 2011.
contacts and is a member of an average of 80 community pages, groups and/or events (Facebook, 2012). The statistics in Table 1-2 and Table 1-3 indicate that these individuals are spread across different demographic groups. IBM (2011) states that this high and widespread use of social networking has ‘created an irreversible shift in the way we acquire and share information.’

**Table 1-2: The demographic composition of Facebook users in the UK in October 2011. Source: UKOM, 2011b.**

<table>
<thead>
<tr>
<th>Demographic</th>
<th>Composition of Facebook population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male 49%</td>
</tr>
<tr>
<td></td>
<td>Female 51%</td>
</tr>
<tr>
<td>Age (years)</td>
<td>18 to 24 13%</td>
</tr>
<tr>
<td></td>
<td>25 to 34 17%</td>
</tr>
<tr>
<td></td>
<td>35 to 49 28%</td>
</tr>
<tr>
<td></td>
<td>50+ 30%</td>
</tr>
<tr>
<td>Economic group</td>
<td>ABC1 58%</td>
</tr>
<tr>
<td></td>
<td>C2DE 40%</td>
</tr>
</tbody>
</table>

**Table 1-3: The proportion of the UK population, by selected demographic, that uses social networking sites. Source: ONS, 2011.**

<table>
<thead>
<tr>
<th>Demographic</th>
<th>Percentage of the demographic that uses social networking sites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>54%</td>
</tr>
<tr>
<td>Female</td>
<td>60%</td>
</tr>
<tr>
<td>Age (years)</td>
<td></td>
</tr>
<tr>
<td>16 to 24</td>
<td>91%</td>
</tr>
<tr>
<td>25 to 34</td>
<td>76%</td>
</tr>
<tr>
<td>35 to 44</td>
<td>58%</td>
</tr>
<tr>
<td>45 to 54</td>
<td>42%</td>
</tr>
<tr>
<td>55 to 64</td>
<td>30%</td>
</tr>
<tr>
<td>65+</td>
<td>18%</td>
</tr>
</tbody>
</table>

The proportion of time spent on social networking sites (as well as total amount of time spent online) has been rapidly increasing. The number of UK internet users in 2008 was 40.8 million, and it is estimated that this will increase to 46.8 million in 2012 (Abram and Rengert, 2010). In April 2007, social networks and blogs accounted for less than

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3 Lower middle class, middle class and upper middle class.
4 Skilled working class, working class, and those at the lowest rate of subsistence.
9% of time spent online in the UK, and by April 2010 this had increased to almost 23% of time. The total amount of time spent on social networks and blogs over this period increased by 340% (40 million hours to 176 million hours). The only two sectors to experience larger growth were ‘coupons/rewards’ and ‘food and cooking’ (Multichannel Marketing, 2010). In the UK it is likely that membership to social networking sites is reaching saturation, but it is predicted that the number of active users and time spent on these sites will remain high (Goad, 2010).

Social networking sites are one of the primary destinations for internet users, and they are also a cost-effective, popular and relatively sophisticated means of communication (UK Online Measurement Company, 2010). They have therefore attracted a lot of attention from numerous sectors of the economy (see Box 1). IBM (2011) states that organisations that want to connect and communicate with individuals should exploit the opportunities provided by social networking sites. It asserts that they have a unique potential owing to the fact that ‘they bring together user-generated and professional content, communication tools and services, online connections, applications and collaborative tools ranging from blogs and podcasts, to wikis and widgets.’ (IBM, 2011)

### Box 1: Wider uses of social networking sites

- More than two fifths (41%) of UK companies are using social networking sites to attract new customers (O’Reilly, 2011).
- In the UK, companies are devoting a third of their marketing budgets to campaigns on social networks (O’Reilly, 2011).
- City Governments can enhance both citizen experiences and city management by encouraging the development and use of Information and Communication Technologies (ICT) (The Climate Group, 2012).
- In 2011, 40% of people used social media to help them to decide where to go on holiday – an increase from 36% in 2010 (World Travel Market, 2011).
- Most of the UK population do not use social media when planning a holiday, but more than half of those who do are changing their choice (for example of hotel) as a result (World Travel Market, 2010).
- Numerous organisations, such as IBM, have teams that are solely responsible for monitoring and proactively engaging with customers via social networking sites.
- Brands and organisations that want to connect and communicate will need to develop strategies for operating appropriately and relevantly in social networking sites (IBM, 2011).

1-1 Statistics based on a survey completed by more than 17,000 managers and business owners.
1-2 Statistics based on a survey of more than 1,000 people in the UK who had taken at least one holiday of seven days or more in the past year.

### 1.1.2 The need for low carbon transport

The transport sector is responsible for almost a third of all final energy consumption in Europe, and for more than 20% of all anthropogenic greenhouse gas emissions (GHGs) (EEA, 2011). The contribution of transport to GHGs is similar on an international level (IEA, 2009) and in the UK. In the UK, transport GHG emissions increased by 6% between 1990 and 2008, which compares with a total economy-wide decrease in
emissions of 24% over the same period (DfT, 2010). In the UK, road transport is responsible for 90% of all domestic transport emissions (DfT, 2010), and so emissions from this sub-sector need to be managed if the climate change impacts of the land transport sector are to be mitigated.

Technological developments are increasing the fuel economy of vehicles (and thereby decreasing GHG emissions) but demand for transport is increasing and outstripping these emission reductions (DfT, 2010; EEA, 2010b). In the UK, the number of journeys, passenger kilometres travelled, and total number of licensed vehicles owned are increasing (DfT, 2011). There is therefore a compelling argument for up-scaling initiatives that could manage this high and increasing demand for car travel. The potential of relatively new developments, such as the increasingly prolific use of social networking sites, to contribute to a change in some of the values, attitudes and behaviours that shape demand for road transport, should therefore be explored.

1.2 Aim

The research was conducted to explore the potential of social networking sites to encourage changes in the travel behaviours of individuals, and to provide recommendations for how any identified potential could be optimised through the design of social networking sites.

1.3 Objectives

The objectives of the research were to:

- Indicate whether social media can be used to encourage low carbon travel behaviours.
- Formulate recommendations, based on user engagement and on the experience of initiatives to date, on how social media can be used to best effect by public or private sector organisations seeking to encourage low carbon travel behaviours [subject to the result of the first objective being positive].

1.4 Overview of approach

The research study employed both qualitative and quantitative approaches and comprised four research activities:

1. A scoping review of (a) related scientific literature and of (b) social networking sites to identify how social networking sites have been used to encourage behavioural change in the transport sector.

2. Interviews with the owners of social networking sites identified in 1b above to obtain an insight into the rationale behind the creation of each site and its perceived impact.

3. Three focus groups to gain an understanding of the ways in which social networking users use and interact with social networking sites.

4. An online survey to validate the findings of the focus groups and to gain a broader understanding of the way that social networking users use and interact with social networking sites.
The outputs of these methods were analysed and insights were developed into the potential role of social networking sites in encouraging transport behavioural change based on the analysis.

1.5 Report structure

This report contains four sections. The first contains the results of a scoping review that looked into scientific research that has explored the potential impact of social networking sites on travel behaviours. It also briefly introduces some related scientific literature, and, specifically, theories that could indicate the impact of dedicated social networking sites on behavioural change in general. The scoping review also looked into social networking sites that already exist and that could be considered to have an impact on travel behaviours.

The second section of the report is an overview of the methodology of this study, and this is followed by the results of the three research activities conducted; interviews with owners of social networking sites, focus group results, and the results of the online survey. This is followed by the final section, which comprises a conclusion and suggestions for further research.
Scoping review

This activity sought to contextualise the study and its research methods and to identify how social networking sites have been used to encourage behavioural change in the transport sector. It comprised two reviews, one of related scientific literature and the other of related social networking sites.

2.1 Review of related scientific literature

2.1.1 Methodology

2.1.1.1 Databases searched

In order to establish the likely effectiveness of social media as a mechanism for encouraging behavioural change, a literature review was conducted using the TRL elibrary. The elibrary comprises:

- The Knowledge Base – this gives access to approximately 500,000 transport abstracts from international journals, books, reports and conference papers.
- Journals – access to journals held at TRL.
- Science Direct - gives access to abstracts from 1,500 Elsevier journals and the full text of 14 key transport titles.

It is important to note that these databases are very much focused on transport research, and that it was not within the scope of this study to conduct a wider review of scientific literature in related fields.

2.1.1.2 Search terms used

The literature search was conducted using a set of key words that were established and reviewed by experts working in the fields of sustainable transport, low carbon transport, and behavioural change. The key words used were as follows:

- Carbon (+ footprint/reduction/calculator)
- Transport/travel behaviour
- (Green) travel
- Sustainability/sustainable + travel
- Public transport
- Changing travel behaviour
- Concerted action
- Collective action/collective interest model
- Environment/al
- Emissions
- Dynamics of travel behaviour
- Online factors effecting
  - Route choices
  - Mode of transport
  - Travel Choices
  - Travel Perception
  - Travel Decisions/Travel Modes
- Online
  - Social network Analysis
  - Communication
  - Social contact
2.1.1.3 Selection of studies for inclusion

The abstracts of the reports that were identified using the above resources and search terms were reviewed and studies were selected for inclusion on this basis.

2.1.2 Research identified

This section first introduces the findings of the review of scientific literature identified from TRL’s database of publications, as described in Section 2.1. It then introduces related research identified by a previous (unpublished) scoping study conducted by TRL, which explored whether the voluntary commitment of individuals to pro-environmental behaviour (for example expressed through membership of a social networking site advocating such behaviours) may be an effective mechanism for encouraging behaviour change.

This review is based on transport-specific scientific databases, and so it excludes information from other disciplines (such as marketing and psychology) as well as ‘grey’ literature. The authors acknowledge that there are likely to be related texts that are directly and indirectly linked to this research. These include, for example, a text by Miller (2011), which the author refers to as the first major study of the impact of social networking sites on the lives of their users. He argues that the impact has been ‘profound,’ although focuses on the personal relationship aspect of social networking sites. The impact of these sites on personal relationships, and marketing (such as Clapperton, 2009 and Brown, 2010), seems to be the focus of much of the available literature, with its effect on behaviours receiving less attention.

2.1.2.1 Literature from scientific databases

The search of the transport focused scientific databases did not identify any evaluations of the possible impact of social networking sites on travel behaviours. There was also little evidence of evaluations of social networking sites and their ability to change and behaviour in general. The most relevant examples that were identified came from literature conducted in the health sector. These appeared to be more focussed on the potential use of social networking sites to disseminate health information, however, than the effectiveness of the sites in terms of changing related behaviour. Scanfield, Scanfield and Larson (2010), for example, reviewed Twitter status updates that mentioned the word “antibiotic(s)” to explore evidence of misunderstanding or misuse of antibiotics. They randomly selected 1,000 Twitter status updates mentioning “antibiotic(s)” and subjected them to content analysis and categorisation. They concluded that social networking sites are being used to share health related information, but they did not provide any suggestions or recommendations for ways in which social networking sites could be used to change peoples’ behaviour regarding misunderstanding or misuse of antibiotics.

The review of literature identified two relevant studies: Foster, Blythe, Lawson & Doughty, 2009; and Foster, Blythe, Cairns & Lawson, 2010. The small sample size of
these studies does, however, suggest that they do not offer a robust empirical base from which to draw conclusions about the possible impact of social networking sites on behaviour.

Foster et al. (2009) conducted a pilot investigation into the use of the social networking site Facebook as a platform for persuasive applications. The application domain studied was behaviour change in domestic energy consumption and their study focused on determining peoples’ attitudes towards the hypothetical coupling of the consumer product Wattson, which can monitor domestic electricity usage, to a Facebook application termed ‘Watts Up.’ Users’ attitudes were collected using questionnaires comprised of open-ended questions, which were then analysed using the grounded theory approach. The results suggest that some users were negative about the concept, based on issues surrounding privacy and confusion. However, the balance of opinion appeared to favour the underlying idea that revealing other peoples’ energy usage data would lead to competition and peer influence to reduce energy consumption.

The 2009 study based its conclusions on a small sample size (n=10, with seven participants responding to the questionnaire). Evaluation of this study suggests that the small sample size means that its findings can only be considered as indicative rather than representative.

In 2010, Foster et al conducted a study which aimed to explore whether social networking sites can make saving energy more enjoyable. In order to meet the research objectives, they evaluated a Facebook application which allowed users to compare their domestic energy consumption with friends on Facebook. The aim of the study was to see if energy savings could be increased by the addition of a social element to energy monitoring. To this end, a socially-enabled version of the application was made available via Facebook. The hypothesis was that less energy would be used whilst the application was socially enabled than when it was not. A total of eight participants were used in the study, four of whom were exposed to the socially-enabled version of the application and four of whom were not (i.e. they could only see their own energy usage). Data was collected using a web service database and by means of a semi-structured interview at the end of the study period.

The authors base their conclusion on the following generalisation: “the results of the energy data collected from participants in this study suggest that social networking sites may be able to play a role in reducing energy consumption in the home by making monitoring more enjoyable.” This assertion was, however, based on a sample of only four Facebook users, which cannot be said to be representative of the wider population.

2.1.2.2 Voluntary commitment of individuals to pro-environmental behaviour

A previous (unpublished) scoping study conducted by TRL explored whether the voluntary commitment of individuals to pro-environmental behaviour (i.e. potentially expressed through membership of a social networking site advocating such behaviours) may be an effective mechanism for encouraging behavioural change. The focus on the ‘group’ element in this scoping study was grounded in research that indicates that the likelihood of actual behavioural change can increase if like-minded individuals are in some way linked. The logic behind this contention is that behavioural change, when perceived at a group rather than individual level, can increase individual members’ perceptions that their change could have a meaningful impact, thus reinforcing motivation to change. A number of psychological theories/models were found to be
relevant to this area of research. The most relevant can be summarised as belonging to two groups:

- Social Dilemma Theory (also known as the Collective Action Model)
- Social Value Orientations
- Collective action/collective interest model.

### 2.1.2.1.1 Social Dilemma Theory

The Social Dilemma Theory refers to situations where “individually reasonable behaviour leads to a situation in which everyone is worse off” (Kollock, 1998). The impact of one individual driving to and from work in their car every day, for example, may be negligible, but if every worker in the country did this, there would be negative consequences (indeed, there are already negative environmental, social and economic consequences that are being experienced as a direct result). There is therefore a need for individuals to consider the collective consequences of their actions.

A number of different aspects of the Social Dilemma Theory are summarised below:

**Kerr and Kaufman-Gilliland (1994).** Intragroup communication promotes co-operation in social dilemmas by enhancing feelings of group identity or inducing a commitment to co-operate. The research provides evidence that co-operation is promoted through increased commitment.

**Steg and Vlek (1996).** This approach analyses the social dilemma of mobility and transport and discusses six conditions for social behaviour change. It gives results of two field studies in the Netherlands where car users assessed their own car use, with and without discussion, and analysis was conducted in terms of perceived problems and willingness to reduce car use in each context.

**Vugt (1996).** This explores a social dilemma approach to analysing decisions to commute by car, public transport, and carpooling. It assumes that the decision of modal choice is not only shaped by the immediate, self-interested concerns of the individual (which are likely to lead to a preference for the car) but also by broader concerns and motives (e.g. pro-social/pro-environmental considerations). Five experiments were conducted and analysed.

**Thogersen (2007).** This is a survey study, focusing on environmentally responsible behaviour, which tested the hypothesis that injunctive and descriptive norms interact positively or synergistically to promote co-operation in social dilemmas.

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5 Injunctive norms refer to individual’s beliefs about the ‘appropriate’ way to behave, or what ‘ought’ to be done in certain circumstances. It refers to behaviour that is conducted in order to prevent wider disapproval. Descriptive norms refer to (‘describe’) the way that most people behave, perhaps based on perceptions about how people within an individual’s social group act. The key difference between these two different types of social norms, both of which affect human motivation, is that what people do (descriptive norm) can be different to what is approved of (injunctive norm).
2.1.2.1.2  Social Value Orientations

‘Social value orientation’ is a social psychology motivational theory of behaviour that considers personality differences that can lead to a range of preferences for personal wellbeing and the wellbeing of others. This theory supports the value of increasing contact between like-minded individuals and increasing awareness of the impacts of travel behaviours to motivate change.

A number of different aspects of social value orientations include:

**Van-Lange, Van-Vugt, Meertens and Ruiter (1998).** Preferences for commuting by collectively desirable options (carpooling and public transport) were studied in terms of pro-self and pro-social value orientations and trust. Greater preferences for collectively desirable actions were observed among pro-socials with high trust. The authors concluded that two conditions (pro-social goals and trust in others) must be met to obtain collectively desirable commuting preferences.

**Joireman, Van Lange, and Van Vugt (2004).** Commuters completed scales assessing commuting preferences, beliefs regarding the environmental impact of cars, social value orientation, and the consideration of future consequences. Preference for public transport was higher among commuters who believed that commuting by car harms the environment and among those scoring highly in terms of the consideration of future consequences. Preference for commuting by public transport was positively related to beliefs regarding the harmful environmental consequences of commuting by car only among those who gave a relatively high consideration to future consequences. Social value orientation was found to be unrelated to commuting preferences. In sum, a future orientation may be more important than a pro-social orientation in shaping commuting preferences.

**Gärling, Fujii, Gärling, and Jakobsson (2003).** A sample of 524 car owners living in a metropolitan area of Sweden answered survey questions measuring various items including intention to perform collective pro-environmental behaviour. Individuals were classified into pro-self or pro-social value orientations. Pro-socials differed from pro-selfs in that to them social-altruistic consequences were more and egoistic consequences less salient.

**Hansla, Gamble, Juliusson and Gärling (2008).** Based on a survey of 494 Swedish residents the study provides empirical evidence that egotistical, social-altruistic, and biospheric environmental concerns are related to corresponding awareness of consequences, and that both these beliefs and environmental concerns are related to the three value types: power, benevolence, and universalism.

**Van Vugt, Meertens, and Van Lange (1995).** This research evaluates the role of social value orientations (i.e. preferences for distribution of outcomes for the self and others) in decisions as how to commute. On the basis of interdependence theory (Kelley & Thibaut, 1978) it was predicted that people who are primarily concerned with collective welfare (pro-social individuals) would prefer to commute by public transport if other commuters were also expected to travel by public transport. The obtained findings were consistent with these expectations.

**Cameron, Brown and Chapman (1998).** This study assessed whether social value orientations influence active support for a proposal for a transport pollution reduction initiative. Participants with pro-social or pro-self orientations were given the opportunity to send letters of support or opposition to the Programme Director. Pro-self participants
were more likely to send letters opposing the initiative, whereas pro-social participants were more likely to send letters of support. Pro-self participants reported higher perceptions of personal costs associated with the program.

2.1.2.1.3 Collective action/collective interest model

Collective action refers to the pursuit of a goal or set of goals by more than one person. It is a term that has resulted in theories formulated in many areas of the social sciences. Examples of collective action or collective interest model include:

Lubell, Zahran and Vedlitz (2007). This paper expands the relevance of the collective interest model of mass political action to explain collective-action behaviour in the context of global warming and climate change. Key elements of the collective interest model (perceived risk, personal efficacy, and environmental values) are found to be directly, and positively, related to support of government policies and personal behaviours that affect global warming.

Lubell (2002). The literature on environmental activism has failed to produce a model of individual decision-making that is explicitly linked to the logic of collective action. This article sought to address this by adapting a collective interest model developed by Finkel, Muller, and Opp to explain protest behaviour. It argues that environmental activism is a function of citizen beliefs about collective benefits, the ability to influence collective outcomes, and the selective costs/benefits of participation.

2.2 Review of social networking sites

Social networking sites were reviewed to identify examples of sites which appear to aim to encourage behavioural change. The definition of social networking sites that we used for this project is:

"A website that allows subscribers to interact, typically by requesting that others add them to their visible list of contacts, by forming or joining sub-groups based around shared interests, or publishing content so that a specified group of subscribers can access it.” dictionary.com.

2.2.2 Methodology

2.2.2.1 Social networking sites reviewed

The project reviewed Facebook and Twitter social networking sites in order to get an indication of the number and type of social networking sites that currently exist and that appear to seek to encourage low carbon travel behaviours. These two social networking sites were selected owing to the fact that 88% of visits to ‘social networking sites and forums’ in 2010 were to these two sites, and that there has been little change to their market share in 2011 (see Figure 2-1) (Gadsby, 2010).
2.2.2.2 Search terms used

The search term used for this phase of the research was the same as that described in Section 2.1.1.2.

2.2.2.3 Selection of sites for inclusion

In order to establish the likely effectiveness of social networking sites as a mechanism for encouraging behavioural change, a site content review was conducted using the search facilities on the following social networking sites:

- Facebook
- Twitter

2.2.3 Social networking sites identified

The review of social networking sites enabled us to identify examples of groups and pages within social networking sites that the authors considered might have been designed to encourage a change in travel behaviour in some way. The process of reviewing these sites indicated that behavioural change in general is not a common theme and very few social networking sites have pages with the specific aims of encouraging changes to travel behaviour. Some do, however, exist and a selection of examples that were found on Facebook and Twitter are presented below:

- Liftshare on Facebook
- Sustrans on Facebook
- Whipcar on Facebook
- Twago on Twitter
- European Environment Agency on Twitter
2.1.3 **Liftshare**

**Social networking site host:** Facebook

**Link to social networking site:** https://www.facebook.com/liftshare.

**External Links:** links to the main company website (www.liftshare.com).

**Users:** The number of users who are registered as 'liking' the site (and therefore are registered to be included in any communication from the site) was 592 on the 18th May 2011 and have increased to 601 on 10th June 2011 and 851 on 24th January 2012.

**Format:** It is a standard Facebook group page. Liftshare places announcements on the wall\(^6\) that are linked to articles on their main website. Users also post details of their lift-sharing offers or requests on the site. The administrators sometimes direct people to their main website, which their social networking site has been designed to support. They also encourage users to sign up to their main site as a registered user (where web traffic, and the likelihood of successfully arranging a car-share, is higher). The Facebook page is designed to communicate with Liftshare members and to encourage Facebook users to join their main site using the ‘joining’ button that it features.

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\(^6\) The ‘wall’ is a term used to refer to a space on a person’s Facebook profile where the ‘content’ of users (and in some cases messages of their contacts, depending upon privacy settings) is shown. It allows the posting of messages, thoughts and statuses for the user to see while displaying the time and date that the message was written.
Figure 2-2: Screenshot of the liftshare social network site

Figure 2-3: Examples of liftshare user interactions
2.1.4 Sustrans

Figure 2-4: Screenshot of the Sustrans social network site

Social networking site host: Facebook
Link to social networking site: http://www.facebook.com/Sustrans?sk=app_2373072738#!/Sustrans
External Links: links to the homepage of Sustrans http://www.sustrans.org.uk/
Users: The number of users registered as 'liking' that this social networking site has received was 9,819 on the 18th May 2011, and it had increased to 10,049 on the 10th June 2011 and 11,574 on 24th January 2012.
Format: It is a standard Facebook group page. The wall contains updated links relating to ‘green transport’ articles and posts from users asking questions or making comments. Discussions frequently relate to topical (typically cycling-related) issues such as cycle safety, sharing information about applications to make cycling more accessible (e.g. sharing information about the National Cycle Network), and community bike rides.

![Figure 2-5: Examples of Sustrans user interactions](image-url)
2.1.5 Whipcar

Social networking site host: Facebook

Link to social networking site: http://www.facebook.com/Sustrans?sk=app_2373072738#!/whipcar?sk=wall

External Links: links to the homepage of Whipcar http://www.whipcar.com/

Users: The number of people who ‘like’ this page was 294 on the 18th May 2011, and it had increased to 327 on 10th June 2011 and 772 on 30th January 2012.

Format: It is a Facebook group page. The wall contains queries from people about opportunities for renting their cars, and also links to the main website. Whipcar suggest that it has over 3,500 cars available to use.

Figure 2-6: Screenshot of the Whipcar social network site
2.1.6   **TWAGO**

**Social networking site host:** Twitter  
**Link to social networking site:** [http://twitter.com/#!/twago](http://twitter.com/#!/twago)  
**External Links:** links to the TWAGO blog: [http://twago.wordpress.com/](http://twago.wordpress.com/)

**Users:** The Twitter site had 300 followers on 10th June 2011 and 342 on 24th January 2012.

**Format:** The stated aim of this Twitter site is to use Twitter to find out about peoples’ travel habits and experiences. Its followers are asked to tweet every time that they travel somewhere. The tweet should contain information about where they are going, what transport mode they are taking and why (e.g. ‘pop into town, bus, don’t want to park. #TWAGO’).

---

**2.2.4 European Environment Agency (EEA)**

![Screenshot of the European Environment Agency social network site](image.jpg)

*Figure 2-7: Screenshot of the European Environment Agency social network site*
Social networking site host: Twitter

Link to website: https://twitter.com/#!/euenvironment

External Links: link to homepage: http://www.eea.europa.eu

Users: The number of followers was 3,101 on the 24th January 2012

Format: Page contains links to articles and tweets are about issues related to travel.

2.2.5 Social networking sites identified in a previous scoping study

As part of a scoping study which was undertaken in 2008, a review of web applications that encourage low carbon behaviours was conducted. Nine of these were found on Facebook. These nine sites were revisited as part of the review of social networking sites, and are introduced in Table 2-1.

The number of monthly active users of these sites, as shown in Table 2-1, is relatively low, and considerably lower than when these sites were identified in 2008. In 2008 the Zerofootprint calculator, for example, had over 1,200 users on Facebook, and the Make Me Sustainable application had a following of over 1,000 users. This anecdotal evidence raises a question about the longevity of such sites, and suggests the need for maintaining and regularly updating social networking sites to maintain interest.

Table 2-1: Examples of Facebook applications that aim to encourage less carbon intensive behaviours.

<table>
<thead>
<tr>
<th>Site</th>
<th>Description</th>
<th>No. of monthly active users</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WhatsMyCO2?</strong></td>
<td>A quick and easy way to calculate the emissions from your weekly commute, air travel or emission savings from changing to carbon friendly behaviours in your home. Learn how even small changes can result in carbon emissions savings. Links on the app7 lead the user to more information, an in-depth calculator, carbon offsets and green products.</td>
<td>0 (but still active)</td>
</tr>
<tr>
<td><a href="http://www.facebook.com/apps/application.php?id=9761094821&amp;b=&amp;ref=ps">http://www.facebook.com/apps/application.php?id=9761094821&amp;b=&amp;ref=ps</a></td>
<td><strong>WhatsMyCO2's mission is to keep consumers informed about global climate change and educate them about their personal impact on the environment. Through the latest news, research, tips and a comprehensive carbon calculator, consumers can stay informed about the world and their impact on it.</strong> WhatsMyCO2 provides access to the best green products on the market, and establishes an online community through which members can share their ideas through blog posts and product reviews.</td>
<td></td>
</tr>
<tr>
<td><strong>My Carbon Footprint</strong></td>
<td>It allows users to calculate their carbon footprint using a carbon calculator and to “discover your CO2 footprint and keep up to date with the latest environmental news and videos.”</td>
<td>1</td>
</tr>
</tbody>
</table>

7 ‘App’ is a term that is widely used to refer to a ‘web application.’ These are not specific to social networking sites and it is a term that is used very broadly to describe numerous different applications. For more information see http://en.wikipedia.org/wiki/Web_application.
<table>
<thead>
<tr>
<th>Application Name</th>
<th>Description</th>
<th>Number of Users</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>The Carbon Account</strong></td>
<td>The Carbon Account is a friendly yet sophisticated online carbon footprint calculator that lets you do just that – and more. As you add more information to your Carbon Account – such as meter readings or travel details – the site builds up a picture of how your emissions are changing, and helps you track your progress along the path towards a low-carbon future. It's time to get serious about your footprint. This Carbon Account app for Facebook Platform links to your balance on the main Carbon Account website (<a href="http://www.thecarbonaccount.com">www.thecarbonaccount.com</a>) so that you can share your current carbon footprint with your Facebook friends, and compare the difference you're making.” The travel functions for this application encourage users to record and input their mileage on a regular basis (in addition to several other items related to other aspects of energy use such as air travel and household meter readings). Users can set carbon reduction targets and the website offers relatively detailed advice on how to achieve this (reducing annual mileage, changing vehicle, changing driving style).</td>
<td>0</td>
</tr>
<tr>
<td><strong>Carbon diet plan</strong></td>
<td>“Make an impact on global warming 1 lb at a time. Carbon Diet Plan is a little app that encourages you and your friends to go green and reduce carbon emissions from your lifestyle by taking simple and easy action everyday. It proudly displays (on your profile) the total amount of carbon you have lost with your green lifestyle that also serves as an inspiration for your friends to do the same. It's time that we all trim the carbon fat from our lives, and get with the Carbon Diet Plan!”</td>
<td>0</td>
</tr>
<tr>
<td><strong>ZeroFootprint calculator</strong></td>
<td>“The Zerofootprint Calculator helps you measure your environmental impact. This application takes just one-minute to complete, but will allow you to calculate how many tonnes of carbon dioxide (CO2) you emit through your travel, diet, and home. Install the application to measure your environmental impact, find ways to pledge to reduce it, get offsets, and access daily green tips. All of this will help you green your lifestyle!” The travel aspect of the calculator offers basic advice on ‘greener’ driving and allows you to make pre-defined pledges. Zerofootprint combines the expected carbon reduction of all pledges and indicates how close individuals and small groups have come to achieving their goals. Community discussion boards online allow participants to swap information and provide encouragement.</td>
<td>Inactive</td>
</tr>
<tr>
<td><strong>Make Me Sustainable</strong></td>
<td>“MakeMeSustainable enables you to visualize your impact on a larger scale by tracking both the actions you take to reduce your carbon footprint and your ability to mobilize your community. MakeMeSustainable.com is an environmental social networking website that empowers individuals to reduce their environmental impact by connecting how they feel about their environment with how they act.” It adopts a pledge based system, combines estimated savings and illustrates the positive effects by making comparisons with equivalents, such as taking a car out of use for a month, or planting one tree. In addition, users can create their own communities which are graphically portrayed as a ‘tree’ and carbon savings are displayed collectively for each community.</td>
<td>2</td>
</tr>
<tr>
<td><strong>The Climate Pledge</strong></td>
<td>“Join the Facebook-wide campaign to cut personal carbon emissions! The Climate Pledge invites you to “pledge” any number of actions to reduce your contribution to global warming. Then you can invite</td>
<td>0</td>
</tr>
<tr>
<td>Application Name</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>------------------</td>
<td>-------------</td>
<td></td>
</tr>
<tr>
<td>Planet Saver</td>
<td>&quot;PlanetSaver encourages users to learn about and keep track of minor lifestyle changes that will reduce their overall impact on climate change and global warming. Keep track of which tips you agree to implement and have fun reducing your personal CO2 (carbon dioxide) footprint. Compete for top spot with friends and track their progress as you go! Working together, our individual choices can help save our planet. Add PlanetSaver now and feel good for being green!&quot; This is a pledge-based application with relatively comprehensive suggestions for action, particularly in relation to low carbon transport.</td>
<td></td>
</tr>
<tr>
<td>CarbonMinder</td>
<td>&quot;CarbonMinder lets you calculate your carbon footprint and balance it out with carbon offsets. You can even get a snazzy &quot;carbon-neutral&quot; badge for your profile page. CarbonMinder can also help you lower your emissions directly. We'll show you a breakdown of where your emissions come from, and how your footprint profile compares to the U.S. average and to your friends. And you'll get some simple, personalized tips on how to reduce your emissions over time.&quot; Inactive</td>
<td></td>
</tr>
<tr>
<td>Green Causes</td>
<td>The application accessible from this page allows users to join five different causes which each aim to reduce carbon emissions. For each cause, information was displayed on how many other users had committed to make related pledges, how much CO2 those pledges would reduce, and for the 'commute more' challenge the equivalent number of 'cars off the road.' On the application homepage there was a box showing community and friends' contributions for the year. For those who adopt a pledge a 'news feed' was also added to their profile page. &quot;The aim of Green Cause is to leverage the ripple effect of Facebook to evangelize effective solutions to our friends, and our friends' friends. Instead of just raising awareness, we take it a step further by offering users with a list of actionable pledges they can select to counter the CO2 emission. Each pledge is quantify by the approximated amount of CO2 reduction. In order to make the cause more engaging, we would track and report the total CO2 reduction contributed by each user and their network of friends who joined Green Cause.&quot; Inactive</td>
<td></td>
</tr>
</tbody>
</table>
3 Methodology

The research comprised three qualitative research activities as follows:

- Interviews with owners of social networking sites
- Focus groups with users of social networking sites
- Online survey with users of social networking sites.

These are outlined below.

3.1 Interviews with owners of social networking sites

The owners of the sites identified in Section 2.2.3 were contacted and invited to participate in a telephone interview with TRL researchers. The aim was to understand whether an aim of these sites had been to encourage low carbon behaviours, and also to provide us with an insight into how effective the sites are, as well as into issues relating to their development and maintenance.

Two telephone interviews were conducted; these were the owners of the Facebook groups for Blabla car and Sustrans. The interviews followed a structured topic guide (see Appendix A), which ensured that both interviews were consistent in terms of the questions asked and the interview structure. The interviews were recorded using Digital Voice Recorders (DVRs) and were analysed using thematic content analysis. Each interview lasted approximately 30 minutes.

3.2 Focus groups with users of social networking sites

Structured focus groups were conducted to gain an understanding of the ways in which social networking users use and interact with social networking sites. The focus was on the following points:

- The motivations behind joining social networking sites
- Understanding the ways in which the sites are used
- The types of groups or streams that social networking users follow and factors that encouraged them to join
- Users’ perceptions of what makes sites effective
- Whether social networking site users thought that social networking could be used to change behaviour generally, and then more specifically whether they could be used to change travel behaviour.

3.2.2 Sample size

Three focus groups were conducted, and these comprised a total of 22 participants. The sample size and composition of each of the three focus groups is outlined in Table 3-1.

3.2.3 Participant recruitment procedure

Participants were recruited via the TRL volunteer database (a database of people who are willing to participate in research studies at TRL). The database currently contains contact details, basic demographic information and participation history for over 1,500
people living within approximately 25 miles of TRL. Use of the database meant that the research team could select cohorts of participants based on factors such as age, gender and social networking experience.

The focus groups were held at TRL’s Crowthorne offices. The first two focus groups were comprised individuals who use one of the following social networking sites at least once a week: Twitter, Facebook, Bebo, Myspace. The third group comprised individuals who use social networking sites for eight or more hours a week.8

The mean age for our sample (36 years) is representative of the mean age of social networking site users. For example, research to explore the impact of social networking sites on peoples’ lives by means of a survey on Americans’ (n= 2,255) use of the internet identified that the average age of users has increased from 33 in 2008 to 38 in 2010 (Hampton, Sessions-Goulet, Rainie & Purcell, 2011).

In 2007, UK users spent an average of 5.8 hours logged on to social networking sites, making an average of 23.3 visits per month (Cachia, 2008). Our sample reported spending more time online than this, which may be as a result of social desirability bias9 or the relatively recent increase in the number of people owning smart phones (which give instant access to social networking sites).

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8 The average amount of time spent on social networking sites by adults aged between 35 and 45 years of age in December 2010 was 7 hours per week (http://www.comscoredatamine.com/2011/01/average-hours-spent-on-social-networking-per-visitor-across-europe/).

9 Social desirability bias is the tendency of participants to respond in a manner that will be viewed favourably by others, in this case, they knew that they were invited to participate in a focus group about social networking sites.
Table 3-1: Participant Demographics

<table>
<thead>
<tr>
<th>Group</th>
<th>Number of Participants</th>
<th>Gender</th>
<th>Age</th>
<th>Social networking sites used</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>7</td>
<td>Male: 4 Female: 3</td>
<td>Mean: 35 years</td>
<td>Facebook: 7 Twitter: 4 LinkedIn: 1 Other: 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Oldest: 63 years Youngest: 19 years</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>9</td>
<td>Male: 5 Female: 4</td>
<td>Mean: 38 years</td>
<td>Facebook: 9 Twitter: 3 LinkedIn: 1 Other: 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Oldest: 60 years Youngest: 28 years</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>6</td>
<td>Male: 2 Female: 4</td>
<td>Mean: 34 years</td>
<td>Facebook: 6 Twitter: 3 LinkedIn: 2 Other: 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Oldest: 41 years Youngest: 19 years</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>22</td>
<td>Male: 11 Female: 11</td>
<td>Mean: 36 years</td>
<td>Facebook: 22 Twitter: 10 LinkedIn: 4 Other: 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Oldest: 63 years Youngest: 19 years</td>
<td></td>
</tr>
</tbody>
</table>

2.1.7 Procedure
The focus groups were structured, and based on the topic guide contained in Appendix B. A number of screenshots were used as visual prompts to focus and generate discussion. The focus groups were recorded using Digital Voice Recorders (DVRs) and transcribed by a TRL researcher.

2.1.8 Method of analysis
The focus group transcripts were analysed using Content Analysis (e.g. Neuendorff, 2002). The analysis was facilitated by XSight computer software. The software helped the researchers to explore the relationships between the comments and thoughts put forward by the focus group participants.

Qualitative content analysis involved condensing raw data into categories and themes based on inference and interpretation. Following good practice guidelines to ensure that the qualitative data were explored exhaustively, two researchers coded the data, comparing themes and sub-themes on a regular basis to ensure that any new themes emerging from the data were captured. Section 0 presents the data under the high level topic areas and themes which emerged from the analysis. Within each section, important sub-themes are also described where present.

3.3 Online survey with users of social networking sites
The online survey component of this research was designed to enable us to gain an understanding of the way(s) in which social networking sites are used. It was designed to cover similar topic areas to those discussed in the focus groups and to validate (or
otherwise) the views aired in the focus groups. To this end the survey was developed based on the findings of the focus groups, and the method chosen in order to obtain views from a relatively large number of people.

3.3.2 Sample size
One hundred and forty five people responded to the online survey, and after data cleaning there were 141 valid responses.

3.3.3 Selection and access details
The aim was for the survey to be completed by as diverse a range of social networking site users as possible. The link to the online survey was therefore disseminated via a number of different channels:

- The TRL intranet (Hermes). An announcement on this site encouraged employees to respond to the questionnaire and to circulate it to others via both e-mail and social networking sites.
- Facebook. The researchers posted a link to the survey on their Facebook pages, encouraging their contacts to complete the survey and to circulate the link more widely.
- LinkedIn. The researchers posted a link to the survey on their LinkedIn pages, encouraging their contacts to complete the survey and to circulate the link to their contacts.
- E-mail. The researchers emailed a link to the survey to their contacts, who they again encouraged to circulate the link more widely.
- A random subset of members of the TRL volunteer database (200 participants of various age groups who were contacted by email). As mentioned previously this is a database of over 1,500 people who have at some point indicated that they are willing to participate in research studies at TRL.

Table 3-2 gives an overview of the demographics of the survey respondents.
### Table 3-2: Online survey respondent demographics.

<table>
<thead>
<tr>
<th>Gender</th>
<th>Age</th>
<th>Highest educational achievement</th>
<th>Employment sector</th>
<th>Social networking sites used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male: 72</td>
<td>Youngest: 18 yrs</td>
<td>GCSE or vocational equivalent: 10</td>
<td>Transport sector: 79</td>
<td>Facebook: 134</td>
</tr>
<tr>
<td>Female: 69</td>
<td>Oldest: 65 yrs</td>
<td>A level or vocational equivalent: 19</td>
<td>Other: 62</td>
<td>Twitter: 58</td>
</tr>
<tr>
<td></td>
<td>Unknown age: 13</td>
<td>Graduate or above: 110</td>
<td>Other: 2</td>
<td>LinkedIn: 62</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other: 2</td>
<td>Google Plus: 23</td>
<td>Myspace: 10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Facebook: 134</td>
<td>Others: 9</td>
<td>Others: 9</td>
</tr>
</tbody>
</table>

The respondents were well balanced in terms of gender and age. The mean age of respondents was 36 years. This is the same as the mean age of focus group participants, and (based on existing research) is considered to be representative of the mean age of social networking site users (see for example Hampton, Sessions-Goulet, Rainie & Purcell, 2011).

The sample is relatively skewed in respect to educational achievement, with 78% of respondents having been awarded a graduate degree or above. It is not clear how this compares with the average educational attainment of social networking site users and therefore the extent of the impact that it might have on the reliability of the findings. An explanation for the relatively high proportion of respondents at graduate level or above is that the survey was advertised at TRL, where most employees are required to possess a degree, and also to networks of contacts that the survey was disseminated to. This approach was justified in respect to optimising the sample size, and potential impacts on the responses given were considered when reporting the findings.

The sample is also not representative of the general population of social networking site users as 56% of respondents worked in the transport sector. The nature of the transport sector jobs held by respondents vary considerably. As might be expected as a result of the decision to circulate the survey link within TRL there are many transport researchers and consultants, but respondents who consider themselves to work in the transport sector include employees of courier companies, long-distance drivers, driving instructors, software designers, accountants, and other wide-ranging occupations.

The authors do not consider that the high proportion of respondents working in the transport sector will bias the findings, but acknowledge their presence and have taken the distribution of respondents’ occupations into account when analysing the findings.

The majority of respondents (95%) are members of Facebook, but as highlighted in Figure 2-1 this seems to be the most widely used social networking site. The Gadsby

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10 The ‘other’ sites mentioned were as follows: Tumblr (3); Academia.edu (1); Allinx (1); BCS Second Life (1); Delicious (1); Google Groups (1); KILTR (1); Ning sites (1); Orkut (1); Spiers and Boden message Board (1); Talkawhile message board (1); UK Fire Forum (1); Yahoo Groups (1).
data that Figure 2-1 is based on shows that 66% of visits to social networking sites were to Facebook (2010).

3.3.4 Procedure

The online survey was developed to complement the findings of the focus group (see section 3.2) by aiming to validate, and build upon, responses received in these sessions. The survey was created using KwikSurvey,11 and respondents were given two weeks in which to complete the survey. A list of the survey questions is provided in Appendix C.

The online survey package recorded the responses, and after a process of data cleaning to remove any invalid responses, the data generated was analysed by question.

4 Results of interviews with owners of social networking sites

This section presents the results of the telephone interviews conducted with the owners/developers of the Facebook sites identified in the scoping phase of the research.

4.1.2 Reasons for the development of the social networking sites identified

The two owners of the social networking sites that were identified were asked to describe the background about why their pages had been developed and what they were designed to achieve. Both interviewees explained that they had used Facebook as a platform for reaching large numbers of people who could then be directed towards their main website. Both site owners reported using Facebook to target certain audiences which typically included younger, early adopters.

"We know that people use Facebook a lot and our early adopters tend to be pretty young people like students aged 20 to 30 and they tend to be on Facebook a lot, so it’s a good way to communicate with people and a good way to acquire members. We need to be on Facebook, we need to have a presence so that we can get new members.” Blabla Car

Sustrans explained that they did not have any idea about how many people they were hoping to reach through the site and found it to be an ‘organic’ process. The interviewee described how the page started off with very few members and stayed that way for some time until the addition of fresh content saw the number of visitors increase. They found that the more that the page was updated and the more that they engaged with users, the more people joined and became involved.

"The page initially developed out of what we measured as quite a successful attempt to get people involved in campaigns (Facebook groups). It was kind of an attempt to reach out to new audiences - younger audiences and more mainstream audiences who were perhaps less aware of what we were doing. It’s targeted at a mixture of people.” Sustrans

The owner of the Blablacar Facebook group explained that the Facebook page in the UK was based on established and successful equivalent Facebook pages in France and Spain. It was not based on any evidence base or statistics about social networking success nor was it influenced by any other sites/pages. The interviewee explained that they did initially look at other sites to see what was already being done, but no one site was used as a model for development per se.

The owner of the Sustrans Facebook page suggested that the structure and design of the page was quite restricted by Facebook and had to evolve with the Facebook site. The instructions for setting up the page were well-defined and came with templates. Again, the page was not influenced by any other sites/pages; the development team did look at other websites, but nothing specifically.

4.1.3 Contribution to the social networking sites to sustainable travel behaviours

Page owners were asked to explain whether they felt that their pages had contributed to behavioural change in terms of sustainable travel behaviours. The Blabla car page owner
felt that his site had contributed to more sustainable travel behaviours by increasing the number of people in each car undertaking the same journeys. He explained that the national average for people per car in any one journey is 1.4, but for the members of the main Blabla Car website, this figure was three people per car.

"From an environment point of view, it's sort of silly that most cars we see today drive almost completely empty (1.4 people per car when you typically have 4 seats). On the website, we see about 3 seats occupied per car. This is a huge improvement compared to any national average in any country." Blabla Car

The Sustrans site owner explained that it was an objective of all of the organisation’s communications to encourage more sustainable travel behaviours, but that the Facebook page was also used for policy and campaign-based activities. She explained that it was difficult to measure the page’s contribution to sustainable travel behaviours.

"That’s very hard to say, I don’t know. I think that it certainly raises awareness of us as a charity and the work that we do and we try consciously to post a range of topics that will appeal to different people. I think [for our audience], you’re preaching to the converted.”

That said she reported that Sustrans have conducted an analysis of the impact of their main website in terms of how features have affected peoples’ travel behaviours. The only metric that is monitored from the Facebook page is how the page affects traffic towards the main site which is done as part of monthly monitoring and reporting.

While the site owners recognised the positive environmental impact that their site could have they felt that some users valued the ‘co-benefits’ of lower carbon behaviours over climate change impacts:

"We did a poll and a lot of the users said that they do it [car share] because it saves them a lot of money - as a driver, I save a lot of money, as a passenger, I can travel for a very, very cheap price. Then interestingly, the social aspect was huge, most people came up with ‘I do it because it’s fun, I meet people or it’s boring to drive alone and it’s a lot more fun to do that’. It’s interesting that the social aspect came up so strong. The environment angle was not as strong and came after the social angle.” Blabla Car

This prioritisation of personal and social gains over environmental considerations was also identified in the focus groups and is discussed further in Section 5.1.9.

4.1.4 Measures of the potential impact of social networking sites

The owner of the Blabla car page described several different measures that his organisation use to gauge the potential impact of their site on travel behaviours:

- The number of passengers per month
- The number of seats offered each month
- The number of fans, how many people ‘like’ the page.

From these numbers, Blabla car identified that one of their members in every 3 is a fan on the Blabla car Facebook page. The page owner acknowledged that there were other elements to the page that could be tracked such as how many people comment, how
many people go on the page, and how many people then access the main website, but that at the time of interview, they were not recording these data.

The impact of the site was mostly indicated through the ‘wall’ feature of the Blabla car page, which was used as an ‘education funnel’ for education and acquisition, with the idea being that enough information is presented to get people get interested so that they ‘like’ the page and then they get more information about the service and then hopefully convert and become an active member on the website.

For Sustrans, user engagement with the Facebook page and the number of users who returned frequently were deemed to be more important than the numbers of members as this indicated commitment to their organisation. The Sustrans page owner thought that their page has a mixture of effective features but felt that they could use images and video a lot more effectively. She explained that Sustrans had recently run a photography competition and found that people really engaged with it, and as such would like to further integrate these features.

The two interviewees both reported that they were very impressed by the volume of traffic to their main sites that was facilitated by the Facebook pages.

4.1.5 **Time and resource required to maintain site**

The Blabla car page owner said that the development of the site had been quick and easy and explained that they had not experienced any challenges when developing the page. The challenge, he felt, was to animate the Facebook page – to communicate with the community in such a way that the page was seen to be engaging with them. He suggested that rather than being a technical challenge, it was more of a marketing challenge.

Sustrans also described the set up of the Facebook page as being “*very easy, pretty straightforward*”. One of the main issues that arose regarding the use of Facebook as a host site was that any changes made to Facebook’s layout or design were out of Sustrans’ control and had an impact on the structure of their page: “*it’s important to be aware, as changes can have quite a big impact*”. One example of this was that prior to the page being developed, a group had been set up as part of a campaign that they were running. When the campaign ended the site became redundant and it was then difficult to transfer those members to other pages.

Both page owners shared that in order to maintain the Facebook sites a lot of resource is required. For example, Blabla car described that at least one person per country works full time on updating and maintaining the Facebook page and other social networking aspects: “*we spend more resource with community management than the technical task*”. Most employees at Blabla car were said to belong to the same demographic (relatively young people) that was being targeted by the social networking site, and so had an appreciation of Facebook and its applicability.

4.1.6 **Recognition of the importance of social interaction**

Only the Blabla car page owner mentioned the importance of the social aspect of the Facebook page. He felt that it was a helpful tool to make people feel more comfortable with the service offered by Blabla car. He added that because the social aspect is so important to the organisation this also sets them apart from their competitors.
"The social aspect is key because it addresses one of the biggest weaknesses of the service which relates to trust and safety. Adding the social layer reduces the risk of ‘I don’t know who I’m going to travel with’ and by adding the ratings (people are essentially rating each other), as the community grows, there are lots and lots of ratings and it gives you a pretty strong confidence that they’re not going to drive too fast, be on time or is a reasonable guy."

"The whole website [blablacar] relies on the fact that there is some trust and understanding of who the people are, so it’s sort of a matchmaking site for drivers and passengers and we try to lever as much as we can the social ‘graph’ that Facebook provides. Essentially if people are looking at Facebook, we can pull information such as pictures, interests and that feeds into your blablacar.com profile and the whole point here is to create trust within the community.” Blabla Car.

4.1.7 Next steps for the pages

Interviewees were asked to comment on ways in which they thought that their pages would evolve in the future. The owner of the Blabla car site said that they would like to expand on the page and develop an app which could be downloaded to provide a more interactive tool for members to use.

The interviewee from Sustrans explained that they had modified their social networking site to add a Flickr gallery and embed videos to enhance features, and that they were also investigating making modifications to the page. Such modifications were likely to include incorporation of different sub-pages and flash screens as well as creating custom navigation. They were also considering the possibility of including more user-generated content, perhaps based around competitions.
5 Focus group results

This section contains the results of the analysis of the qualitative data obtained in the focus groups. These groups were conducted to gain an insight into whether social networking sites could be used to encourage low carbon travel behaviours, and if so, how they could be used to best effect. It starts with an overview of responses that were given to questions asked to set the context for discussions that were perceived as being more directly relevant to answering the research questions of this study.

5.1.2 Perceived advantages and disadvantages of social networking sites

The focus group was started with participants being asked to select two images from a collection of images (which were not in any way related to social networking). Their task was to pick one image that for them represented the positive features of social networking sites and another that represented their negative features.

Table 5-1 summarises the participants’ responses.

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social networking sites are useful tools for organising social events</td>
<td>A lot of time can be spent on social networking sites which may take away from actual social interaction and make people less active.</td>
</tr>
<tr>
<td>They can be used to share news, information achievements and photos</td>
<td>There is a worry about security - especially worried about young children having access to social networking sites and seeing things that are too ‘grown up’ for them.</td>
</tr>
<tr>
<td>They are useful for promoting business, and identifying potential employees and competitors</td>
<td>The wrong things can be put on, which can have negative impacts on friends/groups.</td>
</tr>
<tr>
<td>Can be used to keep up with information about clubs and hobbies</td>
<td>Can influence negative behaviours - “a lot of my friends smoke and I’m sure it’s because they see photos of people doing it on Facebook and think it’s ok.”</td>
</tr>
<tr>
<td>Can be used to be reunited with old friends</td>
<td>It’s difficult to avoid spam and it’s difficult to filter through to see relevant information.</td>
</tr>
</tbody>
</table>

5.1.3 Reasons for use and ways in which social networking sites are used

Participants reported a variety of reasons for signing up to social networking sites. For some people, the motivation for joining was underpinned by a sense of curiosity, which was heightened by friends and family talking about social networking. For others, social networking sites like Facebook were the next generation in social networking from older sites like Friends Reunited (which required membership fees) and MySpace (which was predominantly about sharing music through social networking). Some also reported registering with social networking sites for the sole purpose of expanding business networks.

In terms of the way in which social networking sites were used, there were two distinct usage patterns reported; personal and business use. Figure 5-1 summarises the ways in which the focus group participants used social networking sites.
A small proportion of the sample mentioned that they had previously registered with other social networking sites and had subsequently stopped using them. The reasons given for leaving social networking sites included there being an ‘information overload’ from certain sites, participants lacking understanding about how social networking sites work, and some data protection issues.

Participants who were members of Facebook but were not registered with any other social networking sites were asked to describe why they had chosen not to use other social networking sites like Twitter or LinkedIn. A summary of the reasons for non-use can be seen below:

- **Control of personal information** - some participants felt that the security settings available on other websites such as Twitter were not as good as those on Facebook where you can manually set how much information is publicly available.
- **A lack of understanding** about how other sites work.
• **Too much information** to filter - some participants felt that social networking sites like Twitter held so much information that most of it would not be relevant to them as users unless they were looking for something in particular.

• **Time** - participants reported that they did not want any more of their time to be taken up by social networking sites.

### 5.1.4 Types of groups used, pages and people followed

The participants stated that they typically used three different types of social networking site: Facebook, Twitter and LinkedIn.

#### 5.1.4.1 Facebook

A broad range of different groups/pages were followed by Facebook users as shown in Figure 5-2. The most frequently cited groups/pages were those that were local to participants (both local interest and local authority) as well as groups relating to their hobbies. They explained that the groups they registered with were related to their own personal reasons for use of social networking sites.

![Figure 5-2: Facebook group categories](image)

#### 5.1.4.2 Twitter

The most commonly cited Twitter ‘following’ category was following celebrities’ profiles, and the second most common amongst participants was using it as a tool to access live information about specific situations or events. Examples provided included using it for access to travel information during the extreme snowfall in early 2011.
5.1.4.3 LinkedIn

Comparatively few participants were users of LinkedIn. Those who did use the site were members of very specific business-related groups which were relevant and meaningful to the users.

5.1.5 Interaction with social networking site ‘groups’

While discussing the types of groups joined (or Twitter streams followed) it emerged that participants play a relatively passive role following their initial registration. Participants explained that this is because these pages do not tend to require any other input from their members.

Participants also raised concerns about the data protection issues associated with joining groups; they were not clear how much of their information would be made more widely available by joining them and this (in some cases) put them off joining.

It is worth noting at this point that none of the participants across any of the focus groups described being members of travel-related or sustainability groups of any sort.

5.1.6 Design principles

Given that all participants were familiar with Facebook as a social networking site, participants were shown two examples of Facebook groups that were identified in the first phase of this research.

Participants were asked to evaluate both of the sites in terms of aspects that they liked and disliked as well as giving feedback on the tone, the language used and the content. This exercise was designed to gain an insight into best practice in site design. An evaluation of the responses received suggests that the principles listed in Figure 5-4 should be applied to a social networking site in order to optimise engagement of its users.
Participants were asked whether they thought that social networking sites could facilitate general behaviour change. This discussion topic elicited mixed views with some people saying that there was no scope for social networking to change the way they behaved while others thought that there was potential for social networking sites to facilitate behavioural change. Two different threads emerged from this discussion; firstly the impact of personal networks on changing behaviour, and secondly the impact of more formal networks (i.e. broader, organisational groups set up for a specific cause or issue). These are examined in turn below.

2.1.9 **The effect of personal networks on behavioural change**
Participants were asked to describe situations in which they had direct experience of social networking sites contributing to behaviour change. One participant reported that his partner had seen a friend posting information about taking part in Cancer Research...
UK’s Race for Life\textsuperscript{12} on his Facebook page and that this had encouraged him to register for the event and raise funds for the charity. Another participant described how one of his Facebook ‘friends’ worked for Freecycle,\textsuperscript{13} and that related posts from this friend had motivated him to join and use the site as a mechanism for disposing of unwanted goods rather than throwing them away.

Other participants explained that use of social networking sites had changed their behaviour in terms of sharing photos. They reported that rather than printing out photos, it was quicker, easier and cheaper to upload the photos to a social networking site and share the links via e-mail with those who wanted to view them.

Participants reported that they were more likely to change their behaviour based on recommendations from their personal network than from more formal networks. For example, one participant explained that if one of her ‘friends’ commented that they had been to a certain place (e.g. a tourist attraction), it might influence the likelihood of them going to visit that place as well.

2.1.10 The effect of formal networks on behavioural change

As mentioned earlier, participants in the focus groups felt that they were more likely to be influenced by personal networks rather than more formal networks. The participants did, however, give examples of how their behaviour had been changed by information seen on official social networking sites. One example given was how a participant had perceived social networking sites as changing her behaviour in relation to the purchase of fish. She explained that she had seen a campaign on Facebook which was protesting against an EU Common Fisheries Policy which meant that half of all fish caught in the North Sea were thrown back overboard dead due to the current quota system. She explained that she found following the campaign made her more aware of what she was buying and resulted in a change in her shopping patterns. Despite not accessing the site regularly, she did not revert back to her previous shopping patterns.

5.1.8 Social networking sites as facilitators for travel behaviour change

The focus group participants thought that social networking sites could play an important role in acting as a platform to spread information and raise awareness, while planting the seed of thought for behavioural change. A small proportion of the sample had strong views that social networking sites do not have the capability to change behaviours, emphasising that infrastructure and availability of alternate (lower carbon) travel choices would be more likely to change travel behaviours than a dedicated social networking site.

In order to change travel behaviour, it was felt that social networking sites need to be marketed at the level of the individual - focusing on benefits to individuals rather than the wider impact on society (e.g. savings on petrol rather than impact on environment). The notion of ‘Carbon footprint’ reduction was not considered to be a useful approach to changing travel behaviour based on the fact that carbon footprints are not tangible,

\textsuperscript{12} Race for Life is a charity event designed to raise money for breast cancer. See http://raceforlife.cancerresearchuk.org/.
\textsuperscript{13} Freecycle groups match people who have things they want to get rid of with people who can use them. The organisation’s goal is to keep usable items out of landfills. Everything posted must be free, legal and appropriate for all ages. See http://www.uk.freecycle.org/.
whereas the amount of money that a person has in their wallet is tangible and pertinent, therefore the focus should be on that and the carbon reduction will be a by-product (‘co-benefit’).

5.1.9 Design principles to encourage users to participate and change their travel behaviour

Participants were introduced to an example of a website (Carbon Rally) that uses the social networking approach to encourage users to reduce their energy consumption and climate change impact. It does this by posting challenges on the website and publishing the results of those who choose to take on the challenge at a personal and a regional level. It gives users the opportunity to compete with people in their social network (e.g. friends, family, and colleagues). The site has a ‘leader board’ which shows the top cities, teams and individuals.

The objective of Carbon Rally is for users to motivate each other to make small changes in personal behaviour that can help reduce energy consumption and CO₂ emissions. The site then tracks and publishes challenge commitments and personal CO₂ reduction values. The hope is that seeing the incremental CO₂ impacts directly resulting from participating in the challenges will motivate people to do more.

Participants were asked to evaluate this, and other, pages in terms of aspects that they liked and disliked. They were also asked to give feedback on aspects including the tone, the language used and the information provided. This exercise was designed to provide further insights into best practice in the design of social networking sites with the specific view of changing travel behaviours.

The results of this evaluation suggest that in order to create an effective mechanism for changing peoples’ behaviour with regard to their travel patterns, the principles listed in Figure 5-5 should be applied.
• Present information in an accessible way - making it easy to read and navigate.
• Seek to create a professional tone to increase perceived credibility.
• Aim to save users time (by making it clear what information is and isn’t on the site, and where they can go, i.e. through the provision of links, for further information).
• Make information as relevant, localised and specific to users as possible.
• Highlight how low carbon travel behaviours can address individuals’ needs, for example by potentially improving their health.
• Motivate users by encouraging and enabling them to compare behaviours – this could be facilitated by setting challenges (such as communting by bike for a week) and indicating what the environmental and wider impacts of taking up the challenge could be (i.e. in terms of cost savings and calories burnt).
• Emphasise the effect of concerted effort by showing users that they’re involved in something bigger and that individual efforts can make a difference.
• Communicate low carbon travel activities on a geographic level (i.e. town, district or region) as well as on an individual level to help people see the impact of collective efforts in a tangible way.
• Encourage users to share outcomes with peers via their social networking site to foster competition, wider uptake of low carbon behaviours, motivation and support.
• Provide the opportunity for friends and other contacts to be invited to access the site and participate in low carbon travel behaviours.
• Link to an app to increase engagement, perhaps with a GPS component, which could give advice about, for example, local public transport or road closure information.
• Be careful not to de-motivate - e.g. a user’s distance to work and local public transport links will have an impact on whether cycling to work is achievable – encouraging what may be perceived as unfeasible may make users unlikely to consider other low carbon travel behaviours.
• Moderate and frequently update the site.
• Assure users that any information they provide will be treated sensitively.
• Pilot the site before making it ‘live’ to help to ensure credibility.

Figure 5-5: Attributes of social networking sites that could affect their potential impact on individual travel behaviours.

These findings directly reflect themes identified from the psychological literature outlined in Section 2.1.2.2. They validate the assertion that the likelihood of behaviour change can increase by linking like-minded individuals (social value orientation theory) and by communicating (or otherwise indicating) the impact of individual low carbon travel behaviours in the context of a larger ‘group’ or ‘community’ (collective action models).
6 Results of the online survey

This section presents the results of the analysis of data obtained from responses to the online survey. The aim of the survey was to validate the data generated by the focus groups, as well to elaborate and build upon relevant issues that were identified in the course of these discussions and that could contribute towards a better understanding of the research questions set. A large amount of data was produced by the survey responses. In order to answer the research questions set out in Section 1.3, only the key findings from the data that fell within the scope of the project are outlined here.

2.1.11 Time spent on social networking sites

The mean amount of time that respondents estimated spending on social networking sites in a ‘typical’ week was 2 to 3 hours (see Figure 6-1). There does not appear to be any relationship between the respondent demographics and the amount of time that they spend on social networking sites.

![Figure 6-1: Responses to the question ‘How long do you spend on social networking sites in a typical week?’](image)

There seems to be some relationship between the number of social networking sites that respondents are members of and the amount of time that they spend on these sites in an average week. Those who are members of multiple social networking sites tended to spend amongst the longest online. Of the 35 respondents (25%) who said that they spent over four hours on social networking sites in an average week only five were members of only one site (four of the five were members of Facebook, and the other a member of Twitter).

2.1.12 Specialist interest web forums, social networking site groups and information streams

Figure 4-10 shows that while most respondents are not a member of a special interest web forum, the majority (52%) of respondents who responded to the question said that they were a member of a group or information stream on a social networking site.
The majority of respondents (74%) said that they were not a member of a special interest web forum. Of the 24% of respondents that said that they were a member of a special interest web forum, only one appears to relate to sustainability or environmental concerns, and this was a web forum that was closely linked to the respondent’s work as opposed to being a site that they visit out of personal interest. The only transport web forums that were mentioned were leisure related, for example motorsport forums, car owner clubs, and a bike forum.

The survey responses indicate that groups and information streams on social networking sites are more popular than special interest web forums that are not linked to these sites. Sixty-three respondents described themselves as a member of a group or stream on a social networking site compared with 34 being members of special interest web forums. The sites that are joined relate to: hobbies, alumni groups, charities, self-improvement, fitness, work and the weather.

Almost half (30 of 63) of the respondents who stated that they were a member of a group or information stream on a social networking site said that they were also a member of a transport, travel or environment related group or information stream.

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14 There does not appear to be any relationship between whether a respondent is a member of a group or stream on a social networking site and/or a special interest web forum and vice versa.
Twenty-six of these respondents (87%) work in the transport sector. This shows that the proportion of individuals that are interested in transport, travel or environment related groups and streams is not likely to be representative of the interests of the population as a whole. One of the four respondents who is not a transport professional but is a member of this type of group has a job in the environmental sector. The four related social networking groups that the three respondents who do not have related jobs are members of are: a group that provides information about carbon footprints; Transport for London; National Rail; and Avaaz (a campaigning group whose interests include lobbying for international environmental causes). The large number of related groups that respondents were members of is very broad.

Forty-nine respondents were not a member of any forums, groups or information streams on social networking sites. The majority of these individuals reported on using social networking sites to communicate with family and friends, and the following reasons were also given:

- Not having come across any that are appealing
- Used to be a member in the past but did not receive any useful updates
- Concerns over security/anonymity
- No identified need to join any
- Not understanding the concept of forums, groups and information streams.
Figure 6-3: Reasons for joining groups or information streams on social networking sites that are linked to transport, travel or the environment.

Respondents found out about the transport, travel or environment related groups and information streams on social networking sites that they joined in a number of ways:

- Actively searching for topics of interest via internet search engines and search engines of social networking sites
- Looking at the groups/streams that friends/colleagues/respected institutions are members of
- Recommendations from friends/colleagues
- E-mail invitations from specific groups
- Websites of organisations
- Recommendations from social networking sites based on other groups joined
- Advertisements in newspapers or magazines.

2.1.13 The use of social networking sites to access transport related information

Figure 6-4 shows that the majority of respondents have not used social networking sites either to access information about public transport or to arrange car sharing (44% and 27% respectively), but that a larger proportion would consider using social networking sites for this purpose in the future.
The respondents who had used a social networking site to access information about public transport information and who provided details of the source of this information (n=6) had all used Twitter. The specific sources were:

- Retweets\(^\text{15}\) from friends or colleagues (i.e. in relation to a delay)
- A search for specific hashtags\(^\text{16}\) in the event of potential transport disruption
- First Capital Connect twitter page
- Heathrow Airport twitter page
- Eurostar twitter page.

These respondents, as well as those who said that they may access public transport information via social networking sites in the future said that they would be most interested in information about: delays; real time information; timetables; fares; any available offers or discounts from operators; the reputation of different operators.

All but one of the respondents who had used a social networking site for accessing information about public transport said that they would do so in the future. There were many reasons given for why they thought that they might access this type of information in the future including:

- It is a convenient way of accessing information while travelling (more convenient than checking operator websites)
- It is the best way of accessing up-to-date/real time information
- The volume of available information on social networking sites seems to be increasing
- There tends to be more information provided on public transport operator social networking sites than on their websites
- The ease of accessing public transport information online seems to be improving
- Relevant public transport information is displayed on one page\(^\text{17}\)
- A direct question/complaint can be sent to the provider of public transport information
- Information can be more reliable as social networking sites source information from a lot of different people
- In the event of delay or unfamiliar journeys being undertaken, suggestions for alternative arrangements can be made by multiple users.

\(^\text{15}\) The term ‘retweet’ refers to the ability of Twitter users to share a comment (‘tweet’) that they’ve seen on another Twitter page, such as that of a public transport operator.
\(^\text{16}\) The term ‘hashtag’ is displayed as a ‘#’ sign on Twitter. Putting the ‘#’ symbol before a word is a way of showing that you want that ‘Tweet’ to be categorised accordingly, and shared with/made visible to any other Twitter user that is searching for that term. Clicking on the term attached to the ‘#’ symbol shows you all related Tweets in that category.
\(^\text{17}\) Social networking site pages are customisable and allow information from selected operators that an individual is ‘following’ to be displayed, largely filtering out irrelevant public transport information and meaning that separate sites don’t need to be visited.
Figure 6-5: Responses to the question about the source of information about public transport and car sharing on social networking sites.

[The total number of responses exceeds 28 as a number of respondents said that they would be likely to use a combination of official and informal social networking sites to access related information.]

Figure 6-5 shows that the 28 respondents who had used a social networking site to access public transport information were fairly equally split in terms of whether they used official or informal sources of information. Some respondents said that a key advantage of receiving information from social networking sites, for example in relation to delays, was that it could be validated by numerous sources. Some expressed a greater trust in information provided by friends and family, while others said that when they receive information from a friend or family member they then tend to check that the information is reliable by visiting an official website. The issue of reliability also arose in relation to why respondents would not use a social networking site to access public transport information. There was a concern by some that information on the social networking sites of transport operators would not be as comprehensive and reliable as the information on their websites. A small number of respondents also said that they perceived information from social networking sites, particularly from contacts, to be second hand and that other sites may be more reliable.

The respondents who said that they would not access public transport information via a social networking site (n=44) said that they would look for the information online but from other sources. This was largely because they reserved use of their social networking site for either professional purposes or contacting family and friends, because they used other sources out of habit, or because they perceived official websites as being quicker or simpler to use. There was an implication in some of the responses that it is not necessary to provide this information via social networking site when it is already available in a range of other forms and can be accessed either directly from a transport provider’s website, or information found via a search engine. A relative advantage of these official sites that was cited was the fact that a log-in is not required, although this was only referred to as a disadvantage by one respondent.

The number of respondents that said that they use a social networking site to car-share, or would consider doing so in the future, was lower than that who said the same in
relation to accessing public transport information. This was more as a result of negative perceptions of car-sharing than of using social networking sites for this purpose. The potential need to post information about where and when you would be travelling in a public forum was, however, also mentioned as being a concern from a security point of view.

The majority of respondents who either do, or would, use social networking sites to arrange car sharing would do so on a limited basis, for example with friends, acquaintances, or perhaps friends of friends (as shown in Figure 6-5). These respondents thought that doing this via social networking sites would be quicker and easier than other forms of communication because it is instant and a way of connecting with multiple people at the same time. The respondents who do not and would not use these sites to arrange car sharing said the opposite – that to arrange sharing with people that they already knew they’d use alternative means or arranging it.

Respondents said that they would be less likely to arrange car sharing online with strangers, although several said that they would be open to this option, particularly in relation to a specific event or if they saw requests being posted. Two of the respondents who said that they would not use a social networking site to arrange car sharing said that they would use a dedicated website that had been developed for this purpose.

2.1.14 Social networking sites as facilitators of behaviour change

Responses given to the questions about the potential of social networking sites to change behaviours show that respondents feel like there is more scope for them to change general behaviours than transport behaviours (see Figure 6-6). It also shows that in relation to both general and transport behaviours, the perception is that they are more likely to have an impact on the behaviours of others than of the respondents themselves.

![Figure 6-6: Responses to the questions about the potential for social networking sites to change general and individual behaviours.](image-url)
There was a general consensus that social networking sites can change the way that other people behave (with 75% of respondents either ‘strongly agreeing’ or ‘agreeing’) and the way that the respondent behaves (52%). The majority of respondents stated that these sites inevitably changes behaviours – from encouraging them to spend more time online to impacting decisions based on information provided by others. A key element of social networking sites is to enable the sharing of views and to facilitate communication, so be it through arranging plans to meet that may not otherwise have happened to influencing decisions on whether to visit a certain restaurant or watch a specific film based on reviews provided by friends and family, they inevitably have a direct impact on behaviours. The survey also identified ways in which social networking sites have affected the values and attitudes of individuals, leading to more meaningful changes in behaviours. Several examples to indicate these points, and other types of behaviour change reported in the survey, are provided in Box 2.

**Box 2: Instances where social networking sites changed the behaviour of respondents**

“One of my friends used to recycle almost every item in his house and would share it on Facebook. Inspired by him and gained knowledge on how to do it myself and started recycling.”

“It encouraged me to look more deeply into The Green Party, and caused me to join them.”

“Recent political situation led to hunger protest. To start with I had little to no clue on content and scale... but with social networking saw loads of friends sharing video and posts about it bringing several facts to the table. After seeing such huge support and the background knowledge encouraged me to change my behaviour of being a passive observer to active supporter.”

“I avoided a restaurant because someone had posted about a bad experience.”

“I bought a single last Christmas as a result of a Facebook group.”

“Self improvement links and articles, nutrition and health articles.”

“Groups or status’ reminding of certain events in the world making me reflect on life.”

Fifty-seven respondents (40%) either ‘disagreed’ or ‘strongly disagreed’ that social networking sites could change the way that they travel, which compares to 42 people (30%) who either ‘agreed’ or ‘strongly agreed’. Figure 6-7 shows the type of journeys that these 42 respondents felt that their travel behaviours could change in relation to. The relatively high potential for a change in day-to-day leisure trips could be linked to factors listed in Table 6-1 below, namely the social and well-being attributes associated by some with walking and cycling, as well as the social nature of using social networking sites. A number of respondents referred to the potential for car share in relation to commuting to work while others also referred to the availability of public transport.
The relatively high proportion (40%) of respondents who state that they either ‘disagreed’ or ‘strongly disagreed’ that social networking sites could change the way that they travel correlates with the personal experience of respondents, 82% of whom say that they have not seen any information on a social networking site that has changed the way that they travel, compared to 14% who say that they have (see Figure 6-8).

Figure 6-8 also shows that a relatively small number of people have seen anything that has encouraged them to walk or cycle more (8%) or to use public transport more (6%). In many cases, the relatively high proportion of individuals stating that they have not been encouraged to use walking, cycling or public transport modes is linked to a perception that there are no suitable alternatives to the private car for journeys made. In relation to walking and cycling, a number of respondents stated that their negative
response to this question was owing to the fact that they already walk or cycle wherever possible. Table 6-1 gives examples of responses given about the type of information that has encouraged respondents to walk, cycle or use public transport more often. The walking and cycling information largely relates to well-being and social related information, some of which indicates that rather than having encouraged a shift from private car to walking or cycling it has generated more trips – i.e. leisure related bike rides, which would not have been undertaken otherwise. The examples of where public transport use has been encouraged, however, it has been to replace a private car journey.

Table 6-1: Examples of information on social networking sites that have encouraged respondents to walk, cycle or use public transport more.

<table>
<thead>
<tr>
<th>Walk or cycle</th>
<th>Use public transport</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sponsored walks or bike rides</td>
<td>A video showing the amount of carbon produced by cars</td>
</tr>
<tr>
<td>Information about health benefits (i.e. from groups relating to well-being)</td>
<td>Information that has improved perceptions of the reliability of public transport</td>
</tr>
<tr>
<td>Social walks/bike rides organised via social networking site</td>
<td>Special offers/fare discounts from operators</td>
</tr>
<tr>
<td>Peer pressure from friends</td>
<td>Details of delays on the road</td>
</tr>
<tr>
<td>Walking/cycling social ‘groups’/other type of formal pages on social networking sites</td>
<td>Facebook event pages providing information about related public transport services</td>
</tr>
<tr>
<td>Photos of bike rides/walks</td>
<td></td>
</tr>
<tr>
<td>Weather forecast</td>
<td></td>
</tr>
</tbody>
</table>

A number of examples were given about how social networking sites have changed the travel behaviours of respondents. The changes in travel behaviours reported all relate to irregular responses to specific events, such as delays or similar, while none refer to long-term changes made to travel behaviours based on information received. The majority also refer to changes made to specific routes rather than modes of transport used. Common responses are as follows:

- Transport modes used for specific journeys have been evaluated based on up-to-date information about road conditions received from Facebook friends and Twitter updates
- Information about delays on roads and railways has had an impact on routes travelled
- Twitter updates from users of services has contradicted official travel warnings and had a positive impact on travel plans
- Arranged car sharing through a social networking site
Best practice discussions of how to restrain children in vehicles changed the way that a respondent travels with children.

2.1.15 **Design principles to encourage users to participate and change their travel behaviour**

Sixty per cent of respondents stated that there was no one social networking site that they found particularly engaging. The 16% who said that there was referred to a wide variety of sites, with many instead referring to characteristics of sites that make them engaging. These include sites that:

- Are up-to-date (where relevant with access to real time information)
- Provide regular updates
- Are easy to use
- Have members with similar interests
- Contain ‘exciting’ or ‘stimulating’ content
- Are from a reliable source
- Provide a broad/international perspective.

One question in the survey asked whether a number of characteristics would have an impact upon whether or not they would be likely to join a social networking site about how to make their journey to work more sustainable. Figure 6-9 below indicates that the design of a site can have an impact upon whether or not individuals are likely to join. Only a relatively small number of respondents stated that various characteristics were not likely to have an impact on their response to the site. The three characteristics that were rated as being least likely to have an impact on considering membership to a site were:

- If other people in their social networks are a member (n=38);
- Whether a site can be accessed on a phone as well as computer (n=32); and
- The brand of the group (i.e. whether it's perhaps memorable, recognised or unique) (n=27).
Figure 6-9: Responses to the question about the likelihood of different social networking site characteristics having an impact upon whether a respondent joined a site recommended by a friend about how to make their journey to work more sustainable.

Figure 6-10 gives an overview of responses given to this question. It indicates that the two characteristics that respondents considered would have the largest impact upon their propensity to become a member are:

- The level of information provided by the group (n=118); and
- The ease of navigating the group’s site (n=117).

The responses also reinforce the importance of attributes referred to by respondents in other survey questions, such as the importance of being able to post comments or questions, and receive relatively timely responses.
Figure 6-10: Responses to the question about the likelihood of different social networking site characteristics having an impact upon whether a respondent joined a site recommended by a friend about how to make their journey to work more sustainable.

A number of additional features that should be considered were referred to in the comments section. These included having a design that:

- Is conducive to slow internet access
- Recognises the relative difficulty of inputting information while accessing sites a mobile phone
- Provides practical advice.
Respondents were asked about the relative influence of different sources of online information on their travel behaviours. Figure 6-11 shows the sources of information that the respondents ranked as being most likely to influence their travel behaviours.18 This shows that 42% of respondents feel that social networking sites of friends and family are likely to have the largest impact on their behaviours. There is no significant difference between the relative impact of the other sources of information that were ranked highest and with there being an equal split between the impact of information received from social networking sites and websites.

![Survey response categories](image)

**Figure 6-11: Responses to the question regarding the source of online information that respondents would be most likely to change their travel behaviour in response to information received from.**

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18 The sample size of this question is smaller than that of others owing to a coding error, which invalidated many of the responses given.
Figure 6-12 shows that the overall weighted response for each source of information is more uniform. Social networking sites of friends or family still emerge as the most influential, followed by information provided by the Government. One respondent stated that it was the ‘accuracy, timeliness and relevance’ of information that is more important than its source. Based on responses given to previous questions the responses presented in Figure 6-12 could reflect the perceived accuracy and immediacy of information provided by these sources.
2.1.16 An overview of general comments received in relation to the use of social networking sites for transport, travel, environment and behaviour change related purposes

The general comments provided by respondents were mixed in terms of the likely impact of social networking sites on travel behaviours. A number of respondents were positive about the potential impact of these sites on behaviours, highlighting the rapid growth in the number of members of these sites, the amount of time that they spend online, and the purposes that they use them for. However, other respondents indicated that they only used social networking sites for social reasons, with one individual also suggesting that they have the word ‘social’ in them for a reason and so should not be used for any other purpose. Social networking sites are perceived by some as being the future of communicating and so any site that shares reliable information could have an impact on the behaviour of those who access it.

A number of respondents said here (and elsewhere in the survey) that developing a social networking site that shares information about issues relating to sustainable transport behaviours could be superfluous owing to the number of professional websites that already exist for this purpose. Trip planning sites, such as TransportDirect, Trainline, and car-sharing websites, as well as internet search engines such as Google that can provide instant access to relevant information, were all referred to in this context. These comments, however, do not acknowledge some of the unique characteristics of social networking sites – they allow communication and the ready sharing of relevant information between contacts. Examples of the ways in which respondents stated that these functionalities have triggered a change in their attitudes, and in turn behaviours, have been outlined previously (see for example Box 2, Table 6-1 and Figure 6-8).
One respondent commented that ‘social networking sites would only serve the role of a middle man between a user and the information from a relevant organisation,’ and this could be an important role to play, potentially connecting an individual with information that they would not otherwise have seen.

General comments provided by some respondents suggest that they feel that there is a gap for reliable social networking sites that connect people and encourage sustainable behaviours – such as donating unwanted items to others and car sharing. The issue of reliability of social networking sites in terms of the accuracy of the information that they contain is one that has recurred throughout responses given to the survey, and the credibility of the source of information is therefore likely to have an impact on their effectiveness in changing travel behaviours.

A respondent who uses social networking sites and who is an advocate of sustainable transport felt that the idea of encouraging people to change their travel behaviours using social networking sites is ‘far-fetched,’ referring to the fact that research has indicated that it is the cost (both financial and time) that has an impact on travel behaviours. This links to a number of responses from individuals who stated that many people do not want to travel sustainably, and that what some individuals may consider to be sustainable other people may not. The wide range of different attitudes and values held by individuals is important to recognise when designing, and seeking to evaluate the impact of, social networking sites that have been created in order to encourage low carbon travel behaviours.
7 Summary of qualitative research method findings

The research activities have shown that social networking sites are useful platforms for reaching large numbers of people, and for targeting specific user groups.

In the focus groups, participants reported a variety of reasons for joining social networking sites and stated that they follow a wide range of groups and pages on these web pages. They expressed a range of different ways that they use social networking sites, including for gaining information and sharing information, and provided numerous insights into characteristics of social networking sites that could have an impact on their effectiveness in terms of encouraging low carbon travel behaviours.

In the survey, 46% of respondents stated that they were a member of a group or information stream on a social networking site, almost half of whom reported being a member of one that was transport, travel or environment related. The reasons for joining these include a desire to reduce carbon footprint, obtain access to interesting links and information, and to connect to people with similar views and interests. The majority of these respondents (87%) work in the transport sector, so it is likely that this is not representative of the wider population. None of the 22 focus group participants were a member of transport, travel or environment related groups or information streams. The broad membership to social networking groups in general does, however, indicate that social networking sites are being used for a range of purposes that go beyond the strictly social. This is reinforced by the number of respondents who have used social networking sites to access information about public transport (20%) and car sharing (27%).

2.1.17 Social networking sites can encourage low carbon travel behaviours

The focus group participants were in consensus that social networking sites could act as a platform to spread information and raise awareness, and in doing so make members consider changing their behaviours. The interviews with developers of social networking sites also indicated that social networking sites are a good way of engaging with individuals. The owners of the Sustrans and Blabla car social networking sites both reported a large volume of traffic to their main sites from their Facebook pages.

The focus group participants expressed mixed views as to whether the provision of information via social networking sites would lead to actual behavioural change. The feedback from the focus groups was that there is perhaps more potential for social networking sites to lead to ‘general’ behaviour change rather than specifically transport behavioural change. This is mirrored in responses to the online survey where 7% of respondents either ‘disagreed’ or ‘strongly disagreed’ that social networking sites could change the general behaviours of other people compared to 16% responding in the same way in relation to travel behaviours.

In the survey, more people either ‘disagreed’ or ‘strongly disagreed’ that social networking sites could change their own travel behaviours (40%) than who ‘agreed’ or ‘strongly agreed’ that they could (30%). This seems to relate to the fact that: 82% of respondents have not seen any information on a social networking site that has changed their travel behaviours; some respondents feel that there is not the appropriate low carbon transport infrastructure to enable them to make a change; and that some respondents already use low carbon modes of transport wherever possible.
The interview with the developer of Blabla Car indicated that despite the mixed opinions of car-sharing via social networking sites as expressed in the online survey it can encourage lower carbon travel behaviours. The site sees an average of three seats occupied per car, compared to an average of 1.4 people per car.

The changes in travel behaviours that online survey respondents reported making in response to social networking sites largely related to one-off or irregular events – for example in relation to delays, weather, or special occasions. Many of the changes were in terms of route used and car journeys shared rather than a shift in mode of transport. This is reflected in the fact that when asked about the type of journey that social networking sites may have the most potential to change travel behaviours in relation to the most popular answer was day to day leisure trips (36% of responses). This was followed by commuting (26% of respondents) and shopping trips (21%).

The interviews with developers of social networking sites highlighted the value of using social networking sites to channel visitors to their main website, where there is scope to share a broader range of information. Findings from both the focus groups and the online survey reinforce the value of social networking sites in engaging other users in certain issues and encouraging them to seek out related information. Respondents of the focus groups stated that they were more likely to be influenced by information that they received from personal networks, and this was echoed in responses to the survey where a considerably larger number of respondents felt that they would be more likely to change their behaviours based on information received from a social networking site of a friend or family member than from the Government, a commercial organisation or independent body or charity.

The interviews shed light on the challenges associated with measuring the impact of a social networking site on travel behaviours, which helps to explain why the empirical evidence base is limited. There are, however, a number of criteria that can be measured and tracked to give an indication of the level of engagement with social networking sites. These include quantitative data (such as the number of members, the number of users who ‘like’ the page, and the volume of comments received) and qualitative data (the nature of comments made). Tracking these over time can enable owners to identify the type of information that increases the response to, and popularity of, the social networking site, and ultimately the communication of its messages and the likelihood of behavioural change.

The findings of the user engagement reinforce the relevance of the theories and models outlined in section 2.1.2.2 for social networking sites that are seeking to encourage low carbon travel behaviours. It was stated that social networking sites that seek to encourage behaviour change need to highlight benefits to the individual of doing so. There was also, however, repeated implicit and explicit support for collective action and collective interest models, with respondents suggesting that they would be more motivated to change if they saw that others (particularly those in their own social networks or strangers living in their locality) were adopting low carbon travel behaviours.

**Summary:** Social networking sites are a good way of communicating messages to a broad demographic. They are likely to increase awareness of the impact of travel behaviours and of more sustainable alternatives, and are already being used to access information about public transport and car sharing. Respondents are more likely to change their behaviours based on information received from their personal networks
than from other sources, and social networking sites provide a unique opportunity for sharing information in this way. This may not lead to a direct change in travel behaviours, but it could have an impact on attitudes and values that could have an impact on travel behaviours in the longer term.

The nature of social networking communities (and particularly given the relatively large amount of time that people spend on these sites), provides an opportunity for individuals to see information, for example on the social networking sites of their contacts, that they might not have sought out directly. If the low carbon travel sites that users come across in this manner are engaging, then their impact could become widespread.

### 2.1.18 Recommendations for social networking sites that seek to encourage low carbon travel behaviours

The interview respondents referred to the fact that there are many more restrictions in terms of the content and structure of social networking sites than there are for websites. Indeed Facebook engineered its pages to be relatively ‘structured and constraining,’ so as not to ‘intimidate’ users (Vallance, 2012). The focus group participants did, however, express strong feelings towards different design features of social networking sites, and after being shown examples of such sites a number of the participants changed their views about whether or not such sites could change their travel behaviours. Online survey respondents stated that a number of design characteristics could have a ‘large’ or ‘moderate’ impact on whether they would join a site encouraging low carbon travel behaviours, and interview respondents gave examples of how various features had an impact on site traffic. This research has therefore identified a number of ways in which social networking sites that seek to encourage low carbon behaviours can be made more effective. These are outlined below.

**Exploit the ‘social’ aspect of social networking sites**

The nature of social networking sites means that information can be shared between contacts, virtual groups and communities can be built, and the benefits of collective action can be recognised. These features should be incorporated in sites that are seeking to have an impact on their users. The focus group participants expressed the need for social networking sites that seek to encourage behaviour change to be interactive and a channel for active two-way communication. They also communicated a desire for these sites to provide the opportunity for users to invite their contacts to participate in low carbon transport activities and behaviours. The owners of sites should therefore actively elicit dialogue with its visitors, respond to comments received in a timely manner, and provide features that can be readily shared with contacts of visitors. They should be engaging and user-friendly enough to interest individuals who are not necessarily familiar with low carbon transport or its benefits.

**Communicate wider benefits of low carbon travel behaviours**

The interview with the owner of Blablacar referred to the need to communicate the wider benefits (‘co-benefits’) of car sharing, going beyond the ‘environmental’ message. The focus group participants and a number of survey respondents confirmed that they are more motivated by issues such as potential health benefits and cost savings than they are about the climate change impacts of their actions. Social networking sites should therefore clearly demonstrate the benefits of low carbon travel behaviours. They could also, for example, act as platforms to share examples of where relatively low carbon journeys have resulted in cost and time savings. These savings may not be
possible for everyone, but it is important to recognise that a social networking site that aims to encourage low carbon behaviours does not need to focus on the environmental agenda to achieve its aims.

**Regularly update the content of the social networking site**

The comments received in relation to various questions on the online survey highlighted the need to keep social networking sites up-to-date and frequently updated. The speed that comments or questions posted on social networking sites are responded to, for example, was ranked as having the third largest impact on whether or not a respondent joined a social networking site (77% said that it would either have a ‘large’ or ‘moderate’ impact on their decision). Focus group users also referred to the importance of any social networking site that seeks to engage its users being moderated and updated.

The interviews with owners of sites revealed that keeping social networking sites up to date is resource intensive, with both organisations employing a member of staff full time to maintain and run their sites. There is, however, evidence that it pays off – Sustrans, for example, found that the more new content that they added to their social networking site the larger the number of members they had, the greater the number of comments received from these members, and the higher the number of visitors to their main corporate website from the social networking site.

**Inform to spark interest rather than to impart detailed knowledge**

The findings of the online survey and focus groups indicate that there is value in communicating the benefits of joining a social networking site group clearly and concisely. Focus group participants found the provision of detailed information off-putting. They preferred there being less up-front information to filter, and information focused on the issues most relevant to them as a user – therefore saving them time and increasing the emphasis on key messages. This is reinforced by interview responses, which recommend providing just enough information to get people to ‘like’ the page. This makes it visible to the rest of their network and enables visitors to become more informed, whilst links on the site can channel them to other sources of related information. The online survey respondents rated ‘the level of information provided by the group’ as the characteristic most likely to have an impact upon whether or not a respondent would join a specific social networking site.

**Convey professional credibility**

The issue of trust was raised in relation to a number of online survey questions, with an emphasis on the need for information contained within social networking sites to be reliable. In response to a question about characteristics most likely to have an impact upon whether a respondent joined a social networking site, 85% of respondents (n=169) stated that a group’s ‘sense of professionalism’ would have either a ‘large’ or ‘moderate’ impact. The need for a social networking site aiming to change travel behaviours to come across as credible was also mentioned by focus group participants.

A number of online survey respondents said that encouraging respected institutions or individuals to either join a social networking site or to post a link or recommendation to the social networking site on their official website would enhance the perception of the social networking site.
Encourage active participation

Several online survey respondents referred to a preference for social networking sites that contain ‘stimulating’ content and the appeal of features that encourage involvement was expressed in the focus groups.

The interview with the owner of the Sustrans social networking site said that people really engaged with a photo competition that they ran, and that they are looking to make better use of images and videos on their social networking site in order to increase its effectiveness in engaging users. Focus group participants referred to the motivating impact of comparing behaviours with those of others. A challenge about cycling to work for one day a week, for example, could encourage users to act. Focus group discussions indicated that this could be particularly effective if outcomes of individual challenges could be shared with their contacts on their social networking site (which could lead to further travel behaviour change by triggering motivations outlined in ‘collective action’ models). There is particular potential to do this via an app, which could be integrated with a social networking site in order to increase engagement. An app that had a link to GPS technology could be particularly effective, increasing the relevance of the information relayed to the individual user.

Take into account additional design considerations

Online survey respondents stated that there are a number of design related factors that would either have a ‘large’ or ‘moderate’ impact on their likelihood of joining a specific social networking site. The focus groups also identified a number of ways in which these sites could optimise engagement with their visitors. Those that are likely to have a considerable impact, based on the research activities conducted in this project, and that have not already been covered above, are summarised below.

- Make the site as easy as possible to navigate (89% said that this would have a ‘large’ or ‘moderate’ impact on their likelihood of joining a social networking site). The focus groups highlighted the need for information to be presented in a logical way, and for navigation around any social networking site page to be intuitive. It should be designed to provide only the most relevant information, with links provided to additional sources of information for users to follow up with, should they be inclined to do so.

- Consider the tone of writing used (81% said that this would have a ‘large’ or ‘moderate’ impact). The tone should be professional but accessible, and should avoid being interpreted as being condescending, ‘preachy’ or overly formal.

- Focus the information provided on the level of the individual (72% said that this would have a ‘large’ or ‘moderate’ impact). This should be both in terms of benefits that could be experienced by individuals when adopting low carbon travel behaviours (as mentioned above) but also provide practical and relevant advice to users.

- Draw on the motivating effect of collective action. It is important to focus on what an individual can do and achieve in relation to low carbon travel behaviours. The focus group participants also, however, discussed the value of emphasising that individuals are part of something ‘bigger’ and that collectively the impact of a change in travel behaviours could have a considerable and tangible impact (which reflects the contentions of psychological literature reviewed in section 2.1.2.2). There was enthusiasm for the potential impact of collective action on a relatively local level (i.e. town, region or district) being communicated.
• Aim for the page to have an immediate impact upon visitors (69% said that this would have a ‘large’ or ‘moderate’ impact). An attention grabbing website, whether that be in terms of content, presentation or both, is likely to encourage users to spend longer on the page.

• Seek to make the site accessible via smartphone (63% said that this would have a ‘large’ or ‘moderate’ impact). A relatively recent trend, which is linked to the expansion of wireless technology, is the accessing of the internet via smartphones and tablets. IBM (2011) predicts that by 2015 more people will connect to the internet via mobile rather than desktop devices. The designers of social networking sites should therefore bear this trend in mind.

**Summary:** There are a number of design considerations that, if built into the development (and continued through the maintenance) of a social networking site could increase its likely impact on travel behaviours.
8 Conclusions

This research has indicated that social networking sites are a good way of communicating messages to a broad demographic. The nature of social networking communities, combined with the amount of time that people spend on these sites, provides an opportunity for increasing awareness of the impact of travel behaviours and of more sustainable alternatives. This could have a direct impact on travel behaviours in the short-term, or it could have an impact on attitudes and values that could have affect travel behaviours in the longer term. They could be particularly effective in encouraging travel behaviour change if social networking site characteristics identified in this study are employed in their design.

The online survey found that 20% of the sample has used social networking sites to access public transport information, and that 15% have used them to arrange car-sharing. A larger proportion (44% and 27% respectively) thought that they would use them for this purpose in future. It is important to note that 56% of the sample has an occupation linked to the transport sector in some way, and so this may not be representative of the wider population, but it nevertheless indicates that social networking sites are being used to access information about low carbon travel behaviours. Numerous examples were also provided about instances where social networking sites has directly led to more socially aware behaviours. This suggests that such sites could tap into behavioural change triggers as identified in the scoping review, such as ‘social dilemma theory,’ which asserts that group communication, such as discussions about pro-social and pro-environmental behaviours, can promote cooperation and a collective change in behaviours. In a similar way social networking sites can use information that enhances awareness of the impact of travel behaviours, and group communication, to motivate change (as per theories of ’social value orientations’).

The nature of social networking sites allow individuals to customise the information that they receive, and so it is particularly important that any site seeking to encourage low carbon travel behaviours is seen as relevant, attractive and user-friendly. Social networking sites offer ready access to a large number of individuals, but it is important to bear in mind that individual networks are essentially ‘closed’ communities and that if the purpose of a site or group isn’t considered to be clear, relevant and engaging then it won’t be widely noticed or shared.

Organisations and initiatives that seek to communicate low carbon behaviour messages to the general public should seek to adopt strategies to exploit the opportunities associated with social networking sites. ‘Traditional’ websites will continue to play a large role in communicating messages and informing individuals, but there needs to be recognition that opportunities for outreach are expanding. There should therefore be efforts to co-ordinate across different channels, using social networking sites to interact with and inform users, and to channel visitors to sources of relevant information. In addition, this research has identified a clear preference for social networking users to access information relating to travel behaviour change via the sites of friends or family, and so dissemination strategies should reflect the unique opportunity that social media affords to reach individuals through their contacts.

In order to optimise their potential impact on travel behaviours, sites should not be developed quickly but as part of a comprehensive process, and ideally one that involves engagement with potential end-users. The insights provided in this report provide a good starting point.
8.1 Ideas for further research

There is still a lot to learn in terms of the use and impact of social networking sites on travel behaviours. The knowledge base is very limited and much of what exists seems to be based on anecdotal rather than empirical evidence.

This study reviewed literature that was identified in transport databases of scientific research. There would be value in conducting a wider systematic literature review to gain a more in-depth understanding of how social networking sites could encourage a change in travel behaviours. A cross-discipline study could also provide a firm grounding from which to explore sector specific characteristics.

The information generated in this study could be used as a basis for further research. The data generated by the online survey, for example, has not been fully exploited, and more in-depth analysis could lead to a more detailed understanding – for example of the attitudes of different demographies to social networking sites as a medium for travel behaviour change. The design principles developed in this study could also be applied in practice to develop a social networking site that could optimise the potential for a change in the attitudes, values and behaviours of those who visit it. This study has highlighted the challenges associated with measuring the actual impact of such sites on behaviours, but a new site could have feedback mechanisms to be designed in from the outset.

This project has revealed a number of ways in which the relative ‘popularity’ of social networking sites can be ascertained, but the actual impact is difficult to determine. This is particularly true for long-term behavioural change, as while a change in behaviours can be expressed via comments on these sites in relation to one off journeys, actual change is then inferred from this rather than being based on substantive evidence. If a social networking site were to be developed based on the design characteristics developed by this study then engaging with the members of the site over an extended period of time could provide a more accurate indication of impact. Web analytic tools could also be used to monitor trends over time and in relation to specific changes in features. In a similar vein, the owners of existing social networking sites that aim to encourage low carbon transport behaviours (albeit amongst other types of behaviour change as well) could be approached to participate in joint research to explore the impact of their site on behaviours. This could comprise of both quantitative (i.e. related to site traffic) and qualitative (based on in-depth interviews with members) analysis.

The design principles and associated recommendations formulated in this study can be applied to all social networking sites, but the focus of the research has been on Facebook and Twitter owing to their market share. The research has, however, identified that there are a number of social networking sites that are increasing in their market share. Google+, for example, was highlighted as a rapidly expanding network of users and future research could give a more social networking site specific insight into the characteristics of each that could be tailored to enhance potential impact on low carbon transport related attitudes, values and behaviours. It could also compare the relative potential of different social networking sites to encourage low carbon behaviour change.

The ‘social networking’ element of social networking sites could be exploited in order to better understand how to encourage behaviour change. Social networking sites could aim to provide information but also elicit feedback from its users. IBM (2011) for example, state that social networking sites should be used to ‘harvest ideas and better understand the issues or questions that people have.’ The potential to use social
networking sites as a feedback mechanism to measure responses to information presented should be considered in future research conducted in this area.

The interface between social networking sites and other types of application is also worth attention. The review of related social networking sites identified several that had integrated an ‘app’ into their site. The interviews with owners of social networking sites also identified a desire to develop an app that could be downloaded from their social networking site to provide a more interactive tool for their members to use and engage with. It is likely that a number of the principles developed in this study could be applied to an app that is developed for the same purpose, but it would present a broader range of opportunities for design and interaction than social networking sites themselves.
Acknowledgements

The work described in this report was carried out in the ITS and SSS Road Safety Groups of the Transport Research Laboratory. The authors are grateful to Alan Stevens and Sally Cairns who carried out the technical review and auditing of this report.

References


Appendix A

Interview topic guide

This is a draft version of the topic guide that will be used as a basis for a formal interview with a relevant employee of each of the organisations that are behind the social networking sites identified in Phase 1.

Name of interviewee:

Job title of interviewee:

Date and time of interview:

NOTE: Interviewer must ensure that the focus of each question and subsequent discussion is targeted directly and explicitly in the context of their social networking site.

Introduction

1. When was your site created?

2. What was/is your role in developing/maintaining the site?

3. What were the main reasons for developing the site?

4. Was it created specifically to complement other approaches that you use to engage with people?
   a) Or was it more of a stand-alone ‘tool?’

5. Was an objective of the site to encourage more sustainable travel behaviours? [only ask if this hasn’t already been answered in question 2]

6. Who is the site targeted at? [primary audience]

7. When you developed the site did you have an idea of the number of people that you hoped to reach using this approach?

Behaviour Change

8. Do you think that your site has contributed to more sustainable travel behaviours?

9. [If yes to 6] In what way do you think that it’s contributed?

10. Have you sought to monitor the likely impact that your site is having on people who have visited...
    a) ... in relation to travel behaviours?
    b) ... for any other purpose? [to give us an insight into general criteria that could be used]

Metrics
11. If the answer to question 8 a and/or b is yes then how do you try to monitor the site’s impact? Prompts could include number of likes/followers, etc.

12. Refer to the table of ‘criteria’ that were e-mailed prior to the interview and ask:
   a) Do you think that there are any data items that we should add to the list?
   b) [If they collect any other data items that aren’t publically available] Would you be willing to share any of this data from your site with us?

**Site design**

13. How difficult was it technically to design and create the social networking site? Did you face any particular challenges? [to get an insight into lessons learned/tips that could accompany our design recommendations]

14. Which features of your site have been the most effective in engaging users in relation to sustainable transport behaviours?

15. When you developed the site did you base its design on any related research (i.e. principles of behavioural change theories or on engagement with end-users)?

16. When you developed the site were you influenced by any other sites? [to get an insight into what they might consider to be ‘best design practices,’ either internal or external to the field of transport]

**Site evolution**

17. Are there any features of your social networking site that you’ve changed since establishing it? [to get an insight into what might and might not work]

18. [If yes to 19] What have you changed and why did you change it?

19. Are you planning to make any additional changes to your social networking site in the future?

20. What reactions (if any) have you received to the site from...
   a) Management in your company?
   b) Wider employees within your organisation?
   c) Competitors?
   d) ‘Partners’ or similar, either potential or existing (i.e. public transport operators, etc)?

   [to get an insight into potential opportunities/barriers for the exploitation/marketing of our work]

21. If you could go back in time, would you have created this social networking site? [to get an insight into how effective they feel that it’s been in general]
Appendix B

Focus group guide

Purpose:
The purpose of this focus group is to gain an understanding of the way in which you use social networking sites to communicate with others. We aim to discuss how you use social networking sites, including whether you’re members of groups or follow certain twitter streams. The group will last between an hour and a half and two hours.

Ground rules:

- Participation in this focus group is voluntary
- We want to hear your views, even if you do not have strong opinions, so I’ll be trying to include everyone in the discussions.
- We would like to record the discussion group, so that we can refer back to the recording in the future. All recordings will be destroyed when the research has been completed
- Over talking- please can we make sure that only one person speaks at any one point.

Introductory exercise: Let’s all introduce ourselves and give an overview of your social networking experiences in terms of which sites you’re on, how long you’ve been on them and how often you visit them?

Questions

1. Why did you join a social networking site?

Prompts:

- What were your motivations?
- How did you find out about it/them?
- Which social networking sites have you joined?
- Has anyone joined a social networking site and then cancelled membership? If so, why?

2. What do you use social networking sites for?

Prompts:

- Purely personal reasons e.g. keeping in touch with friends, sharing photos, etc.
- Business- connecting with customers
- Business- networking
- Marketing/Entertainment e.g. music/games

Facebook/LinkedIn

3. What sort of groups are you members of?

Prompts:

- Just for fun/Hobbies
- Organisations e.g. gym, work
- Charities\Information sites
  
  What encouraged you to join them?

  How often do you visit them?
What would encourage you to visit them more regularly?

If anyone is not a member of a group, why not, what puts you off of joining?

Twitter

4. For those of you who are registered on Twitter, what sort of streams do you follow?

Prompts:
- Celebrities/Hobbies
- Organisations e.g. gym, work
- Charities/Information sites e.g. news

What encouraged you to join them?

How often do you visit them?

What would encourage you to visit them more regularly?

If anyone is not a member of a group, why not, what puts you off of joining?

Given that everyone uses Facebook to some degree, we’re now going to move the discussion onto formal social networking streams and we’ll use two examples of a Facebook group screenshot to steer the discussion.

5. What are your thoughts about this sort of Facebook group/Twitter Accounts/ other networking websites?

Prompts:
- What do you like?
- What do you dislike?
- In terms of the design, what do you like most about it? Why?
  - Length/amount of information
  - Relevance of information
  - Language - accessible/understandable
  - Tone
- Is there anything that you would change about the page?
- How effectively do you think that it gets its message across? What could be done to increase that effectiveness?
- Could you see yourself joining this sort of group? If not, why not?
- How useful would you find this sort of group?

6. Do you think that social networking websites like Facebook, Twitter and LinkedIn have the potential to change peoples’ behaviour generally?

Prompt:
- Can you think of any ways in which your own behaviour has changed since joining social networking sites?

7. What do you think about social networking websites like Facebook, Twitter and LinkedIn’s potential to change peoples’ travel behaviour (e.g. encouraging sustainable travel)?
Prompts:

- Discuss Peer pressure. A friend reduces their carbon footprint and shares with friends.

8. Are there any ways that you think these groups/pages could be designed to encourage you to participate and change travel behaviour?

Prompts:

- Factors that encourage you to change your travel behaviour.
- Embedding websites within Facebook? (New features)
Appendix C

Online survey

The purpose of this questionnaire is to gain an understanding of the way that you use social networking sites and of the type of groups and streams that you follow. As an incentive to participate we will be having a prize draw for £50. Everyone who completes the questionnaire before Monday 26th September 2011 will be entered into a prize draw to win £50. The prize draw will take place on Tuesday 27th September 2011.

Prize draw rules:
1. The prize draw is only open to persons who have returned the survey with a valid email address and/or phone number for notification purposes.
2. The prize draw is only open to participants who provide valid answers to the survey questions.
3. No more than one entry per person is allowed.
4. The prize to be won is £50 payable by cheque or bank transfer.
5. The winning entry will be selected at random from the surveys submitted by 26th September 2011. The draw will take place on 27th September 2011.
6. The winner will be notified by email and/or phone using the details they supplied with their entry. If they do not respond to the email or phone call and fail to claim their prize within one month of notification, they forfeit their prize and another random winner will be selected in their place.
7. Due to the confidential nature of the research, winner details cannot be supplied. However, confirmation that the prize draw has been made will be placed in the news section of our website (www.trl.co.uk) for 30 days from the draw date.
8. The prize draw will be supervised by an observer who is independent of the prize draw organisers.
9. Contact information which is required for administration of the prize draw will be destroyed once the prize is awarded.

If you would like to be entered into the prize draw, please supply your email address:

[Box for email address]

and/or phone number:

[Box for phone number]
Are you:
- Male
- Female

What was your age on your last birthday? (optional)

What is your highest educational level?
- None
- GCSE or vocational equivalent
- A level or vocational equivalent
- Graduate or above

Do you work in the transport sector?
- Yes
- No

If yes, please state your job title:

A social networking site is any online platform that enables individuals to create online social networks. Social networks are made up of individuals or groups which are connected, for example by friendship, common interest, beliefs or knowledge.

Which social networking site(s) do you belong to? Please select as many as appropriate.
- I am not a member of any social networking sites
- Facebook
- Twitter
- Google Plus
- LinkedIn
- Myspace
- Bebo
- Other (please specify below)
Are you a member of any special interest web forums, e.g. MumsNet, CycleChat?

- Yes
- No
- Don't know

If YES, please specify which forums:

How long do you spend on social networking sites in a typical week?

- Less than one hour
- 1-2 hours
- 2-3 hours
- 3-4 hours
- 4-5 hours
- Over 5 hours
- Don't know

Have you ever used a social networking site to access information about public transport? (For example, timetable information or information about delays.) This could be information from individuals or from organisations.

- Yes
- No
- Don't know

Did you get the information about public transport from:

- Social networking profiles of friends and/or family
- Official transport information pages on social networking sites (for example Transport Direct)
- Other (please specify below)
<table>
<thead>
<tr>
<th>Question</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have you ever used a social networking site to arrange car sharing?</td>
<td>Yes, No, Don't know</td>
</tr>
<tr>
<td>Did you arrange car sharing via:</td>
<td>Social networking profiles of friends and family?</td>
</tr>
<tr>
<td></td>
<td>Official car-sharing social networking sites (for example Liftshare or Blablacar)?</td>
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<tr>
<td></td>
<td>Other (please specify below)</td>
</tr>
<tr>
<td>Do you think that you would use a social networking site to access information about public transport in the future?</td>
<td>Yes, No, Don't know</td>
</tr>
<tr>
<td>IF YES, please give details. IF NOT, why not?</td>
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</tr>
<tr>
<td>Do you think that you would use a social networking site to arrange car sharing in the future?</td>
<td>Yes, No, Don't know</td>
</tr>
<tr>
<td>IF YES, please give details. IF NOT, why not?</td>
<td></td>
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</tbody>
</table>
Are you a member of any groups or information streams on social networking sites?

- Yes
- No
- Don't know

If YES, please specify which group(s)/stream(s). If NOT, why not?

Are you a member of any transport, travel or environment related groups or streams?

- Yes
- No
- Don't know

If YES, please specify which group(s) or stream(s)

Why did you decide to join the transport, travel or environment related group(s) or stream(s) that you are a member of?
How did you find out about the transport, travel or environment related group(s) or stream(s) that you are a member of?

How much do you agree or disagree with the following statement:

"Social networking sites like Facebook, Twitter and LinkedIn have the potential to change the way that other people behave."
- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree
- Don't know

"Social networking sites like Facebook, Twitter and LinkedIn have the potential to change the way that I behave."
- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree
- Don't know

Have there been any specific instances where information that you have received via a social networking site has changed your behaviour?
- Yes
- No
- Don't know

If YES, please specify:
How much do you agree or disagree with the following statement:

"Social networking websites like Facebook, Twitter and LinkedIn have the potential to change the way that other people travel for example, encouraging people to consider using public transport instead of the car for certain journeys."

- Strongly agree - Agree - Neither agree nor disagree - Disagree - Strongly disagree - Don't know

How much do you agree or disagree with the following statement:

"Social networking websites like Facebook, Twitter and LinkedIn have the potential to change the way that I travel (for example, by encouraging you to use the car less)."

- Strongly agree - Agree - Neither agree nor disagree - Disagree - Strongly disagree - Don't know

You agree that social networking sites have the potential to change your travel behaviour. Do you think this might apply to any of the following journey purposes:

- Travel to work
- Travel to school/place of higher education
- Day-to-day leisure travel
- Shopping trips
- Other

If OTHER please specify:
Have you seen anything on a social networking site that has encouraged you to walk or cycle more?

- Yes
- No
- Don't know

IF YES, what type of information did you see, and has it resulted in you walking or cycling more?


Have you seen anything on a social networking site that has encouraged you to use public transport more?

- Yes
- No
- Don't know

IF YES, what type of information did you see, and has it resulted in you actually using public transport more?


Have there been any specific instances where information that you have received via a social networking site has changed the way that you travel?

- Yes
- No
- Don't know

IF YES, please specify:
Are there any specific groups or profiles on social networking sites that you think are particularly engaging?

- Yes
- No
- Don't know

If YES, please specify:

A friend invites you to join a social networking group about how to make your journey to work more sustainable. Please rate whether the following characteristics would have an impact in whether or not you would be likely to join.

<table>
<thead>
<tr>
<th>Large impact</th>
<th>Moderate impact</th>
<th>Minimal impact</th>
<th>No impact</th>
<th>Don't know</th>
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<tr>
<td>The immediate impact of the page (i.e. whether it's attention grabbing)</td>
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<td>The name of the group (i.e. whether it's perhaps memorable, recognised or unique)</td>
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<tr>
<td>The brand of the group (i.e. whether it's perhaps memorable, recognised or unique)</td>
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<tr>
<td>The graphics or images used (i.e. their number, boldness or colour)</td>
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<tr>
<td>Item</td>
<td>Rating</td>
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<tr>
<td>The accessibility of the information via smartphone as well as PC</td>
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<td>The ease of navigating the group's site</td>
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<td>The tone of writing used by the group</td>
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<td>The group’s sense of professionalism</td>
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<td>The speed at which comments or questions posted are responded to</td>
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<td>If other people in my social network are members</td>
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<tr>
<td>The information is specific to how I make my journey to work more sustainable</td>
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</table>
There are a lot of different channels that can be used to communicate information.

Please rank the following channels in terms of how likely you might be to change your travel behaviour in response to information received from them.

Please rank from most likely (at the top of the list) to least likely (at the bottom of the list). To rank the seven items please drag and drop each into the box to the right of the list in order of preference.

If you have no view on how likely the different channels might be to change your travel behaviour, please leave blank.

- Social networking site of friends or family
- Social networking site of a commercial organisation (e.g. Stagecoach, First Great Western)
- Website of a commercial organisation
- Social networking site of an independent body or charity (e.g. WWF, Greenpeace)
- Website of an independent body or charity
- Social networking site of the Government (e.g. the Department for Transport, Transport for London)
- Website of the Government

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<tr>
<th>Social networking site of friends or family</th>
<th>1</th>
<th>2</th>
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<td>Social networking site of a commercial organisation (e.g. Stagecoach, First Great Western)</td>
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<td>Website of a commercial organisation</td>
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<td>Social networking site of an independent body or charity (e.g. WWF, Greenpeace)</td>
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<tr>
<td>Social networking site of the Government (e.g. the Department for Transport, Transport for London)</td>
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Thank you for taking part in this questionnaire. You will now be entered into a prize draw which will take place on 27th September 2011

If you have any general comments regarding the use of social networks for transport, travel or environment related purposes, please add them here:
The role of social networking sites in changing travel behaviours

This report provides an overview of research that was conducted to explore the potential for social networking sites to encourage changes in travel behaviours, and to provide recommendations for how any identified potential could be optimised through their design. A scoping review identified that there is not a robust empirical research base from which to draw conclusions about the possible impact of social networking sites on behaviour. The study sought to develop the evidence base by conducting original research, which included: three focus groups, two interviews with developers of social networking sites that could potentially trigger a change in travel behaviours, and an online survey with a sample size of 141 social networking users. This report presents the findings of these research activities, and concludes that they are a good way to communicate messages to a broad demographic. They seem likely to increase awareness of the impact of travel behaviours and of more sustainable alternatives. This may not lead to a direct change in travel behaviours, but it potentially impacts on attitudes and values that could change travel behaviours in the longer term. There are a number of design considerations that, if built into the development (and continued maintenance) of a social networking site, could increase this impact.

Other titles from this subject area

PPR490 The acoustic durability of timber noise barriers on England’s strategic road network. P A Morgan. 2010
PPR485 The performance of quieter surfaces over time. M Muirhead, L Morris and R E Stait. 2010
PPR394 An examination of the monetised benefit of proposed changes to type approved noise limits for tyres. M Muirhead, P G Abbott and M Burdett. 2009