Utilising technology to link the property buying process and sustainable travel

‘Technology in Transport’ TPS Bursary

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SYSTRA Ltd
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Introduction

The frustration from lack of travel information when recently searching for a house helped influence the proposal of this project. The purpose of this paper is not to focus on the application of the technology, but to understand if there is the potential for technology to link property buying with sustainable travel and create behavioural change through its availability at a key life event.

One of the United Kingdom’s most popular online property buying websites, Rightmove.com was created in 2000. Since 2006 its usage has grown every year, with over 100 million people using it in its lifetime (Rightmove Plc, 2015). This reflects both increased accessibility to technology and the shift in property hunting methods. It is largely understood that the travel choices people take with routes they make every day and all times of year are mostly habitual. In other words, technology and property hunting to help influence travel behaviour change are now looking at multiple suitable search areas and houses online before deciding upon an area first then seeing a local estate agent, to now looking at multiple suitable search areas and houses online before approaching estate agents.

This change in property buying is broadening information and choice in what people look for with properties and increasing the ease of comparison. It is therefore a good time to use this change in technology and property hunting to help influence behaviour change factors with how they use and view transport.

Promotion of positive and sustainable travel choices, away from the private car is needed to help tackle the growing issues we are having.

...
to create the opportunity of behaviour change through meeting the
TSC have established a hierarchy of traveller needs, where it looks
transport holistically to create behaviour change.

Evidence for the importance and impact of sustainable transport on public
behaviour and in improving the experience on public
service (n/mm). This is combining improvements in infrastructure
and ideas look at changing travel choices to provide mobility as
a new way of changing behaviour when it comes to transport choices. The
newest behaviour change being the habit is habit is
behavior changes will create a higher chance of a shift in an individual's
developing user interfaces that combine a range of behaviour change
habit.

Consistently performing the behaviour change until it becomes
behavioural change that can be reinforced and reinforced and
incentives to change awareness to perform the intended
behaviour. Through using reminders and providing self-binding,
Technology can have a specific impact where there is intention
they are doing them, the technology needs to ask for this.

In order for the change to not only occur but be sustained, the
controls influence unsustainable behaviours.

Challenging these technologies that have become the norm and
in order to promote sustainable behaviour's innovation has the

research into how and why people's behaviours change is vast and

Research into how and why people's behaviours change is vast and

adjustable information on sustainable movement available in certain
areas is large.

fill in the spaces: In this section, I am covering more common to use technologies to carry
out these processes. It is becoming more common to use technologies to carry

in this paper, I am covering more common to use technologies to carry

C (2015) have shown that there are specific to
behaviour change and sustainable behaviour. Research into technology that creates
key factors for success. The main

et al (2013) and Johnson (2013): In order for the change to not only occur but be sustained, the
individuals' choice of how they travel becomes habitual. Habits are

individuals, this is a clear influence on sustainable movement available in certain
areas is large.
help to form the overall questions this paper seeks to answer.

The flow chart shows how information in this literature review has
helped inform the survey and interview questions, which has in turn
provided a better insight into the research towards sustainable travel,
and future applications.

As technology provides the ability to be instantaneous with
personalised information, so should the provision of
transport and how it is understood and accessed. Additionally,
Schwanen et al (2012) emphasise the importance of education with
informed users towards sustainable travel, in
technology will help inform the shift towards sustainable travel,
in turn the information fed back into the technology by users will only
help improve user knowledge for
multiple industries, such as the property market and travel. These
ideologies need to form part of the approach with regards to policy
behaviour change towards sustainable travel.

Combining all of the aforementioned factors into the provision of
potential needs of the user, as technology provides the ability to be

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Research methodology

To inform the questions set out in the introduction and the research questions asked, initial research was done through analysing relevant literature on behaviour change, technologies influence on real estate agents and property buying. The findings from this will be discussed throughout the paper.

Primary research was conducted through an online survey and interviews conducted through Survey Monkey. Full questions for survey and interviews provided in the Appendix.

Online survey and interviews focused on commuter journeys or journeys on public transport also has the most habitual form of travel. This form of transport also has the predominant daily journey from the property so this is considered the best way to allow for more thoughtful answers, and also for all questions looked to gain further information to help answer this paper’s questions.

Figure 1 shows the age profile and location of the respondents.

London

Scotland

North of England

Midlands and East of England

South of England

Wales

Figure 1: Age and location profile of respondents summary

- Timeframe that emerging technologies of interest (e.g. apps) were becoming popular with property hunting.
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To what extent do people actively research travel options when looking for a property?

Johnson (2014) reported that the main reason people move home is for improved lifestyle; whether that's further away from a city to have a larger property, or into a nicer neighbourhood. The ability to commute easily and effectively can also have a big impact on where people want to move to and therefore the property prices in that area.

The survey showed that 54% of the respondents didn't change their method of commuting when they moved property. However, of those that did change their mode of transport it was a shift towards sustainable modes with car commuting going down from 34% to 29% and train commuting going up from 21% to 24%. Cycling was the only mode to stay the same percentage of users. This shows that there is scope for people to change their mode of transport when moving properties and therefore there is a large potential for people to use that information if presented to them.

Additionally, the results of the primary survey showed that the most important part about a property's location when searching, was the property itself over the location, and the quality of the surrounding area. The lowest ranked reasons were accessibility to cycle routes and bus stations, and local pedestrian routes and their quality. The reason for access to a train link being high up shows that the attraction of being near a train station is higher than a bus. This could also be a reflection of the large amount of responders from London, and the ability to commute easily and effectively to cycle routes near the property itself over the location, and the quality of the surrounding area. The lowest ranked reasons were accessibility to cycle routes and local pedestrian routes and their quality.

Although it is worth noting that all these attributes were still in the top 5 highest ranked reasons. Figures 2 and 3 demonstrate in detail the travel options and how people research them when looking for a property.
This feasibly shows that people look at transport options as a secondary factor, but rate the journey time to get to their workplaces as a high factor. This suggests that there is a lack of communication over the ability of a range of transport options to provide potentially quicker or more accessible journeys than a car if the property is situated in the right place. Although consideration of reviewing the travel options prior to purchasing or looking at the property may not mean people will actively change their travel options, it is a clear indication of the consideration to change their behaviours occurring.

Survey respondents were asked if they were given information on local travel by estate agents when searching a property. Figure 4 below shows that the majority of survey respondents didn’t receive any help with their travel options within their property search. If they did, a high percentage also did additional travel research. Only 20% did no research on travel options surrounding their property. Furthermore, the estate agent interviews revealed that the Bristol estate agent did not give travel information unless a potential buyer asked for it, stating that: “Proximity to amenities in walking distance is often a more attractive prospect.” However, providing a reflection of the difference between London and elsewhere in the UK, the London estate agent gives information about local transport links from early discussion about a property stating that she: “…tends to attach Google links of the distance from the property to the nearest Tube Station.”

Results suggest that, outside of London, there is a low amount of estate agent did not give travel information unless a potential buyer research on travel options surrounding their property. This provides evidence of a juxtaposition between the differences in how data is then processed and presented to the individual to show them multi-modal transport options above the car to places they regularly visit. The improvement needs to be in the way that data is then presented to the individual to show them multi-modal transport options above the car to places they regularly visit. This provides evidence of a juxtaposition between the ways that people are looking at the potential property, showing that people are looking at the transport options available if the property is situated in the right place. Additionally, people will do their own research on travel from a property actively seeking travel options from estate agents themselves. According to the information shown, if 70% of respondents are doing their own separate transport research, the estate agent did not give travel information unless a potential buyer was actively seeking travel options from estate agents themselves. The improvement needs to be in the way that data is then processed and presented to the individual to show them multi-modal transport options above the car to places they regularly visit.
If presented with travel options through technology within the property search, will people be influenced by and use this information?

There are already a number of information outlets that provide the information they need, and the decision-making process is influenced by a variety of factors. The accuracy of travel information, particularly in regards to journey times, is a key feature that gives people the information they need to make informed decisions.

Additionally, the two applications that provided up-to-date rail journey information also showed the highest usage rates. This information can be further tied into the property hunting process through the survey showing that 74% of people that moved into rental accommodation initially found their property through a mobile app or website, with this number being 81% for buyers. This demonstrates the scope for additional information about travel to be presented to individuals within these online platforms.

Figure 5 shows the most popular journey planning applications used by respondents, with Google Maps (multimodal) being the most popular, followed by Apple Maps (multimodal) and Network West Midlands (multimodal). It demonstrates that these applications are widely used and provide the information people need to make informed decisions.

The survey also showed that journey time and distance were the most ticked reasons why people choose their travel modes, with accuracy of rail information being a clear additional factor. This information can be further tied into the property hunting process through the survey showing that 74% of people that moved into rental accommodation initially found their property through a mobile app or website, with this number being 81% for buyers. This demonstrates the scope for additional information about travel to be presented to individuals within these online platforms.
Although presentation of the information and potential buyers seeing it is one thing, the actual use of this information is where the ability to have travel options as a factor for decision-making makes a difference. People will be willing to have travel options as a factor for planning decision making and therefore having this knowledge given already in the habit of using applications to help with their journey. People are already using applications when choosing a property. Additionally, people are more likely to change their home if they see the most accessibility to travel somewhere as quickly as possible with the most accessibility to their home. This leads for accessibility has further demonstrated that it is one thing, the actual use of this information is where the ability to have travel options as a factor for decision-making makes a difference.

Furthermore, there was a positive response to people using an application with this provision over another, with 43% saying not at all. The Director of the NAEA said application with this provision over another, with 43% saying not at all. When asked, the Director of the NAEA said application with this provision over another, with 43% saying not at all.

Figure 6: Survey responders reason for their current mode of travel to work.
What technology is being utilised today to inform transport and property choice? Are people using these, and is there scope for more?

When questioned about the changes to and future influence of technology on property buying, all interviewees agreed that the way people search and look at properties is developing. This claim is backed up by researchers such as Sisson (2016). However, they felt property is still able to search by area or define your own property. They give the ability to search by area or define your own property is needed. The NAEA stated the importance of companies needing to embrace the technology change to provide quick and useful information to the clients.

A review of the current most used property hunting websites and applications, ‘Rightmove’ and ‘Zoopla’ showed that with regards to presenting transport information, both do show on a map where the property is, they give the ability to search by area or define your own property. Rightmove, although this does allow for people to do their own transport searches in a different application, ‘Zoopla’ Travel Time Search box Example.

This is the total of the travel information an individual is given by the nearest stations name and the mile distance to that property. There is a map of where the property is, with written information on there is a map of where the property is, with written information on search boundaries. Once a property of interest has been clicked on, the property is, they give the ability to search by area or define your own property. This shows that there is change and the estate agents are recognising this, it is the ones that can embrace this and adapt with it that will do best.

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The technology to link property buying and multi-modal transport options does exist and is being used by a handful of smaller property application operators. A website call ‘Propertywide’ search application operators. A website call ‘Propertywide’ does exist and is being used by a handful of smaller property application operators.

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Figure 8: Zoopla Travel Time Search box Example.

Source: zoopla.com
provides a website only provision with the ability to input a place of work and then search for properties in an area that is a certain travel time from that place of work. This therefore helps spread the knowledge of travel patterns.

As shown in Figure 8, Zoopla also have this provision on their website only. This allows people to directly compare properties or areas on their accessibility, with the ability to select public transport as an option. Both websites only give the distance in time for one form of transport which the user has to choose. They don’t automatically provide this information as part of their main search, it is part of a different search useful to those interested. Additionally, multimodal options are not presented and neither are the routes themselves – all of this means that individuals who are interested will still have to do additional research, this may be a deterrent for those not interested.

With varying amounts of information can be use, such a Google and Mapumental. Information can be freely open sourced through APIs from companies like iGeolise where multiple packages of this software is run by iGeolise, which multiple packages of this software provide information using current trends and emerging technologies to predict the future of searching such as Google and Mapumental.

The increasing use of open source information and its future gives the ability for this technology to use large datasets and provide the ability for this technology to use large datasets and provide datasets, this therefore helps spread the knowledge of travel patterns.

iGeolise have reported that there has been a 300% increase in conversions (iGeolise, 2016) showing that even with this software being provided by sites as an alternative search, people are using it being provided by sites as an alternative search, people are using it. Fraser (2016) and Veash (2016) provide information using current trends and emerging technologies to predict the future of searching such as Google and Mapumental.

Figure 9: Virtual Reality in Thomas Cook stores

Source: http://visualise.com/case-study/thomas-cook-virtual-holiday

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the government and companies to embrace change and innovation.

In order for these potential developments in information technologies to be achieved there needs to be the policies and willingness for both the government and companies to embrace change and innovation.

Implementing the idea of behaviour change before an individual even bought a property,

To the station, for example, will help to create a holistic approach to transport information, such as the visualisation of an individual’s cycle route to work or a walk to a train station. This in turn will enhance by including technologies that have the ability to be further enhanced by including technologies that have already been seen with disruptive technologies such as Uber and Airbnb. Furthermore, all these property buying customer providing easy access to information and decision making empower the customer.

All of these future examples of technology have the potential to be translated into in-store virtual property viewings where the clients can view properties all from one place instead of going ‘around the houses’.

He argues that by embracing technology in-store the whole process will become more engaging for the buyer, with further innovation potentially allowing on-street estate agents to become a multi-faceted shop for access to everything to do with property. In addition to the potentials of virtual reality mentioned, Fraser (2016) includes the ability of being able to combine 3D technology to place your furniture into a room. She also suggests that the influence of the increasing accessibility of drones will provide a market for people flying them around to view a neighbourhood at different times of the day allowing them to assess noise levels, for example.

Furthermore, all these property buying technologies have the ability to be further enhanced by including transport information, such as the visualisation of an individual’s cycle route to work or a walk to a train station. This in turn will enhance by including technologies that have already been seen with disruptive technologies such as Uber and Airbnb. Furthermore, all these property buying customer providing easy access to information and decision making empower the customer.

In order for these potential developments in information technologies to be achieved there needs to be the policies and willingness for both the government and companies to embrace change and innovation.
What are the potential future impacts of this research and are there any policy implications that could arise from this research?

If more people know about their travel options before moving to a place, they will have the ability to make informed decisions early on. This in turn may convince people to only take one car to a property and buy one that is near an accessible commuter link, and therefore reduce the numbers of cars on the road. Additionally, this could lead to less on street parking and therefore further lowering the congestion on local roads, as well as a potential increase in property prices in areas with better transport connections. This will potentially create a push for better public transport connectivity and infrastructure in areas to help increase the value of the area. The positive cycle that this has the ability to create can clearly be seen in London where, even before the Crossrail line has been created, property prices in areas where there will be a stop have already increased and are predicted to continue increasing by 3% over other property prices in the area (Bloomfield, 2016).

In recent years we have already seen and are continuing to see substantial investment in transport with policy aims looking to encourage greater use of public transport, cycling and walking which all has the final aim of reducing the reliance on cars. However as results from this survey and national statistics show, commuting by car is still done by the majority so the only way for this investment in the infrastructure to take effect is to provide a complete solution that can be still done by the majority so the only way for this investment in the infrastructure to take effect is to provide a complete solution that can be effective in its motivation than traditional methods. Generalist information given to the masses does not go personal and therefore more effective in the motivation then change. Providing information through technology gives the ability for example, new and improved efficient cycle ways. This change for example, new and improved efficient cycle ways will, in turn, lead to pressure for infrastructure investment.

In the implementation of any plans, incorporating technology as a highly effective and important catalyst is crucial. Planning that looks at changing both simultaneously and complementing each other will produce the other. The government needs to adopt a platform that enables both options. However, while new technology and infrastructure are implemented, it is important that they are used to help understand the accessibility of different parts of the locality. This could therefore help to improve both infrastructure and knowledge in those areas. The data received could further back up findings applications and policies. Policies need to be changed to work with technology and people. The effectiveness and engagement within transport policies could help back up the technology people are presented with used to change the behaviour of the people. The government needs to understand the impacts that innovating work to provide information that an individual finds useful specifically to them, has the potential to have a much larger impact. This is starting to be recognised in policies that improve infrastructure work to provide information that an individual finds useful specifically to them, has the potential to impact that innovating work to provide information that an individual finds useful specifically to them, has the potential to impact on their behaviour.

Furthermore, authorities could work with the technology to inform into policy.

In conclusion, the potential future impacts of this research are substantial. The government need to understand the implications of the research and to tailor their travel options before moving to another city or country.
The key outcome of this paper is to provide an understanding of how technology can be used to link transport and place, and demonstrate how this information can be used to benefit estate agencies, local authorities and the general population. This was broken down into a number of research questions presented in the introduction. The following can now be said regarding the views from the survey responses, interviews and relevant independent research:

- The majority of people currently do independent research on travel information for a potential property;
- People will pay more attention to travel modes if the information is given to them during their property research;
- The technology to create the link between property buying and a shift in travel patterns is available and adaptable; and
- If embraced by both local governments and estate agents the ability for this technology to have a major impact in shifting people commuter modes away from the car is large.

A key factor to this having a positive effect is making the information personal to the customer and using the subsequent data to further enhance the technology. Although not taking away from the important results found, there are limitations to this study. With a larger sample size, more representative results could be obtained. Additionally, analysis of the representative results could be altered, and the results from different areas, such as London and the rest of the UK, present a difference between London and the rest of the country, which is one of the limitations of this study. With a larger sample size, more people will pay more attention to travel modes if the information is given to them during their property research; technology can influence behaviour change, if part of a holistic approach; and the technology to create the link between property buying and travel modes is available and adaptable. The majority of people currently do independent research on travel information for a potential property; and travel information for a potential property.

The survey responses, interviews, and relevant independent research on the survey responses, interviews, and relevant independent research on infrastructure being provided in the area, the make-up of the area, congestion, and the funding to transport other than the car and can have a massive effect on both present and future accessibility. This in turn will increase the usage of public with useful and accurate information about neighborhoods user. The potential for change is great and will become greater if local psychological barriers to change can be broken down the infrastructure provided. The study between different areas in future, the difference between urban areas. Although future technology was looked at, a prototype for this technology to have a major impact in shifting people commuter modes away from the car is large. The majority of people currently do independent research on travel information for a potential property; and travel information for a potential property.


Technology is Changing the Role of the Real Estate Agent. Technology Products: March 2014, 78(2), 52-68.
Appendix A: Online Survey Questions
Appendix B: Interview with Mark Hayward

1. Within course materials do you promote the importance of an estate agent knowing the local area to where they are selling properties? If not why not?

Very important. Local expert should be fully aware of anything that affects the area.

2. Across the UK (excluding London) to what extent do you feel that the location of a property is influenced by its proximity to a transport hub (cycle network, bus stop, train station)?

Hugely influential in terms of speed, availability, access, what the transport is e.g. rail, road quality, and buses.

3. To what extent do you feel there has been a change in the way buyers search for properties over the last five years and since the introduction of mobile apps? How do you feel estate agents have reacted to this change, and how could they improve?

Criteria remain constant. Schooling as a criteria has increased in recent years as people are moving less = more important for the long term. Large amount of info prior to viewing.

Area is expanded, not just an area they know – can be places they wouldn’t normally consider.

4. Do you feel that in the last five years there has been a change in what people find important in regards to a property?

Yes trying to encourage the technology doesn’t replace the human interaction (aspect) – can act quicker with getting info out to people.

5. What technologies are currently used most by estate agents and what technology developments are in process that may aid the house buying process?

Extremely useful, there is a high potential for this app. Needs to embrace the tools, but not underestimate the human aspect.

Very important. Local expert should be fully aware of anything that affects the area, not why not?
Interview with Bristol Estate Agent

1. Do you actively give prospective buyers information on the areas local transport, or do you wait until they ask about it? I tend to wait until they ask, unless it is a particular selling point for a property. Proximity to amenities in walking distance is often a more attractive prospect than being close to local transport in a city the size of Bristol.

2. How important is knowing the local area to the success of selling a house? If not important, what is important? The knowledge of the local area is exceptionally important for successfully selling housing. Proximity to local amenities and in particular schools can add significant value to a property for people with children. Generally, people choose to purchase houses based on the area, followed by the house itself. Equally, people new to the area need to be reassured that where they are moving to is suitable for them – knowledge of local areas plays a key part in this instance as what determines suitability will differ for different demographics.

3. Do you feel technology changes with the house buying process are helping or hindering traditional estate agents? If hindering, what do you feel traditional estate agents can do to stop this? There is evidence to suggest that technology changes have achieved little in attracting people away from using traditional estate agents. Whilst internet agents offer lower fees, ultimately, reassurance in a reliable and traditional estate agent is often a more attractive prospect that being close to local transport in a city. For a property, proximity to amenities in walking distance is often a deciding factor. Equally, people new to the area will ask if it is a particular selling point.

4. Do you feel that people think the accessibility of a non-car based transport network (e.g. train station, bus stop) is important when looking for a house? Do you feel house prices are higher in places with better public transport connectivity? It generally depends on the client’s position in terms of employment, family and friends etc. Often those choosing to live further outside of city centres or even in the countryside are more inclined to find somewhere with good public transport networks. However, the further you go from the city centre, the less options there are for good transport links, therefore this does have a tendency for house prices to rise. Where transport links are more accessible, the house prices are generally lower.

5. How important is knowing the local area to the success of selling a house? If not important, what is important? The size of Bristol, more attractive properties that are close to local transport in a city.
Appendix D: Interview with London Estate Agent

1. Do you actively give prospective buyers information on areas local transport, or do you wait until they ask about it?

We provide information on transport in our descriptions online and on the bullet point information on the brochures we hand out to people. "Close to Transport Links" is specific in the online descriptions. You have to be careful with how long you say it can take to get somewhere as sometimes it is judgemental. Upon registering a prospective buyer (prospective buyer), you ask them their requirements, which could be "2 bed flat close to the tube." Some say "maximum 10 minutes walk." Then when I send through appropriate properties, I tend to attach Google links of the distance from the property to the nearest tube station. Or if when I asked them where they work, they said outside London, I would give them the driving distance. So 99% of the time, a buyer will say what transport they need to be near (tube/M4).

2. How important is knowing the local area to the success of selling a house? If not important, what is important?

Very important. I have lived and worked in Chiswick for just over a year, so I am able to point out the shops and restaurants that are especially close. Knowing if the tube is going to be extended throughout the area is relevant to the buyers. Also, the majority of vendors will choose an agent based on their knowledge of the local area. You look unprofessional if you do not understand the area and what makes it so special.

3. Do you feel technology changes with the house buying process are helping or hindering traditional estate agents? If hindering, what do you feel traditional estate agents can do to stop this?

Technology is allowing more people to see more properties no matter what time of day and what makes it so important. Agents need to adapt with the time and make sure the internet is a strong part of their business model. Be present on all the property apps. Have your own property app and make sure it is easy to use. There will always be a need to peak in person, so I am able to point out the shops and restaurants that are close to the property when I buy a house. Very important knowing the local area to the success of selling a house. If not important, what is important?

4. Do you feel that people think the accessibility of a non-car based transport network (e.g. a train station, bus stop) is important when looking for a house? Do you feel house prices are higher in places with greater public transport connectivity?

In London, especially yes, because that is how everyone gets in to central London. However, based on the edge of west London close to Heathrow and Gatwick, some of the buyers are also cautious on how far away from the M4 they are to get to work as well. House prices are generally higher in places where there is easy access to the tube or train network. The majority of vendors will choose an agent based on their knowledge of the local area, and if you look unprofessional, you will lose them.

I think an app that showed the connectivity of houses when potential buyers of properties are looking online is important. It also gives them an idea of how long the journey will take. We provide information on transport in our descriptions online and on the bullet point information on the brochures we hand out to people. So, when deciding on a property, they can see the journey time and make sure it is within their requirements.