You'll Never Ride Alone: The Role of Social Media in Supporting the Bus Passenger Experience

PAUL GAULT
University of Aberdeen

DAVID CORSAR
University of Aberdeen

PETER EDWARDS
University of Aberdeen

JOHN D NELSON
University of Aberdeen

CAITLIN COTTRILL
University of Aberdeen

The paper discusses a study of social media usage within the context of a public transport operator. This involved fieldwork within three subsidiary companies of FirstGroup alongside a content analysis of the individual Twitter feeds they operate and the conversations they generate through them to engage with passengers. A refiguring of the notion of social is taking place within these companies through their emergent strategies for utilizing social media. The findings showed how the companies address this by pursuing a persistent conversation with customers, facilitating the provision of real-time information and carefully managing their Twitter identity.

INTRODUCTION

This paper discusses a study of social media usage within the context of a large public transport operator. This study involved fieldwork within three subsidiary companies of FirstGroup alongside a content analysis of the individual Twitter feeds each subsidiary operates, and the ways in which these led to passenger engagement via conversation. The wider role of social media in public transport will firstly be discussed in order to provide context for how it is currently being used elsewhere. Further background information about the transport operator that forms the case study for this paper will then be described. Following this is an explanation of the study methodology to develop an understanding of social media in a transport operator context. The discussion will then move on to refiguring notions of social through emerging strategies for utilising social media in relation to dialogue,

2014 Ethnographic Praxis in Industry Conference Proceedings, pp. 199–212, ISSN 1559-8918.

information and identity. Finally, a set of recommendations for other transport companies utilising social media will be provided.

THE ROLE OF SOCIAL MEDIA IN PUBLIC TRANSPORT

Recent years have seen an explosion in the use of social media as a means to communicate public transport information. A recent survey (Accenture 2013) noted that passengers desire more frequent communication from, and greater access to, transportation providers via social media. By utilising such channels, operators can gain valuable insight into the passenger experience including their attitudes and behaviours, while travellers can alert others to delays and disruption at an early stage – often before the operator even becomes aware of a problem.

There has been previous work on understanding the passenger experience for long-distance coach trips from an ethnographic perspective (Ochs, Gaudron, and Cruz 2013) but this did not consider how social media would compliment the service offering. Another study explored the use of social media with focus groups involving rail passengers exploring how Twitter is increasingly important as an additional channel of information during disruption (Passenger Focus and Abellio 2012). This approach used a series of example tweets and scenarios to gather passenger opinions but did not evaluate the passenger experience whilst in use. Further work has sought to use social media as a means to predict the journey planning demands of passengers (Alesiani, Gkiotsalitis, and Baldessari 2014), inform transport policy (Grant-Muller et al. 2014) and facilitate the travel operator's response (e.g. cancelling or rescheduling services) during a major disruption such as a natural disaster (Guan and Chen 2014).

Social media is now being used by many transport agencies to support communication with their customers. Analysis of usage appears to indicate a preference for Twitter rather than Facebook as Facebook is often considered too personal and social (Passenger Focus and Abellio 2012).

TRANSPORT OPERATOR CONTEXT

FirstGroup were the focus of this study, the world's largest public transport operator in private hands, which is headquartered in Aberdeen, UK. Within the UK, FirstGroup provide both bus and rail services; in the USA and Canada they operate school buses and inter-city bus services. Their UK bus operation consists of 18 subsidiary companies that operate independently of each other providing local and inter-city services. The subsidiary companies that were the subject of this study were First Aberdeen, First Glasgow and First South East and Central Scotland; they are based in Aberdeen, Glasgow, and Edinburgh respectively. First Aberdeen serves an urban population of on average 50,000 customers a day from a single depot in the city with 160 buses. First Glasgow also has an urban setting but serves a much greater population from multiple depots situated across the city using over 1000 buses. First South East and Central Scotland serves a population of on average 87,000 customers per day, distributed over a much wider geographic area including rural areas and a large city (Edinburgh) from two depots with 420 buses in operation. The areas covered from services

operated by these subsidiaries dictate the information needs of passengers in the various locations (Pender et al. 2014). For example, in a rural setting there is less infrastructure so not all bus stops are easily identifiable and there is limited information detailing the service provision. Regardless of the area, making use of the real-time and two-way nature of social media can be beneficial for passengers. Twitter is the main form of social media being used by these operators to communicate with their passengers due to its strength in facilitating real-time communication and less personal nature of material posted in comparison to Facebook (Passenger Focus and Abellio 2012).

STUDY METHODOLOGY

A mixed-method approach was adopted to gather data for the study. An analysis of the Twitter feeds operated by the three First subsidiaries could have only shown the outward facing identities provided by the operators; however, a comparison of material showing what the operators are outwardly communicating against their strategy and day-to-day running of the social media accounts was desired. In order to achieve this, it was necessary to supplement the data gathered online with field data from multiple rounds of workplace interviews and observations. This also provided an exciting opportunity to compare the data generated from the three different company locations.

The workplace interviews were designed for the operators of the social media accounts so included questions on the usage of Twitter, the account operator's practise, crafting of content, identity management, audience and the implications for the wider company. The rationale for these questions was to understand the company's strategy for the use of social media and how real-time travel information flowed through the organisation. The questions were initially developed by engaging in an informal chat with a representative from FirstGlasgow's marketing team and then returning for further visits with a more defined interview protocol. Additional follow up interviews with other staff at First Glasgow and those at First Aberdeen and First South East and Central Scotland helped to further refine this protocol as particular topics started to move into the foreground.

The use of content analysis was deemed appropriate for studying the Twitter feeds as it helped to categorise and understand a large dataset of mainly qualitative material obtained from the tweets on the operator's accounts. It was recognised from the beginning that storing outgoing tweets from the operator's account alone would be insufficient for understanding the full interaction between operators and passengers, so the other side of the conversation involving the travelling public would also have to be captured. These were the public messages sent directly to the operator using the '@mention'[1] mechanism of Twitter. A first round of storing the operator's Twitter conversations for each of the companies was carried out over a weeklong period. This was achieved through tracing back all the conversations the operators had engaged in over that time through their Twitter profile page and extracting this data into a spread sheet. This was used to help define an appropriate schema for categorising the tweets and to generate requirements for collecting the content

[1] An '@mention' is a public tweet directed at a specific account.

on a larger scale using the Twitter API[2]. As part of this research a Twitter Monitoring Infrastructure was developed to collect the tweets sent from and mentioning the accounts FirstinGlasgow, FirstAberdeen, and FirstScotland. These tweets were stored in a database containing the message content and all of the associated metadata such as the tweet author's username, location (if available), Twitter client used to send the tweet, and tweet time. The tweets were then manually classified using a key to indicate the themes of both the individual tweets and the overall conversations. The key was created using a grounded theory approach and contained four categories, which were 'promotion', 'feedback', 'travel information' and 'response'. Each of these categories had many subcategories so for example promotion included 'morning greeting', 'sign off', 'press release', 'chat' and 'happy staff'. The individual tweets were assigned to two categories where necessary. Additionally, the full conversations between the operator and the passengers are assigned a further category. The key was generated through multiple iterations of data analysis and helped to indicate the thematic range of conversations taking place.

FIGURE 1. ***Word cloud visualisation of the FirstinGlasgow Twitter feed.***

A triangulation activity was carried out after the fieldwork and content analysis had taken place. This enabled the staff who operate the Twitter feeds to compare the understanding generated through the fieldwork activity with the outcomes of the content analysis. Some of the content analysis data for the triangulation was presented as a word cloud visualisation showing the Twitter feed from each account (an example is shown in Fig. 1). The themes that were generated from the content analysis were also discussed with the individual operators to understand how they related to their work.

REFIGURING NOTIONS OF SOCIAL

[2] API - Application Programming Interface used to directly access and record data from the server that has not been preformatted for viewing as a web page.

The use of social media in a transport context can push away from mere marketing usage and towards customer support, aid, care and possibly more meaningful customer engagement. One key aspect of social media is its ability to build a relationship with customers that extends beyond the duration of their actual journeys to span across multiple service touch points. The provision of real-time travel information to customers via this channel is also a significant advantage as it can facilitate a fast response to events from the operator. Further, the identity with which the operators portray themselves is particularly important due to the public nature of the customer interactions taking place. The next three sub-sections will describe these aspects of social media usage from a transport operator's perspective.

Persistent Conversation

Real-time social media conversations help transport operators accompany passengers during their journeys. The Twitter feeds strive to humanise the passenger's experience of the transport service rather than simply acting as a commoditised service with which the passenger interaction is purely functional. This aspect was something that all of the companies who were involved in the study shared experience of.

This persistent conversation with passengers provides a daily dialogue to accompany them on each journey they take. The bus network consists of the multiple routes the buses run on; the nature of this bus network and staff scheduling means that the bus drivers (i.e. the actual people on the road whom the passengers meet when boarding the bus) will frequently change the routes they are driving. As a consequence, passengers are unlikely to encounter the same driver during bus journeys on different days. However, the people operating the Twitter account are the same regular team of people. In the subsidiary companies studied, this consists of four staff in Glasgow, three in Aberdeen, and one person in Edinburgh. The company philosophy of FirstGroup states that they are, "committed to our customer – we keep our customers at the heart of everything we do." The regular contact with the Twitter operators through social media seeks to enable passengers to build a strong relationship with the company via their interactions online than otherwise might be possible with the drivers on the road. This requires the marketing team to take internal ownership of the company brand (Abbing and Gessel 2008) to help inform the content of the tweets and frame the relationship the company aspires to have with their passengers. Through this active engagement on Twitter, the company is then equipped with a human-like identity and a familiar virtual face by its staff conversing with passengers through this social media channel.

There has been a collapsing of internal roles within the company through the use of Twitter. This means that whereas the use of social media was originally designed to act purely as a marketing channel, it now also extends into the provision of both customer service and real-time travel information. This shift in roles illustrates that the twitter operators have to be adaptive and provide personalised responses including travel advice along with travel information. Despite this expanding remit, the people allocated to staffing the Twitter service still chiefly consist of people from a marketing background. These

employees have highly specialised skills for dealing with the general public but their implicit role within the company is being enlarged beyond traditional marketing via a social media platform to encompass richer, prolonged interaction with passengers.

The role of marketing in a transport and social media context is to increase public awareness of the operators using available online channels of information. This could include objectives such as publicising improvements to the network, increasing awareness of the brand and building stronger links with the communities the operator serves. A Tweet exemplifying this marketing role is as follows:

> FirstAberdeen: FirstGroup announces 70m bus order ... http://bit.ly/1gU8LTn

This tweet provides a link to a press release for the parent company FirstGroup detailing an investment being made in a new fleet of vehicles.

The role of customer service in a transport and social media context is to facilitate a passenger experience that sets it apart from other operating companies. This includes dealing with both positive and negative feedback from passengers, then feeding this information through to other parts of the organisation. A positive example of this occurring was described by one of the marketing team at Aberdeen where a passenger had tweeted about a particularly helpful driver. The team then forwarded this to the network manager so the positive feedback could be relayed to the driver and his line manager. This is a particularly important element of social media as the initial main points of contact are in a public domain so the conversations are visible for all to see. A more negative example instance of a customer service interaction with a passenger is as follows:

> PassengerA: @FirstAberdeen what is the point in a timetable if drivers ignore it? Bus was meant to leave at 2107 but it left at 2055. Really helpful.
>
> FirstAberdeen: @PassengerA Hi PassengerA, sorry about that. Can you email us the details to customer.services@firstgroup.com and we'll investigate. Thanks

The user PassengerA (name changed to preserve anonymity) has sent a message addressed to the FirstAberdeen account to make a complaint about a bus leaving earlier than scheduled. The passenger then signs the tweet with a sarcastic phrase. The FirstAberdeen operator responds by offering an apology and requesting further details to be sent to the customer service e-mail address. This demonstrates the strategy of taking any negative comments away from a discussion in the public domain to an alternative channel of communication as soon as possible. This strategy within FirstGroup limits the potential damage to the reputation of the company through engaging with negative feedback in this public channel.

The role of real-time travel information in transport and social media is to provide passengers with current information detailing the arrival and departure times for the journeys they wish to take. As location-aware technology has become increasingly widespread in recent years, passengers now expect to know where the bus on which they wish to travel on

is and when it will arrive. The more accurate and timely the information is, the more it enables passengers to make informed decisions regarding their travel arrangements. An example tweet detailing some real-time travel information is as follows:

> FirstAberdeen: It's Friday Aberdeen! Yay! 2 minor RTC's at Nigg and Mounthooly are causing some delays to services 18 and 11,20 & 23 at the moment

This tweet was provided at the start of the day as part of the signing on routine with an initial positive message about the imminent weekend. The tweet then uses a very industry specific term RTC (Road Traffic Collision) to inform passengers about some minor delays to the service. The bus routes affected by this minor delay are then detailed. This is an example of real-time information being proactively pushed out via Twitter. The next section describes alternative strategies for dissemination of such travel information.

Provision of Real-Time Information

We found that the three companies were approaching the provision of updates via social media about unplanned disruption to the network in two very different ways. These can be classified as either proactive or reactive. FirstAberdeen proactively pushed out updates about known issues on the bus network even before there had been a request for information from the travelling public. First Glasgow had a more reactive strategy and were only providing information when passengers encountered a delay on the network and queried FirstGlasgow via Twitter. FirstGlasgow do not specifically report on unplanned disruption, but rather leave it to the travelling public to find out if the bus service they are using will be delayed. First South East and Central Scotland uses a balance between these two approaches by making frequent use of the retweet function to push information from other transport agencies as it becomes known.

The scale of the operation was a big factor influencing whether unplanned disruption information should be provided or not. The FirstAberdeen bus network is much smaller than the others, meaning there are fewer disruptions to the network and when these do emerge, information about them can be published via the Twitter feed. Conversely, FirstGlasgow has a much larger operation (in terms of number of services and passenger journeys per day) so those managing the feed do not deem it practical to alert passengers to every unplanned disruption known on the network. The Edinburgh company does inform passengers about unplanned disruptions to the bus network but they do so less frequently than in Aberdeen. This indicates that the size of the operator is a factor in defining their approach to sharing information about unplanned disruption. A gradual role out of information being provided therefore appears to be the preferred solution so when the operation is larger in size, the transport network could be broken down into smaller, more focussed associated social media feeds based on particular areas or individual routes. This also reduces the amount of irrelevant tweets any followers would see, which would otherwise potentially reduce the utility of the Twitter feed.

The availability of information within the companies at each of the locations is also a factor influencing the dissemination of disruption information. As there is only a single

depot in Aberdeen, the network controller is situated immediately downstairs from the Twitter operator in the marketing office. This facilitated more opportunities for dialogue between the network controller and Twitter operator to easily share new information as it became known. The proximity of the marketing team to the network controller is a key factor influencing this flow of information. In contrast, FirstGlasgow operate six depots across the city but the marketing team, who are operating the Twitter feed, are situated in an entirely different location to the network controller. Although they could easily telephone them if a passenger had queried an issue, they did not have the same immediate access to real-time updates about the network, as they did not work in the same space. A member of the marketing team at FirstGlasgow stated their desire to have access to the same stream of information that is available to the network controller. First South East and Central Scotland had a timed-release strategy that required the network operators to report information about unplanned disruption at a specific time of day. This helped to streamline the reporting of disruptions but did not provide a continually open channel of such information.

The argument within the operators for not proactively pushing all updates on unplanned disruption is that it does not reflect well on the company to publicise deficiencies in the service. One of the marketing team at FirstGlasgow explained that there is a debate inside the company about just how much information on service problems should be pushed out onto Twitter. The strategy of withholding such information unless a problem is queried is sympathetic to a marketing perspective that wishes to portray the company in the best possible light. However, this lack of transparency leaves passengers uninformed about potential issues on the network until they encounter them when attempting to travel.

The ability of the transport operators to respond to the queries via social media is also limited by the work hours of the staff members operating the accounts. The standard work hours of 9am to 5pm are not necessarily peak times when unplanned disruption are likely to occur on the bus network. It is during the peak travel times from 7am to 9am and 4pm to 6pm when commuters are either going to or travelling from work that the service is potentially most useful. There was some flexibility in this as workers could be at their desks earlier at all three of the companies. There is a daily routine of the Twitter operators 'signing on' to post first thing in the morning to let passengers know they are open to answer any further tweets. This was often complemented with a 'signing off' at the end of the day to make passengers aware that their tweets will no longer be answered for the day. The response to queries outside of the standard work hours was approached cautiously as it could potentially provoke an expectation from the customers that the Twitter service had extended availability.

FirstGlasgow and FirstAberdeen both employ a team of staff to help maintain their respective Twitter accounts, while only a single person is responsible for the South East and Central Scotland account (see Identity Management section for further discussion on the implications of managing this situation). The teams were not staffed for posting to the account outside their standard work hours and as the task was shared, no one took responsibility for doing so. However, the single person at South East and Central Scotland did post outside of work hours and took much greater ownership over the identity. The Twitter operator here had a belief that in order for the account to be most useful, it needed to be maintained on a continual basis. The timeliness, accuracy and personalisation of the

response are key factors in how effective the real-time travel information is that is delivered (Papangelis et al. 2013).

Identity Management

The transport operators had very different strategies at each company for managing their Twitter identity and the persona that is communicated to the passengers through this. Each company emphasises engagement with the people behind the operator's Twitter feed who communicate with their passengers rather than merely acting as an emotionless corporate identity. However, the identity of the people behind the feeds is entirely constructed by the marketing teams to fit how they wish to portray their company's brand. All of the feeds made use of three-letter names to be used as a signature for their tweets. Whilst it is unsurprising that these names were aliases, the ownership of the aliases was managed in very different ways.

FirstGlasgow had four different people who took turns to manage the Twitter feed. These people had marketing roles within the organisation, except one who was an on-street inspector checking passengers held a valid ticket for their journey. Each person had their own alias and a persona to match. The (three-letter) persona names were Eva, Jim, Kim and Abi. The staff took ownership of these names as a public facing persona they could use to communicate with their passengers. The public in turn became attached to these different personalities with favourites even being judged through a competition at one stage. The feedback this generated from passengers helps illustrate this sense of attachment:

> @FirstinGlasgow: Vote for your fav twitterer & you could win some chocs. 20 winners will be chosen by the winning twitterer. #yummmm
>
> PassengerX: @FirstinGlasgow Has to be Eva. Helpful, informative, does what she says she says she's going to do. Oh, and a wee bit of a sense of humour.
>
> PassengerY: @FirstinGlasgow to Eva you are a wee gem listening to all our grumps x

The different personas were assigned roles for the types of service they provide. For example, the Jim persona was used to specifically offer technical information about the bus service to passengers. The person behind the Jim persona stated he had received feedback from customers who believed he was a software 'bot' rather than an actual person. The reason for this was the manner in which the Jim persona communicated by relaying factual information rather than conversing using a friendly tone. This resulted in the person behind Jim changing how he communicated in order to provide more light-hearted messages intended to help engage with the passengers. The team maintaining the FirstGlasgow account used the web interface for Twitter with updates mostly being posted from a desktop computer. Some members of the team used their personal mobile devices to keep track of the feed - but did not post to it when they were not at work.

The company in Aberdeen had three different people to maintain the Twitter feed; their organisational roles were as follows: marketing manager, network manager and network operations manager. As the network consists of the routes the buses run on, these managers are responsible for planning the routes and ensuring all of the buses are running to schedule. All three individuals use a single shared outward facing persona called Jen. The network manager updates the account most frequently (around 80% of the tweets). However, this person had no specific training in terms of dealing with the public, so the tone of the messages was more serious and less light-hearted. The range of duties the network manager does in relation to the day-to-day management of the bus services has potential to conflict with the requirements of maintaining the Twitter feed. This resulted in some tweets appearing rather argumentative in response to passenger complaints. The female gender of this persona is perhaps inappropriate as the person answering most of the tweets is in fact male. The decision to use a female persona was taken, as it was believed passengers would be less likely to argue with a female. This account was also chiefly administered using the Twitter web interface running on a desktop computer. Again, the mobile app based version helped the team members to monitor the account but this was mostly used for viewing. Therefore any tweets were composed whilst being situated at the desks in the marketing office. This indicates tweets are purely based on information they are relaying from sources internally rather than first hand experience from on-board the buses.

First South East and Central Scotland had only a single person behind the account as there were fewer resources devoted to it due to the rural setting of the majority of their bus routes; this is consistent with experience elsewhere (Pender et al. 2014). This person had the role of marketing manager for the company and used a Twitter persona called Amy to tweet. As one person was doing all maintenance of the account, the personality projected through the identity did not have as much character in comparison to FirstAberdeen and FirstGlasgow. There is not a predetermined character for that persona so it is based more on the individual operators personality rather than a constructed one. The marketing element of the account was very well executed with timed release of tweets to synchronise with other channels (e.g. the network update page on the company's website). There was also much greater use of the retweet function for other accounts that have provided travel information relevant to the geographic area. However, the engagement between the operator and the customers was limited to a much more functional relationship with less general chat and more direct answering of queries. This account was maintained using Hootsuite[3] web software on a desktop computer alongside a mobile device to post to the account when the operator was elsewhere.

In summary, the strategy for managing the personas in each location is very different. The ownership of the personas is greatly improved if the individual responsible for portraying each one is expressive in how they communicate but also aware of how their messages could be perceived in the public domain. When setting up personas, operators should carefully select the gender of the persona name. While female names may be considered to be less argumentative, operators should be aware of possible loss of trust from passengers if they become aware of a gender mis-match between the persona and person

[3] https://hootsuite.com

behind it. The identities portrayed through the social media accounts can influence the ways in which passengers engage with this channel of information. The interaction with passengers through the personas, as demonstrated by the good nature of conversations at First Glasgow, helps to facilitate a closer relationship with the travelling public.

CONCLUSION

The social media usage at these three companies has revealed very different strategies related to their use of social media. Although the marketing teams who operate the Twitter feeds do communicate with each other at monthly meetings, their approach to the utilization of social media is widely varied. There are many factors influencing these alternative strategies such as knowledge of the passenger demography including their usage of social media, the geography of each company's operating area, scale of the service they operate and the experience of good or bad interactions with passengers via this channel.

There is no clearly defined shared practise for using social media across each of these locations. Each company has defined their own strategy through the experience of the staff members and the information needs they have defined for the service. Much of the current approach to using it has been learned through extending marketing knowledge into the social media channel and evolving how it has been used over time. There has been no explicitly organised activity by the company to most effectively utilize social media channels. The evolution in usage has been dependent on individuals learning through their practise within these organisations. This does have challenges, as it is a fast paced and very public platform meaning mistakes are difficult to hide. The speed in which other media outlets can pick-up on an issue and the ability for examples of poor communication to spread around the web require a cautious approach.

Our findings indicate that other transport operators using social media as a real-time information channel should factor in the three key themes this paper has highlighted when defining their strategy for deployment on this channel. These were persistent conversation, provision of real-time information and identity management.

The persistent conversation is the communication occurring between passengers and a set of personas through Twitter. This means that a relationship can be built up with their customers over an extended period of time than is otherwise possible with the bus drivers providing their service. This relationship construction reflects an important role that social media can play as it helps reintroduce a social element of customer engagement that is otherwise lacking from the service.

The provision of real-time information relates to the ways in which information on an unplanned disruption is communicated through this channel. The alternative strategies for doing this were described in terms of being proactive or reactive when disseminating such information to passengers. The scale of the bus network and proximity to the bus network managers are major influences on deciding which approach is adopted.

The identity management relates to the ways in which personas are used to communicate with passengers, and their configurations are largely dependent on the resources available within the organisation. The ability for the transport operators to build a

meaningful relationship with their customers can be influenced by the ownership the Twitter operators hold of these identities.

Further work is necessary to explore with passengers the impact their usage of Twitter has on the travel experience. The assertions made about passengers throughout the paper have been based either on the second hand accounts during interviews with the marketing team or a reading of material available through Twitter. There has not been any direct participation of passengers with this study in order to gain their perspective and confirm or deny such assertions. More activity to address this would further evaluate the notions of social involving dialogue, information and identity described in this paper. Additional activity within the three companies would involve a workshop to explore the themes that have been highlighted through this study and help articulate a shared strategy for best practise.

Paul Gault is Research Fellow at the dot.rural Digital Economy Research Hub at the University of Aberdeen, UK. His research focuses on developing methods for distributing consumer experience research across groups of non-specialists in large organizations. He received his PhD in Design Ethnography from the University of Dundee, UK. p.gault@abdn.ac.uk

David Corsar is a Research Fellow in Intelligent Information Infrastructures at the dot.rural Digital Economy Research Hub. His research focuses on knowledge engineering, semantic web, provenance, and quality assessment in systems that integrate humans with artificial intelligence algorithms and big data. He received his PhD in Computing Science from the University of Aberdeen, UK. dcorsar@abdn.ac.uk

Peter Edwards is Professor of Computing Science and Director of the dot.rural Digital Economy Hub. His current research interests are focused around intelligent information infrastructures, with particular emphasis on provenance, information quality, and trust; these are explored in the context of applications built using linked (open) data. p.edwards@abdn.ac.uk

John Nelson is Professor of Transport Studies, Director of the Centre for Transport Research and leader for Intelligent Mobility in dot.rural. His research interests include: user requirements of both passengers and public transport operators and evaluating the impact of an enhanced information ecosystem on trip planning, activity patterns and longer-term behaviour change. j.d.nelson@abdn.ac.uk

Caitlin D Cottrill is Lecturer in the department of Geography & Environment at the University of Aberdeen, UK. Her primary research focuses on the use of data and technology in encouraging active and public transport modes, and in the protection of personally identifying spatiotemporal data via policy and design. c.cottrill@abdn.ac.uk

NOTES

Acknowledgments – The authors would like to extend thanks to FirstGroup and the participants who took part in the interviews described in this paper. The research described here is supported by the award made by the RCUK Digital Economy programme to the dot.rural Digital Economy Research Hub; award reference: EP/G066051/1.

REFERENCES CITED

Abbing, E. R, and C. Gessel.
2008 "Brand-Driven Innovation." *Design Management Review* 19 (3): 51–58.

Alesiani, Francesco, Konstantinos Gkiotsalitis, and Roberto Baldessari.
2014 "A Probabilistic Activity Model for Predicting the Mobility Patterns of Homogeneous Social Groups Based on Social Network Data." *Transportation Research Board 93rd Annual Meeting*.

Grant-Muller, Susan M., Ayelet Gal-Tzur, Einat Minkov, Silvio Nocera, Tsvi Kuflik, and Itay Shoor.
2014 "The Efficacy Of Mining Social Media Data For Transport Policy And Practice." In *Transportation Research Board 93rd Annual Meeting*.

Guan, Xiangyang, and Cynthia Chen.
2014 "Using Social Media Data to Understand and Assess Disaster." In *Transportation Research Board 93rd Annual Meeting*.

Ochs, Lionel, Nicolas Gaudron, and Virginia Cruz.
2013 "Coach Me: Innovation in Bus Travel." In *Ethnographic Praxis in Industry Conference Proceedings*, 2013:406–7. Wiley Online Library.

Papangelis, Konstantinos, Somayajulu Sripada, David Corsar, Nagendra Velaga, Peter Edwards, and John D Nelson.
2013 "Developing a Real Time Passenger Information System for Rural Areas." In *Human Interface and the Management of Information. Information and Interaction for Health, Safety, Mobility and Complex Environments*, edited by Sakae Yamamoto, 8017:153–62. Lecture Notes in Computer Science. Springer Berlin Heidelberg. http://dx.doi.org/10.1007/978-3-642-39215-3_19.

Pender, Brendan, Graham Currie, Alexa Delbosc, and Nirajan Shiwakoti.
2014 "Social Media Use during Unplanned Transit Network Disruptions: A Review of Literature." *Transport Reviews*, 34(4): 501–21.

Web resources

Accenture. 2013.

2013 "Public Transportation Users Predict Big Increases in the Use of Smartphones, Paperless Travel and Social Media, New Accenture Survey Reveals." http://newsroom.accenture.com/news/public-transportation-users-predict-big-increases-in-the-use-of-smartphones-paperless-travel-and-social-media-new-accenture-survey-reveals.htm
accessed 13 March 2014

Passenger Focus, and Abellio.
2012 *Short and Tweet. How Passengers Want Social Media during Disruption.* http://www.passengerfocus.org.uk/research/publications/short-and-tweet-how-passengers-want-social-media-during-disruption
accessed 13 March 2014