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case analysis**

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The use of social media by train operating companies: A study case analysis

Jeffrey M. Howard

Abstract

Social media increasingly provides a tool for public transport operators to interact with users and non-users of their services and collect user-generated data. The high variance of information produced by large user communities makes social media a significant player in service-oriented markets. Indeed, micro-blogging has spread to the transport field as a means to provide time-sensitive information and to engage customers. Nevertheless, there is a lack of understanding on the policies and extent to which micro-blogging is used by public transport operators as they engage with their customers. Social media is a tool that can be used for engagement, however there is no analysis of its application by private rail operators.

This paper addresses a gap in understanding regarding the use of social media among passenger train operating companies. In particular, it provides a case study on Twitter use by rail operators in the specific context of the UK; chosen as private train operating companies are only responsible for operating services rather than infrastructure planning. Specific aims clarify (i) the level and the type of stakeholder engagement through social media by private rail operators in Britain and (ii) how they use the micro-blogging tool to engage with their stakeholders. An analysis of five study cases on the use of micro-blogging by British passenger train companies is presented. Twitter is chosen as the social media application in the study cases as it is the only social media platform used by all British rail operators, as well as being seen as an information sharing platform rather than a purely social application. The paper shows evidence that Twitter use by train operators in Britain reflects a mainly information sharing function, however their policies and tweets indicate the use of Twitter for two-way stakeholder engagement. Recommendations based on the study cases are provided, reflecting the best practices for Twitter use by transport operators.

Key Words

Social Media; Rail Transport; Transport Planning; Stakeholder Engagement; Twitter

1. Introduction

Social media, defined as internet applications that “encourage users to interact with one another” (Bregman, 2012, p1), has become an important part of modern society (Gal-Tzur et al., 2014). Social media can serve as a tool for transport operators to engage with their customers and community. Current literature focuses on the uses of social media in public transport, such as Bregman’s (2012) report on social media practices of public transport operators; and how information received from social media users can be extracted and analysed for use in transport planning (Gal-Tzur et al., 2014; Grant-Muller et al., 2015; Kuflik et al., 2017). Despite the wide range of literature on the use of social media by transport operators, a gap exists when examining social media and stakeholder engagement within the context of private passenger rail operators.

The aims of this paper are to examine the use of social media as a stakeholder engagement tool for transport operators and how, in the context of private rail operators in the United Kingdom, it is used as a tool for engagement. Study cases of the Twitter accounts of current private passenger rail operators in Britain is undertaken to understand the extent to which they use this social media platform. The paper aims to answer the following research questions:

1. What are the main characteristics of social media applications used by transport operators?
 - a. What are the main functions of social media use by transport operators?
 - b. How is social media being used for stakeholder engagement?
 - c. What are the benefits and challenges for transport operators using social media?
2. How are passenger train operating companies in Britain using Twitter?
 - a. How are the main functions of Twitter reflected by train operators?
 - b. How are train operators using Twitter as a stakeholder engagement tool?

The rail system in Britain is comprised of four main actors: private train operating companies, Network Rail, the Department for Transport (DfT), and the Office of Rail and Road. Train operating companies provide passenger rail services and manage most stations and, unlike public transport operators, do not typically own or manage the infrastructure they operate on and manage. Network Rail, a public company that reports to the Department for Transport and Transport Scotland, owns and operates the railway infrastructure and major stations, granting

permission for publicly licensed train operating companies to use the infrastructure for rail services. The government agency Department for Transport is responsible for infrastructure funding, the franchising process that includes the awarding and managing rail franchises, and the regulation of rail fares (Abrams, 2015). The independent public regulator, Office of Rail and Road, is the safety and economic regulator for British railways, providing licenses for the regulation of health and safety performance (Abrams, 2015). Without the need to incorporate infrastructure in their planning, private rail operators are able to focus on serving the needs of customer and are responsible for operating train services, creating timetables, setting unregulated fares, determining service levels, and operating most stations (Abrams, 2015). Planning for rail services, however, are not as transparent to the public as private rail operators often make their studies and decisions private to safeguard the privacy of their information (Booth and Richardson, 2001), being given an exemption from freedom of information laws due to commercial sensitivity (Abrams, 2015).

Transport operators are placing the customer experience and satisfaction at the core of their businesses, as exemplified by Transport for London's (TfL) commitment to create a transport network that meets the needs of every Londoner (Transport for London, 2017); or Southeastern railway's commitment to place the passenger experience and satisfaction at the centre of their vision and objectives (Southeastern, 2016). These two transport providers go a step further in identifying social media as key component to their success and legitimacy. TfL demonstrates the value of real-time travel alerts through their partnership with Twitter, becoming the world's first transport agency to provide live travel alerts for their services (Transport for London, 2017). Southeastern also identifies Twitter and Facebook as communication channels, not only for service information, but to engage with customers through customer service functions on Twitter that have expanded to 24-hour coverage 7 days a week, and through marketing campaigns that encourage customer participation on Facebook (Southeastern, 2016). Social media has the ability to engage single individuals in assisting their needs, to reach out to the community in sharing information, and to provide customer service functions for their users.

The social media application Twitter was used for the case studies. Twitter is the social media platform that is most often used for users to receive information (Cottrill et al., 2017; Mellon and Prosser, 2017; Pender et al., 2014). A Passenger Focus (2012) study of social media use in England supports these findings as passengers indicated their preference for the use of Twitter to receive information from rail operators, rather than Facebook which passengers use for

social purposes. Further, in a comparison of rail operator social media use, Twitter was the only social media platform used by all the train operating companies in Britain.

This paper is presented in the following four sections. Section 2 provides the research methodology. Section 3 presents a literature review on the use of social media by transport operators. The case study analysis is presented in Section 4, providing a critical analysis of the social media accounts of five British public passenger rail operators. Section 5 offers a discussion and conclusion of the research.

British passenger rail operating companies' use of Twitter has not been examined in the literature. Current literature focuses on public transport agencies rather than private transport operators. Previous studies have focused on tweet analysis, however the social media policies of organisations were not extensively covered. In this paper, private train operating companies in Britain were analysed through their social media policies and use of Twitter to determine how they use this social media tool, and to gauge how they use it as a means of stakeholder engagement. The use of social media policy analysis and tweet analysis within British private train operating companies provides a new examination of the use of Twitter within this context.

2. Methodology

The selection of rail operators for the case studies was based on the type of service provided, passenger journeys, availability of Twitter data and social media policies, the number of tweets, and geographic location of services (Table 1). A guide to rail franchising produced by the Campaign for Better Transport and Department for Transport Rail Executive explains that all train operating companies are private companies that provide passenger services, and can be broken down into three main categories: franchising where train operators operate a rail service under contract and license from the government; open access operators who operate their own rail services and are regulated by the Office of Rail and Road; and concessions where services are contracted to private operators and managed by local transport authorities (Abrams, 2015). Rail operators that provide domestic services and who offer services not primarily for travel to/from airports were chosen. Social media criteria for selection required a social media policy available online, and access to a full year's worth of tweets and retweets by the rail operator. The rail operators were chosen to represent the three types of services: franchises, open access operators, and concessions. Including these three services allowed for a comprehensive

comparison of all train operators, highlighting any similarities and/or differences in their use of Twitter. In order to provide representation from across Great Britain, a rail operator that does not provide services to London, defined as destinations within the Transport for London fare zones, was also chosen. Within these three service types, one operator from each category was selected based on the highest number of passenger journeys for the fiscal year 2016-2017 as a means to measure the largest group of stakeholders. A fifth rail operator with the highest number of tweets was chosen to represent the rail operator with the highest level of Twitter use.

Table 1. Selected case study rail operators
 Source (service type and passenger journeys): Department for Transport
 Source (tweets): Twitter
 Source (social media policy and service location): Grand Central, Greater Anglia,
 Transport for London, Northern, Southeastern

Train Operator	Service Type	Passenger Journeys 2016-2017 (millions)	Tweets (000s)	Social Media Policy	London Services
Grand Central	Open Access	1.4	29.9	Yes	Yes
Greater Anglia	Franchise	82.0	807	Yes	Yes
London Overground	Concession	188.8	48	Yes	Yes
Northern	Franchise	107.7	611	Yes	No
Southeastern	Franchise	182.4	508	Yes	Yes

Data used in the case study analysis was collected from the selected rail operator’s website, the rail operator’s Twitter account, and the DfT’s 2017 passenger rail journey report. The social media policies and general information on the selected rail operators were retrieved from their respective websites. The rail operator’s Twitter pages provided information on the number of followers and tweets, number of accounts followed and number of tweets liked by the rail operator. The Twitter analytics website <http://foller.me> was used to gain Twitter metrics on the tweets ratio of followers per following, number of replies per 100 tweets, number of accounts mentioned in rail operator tweets, and the time of the rail operator’s activity on Twitter. These analytics provided information for determining tweet reach, levels of activity on Twitter, and levels of stakeholder engagement through Twitter. Tweet data for 2017, consisting of the tweets and retweets originated by each rail operator, was captured and provided in an excel workbook by WSP. Finally, information on franchises and service types, and numbers of passenger journeys was provided in the DfT’s annual passenger journeys report.

The approach to content analysis was adapted from Manetti et al.'s (2016) analysis of social media content of American and Canadian public transport agencies. The use of categories from the Transit Cooperative Research Program's (TCRP) report of social media uses by transport operators was used to examine how rail operators use their social media accounts (Bregman, 2012). The TCRP report is well-cited within the academic literature on social media use by transport operators and provides an overview of the main motivators for social media use. Using the social media policies and tweets from the selected rail operators, an analysis of how these reflect the categories of social media use from the TCRP report, engagement with followers, and the means in which social media is used as a tool for rail operator or user-led forms of participation. In order to conduct this analysis of tweet content, the tweets and retweets from November 2017 were reviewed for each chosen rail operator. The number of tweets analysed was capped at the first 100 tweets and retweets combined.

The tweets were broken down into five categories for analysis: "Real-time Information", "Public Information", "Engagement", "Entertainment", and "Other". In Bregman's (2012) report, a category for employee recognition was also included, but this has been included in the "Other" category for this case study. "Real-time Information" includes live service updates as events are happening. "Public Information" includes future service updates, general news and messages, promotion of services, and related messages such as infrastructure updates from Network Rail or updates from British Transport Police. "Engagement" consists of messages where the rail operators solicit questions or clearly make themselves available for two-way communications, invites to events designed to interact with staff for the purpose of stakeholder engagement, sponsorships of community events, or responses or acknowledgement of stakeholder tweets. "Entertainment" includes information on contests, non-service related images or videos, non-rail operator events, or celebratory posts. The last category, "Other", includes messages such as staff signing-in and out for their shifts, lost item notifications, or other messages that do not fit into the prior categories. It should be noted that the categorisation of tweets is subjective and will vary from person to person based on how the tweets are interpreted.

3. Literature review

3.1 Main functions of social media use

The use of social media by transport agencies has been an emerging discussion in the literature over this past decade. In the TCRP study of American and Canadian transport agencies, three main purposes for the use of social media emerged: providing public information, stakeholder and public engagement, and entertainment and support functions (Bregman, 2012). Using social media to gain public sentiment has also been a focus of literature through the content analysis of public transport user's posts (Casas and Delmelle, 2017; Schweitzer, 2014; Collins, Hasan and Ukkusuri, 2013).

A common theme in the literature is the use of Twitter in sharing information. The sharing of information in a timely manner is especially important for passenger railways, as they operate high-capacity networks that are reliant on technology where failures result in major service disruptions (Pender et al., 2014). The micro-blogging application is often where information is shared before it is covered by major media (Efthymiou and Antoniou, 2012), and where passengers and train companies are first informed of disruptions (Clegg et al., 2018). The ability of users of Twitter to share information in real-time, particularly during service disruptions and other incidents, is an important tool for transport agencies in managing their networks more efficiently and with a holistic view of situations (Rashidi et al., 2017). A study of Chiltern Railway's response to system disruptions indicated that in order to provide acceptable customer service levels, speed and accuracy of information was critical for effective response and recovery (Clegg et al., 2018).

The benefits and challenges of social media use by transport operators have been well documented. The use of social media for transport providers offers data collection at minimal costs, real-time data availability, the ability to determine the needs of specific users, and insight into riders' sentiments (Collins, Hasan and Ukkusuri, 2013; Gal-Tzur et al., 2014). Transport agencies benefit as social media allows for direct collection of data from transport users (Gal-Tzur et al., 2014). Collecting data directly from users is beneficial as it can be a quick source of data that can be used until big data is made available (Rashidi et al., 2017). The information shared can be used in the development and implementation of user-led transport services (Gal-Tzur et al., 2014). Social media, however, presents challenges for

transport operators, including allocation of resources to provide and maintain accounts; records retention requirements, security, and privacy concerns; staff training; managing criticisms; and development and implementation of social media policies (Bregman, 2012; Manetti et al., 2016).

Despite the incorporation of social media technology by transport agencies, criticisms of technology use in planning emerge from the literature. The lack of understanding of the use of technology by staff can serve as a barrier to use (Majumdar, 2017; Slotterback, 2011). Questions also remain on if technology can be successfully used as a participation tool (Slotterback, 2011). The provision of resources to implement and maintain technologies is also raised, as these might not be available (Bregman, 2012; Gal-Tzur et al., 2014; Majumdar, 2017; Slotterback, 2011). These criticisms, however, may be alleviated through the investment in proper resources and training. In an increasingly digital world, transport agencies should embrace modern technology or risk losing useful data.

3.2 Social media as a tool for stakeholder engagement

One of the main functions of social media use by transport operators emerging from the literature is stakeholder engagement. Social media allows stakeholders and operators to communicate directly with one another in a customer service function (Gal-Tzur et al., 2014). Social media is seen as a bottom-up platform where information is voluntarily contributed by the public and can help transport agencies determine the needs of its users. (Gal-Tzur et al., 2014).

Literature on social media has shown that it has become a public engagement tool for transport operators, used to promote their services and solicit customer feedback (Manetti et al., 2016). The use of social media as a tool for engaging stakeholders in informal ways is one reason transport providers are adopting these applications to open up a new channel of engagement with their customers (Bregman, 2012). Reaching those who are more difficult or who are unwilling to reach out via conventional methods is also possible with social media, giving transport operators an additional tool to engage with these stakeholders (Grant-Muller et al., 2015, Gal-Tzur et al., 2014). A study by Manetti et al. (2016) showed that both Facebook and Twitter are used by public transport agencies as a means to engage with stakeholders. This study indicated that whilst both platforms are used for stakeholder engagement, Facebook is

more likely to be used to purposely engage with stakeholders, whilst Twitter focuses on messages that share public information (Manetti et al., 2016).

Literature on social media also raises criticisms that use of these applications does not reflect the general population, favouring a younger, more affluent and educated population (Collins, Hasan and Ukkusuri, 2013; Efthymiou and Antoniou, 2012; Schweitzer, 2014; Slotterback, 2011). A study of demographics for social media users in the United Kingdom, included as part of the 2015 British Election Study, reflects the findings of the literature and indicates that the users of social media were not reflective of the overall British population, particularly in age and level of education, with social media users being younger and more educated than the overall population (Mellon and Prosser, 2017). Populations with lower income are often underrepresented as they are not able afford technology or resources to use social media applications (Collins, Hasan and Ukkusuri, 2013; Slotterback, 2011). Slotterback (2011) indicated that people with lower incomes, those less highly educated, and racial minorities are the least likely to participation in traditional engagement methods; and internet-based engagement may create a further disadvantage against participation by these communities.

4. Study cases

4.1 British passenger rail social media overview

Social media is used by all British passenger rail operators, and the number of Twitter followers and rail operator tweets provides a basic overview of these accounts (Table 2). A general overview of followers and tweets shows the Caledonian Sleeper having the lowest number of each, perhaps reflecting the small market and limited services for overnight trains between Scotland and London. On the opposite end, Great Western Railway has the highest number of followers and Greater Anglia has the highest number of tweets. These last two operators provide services to a much larger catchment area, which includes London suburban services.

Customer interactions and customer service functions can be viewed through the number of replies to tweets (Table 2). There is a wide range of interaction levels, as seen through the number of replies per hundred tweets. The lowest of these, TransPennine Express, is only 8 per cent of their tweets, however, this may be attributed to TransPennine providing two Twitter accounts, one for general information and one specifically for customer service functions. Similarly, South Western Railway also provides two accounts, however the replies of 99 per cent and 87 per cent suggest that South Western uses both accounts for customer service functions. When factoring out separate help accounts, however, TfL Rail has the lowest level of replies at 24 per cent, which may reflect the lack of funding and resources for social media as TfL is a public transport agency.

The hours an account is staffed (Table 2) may offer insight on the importance train operating companies place on the use of social media for stakeholder engagement. Slightly over half of all rail operators staff their accounts 24 hours every day of the week, although their services, with the exception of Great Western Railway, do not run 24 hours. The hours of account monitoring suggest that rail operators consider Twitter to be a valuable form of communication and customer engagement, with staff being able to respond to customer questions at all times. Whilst some operators do not staff their accounts 24 hours, this may not necessarily reflect a lack of value of social media for engaging with stakeholders. This lack of constant monitoring may reflect, however, a lack of resources to maintain this coverage.

Table 2: British passenger rail companies' Twitter account overview (May 1, 2018)
 Source: <http://foller.me> (Replies) and Twitter (Followers, Tweets, Hours Staffed)

Train Operator	Followers (Thousands)	Tweets (Thousands)	Replies	Hours Staffed
Arriva Trains Wales	59.1	161	88	Varies by day
c2c	78.4	236	83	24/7
Caledonian Sleeper	7.9	7.2	80	Unknown
Chiltern Railways	93.2	130	81	7:30 – 19:30
CrossCountry	84	223	97	24/7
East Midland Trains	57.6	248	87	24/7
Grand Central	10.4	30.1	85	Varies by day
Great Northern	46.5	121	94	24/7
Great Western Railway	760	775	100	24/7
Greater Anglia	103	811	82	24/7
Hull Trains	6.2	18.7	88	Unknown
London Northwestern Railway	11.3	7.7	82	Varies by day
London Overground	468	48.2	46	24/7
Merseyrail	44.9	72.6	64	Varied by day
Northern	95.6	614	91	06:00 - 22:00
ScotRail	201	294	82	Varies by day
South Western Railway	17.3	7	99	Unknown
South Western Railway (Help)	430	412	87	24/7
Southeastern	222	512	95	24/7
Southern	188	621	93	24/7
TfL Rail	69.1	30	24	Unknown
Thameslink	64.2	191	94	24/7
TransPennine Express	50.4	19.1	8	Unknown
TransPennine Express (Help)	16.1	91.8	86	Unknown
Virgin Trains East Coast	160	427	98	24/7
Virgin Trains West Coast	450	914	99	24/7
West Midlands Railway	14.9	9.3	87	Varies by day

4.2 Social media policies and uses

Many of the passenger rail operators in the United Kingdom publish their social media policies on their websites. The five rail operators chosen share many similarities in their policies, which spell out how they use Twitter, what times the accounts are managed, how they prioritise and respond to comments and questions, and what their expectations are for respectful dialogue

with customers. Table 3 provides an overview of the social media accounts for each rail operator, whilst Table 4 provides a list of key themes included in each social media policy.

Table 3. Social media usage overview by rail operator social media policy
Source: Grand Central, 2017; Greater Anglia, 2018; Northern, 2017; Southeastern, 2018; Transport for London, 2018

Rail Operator	Staffed Hours	Primary Uses
Grand Central	Monday – Saturday 06:00-22:00 Sunday 08:00-22:00	<ul style="list-style-type: none"> • Live travel information and travel alerts • Customer service and feedback • Promotional information
Greater Anglia	24 hours Monday - Sunday	<ul style="list-style-type: none"> • Live travel information and travel alerts • Customer service and feedback • Transport-related news and information • Entertainment
Northern	06:00-22:00 Monday - Sunday	<ul style="list-style-type: none"> • Live travel information and travel alerts • Customer service and feedback • Promotional information and entertainment
Overground	24 hours Monday - Sunday	<ul style="list-style-type: none"> • Live travel information and travel alerts • Customer service and feedback • Transport-related news and information
Southeastern	24 Hours Monday - Sunday	<ul style="list-style-type: none"> • Live travel information and travel alerts • Customer service and feedback • Promotional information and entertainment

Customer etiquette emerges as a main component of each policy. As mentioned previously, social media lends itself to a bottom up approach to engagement (Gal-Tzur et al., 2014). This bottom up approach to engagement is reflected in the etiquette and response policies, as these focus on tweets and direct messages on Twitter from various stakeholders. The social media policies are clear about to which questions and feedback rail operators provide responses. Most of the functions are customer service related, such as questions on rail services. Each rail operator sets its own parameters for responding to questions through tweets and direct messages through Twitter. These policies vary from striving to respond to each message (Greater Anglia, 2018; Northern, 2017; Southeastern, 2018), answering questions that are most relevant (Transport for London, 2018), or responses where the rail operator can be the most

useful (Grand Central, 2017). All the operators agree to not respond to abusive comments and, in serious cases, will block accounts they deem excessively breaching this policy.

Table 4. Passenger rail operators’ key social media policy themes
Source: Grand Central, 2017; Greater Anglia, 2018; Northern, 2017; Southeastern, 2018; Transport for London, 2018

Rail Operator	Twitter Etiquette	Disruption Mode	Complaints	Response Policy
Grand Central	Yes	No	No	Yes
Greater Anglia	Yes	Yes	No	Yes
Northern	Yes	Yes	No	Yes
Overground	Yes	No	Some	Yes
Southeastern	Yes	Yes	Some	Yes

Whilst all of the rail operators share similarities in their policies, they diverge with policies regarding complaints from Twitter users, and the use of a disruption mode where the operators focus on sharing real-time information rather than spending time responding to tweets. Grand Central, Greater Anglia, and Northern state that customers should contact their customer service teams via other methods, such as email or phone, in order to make formal complaints (Grand Central, 2017; Grater Anglia, 2018; Northern, 2017). Despite the aims to respond to some or all of the tweets and direct messages, all but Grand Central and the Overground have a crisis mode where sharing real-time information during a disruption becomes the priority, and tweets are not responded to (Greater Anglia, 2018; Northern, 2017; Southeastern, 2018).

In examining the policies, a theme of allocation of resources becomes evident. TfL’s social media policy explicitly states that they do not have the resources to manage all of their social media accounts 24 hours a day, even though they have allocated the resources for 24-hour management of the Overground account (Transport for London, 2018). The hours (Table 3) of the other operators varied between 24 hours and hours that run from morning to late evening, but not overnight. This variation could be reflective of limited resources for management of their accounts. Grand Central’s management hours may be due to the limited services they provide as an open access operator. The other suggestion of limited resources is how the social media accounts select which tweets and messages they respond to. Whilst operators strive to respond to all messages, they may only respond to those that have the most relevance, are beneficial to the most people, or those which they can contribute to in a meaningful way.

4.3 Rail operator Twitter content analysis

Engaging with the stakeholders was examined through several measurements of interaction with followers (Manetti et al., 2016). On a basic level, the number of followers for each account indicates the potential direct reach of each tweet. In order to better understand genuine interest in engaging with rail operators, examining the follower ratio (number of followers per follow) indicates that followers are not simply following a train operator’s Twitter account out of courtesy for being followed by the train operator. Of the train operators, the Overground has the highest follower ratio, with over 19 thousand followers despite no Twitter account follows by the Overground.

Table 5: Rail operator Twitter interactions as of April 10, 2018
Source (followers, following, likes): Twitter
Source (followers ratio, replies, mentions): <http://follower.me>

Rail Operator	Followers (000s)	Following (Actual)	Followers Ratio	Replies	Likes	Mentions
Grand Central	10,300	170	60,588	80	803	80
Greater Anglia	103	138	746	51	612	56
Northern	375	5,238	72	91	10,600	94
Overground	465	24	19,375	55	0	60
Southeastern	220	136	1,618	95	8,990	86

Beyond the basics of followers, how the rail operators respond and interact with users provides a view of the amount of interaction they have with other users of Twitter (Table 5). One indicator is the rail operator liking other users’ tweets, suggesting that there is a level of interaction by the rail operators as they respond to messages they have read (Manetti et al., 2016). The rail operators vary in their use of likes, with the Overground having zero likes and Northern with over 10 thousand. Given the follower ratios, this suggests a level of engagement in either responding to mentions or proactively reading the tweets of others. Mentions also provide an indicator that rail operators are engaging with other Twitter users, by directly mentioning them in their tweets. Similarly, the number of replies to tweets gives an indication of two-way communication between the rail operator and users (Manetti et al., 2016). Replies and mentions are closely tied together and in these cases are similar in numbers, as replies will include a mention of the original tweet’s writer. A wide variance in replies and mentions

emerges between Greater Anglia on the lower end with 51 replies and 56 mentions, to Southeastern on the higher end with 91 replies and 94 mentions. Looking at the whole picture, a pattern emerges with the Overground showing lower replies, mentions and likes; and operators such as Northern and Southeastern who have the highest levels of replies, likes, and mentions.

4.4 Rail operator tweet analysis

Twitter is primarily used by rail operators as a platform for sharing of information (Table 6). In each of the rail operator’s accounts examined, the sharing of real-time information plays a primary role for those accounts. Service information that is unrelated to real-time information is also an important message shared through Twitter. On the low end, Grand Central’s sharing of real-time and service information accounts for 43 per cent of their tweets, whilst this information accounts for 91 per cent of Northern’s tweets. Aside from Grand Central, all of the rail operators used Twitter predominantly for the sharing of information. Examples of each of the five categories of tweets can be found in Table 7.

Table 6. Rail operator tweets categorised by message category

Rail Operator	Real-time Information	Public Information	Engagement	Entertainment	Other
Grand Central	26	17	23	11	23
Greater Anglia	64	24	9	0	3
Northern	79	12	5	3	1
Overground	73	11	12	4	0
Southeastern	41	42	14	2	1

Customer engagement is also evident in the tweets and, for all rail operators, is the second most-used category of tweets behind real-time and public information sharing. The types of engagement typically fall within three types of messages. The first is an invitation for customers to engage with the operators through questions and comments. This is often done when new team members sign-in to the account and invite people to contact them. The second is a more indirect means of engaging with the public through the promotion and invitation to participate in staff meet-and-greets at various locations, such as rail stations. The third type of

engagement comes in the form of sharing customer’s tweets with others. Of the operators, Grand Central engages with the public more than the others, perhaps a reflection of their open access status as the company is likely to be more profit-based as it is not required by the government to run services. The smallest level of engagement is with Northern as their focus is on information sharing rather than engaging with the public. Important to note is that these are an analysis of public tweets, and more engagement could be occurring through private, direct messages in Twitter between the rail operators and their customers.

Table 7. Sample tweets from each tweet content category
Source: Twitter

<p>Real-time Information</p> <hr/> <p>@greateranglia (Greater Anglia): 1 November 2017</p> <p><i>08:18 Cambridge to Liverpool Street is running 11 minutes late due to a fault with the signalling system earlier today. KB</i></p>
<p>Public Information</p> <hr/> <p>@northernassist (Northern): 5 November 2017</p> <p>[alert symbol] <i>Industrial action planned on 8 November: [link to web page with strike action details] Please find information below for assistance [alert symbol]</i></p> <p>[Image of Nov 8 calendar and text: <i>Q. I have a disability – will assistance be provided on 8 November? A. Yes, please book as normal by calling our Assisted Travel Team on [customer service number] or via the Travel Assistance Form at www.northernrailway.co.uk/passenger-assistance-request. For more information on our service plan and how it may affect you, visit northernrailway.co.uk/strike</i>]</p>
<p>Engagement</p> <hr/> <p>@Se_Railway (Southeastern): 1 November 2017</p> <p><i>Our managers will be at Victoria from 15:30 to 18:30 this evening to answer questions about further improvement [link to “Meet the Manager” monthly session web page]</i></p>
<p>Entertainment</p> <hr/> <p>@GC_Rail (Grand Central): 14 November 2017</p> <p><i>Enter our competition to win two free First Class tickets & a night in a hotel! [link to contest entry web page]</i></p>
<p>Other</p> <hr/> <p>@Se_Railway (Southeastern): 2 November 2017</p> <p><i>Have you lost a rabbit? This cutie was found in @StPancrasInt this morning - Please let us know if she/he is yours [bunny emoji] [photo of toy rabbit]</i></p>

The final categories of tweets, “Entertainment” and “Other”, represent functions that are not related to engagement or service information. Grand Central leads in this area with 34 per cent of their tweets falling within these two categories combined which may reflect their open access status. For the other rail operators, no more than 4 per cent of their tweets fall within these categories. Examples of these types of tweets range from staff signing-off, contests, promotion of non-travel related events within their service areas, or sharing of lost or left behind items on trains and in stations.

5. Conclusions

In the literature and in this case study, social media has been shown to be a tool for transport operators to share information and engage with stakeholders. Twitter has been shown to be used by train operating companies as a tool for sharing information, stakeholder engagement, entertainment and other, ancillary functions; reflecting and supporting the current literature. The development of social media policies by train operating companies may reflect the importance placed on the role of social media in sharing information and communicating with stakeholders. The study cases also reflect the challenges of using social media, such as Transport for London explicitly stating they lack the resources to staff their social media accounts 24 hours (Transport for London, 2018).

An interesting difference between the literature and British train operators is in the use of Facebook, as it has not been adopted by all train operating companies in Britain. As mentioned in Manetti et al. (2016), Facebook was more likely to be used as a means to engage stakeholders. This use of social media by rail operators may represent a potential shift over time from Facebook to Twitter. The favouring of Twitter may also represent different priorities for social media use, with the sharing of information taking priority over engagement. This is reflected in the case studies that indicate the use of social media by passenger rail operators is to primarily serve as a tool for the sharing of real-time updates and service information.

In examining the use of Twitter by train operating companies, several recommendations can be made for use by other transport operators. The first recommendation is to provide 24-hour staffing of Twitter accounts, as used by over half of all train operators in Britain. Secondly, whilst Twitter is primarily used for information sharing, it can and should be used as a tool for stakeholder engagement, as indicated by the high level of responses by three of the five case

study operators. Transport operators should also develop social media policies that clearly state how they use social media and what their expectations are for engagement with stakeholders, with Northern (2017) providing the most comprehensive example of a social media policy. Finally, Twitter should be a platform where tweets take on a role other than information sharing and stakeholder engagement, such as entertainment functions, providing a comprehensive use of all the social media functions indicated in the literature and case studies. Using these recommendations allows transport agencies to take full advantage of Twitter in engaging and informing stakeholders.

The context of the franchise agreement may also influence the use of social media by rail operators. In the awarding of franchises, new train operating companies must decide if they will start a new social media account or continue with the former operator's account. Using the former operator's Twitter account provides instant access to the followers, but may not help differentiate themselves from their predecessor. Starting a new Twitter account, however, runs the risk of leaving followers behind who might not have realised there was a change of a franchise's operator. The franchise context should be included in future research to better understand the decisions rail operators are making to manage their communications, giving insight into how they value the use of these platforms, and to show if social media accounts are being used by franchised rail operators as a means to fulfil their franchise agreements.

There are two limitations in this study that should be included in future studies. The first limitation was the lack of data on customer tweets and the responses to those tweets by rail operators. Whilst this study examined how operators are using social media, there is a need to further analyse the interactions and two-way communications between operators and customers through social media. The results of this case study captured a glimpse of that interaction though indicators such as how often they respond, like other user's tweets, and retweet. Indeed, these actions show that there is a basic level of engagement, although it is not necessarily two-way communications. Future studies into the content of replies would be a useful next step in analysing how private rail operators are using social media to engage with their stakeholders. This second limitation is that Network Rail maintains separate Twitter accounts for each of the franchises, focusing on infrastructure projects and engineering works being undertaken, which is not accounted for in this study. Affected customers may need to check multiple Twitter feeds to receive the most updated information. Future research should

be conducted to determine how this affects the content shared by rail operators, and how rail operators manage tweets related to Network Rail engineering and infrastructure works.

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