

Chapter 40

Social Media as a Tool to Understand Behaviour on the Railways

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ABSTRACT

Social media plays an increasing role in how passengers communicate to, and about, train operators. In response, train operators and other rail stakeholders are adopting social media to contact their users. There are a number of opportunities for tapping this big data information stream through the overt use of technology to analyse, filter and present social media, including filtering for operational staff, or sentiment mapping for strategy. However, this analysis is predicated on a number of assumptions regarding the manner in which social media is currently being used within a railway context. In the following chapter, we present data from studies of rail social media that shed light on how big data analysis of social media exchange can support the passenger. These studies highlight important factors such as the broad range of issues covered by social media (not just disruption), the idiosyncrasies of individual train operators that need to be taken into account within social media analysis, and the time critical nature of information during disruption.

INTRODUCTION

Rail travel offers ample opportunity to fill 'dead' time with transient activities (Jain and Lyons, 2008). The introduction of data networks and wi-fi across the railways, coupled with widespread smartphone adoption, allows many people to use social media while on the move. Passengers wish to communicate about their experience, either directly to transport operators in the form of query or comments, or to communicate with their social network about their travel experience. In response, transport operators

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are seeking ways to utilise the opportunity of social media to improve passenger experience, particularly during disruption, and predominantly through Twitter (Pender et al., 2013, 2014; Liu et al., 2016).

There is interest in how technology can support the effective utilisation of social media. This might be with a view to extracting more information from social media to give transport operators faster intelligence on events occurring in and around their network (Periera et al., 2014; Mai & Hranac, 2012), or to understand attitudes of passengers. However, there may be other applications related to social media, such as tools to allow rapid response to tweets in times of disruption, Twitter dashboards for rail managers, and channels to repurpose social media to a wider set of users than just a rail operator's own followers, for example through customer information screens on stations (Golightly and Durk, 2016).

These kinds of 'big data' applications could be a vital tool for the rail industry and passengers, but are reliant on technologies such as natural language processing of tweets and sentiment analysis of incoming social media messages. The viability of such applications is based upon assumptions surrounding the nature of social media traffic, such as there being sufficient volume and content on any given channel to support meaningful analysis. Therefore, it is vital to underpin the development and deployment of such technology with a knowledge of which platforms are most relevant to rail communications, what situations or events are most likely to generate social media traffic, whether the use of social media is consistent and what the expectations of rail operators are in this arena.

The following chapter summarises a number of dedicated studies to understand the usage patterns inherent in how social media is used on the railways by both passengers and the rail stakeholders trying to communicate with them. By doing so, we identify a number of use cases, as well as some of the constraints around usage patterns that would need to be taken into account when developing applications (both passenger facing, and more 'back office' for rail operators) that draw on social media analytics. This chapter is intended to be most useful to those designing or procuring social media platforms and analysis technologies for the railways, as well as those involved in policy, such as those who may be including social media within the provisions of passenger information as part of a franchising agreement, or those looking to monitor passenger experience across the railways.

BACKGROUND

As recently as the beginning of this decade (Houghton and Golightly, 2011) few passengers, and fewer operators, actively used social media for anything other than marketing. Since then the landscape has changed dramatically, with many transport operators worldwide using social media as a means to communicate with their passengers. In a global survey of social media use in transport operations in 2013, 86% of operators preferred to use Twitter, 33% use Facebook, and only 12% of the operators not using any form of social media (Pender et al., 2013). More recent work with public transit (i.e. not just rail) in the US reports adoption rates by transport operators of 100% for Twitter (Liu et al., 2016). In Great Britain, all major train operating companies have active accounts, as does the main train information service channel (National Rail Enquiries), the infrastructure manager (Network Rail), as well as major stations and British Transport Police (Golightly and Durk, 2016).

The adoption of this innovative form of communication coincides with a period of unprecedented change for transport operations. Expanding cities and mobile lifestyles put greater demands on transport providers to keep stretched networks running with increased capacity (EU, 2011) in the face of emerging disruptive forces such as climate change (Koetse and Reitsveld, 2009) and security threats (Gov. of India,

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