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## Use of social media by public transport operators

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**Keywords:** social media, public transport operator, urban public transport, ICT

**Abstract.** Social media are commonly used by organizations to achieve various means. This paper aims on shortly describing both the information-communication technologies (ICT) solutions used in urban public transport systems and social media. In the article, the potential application of social media for public transport operators are discussed on the grounds of the existing literature from this field and conducted analysis. The analysis included presence of three Polish public transport operators in social media.

### Introduction

Modern information-communication technologies (ICT) including social media are widely used by organizations in various ways, e.g. better use of existing resources, improving the quality of services, and better alignment of offered products to the needs of customers. In this paper, the potential use of social media by public transport operators (PTO) are considered, especially those concerned with providing appropriate (real-time) information to the passengers and acquiring information from passengers. The importance of ICT solutions for urban transport systems is briefly described, then social media and the ways they can be used to create additional value for enterprises are presented. The aim of the article is to investigate the social media usage by PTO on the example of three Polish PTO.

Both literature research and a content analysis of PTOs' social media profiles were used.

The results point that the potential application of social media is not yet commonly used by PTOs, and is mostly limited to providing information to the public (especially passengers using urban public transport).

### **The use of ICT in urban transport services**

In this subchapter, the general types of the ICT-based solutions used in urban transport will be shortly described in order to highlight their importance. The development of information technology and data transferring, as well as their increasing availability, make the innovative solutions that improve the quality and efficiency of public transport more and more commonly implemented (Boschetti, Maurizi, Cré, 2014). There are many ICT-based solutions allowing for the increase in sustainable urban mobility and the improvement of urban transport system effectiveness. Naming some of the more popular ones like: car sharing, ride sharing, integrated fare management, real-time traffic management, real-time traffic information, p2p car rental, bike sharing, or personal travel assistance applications, shows how ICT-based solutions have become an important part of urban transport system. Unfortunately, the widespread use of ICT-based solutions can be limited by the existing urban transport infrastructure and often high costs of implementation (Mikulski, 2011). In the following part, different examples of the ICT-based solutions for the urban transport system will be briefly described.

The ICT-based solutions aimed at improving the effectiveness of existing urban transport infrastructure are usually doing it by increasing the transport system integration. The integration of urban public transport can be of varied range, and apply to the selected elements of the whole system, such as a common tariff-ticket system, a common information system, unified standards of provided services, or a common transfer and stopover infrastructure. (Lubieniecka-Kocoń, Kos, Kosobucki, Urbanek, 2013). The integration of a public urban transport system is beneficial for both PTO and passengers, especially when it includes integration of charges for other (not only transport) services (Urbanek, 2015). The ICT-based solutions make the sharing of the vehicles easier or, in some cases, facilitate this kind of services. The systems basing its operations on sharing of the vehicles can both be operated by different subjects (commercial, public and in rare cases private entities) and consist of fleets of different vehicles (most commonly bikes and cars) (Cichosz, 2013).

The common use of ICT solutions for urban transport systems allows to gather large amounts of data about particular vehicles, lines, or passengers' flows.

Those data do not only facilitate better management of the existing infrastructure and vehicles (e.g. predicting the demand for the bikes in a particular docking station), but also can be used as a foundation for developing various purpose applications. The applications for supporting a decision-making process are the most commonly used type, both by PTO and passengers. From the PTO point of view, they can be used for analyzing the data about the current behavior of passengers, and, basing on that, to make predictions and decisions about the future shape of a transport system (e.g. concepts like Flexible Transport Services or Demand Responsive Transport (Mulley, Nelson, Teal, Wright, Daniels, 2012)) or the results of the currently applied measures (Pensa, Masala, Arnone, Rosa, 2014). Passengers use an application supporting a decision-making process to better plan their route and choose the modes of transportation (Vitale, Festa, Guido, Rogano, 2014).

The applications encouraging passengers engagement into the co-creation of public transport services are gaining more recognition among the PTO. Passengers are given access to different kinds of applications allowing them to share the information that may be valuable to both the PTO and other passengers (Graaf, Veeckman, 2014). This type of application may also be used to tap into the innovative potential of the urban community in order to work on the existing issues, and gain a better insight into the needs of the particular groups within a community (e.g. seniors) (Schlingensiepen et al., 2015).

Next, the author will focus on the social media, their potential uses by enterprises – especially in the case of the PTO.

### **Social media in urban transport services**

It is very hard to define the term ‘social media’ as it covers a broad category of Internet-based applications based on the technological and ideological foundations of Web 2.0 (Kaplan, Haenlein, 2010). The common characteristics of social media is the possibility to create various types of content by the users (among others: wikis, blogs, shared photos and videos, and tags), which other users use, propagate, comment, share, change, and tag among their social networks. Social media began as mostly customers phenomena, but currently are widely used by organizations (commercial, non-profit, and public) for both internal and external communication. Organizations took to using social media not only for communication but also for other types of activities, such as: solving complicated problems, searching for innovative solutions, and many others. Different ways in which social media may be used to add value through various internal functions of organizations are shown in Table 1.

Table 1

## Different ways in which social media can add value for enterprises

Organizational functions		Across entire enterprise	
Product development	to derive customer insights	Enterprise-wide levers (social media as organizational technology)	to improve intra- or inter-organizational collaboration and communication
	to co-create products		
Operations and distributions	a leverage to forecast and monitor		
	to distribute business processes		
Marketing and sales	to derive customer insights		
	for marketing communication/interaction		
	to generate and foster sales leads		
	for social commerce		
Customer service	to provide customer care via social technologies		to match talent to tasks
Business support	to improve collaboration and communication; to match talent to tasks		

Source: Chui et al., 2012, p. 8.

Use of social media is crucial for some parts of the urban transport system. Various vehicles sharing systems would not be able to develop so quickly without applying social media to solve the trust issues among the participants of particular schemes. People using both p2p car-sharing programs (e.g. RelayRiders) and car-pooling schemes (e.g. Blablacar) were reluctant to allow strangers use their private vehicles or to undertake a journey with drivers they did not know. Applying social media-like solutions allowed not only to negotiate the trust issues, but also to promote this type of behavior (that may have many positive influences on urban mobility, lowers the costs of travel, and impacts on the environment) and make it more effective (Stephany, 2015).

Research conducted in 2012 by the Transportation Research Board among the US and Canada's PTO shows that in the case of the PTO (that are a core of many urban transport systems), the use of social media is not yet widespread (Transportation..., 2012). The main results of that research concerning the reasons for using social media, barriers to social media use, and recommendations based on PTOs' experience with social media use are presented in Table 2.

Table 2

Reasons, barriers, and recommendations for using social media by PTO

Reasons	Barriers	Recommendations
timely updates, informing the public, citizen engagement, employee recognition and recruitment, entertainment for passengers	resource requirements, managing employee access, responding to online criticism, accessibility, security, archiving and records retention, user privacy, changing social media landscape	keep social media in perspective, consider the organizational impacts, identify the real costs, find the right voice, 'listen, listen, listen,' respect the strengths of social media, have fun, just get started

Source: Transportation..., 2012.

Also, the literature research into the use of social media by PTOs are not very encouraging. Most works up to date have focused either on using social media as an information tool (concerning both the real-time passenger information and more general information about PTO or its schemes) or a promotional and CR measure (Gal-Tzur, Grant-Muller, Minkov, Nocera, 2014b). Recently, the second area of research into the potential use of social media by PTOs is becoming more popular – using the social media as a source of potentially valuable information. Social media can be used in two ways, namely as a tool allowing a better access to the targeted research audience (Efthymiou, Antoniou, 2012) or as the vast reservoir of information that can be tapped by applying Data Mining technologies (Gal-Tzur et al., 2014a).

Considering the limited scope of ways in which social media are reported to be used by PTOs, in comparison to the potential ways of creating added value for enterprise, mentioned in Table 1, in further part of the paper the author focuses only on the informational and promotional uses of social media.

### Examples of the use of social media in Polish urban transport services

Three Polish PTOs were chosen for the content analysis of their official websites and official social media profiles.<sup>1</sup> Those include Public Transport Authority of Warsaw (ZTM Warszawa), Wrocław (MPK Wrocław), and Silesia Agglomeration (KZK GOP). The official websites were analyzed in order to identify what type of ICT-based solutions are used by a particular PTO, and in what social media they are active. The results are presented in Table 3.

<sup>1</sup> The analysis was conducted during the last week of March, 2016.

Table 3

Types of ICT-based solutions and social media used by the selected PTOs

Category	ZTM Warszawa	MPK Wrocław	KZK GOP
ICT based solutions in use			
Integrated e-ticketing system	City Card	Urban Card	ŚKUP
Park & ride	yes	yes	no
Bike share	Veturilo	WRM	City by bike
Mobile tickets	yes	yes	yes
Real time passenger information	yes	yes	yes
Social media presence			
Facebook	yes	yes	yes
Twitter	yes	yes	no
Instagram	yes	yes	no
YouTube	yes	no	no

Source: own elaboration based on the data retrieved from: *ZTM Warsaw*, *MPK Wrocław*, *KZK GOP*.

All PTOs that were subjected to the analysis are using various ICT-based solutions aimed at improving both the urban mobility and the effectiveness of the urban transport system. The time of implementation varies between PTOs, e.g. Warsaw City Card has been in use since 2001 (Zakonnik, 2010) whereas the ŚKUP card was implemented only last year (in 2015). Also the scope of offered services (e.g. the number of available docking-bays for bike sharing schemes) varies between the analyzed PTOs.

There are also differences between the PTOs concerning their activity in social media. The most active PTO is ZTM Warszawa. It has profiles in four different social media networks and the highest number of followers. When analyzing the content of different profiles, one can notice diversity in terms of the kind of information published on various social networks. The Facebook account is the core one used for providing information (concerning the urban transport system that may be of use to the public) and interaction with passengers and other Facebook users (reposting photos and videos that fit with the theme of an urban transport system, posting information about events, and so on). Twitter is used to provide information about unexpected events such as e.g. train delays or car accidents blocking particular routes. Photographs are mostly posted on Instagram, and videos on the YouTube channel. The videos available through the YouTube channel are well prepared

(e.g. sign-language version) and cover various topics concerning an urban transport system (e.g. progress on metro construction or how to use Veturilo system). The presence of MPK Wrocław in social media is slightly less visible (without the YouTube channel), but follows the same pattern as ZTM Warszawa: Facebook profile as a core and tool for providing information and engaging with the public, Instagram for posting photos, and Twitter for providing timely information about unexpected events. KZK GOP's presence in social media is limited only to Facebook profile, and mostly provides only information for passengers.

## **Conclusion**

The implementation of various ICT-based solutions is increasing in popularity among PTOs not only in case of the solutions aimed at improving the overall effectiveness of the transport system and urban mobility, but also when it concerns providing better information for public (especially the passengers using urban public transport). Literature research imply that the use of social media by PTO is not as widespread as in the case of commercial organizations, and that the potential applications are more limited (mostly to providing information, promoting, and trying to engage in dialog with the public). The content analysis conducted on the example of three Polish PTOs has shown that PTOs vary in the scope of the social media they are present at and the types of materials published. In all the analysed cases, the PTOs used social media to provide public with appropriate information about their activity and its influence on the use of urban transport system. However, the scope and timeliness of provided information greatly differed (from timely tweets about train delays to artistic vintage photos of old-time urban transport modes). The recommendation for including social media in the activities of PTOs are mostly the same as in the case of other organizations. Creating a Facebook profile is not everything. It is a good beginning, but the decision about further engaging with social media should not be taken lightly, as it will demand both resources from a PTO and close integration with other strategies already in use within the organization.

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### Wykorzystanie mediów społecznościowych w publicznym transporcie miejskim

**Słowa kluczowe:** media społecznościowe, organizator transportu publicznego, miejski transport zbiorowy, ICT

**Streszczenie.** Media społecznościowe są wykorzystywane w różnych celach przez podmioty rynkowe. W artykule pokrótce przedstawiono wykorzystanie ICT w miejskim transporcie zbiorowym, media społecznościowe oraz ich potencjalne zastosowania w działalności organizatorów publicznego transportu miejskiego. W artykule przeanalizowano także wykorzystanie mediów społecznościowych przez wybranych polskich organizatorów publicznego transportu miejskiego.

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