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The Use of Social Media in Public Transit Systems: The Case of the Gautrain, Gauteng Province, South Africa: Analysis and Lessons Learnt

Walter Musakwa

(Dr Walter Musakwa, University of Johannesburg, Doornfontein Campus, South Africa, wmusakwa@uj.ac.za)

1 ABSTRACT

The use of public transit systems is still in its infancy in Gauteng, South Africa. Commuters still prefer using private motor vehicles. However the introduction of the first efficient high speed train in Africa (The Gautrain) during the 2010 world cup was thought to change perceptions of the public on transit systems. The Gautrain was also thought to enhance Johannesburg as a smart city. Social media has proved to be useful in proving user information, which can be use to improved services. The study is an exploratory study, which analyses how commuters feel on the effectiveness of the Gautrain by analysing posts on social media before and after completion of construction of the Gautrain system. Emerging findings reflect that although the Gautrain has positively changed the publics' perception on public transit systems, the Gautrain system still needs to be improved for the South African public to embrace fully public transit systems.

2 INTRODUCTION

Social media is an interactive community built on internet and mobile platform technology (referred to as Web 2.0). It is a technological platform that allows people to write, share, evaluate, and discuss content that creates User Generated Content (UGC) (Zhang and Wang, 2014). The use of social media for communication, amongst people has become almost ubiquitous the world over. Social media has influenced how people relate, communicate, and voice their opinions the world over with Africa being a major player in the social media revolution. The cultural revolution of social media is the first of the 21st century (DuBose, 2011) and it is described as a crucial pillar of the new Information Age (Castells, 2011).Content generated on social media plays a key role in service delivery, politics, urban planning, and business. Therefore, it is only natural that it has also extended to the transport sector (Tzure et al., 2014). The public and institutions, organisations and companies can harness social media. Meanwhile, the public would voice their concerns on quality of service being offered, whereas organisations can employ social media as a marketing strategy and a way of engaging with citizens.

Initially social media was applied for mundane communication between friends and colleagues, of late government officials are starting to view social media posts critically as a way to enhance their services (Picazo-Vela et al., 2014). Social media has enabled massive generation of information online, which was impossible before from conventional research methods. However, a critical challenge is deciding if the information can be usable for policymaking and facilitating decision-making (Kavanaugh et al., 2012). Although information on the citizen's perception on public services is vast on social media a major challenge is identifying data mining techniques which can which facilitates in making sense of all the noise on the perception of the citizens on public services. Information on social media can be used by government officials to improve service delivery, getting insights on the public's perception and mood with regards public service as well as a marketing strategy (Zhou and Wang, 2014). These perceptions and moods would be very cumbersome and difficult to collect if conventional research methods such as surveys are used. Moreover, traditional methods are incapable of providing material in real time as social media (Mergel, 2013). In addition, unlike traditional research methods the costs associated with collecting information from social media are relatively minimal. Moreover, social media has an almost global outreach, which is impossible to obtain from conventional methods. Given this potential, perhaps one can say that use of social media can enable government officials and city planners to collect information that can be used to plan for smart cities.

The use of the social media also has several advantages such enhancing free public participation as well as allowing feedback to public officials on the public's perception on service delivery. Appropriate use of social media can also potentially improve the level and quality of collaboration between government and citizens (Picazo-Vela et al., 2014). It has been argued that the use of social media tends to elicit more honest and non-coerced opinions from the public as compared to other research methods. Posting concerns on social media may also lead to prompt reactions in providing solutions. Lastly, it can also promote transparency.

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Governments and public officials have recognised social media's potential and have made bold attempts to be present on social media platforms. In the US The President instructed government officials to harness the potential of social media in the following statement (Mergel, 2013).

"Harness new technologies to put information about their operations and decisions online and readily available to the public" (Obama, 2009).

In the US, each government department has a dedicated social media director. There are various reasons for governments presence on social media namely (1) representation of the agency (2) engaging with citizens and (3) networking with the public (Mergel, 2013). Likewise, the South African government has embraced the use of social and has produced a policy guide for its use (Government Communications, 2011). The South African guidelines acknowledge the potential of social media use as well as its pitfalls.

South Africa has seen a significant rise in social media use by the public in the past 3 years. In 2013, Twitter users grew by 125% while Facebook grew by 83%, which are huge increases (Table 1), particularly for Twitter (Blue Magnet, 2013). In total South Africa had 31.2 million users' that is 57% of the population. This percentage could supply potentially valuable information to government officials and urban planners on the public's perception on service delivery.

Social Media platform	**Users**
Facebook	9 600 000
Mxit	7 400 000
Twitter	5 500 000
You Tube	4 700 000
Linked in	2 700 000
Pint Interest	930 000
Google Plus	460 000
Total	30 830 000

Table 1: Top social media sites South Africa

From Table 1, it is clear that Facebook, Mxit and Twitter have the largest following and the total number of users on social media is 57% of South Africa's total population of 54 000 000. Therefore, social media is an opportunity, which should be tapped by organisations and the public. Federicks and Foth (2013) note that social media platforms has brought about a significant shift towards more participatory qualities as it encourages ordinary users to foster their knowledge and help collective intelligence to be fostered. It is often argued that the conventional public participatory planning process is often hierarchical and top-down which hampers public participation. Conversely social media follows a more a communicative structure that is based on dialogue, relationships and peer-to-peer network interaction (Federicks and Foth 2013). Nevertheless, there has to be caution because this communicative flow may be compromised. Therefore, social media should be seen as complimenting the conventional face-to-face public participation rather than usurping it.

2.1 Study Area

The Gautrain is located in the Gauteng province of South Africa (Figure 1). Gauteng is the smallest province in South Africa yet it is the economic hub of the country and the fastest growing province. The Gautrain project spans through three metropolitan areas in Gauteng namely Johannesburg, Pretoria, and East Rand. These three municipalities form a city region, which is the economic heartland of South Africa.

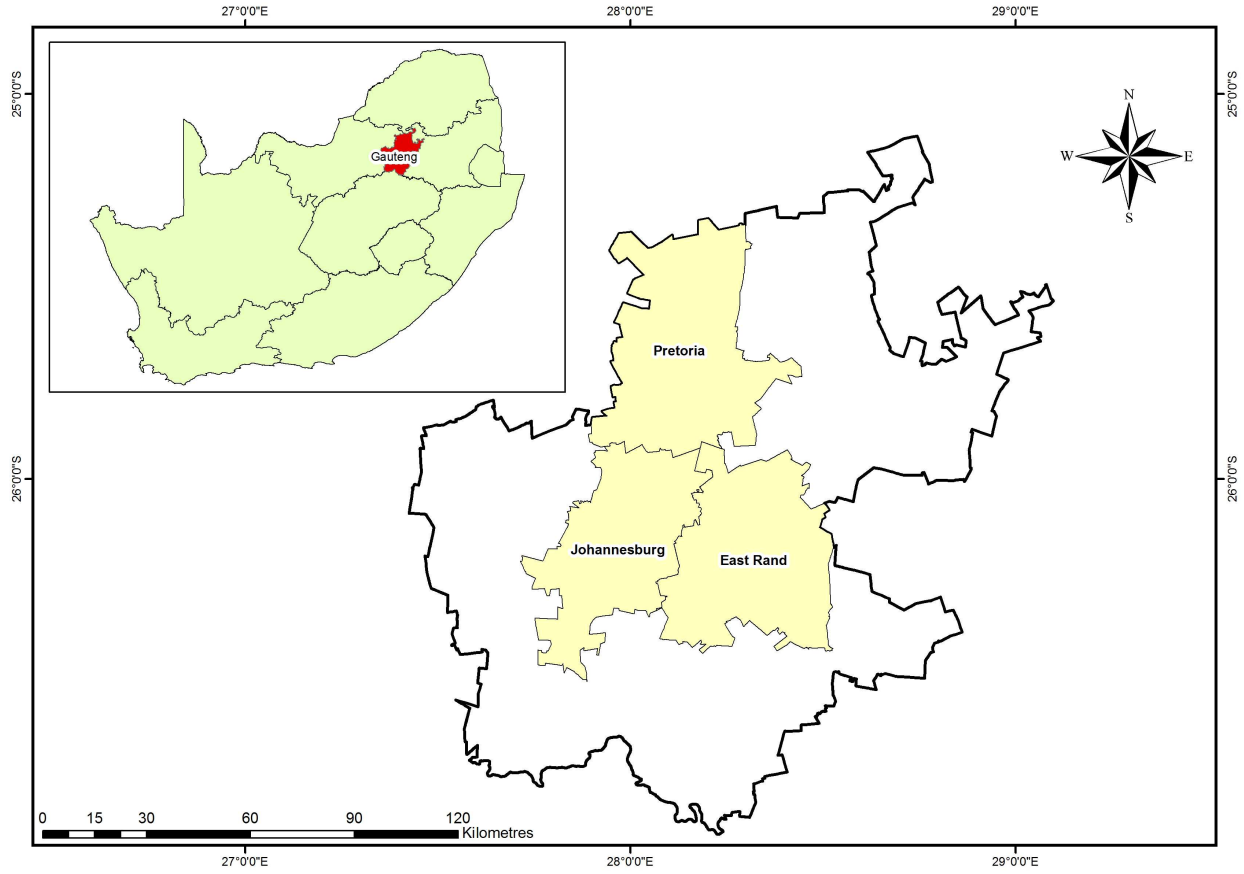

Fig. 1: Location of Gauteng Province, South Africa.

2.1.1 The Gautrain project

Gautrain is Africa's first world-class, modern rapid rail and bus service (Figure 2).

Fig. 2: Gautrain. Source (GMA 2013).

Gautrain is more than just a train. It is one of several strategically integrated Gauteng Provincial Government projects to meet future transport demands anticipated because of economic and population growth (Gautrain Management Agency (GMA), 2010a). It is also referred to as a mega-engineering project. It is a state-of-the-art rapid rail connection between Johannesburg (Africa's business capital) and Pretoria (Donaldson and Van De Merwe 2011). Gauteng, the country's economic hub currently experiences traffic congestion on its major routes, especially between Pretoria and Johannesburg. The current transport facilities and services between these two cities are mainly road based. Accordingly, the Gautrain was supposed to ease this traffic

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congestion, in an attempt to create a smart city based on mixed land uses and development corridors. The Gautrain project is also meant to promote rejuvenation of central Johannesburg and Pretoria (GMA, 2010b). Construction of the Gautrain is informed by spatial planning embedded in two parallel strategies that were initiated by the Gauteng Provincial Government namely the Gauteng Spatial Development Framework (GSDF) 2000 and the Gauteng Spatial Development Initiatives (SDI's). Consequently, it is envisage that the Gautrain will promote, mobility and accessibility, redirection of urban growth, contained urban growth, resource based economic development and rural development beyond the urban edge.

The Gautrain has two routes the South-North and West-East routes (Figure 3).

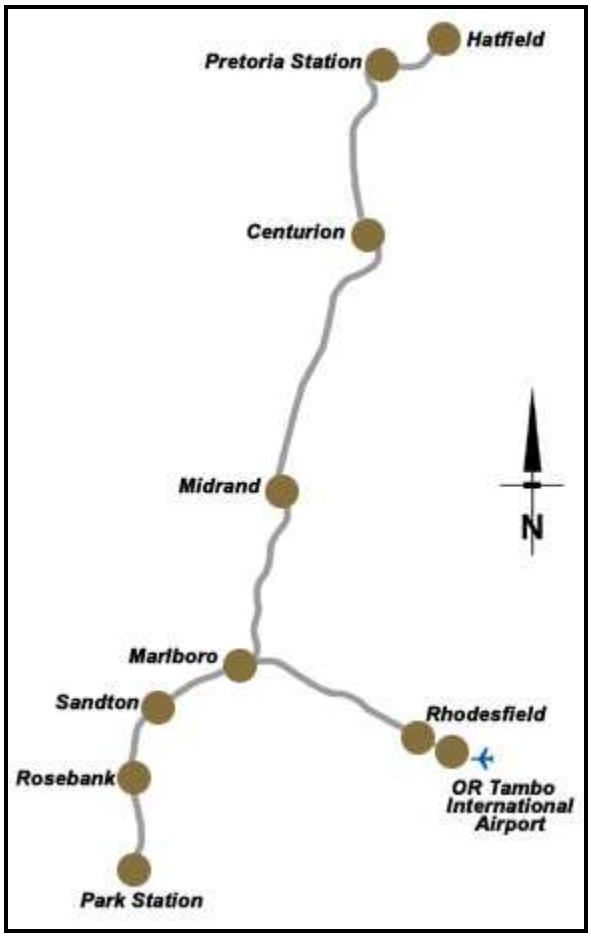

Fig. 3: Gautrain Routes Source (GMA 2013)

The North South route begins at Johannesburg Park Station in central Johannesburg to, Sandton and Pretoria and Hatfield in the north cutting across Johannesburg and Pretoria metropolitan municipalities. The West-East route will take passengers from Sandton Station, via Marlboro, to Rhodesfield Station in Kempton Park. From there it connects to a station built within the airport terminal complex at OR Tambo International Airport (GMA, 2010b).

2.2 Study methods

The study is exploratory as it seeks to determine how the GMA uses social media and how commuters perceive the Gautrain system through use of social media. Three key informant interviews were conducted with key personnel in the GMA to ascertain how the GMA employs social media. Secondary data in the form of media reports from February 2011 to September 2011 were also gathered. These reports were analysed thematically broadly into positive and negative feedback on the Gautrain, focusing mainly on the GMA's official Facebook page and the GMA official Twitter handle.

Semantic analysis was also carried out to identify what commuters most post about the Gautrain using twitter analysis software namely https://www.tweetarchivist.com and http://www.twitonomy.com/ as well as http://hellopeter.com/. This semantic analysis was compared with monthly Gautrain reports on social media by the GMA. Analysis on twitonomy.com allows analysis from August 2012 to March 2014 whereas

analysis on tweetarchivist.com focuses on current data (March 2014) as it does not allow historical analysis. Meanwhile hellopeter.com is a South African social media platform where the public post complaints and compliments on service provision. Analysis on hellopeter.com ranges from June 2010 to March 2014, covering the entire time Gautrain has been in operation.

The study also utilised observation as a research method. The study period is 2010 to 2014 which coincides to when the Gautrain system started operating.

3 SOCIAL MEDIA USE AT GAUTRAIN

The key informant interviews revealed that the Gautrain management Agency has a strong presence and utilisation of social media with a dedicated secretariat on harnessing social media (Pers Communication). As part of its mandate, the social media secretariat gathers the public's perception on the Gautrain and reports to the management for action to be taken. Changing attitudes and behaviour required the use of integrated social media tactics in support of GMA's communication strategy. The GMA's social media programme is integrated with its integrated communication and marketing strategy (Pers Communication). Under this strategy, the GMA seeks to position and portray the Gautrain as a smart transport alternative, efficient, safe, reliable, secure, predictable, and comfortable transit system. Moreover, the GMA sought to use social media aggressively to quell negative perceptions around the Gautrain, as money spent on the project would be better allocated to the poorest of the poor and other social ills facing South Africa as a developing country. The GMA also seeks to leverage social media, as it is where relevant stakeholders converge without the traditional boundaries that segment content consumers and content creators. This creates an opportunity for social media users to collaborate in the production of content and in the process become brand advocates for Gautrain.

By listening and participating in social media conversations, Gautrain has the opportunity to build authentic, two-way relationships with social media users – including mainstream media users and social media opinion leaders - who require content to be instantly available, mobile and shared in social networks. In addition, this shows that the GMA views social media information as a critical tool in improving its brand name. It is also important to note that the GMA is proactive as it began using social media even before the construction phase in an attempt to change the public perceptions on the Gautrain. Accordingly, social media facilitates increased and novel public participation in the planning process (Fredericks and Foth 2013). Consequently, social media is a conduit of dealing with the limited public participation process that currently exists.

Presence on social media peeked in activity during the FIFA 2010 world cup, as there were concerns about readiness of the system before the world cup (Pers Communication). After the world cup, the GMA employed its social media presence to glean information from commuters on issues such as delays, faults, complaints and queries as well as routine day-to-day operations. Consequently, the GMA utilises social media as a monitoring and evaluation tool. Furthermore, an opportunity exists to extend online relationships to real life relationships to reinforce authenticity, transparency, and accountability.

As part of the strategy to gain advantage, using social media the GMA employs a brand-marketing agency that produces reports on the GMA activities on social media. This approach seeks to bolster the Gautrain's positive image as a smart public transit system. It can be argued that this strategy has reaped fruits as evidenced by the trains being filled to over capacity during the week. Perhaps attitude are starting to change as people begin to switch from commuting in private cars and opt for the Gautrain. Moreover, the park and ride system of the Gautrain appears to be changing attitudes as the parking bays are often filled to capacity during peak hours. This could perhaps mean that commuters want to be associated with the Gautrain brand. However, one cannot purely ascribe growing numbers of commuters on the Gautrain on the social media marketing strategy. This is despite the Gautrain being often cited as expensive and only for the middle to upper class. Other factors that explain why numbers of commuters are increasing include the recently introduced e-tolls in Gauteng, which can be a deterrent for using private vehicles as well as the recent fuel price increases.

3.1 Commuters use of social media

Commuters play a critical role in judging whether the Gautrain is a safer, reliable, dependable, and smart transit system. The publics sentiments on the Gautrain is produced as monthly reports which glean public posts on social media (Facebook, Twitter etc) on the Gautrain. In these reports, the public's perception is

classified as positive and negative. In these reports, it was observed that sentiment on the Gautrain is mostly positive. A scan of the reports indicates that overally 80% mentions on social media where positive while only 20% where negative. Negative mentions relate mostly to time delays, faults and cost of using the system. The majority of positive mentions could mean that the public is now embracing public transport. However, it was noted that content on social media decreases during the weekend. Consequently, it is suggested that Gautrain should conduct more research to understand its commuters and possibly reduce price fares on weekends as well as introducing the Gautrain bus service to encourage more use of the system during weekends.

Analysis on hellopeter.com revealed interesting results where almost 75% of consumer's mentions on the Gautrain are negative with 25% being positive. This is in sharp contrast with the monthly GMA reports. One can therefore assume that if social media content requires filtering for useful information. On hellopeter.com, the Gautrain is listed as a company that hardly responds to queries. Consequently, more research is required to explain discrepancy in social media mentions in Gautrain reports and on hellopeter.com. A possible explanation could be perhaps hellopeter.com is biased towards complaints.

The twitonomy.com analysis also shows that there have been 3200 tweets from July 30 2012 to March 30, which also indicates a steady increase on posts about the Gautrain on twitter (Figure 4). Most of the Gautrain comments on twitter increase significantly during the festive season (December 15 to January 31). This is because it coincides with a period when Gautrain, parking, and bus fares are drastically reduced, therefore most comments are positive. Consequently, it is the most retweeted comment (103) during December 15 to 31 January. Therefore, the GMA can use the positive feedback to attract more commuters through aggressive marketing and perhaps reduce fares given that users comment positively on the Gautrain during fare reduction promotions.

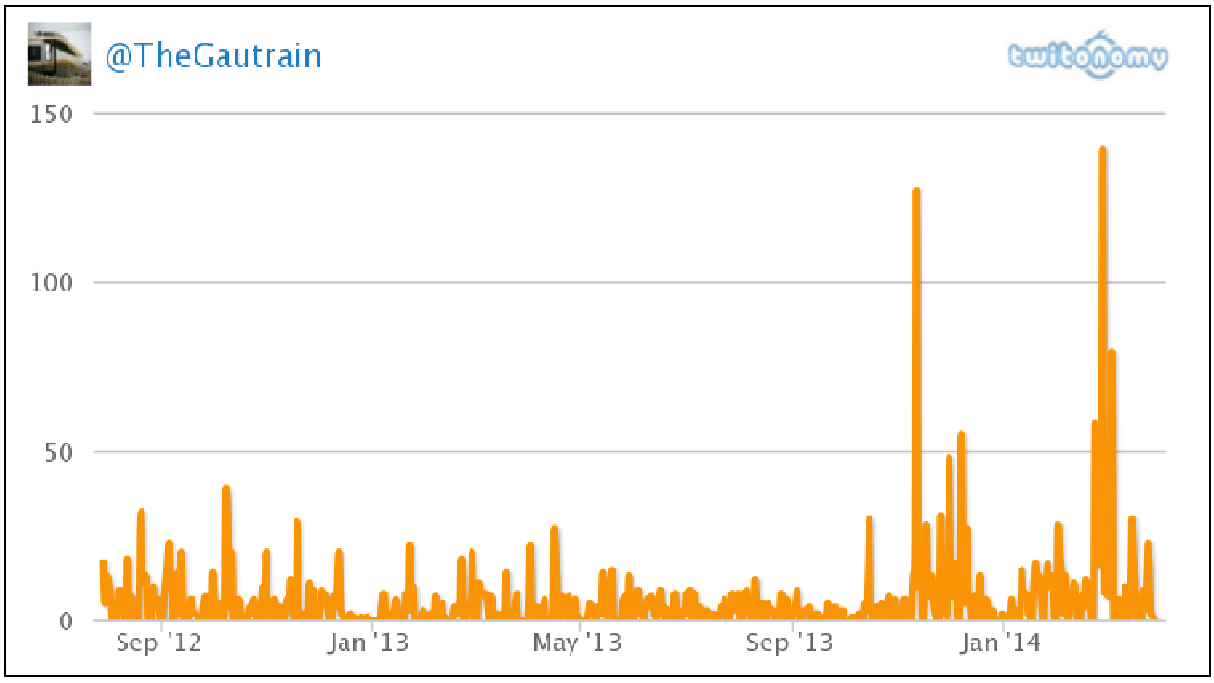

Fig. 4: Gautrain http://www.twitonomy.com/ analysis from August 2012 to March 2014

Besides positive feedback on Gautrain fare promotions useful information on trip disruptions because of faults due to stolen cables, load shedding that happened in March 2014 and other general delays are the second most common tweets about the Gautrain. From Figure 4 it is clear that during February 2014 and March 2014 there was a peak in activity on twitter because of load shedding in South Africa that disrupted the Gautrain timetable. Such posts are useful in that they inform connected commuters to make travel changes. Analysis on tweet archivist for the same period also highlighted common key words such as load shedding and power outage, which coincides with a peak on activity on twitonomy.com. Nevertheless, the power outage was beyond the GMA's control. This analysis point out that social media is a valuable tool in dissemination information relating to public transit as it informs commuters who then make alternative travel

arrangements. Accordingly, social media use has gone beyond the social realm to providing operational information in real time.

From both the Gautrain monthly reports and semantic analysis of hellopeter.com. , it can be noticed that social media posts hardly focuses on how the Gautrain affects the spatial pattern of the city. Consequently, a further study is required to ascertain how the Gautrain has had an impact on urban form and achieving the goals set in the GSDF and SDI of promoting a smart city. One can therefore say social media can hardly replace conventional scientific research methods but should be used in conjunction with other participatory research methods. However, they can also form an important component of research or a debate on how the Gautrain affects spatial form. Similarly, reliability of social media can also be questioned and influenced by influential users. For example, analysis on hellopeter.com is mostly negative as it mainly focuses on negative aspects, meanwhile one can conclude that analysis on twitonomy.com, and tweet archivist is relatively balanced, however influential users still can manipulate it.

4 CONCLUSION

The use on public transit systems such as the Gautrain were supposed to change the public‘s attitude towards use of public transport in South Africa. Lessons learnt in this study include that perhaps attitudes have changed on use of public transit given that the Gautrain is normally filled to capacity during peak hours as well as the parking facilities. Consequently, one can conclude that the brand marketing strategy of the GMA through social media platforms has been successful. However, other factors have led to commuters opting for the Gautrain.

With regards commuters use of social media various social media analysis yields different results. One can conclude that social media increases public participation and it is an invaluable tool in disseminating important information in public transit systems. More importantly, social media use can also mean increased public participation in the planning process. However, social media does not replace the conventional face-to-face public participation rather it enhances the whole participation process. Social media has immense of potential; however, it often contains lots of noise that prevents critical use. Consequently, there is need to instigate a more critical debate on social media particularly on whether the Gautrain project is shaping the spatial structure of Gauteng. Social media therefore cannot replace conventional scientific research; however, it can be a useful platform to obtain useful information if structured properly.

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