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The Use of Facebook Fan pages in Promoting Future Urban Transit - A Case Study of PT. MRT Jakarta

Edith Lavindri[#1], Sudarso Kaderi Wiryono[#2], Mustika Sufiati Purwanegara[#3]

[#]*First-Third Department, First-Third University*
School of Business and Management, Bandung Institute of Technology
Bandung, West Java, Indonesia
[1]edith.lavindri@sbm-itb.ac.id

***Abstract*— Urban mobility has become the toughest challenge for the Greater Jakarta conurbation, considering that urban centralization affects citizens who rely on private vehicles to commute to and from work. Vehicle dependency has led to acute congestion that incurs an annual economic cost of up to 65 trillion rupiah. Even though the government has developed a high technology-based urban transit infrastructure expected to become operative in 2019, private vehicle commuter enthusiasm to utilise it remains in question. To increase such alacrity, MRT Jakarta, the urban transit provider, exploits social media as a promotional tool within its mobility management strategy. Indeed, its mobility management social media strategy is expected to induce a future voluntary abandoning of private vehicle use in favour of the MRT once the prerequisite infrastructure has been developed. The purpose of this paper is to examine the impact of social media-based promotional content, namely; Facebook fan pages, using engagement rate calculation. For the purposes of this study, the data of two consecutive months (June-August 2017) available online at the MRT Jakarta official Facebook fanspage, was analysed. The investigation focused on the effectiveness of the promotional content of posts to increase fans' responsive engagement rate. The present study proposes that social media exploitation could be enhanced through more strategic and systematic use to foster active engagement in order to promote the MRT as a mode of commuting.**

***Keywords*— social media campaign, social media content analysis, future urban transit, urban mobility**

I. INTRODUCTION

Greater Jakarta is undergoing a process of rapid economic growth leading to pressing challenges of urbanization and mobility. Transportation systems form an important part of urban life within the economic and cultural sectors. Furthermore, they respond to citizens' need for mobility. One major challenge of centralization in urban areas is that of managing the ever-increasing demand for transportation. There are currently around 47.5 million trips per day undertaken in Greater Jakarta, predominantly by motorcycle (74%), but also involving the use of private cars (24%) and public transport (2%) [1].

The aforementioned trend indicates that more people in Greater Jakarta choose to travel by private vehicle in fulfilling their mobility needs. Independence, flexibility, and convenience all represent psychological factors contributing to the greater preference for private vehicles over urban transit [2]. The average growth in private vehicle use stands at 8.1% per year, as compared to an annual increase of ± 0.01% in road surface area [3].

The imbalance between road surface area and the number of vehicles causes traffic congestion in Greater Jakarta that has a cost of up to 65 trillion per year in fuel, vehicle operating expenses, time value, economic opportunity cost, and energy pollution. If urban commuting trends in Greater Jakarta, which depend on private vehicle use, remain unchanged the future looks decidedly bleak. Transport costs will spiral higher, with lengthy traffic delays posing a national threat of increased inefficacy costs. Congestion will eventually culminate in traffic paralysis across the Greater Jakarta area.

Various transport policy measures are currently being implemented to reduce commuter preference for private vehicle use and to increase that for urban transit systems. Such measures can be divided into 'hard' and 'soft' transport policy varieties. The first mass rapid transit (MRT) project since 2013 is one of the hard transport policy measures implemented by PT. MRT Jakarta as provider. In order to develop new urban transit infrastructures and networks, a total budget of JPY 120 billion, funded by a soft loan from the Japanese government was established, rendering this public project the most expensive in the history of Greater Jakarta. In tandem with these

'hard' policy measures, PT. MRT Jakarta implemented a number of 'soft' policy equivalents emphasizing mobility management (MM) in order to induce voluntary acceptance of change supportive of the MRT's implementation.

This policy included a social media campaign to promote MRT as the future urban transit network by means of a Facebook fanspage forming part of the official account@JakartaMRT. To implement a successful MM social media campaign, it is imperative to understand user or fan behavior in response to a different post on the Facebook fanspage. Furthermore, it is important to identify the motivational factors that encourage consumers to engage with fanpages. The challenge lies in the fact that this effort not only promotes MRT as a mode of urban transit but also encourages commuters to change their existing travel preference. This study seeks to understand how the use of social media in the MM campaign of PT. MRT Jakarta promotes MRT as the future urban transit system in Greater Jakarta. More specifically, it has three research objectives:

- To evaluate the characteristics of MM content on Facebook fanpages.
- To determine those factors contributing to online engagement with social media content.
- To identify examples of best practice with regard to the use of social media.

In order to achieve these research objectives, this study first reviews social media literature and its use in MM before outlining its application to PT. MRT Jakarta and identifying examples of best practice to enable the effective use of social media in MM.

II. LITERATURE REVIEW

A. Mobility Management and Social Media

MM represents a transportation management policy that endorses "soft" measures in an effort to promote changes in transport user behavior. Mass communication-based marketing techniques promote this bottom-up approach that aims to persuade commuters to abandon their existing choice of transport mode in accordance with their needs. Best MM practice comes from European universities in the form of joint projects such as MAX-SUCCESS (Successful Travel Awareness Campaigns and Mobility Management Strategies, http://max-success.eu) and MOST (Mobility Management Strategies for Next Decade, http://most.st), as well as Japan's "travel feedback program" (TFP) [4].

Any discussion of current MM strategies today would be incomplete without considering the use of social media which has not only replaced print varieties as part of the marketing campaign, but is also changing the manner in which society consumes information. At one-time, public information was static and exclusively one-directional in nature. With the advent of information technology web 2.0 now allows an individual to contributes his/her thoughts, opinion and creativity in disseminating certain information. Table I below shows how the social media in MM facilitates information presentation, collaboration, communication and interaction.

TABLE I.
MM SOCIAL MEDIA CAMPAIGN DISCOURCES

MM Campaign	City and Country	Social Media Network	Function
DYN@MO project	Gdynia, Poland	Facebook Twitter, YouTube and Instagram	-Opinions and pool survey -Increased communication activity
MobiPalma by public bus company EMT	Palma, Spain	Facebook and Twitter	Sharing real-time traffic information
Tisséo by Tisséo public transport operator	Toulouse, France	Facebook and Twitter	Sharing its network-based travel information on its network and public transport special offers
Edmonton collaborated with IBM	Edmonton, Alberta, Canada	Facebook and Twitter	- Opinions and pool surveys - Real-time travel information - Promotes smoother, safer journeys -Reinforces civic engagement by encouraging citizens to become the city's eyes and ears.

Given the wide usage of social media within urban transit provider, understanding of how design of social media promotion content of posts to

increase fans' responsive engagement rate is still appear to be unclear. Most of urban transit provider rating their successful in social media MM campaign by tracking their numbers of "friends and followers" or "likes". Simply by seeing result by collecting data without meaningful analysis is insufficient [5].

B. The MM Social Media campaign conducted by PT.MRT Jakarta

Within the context of the Greater Jakarta conurbation, MM offers certain advantages in supporting the development of an MRT system. This future urban transit network has been planned in order to increase mobility and to resolve the increasingly serious problem of traffic congestion. As part of any integrated approach framework, MM can be combined and create synergies with supply-oriented activities such as planning, construction and operational MRT infrastructures, thereby creating indispensable synergies.

The MM social media campaign conducted by PT. MRT Jakarta involves the use of promotional and communication means providing information and raising transport-related awareness. The purpose of the campaign is to promote the changes in perception and attitudes which constitute an essential precussor to shifts in actual travel behavior. One social media strategy tool employed by the MRT is the Facebook fanspage (@JakartaMRT). This was set up as early as October 8, 2016, three years before the planned initiation of MRT operations in 2019. Almost one year after its launch, it has become the Facebook Fanpage with the second largest number of fans following it compared to those of other transportation service around the world (see Table II).

TABLE II.
THE TOP 4 TRANSPORTATION SERVICE

Transportation Service Faceboook Fanpages	Country	Total Number of fans
Metrobús	Mexico	39.457
MRT Jakarta	Indonesia	24.549
ASPO Olbia	Italy	5.700
American Public Transportation	United States	3.949

Source:http://likeanalyzer.com

By creating a Facebook fanpage, PT. MRT Jakarta can benefit from its viral and organic technical features that create a snowball effect in disseminating information. Once content has been published on the fanpage wallpost, the users can interact by commenting on it and/or endorsing the post by "liking" and "sharing" it. The user could "like" the whole fan page which every wallpost is automatically pushes into all fans' news feeds. Being easily kept up-to-date, a large audience can be reached by this particular means.

C. Overview of Fanspages content Analysis

Most studies on fanspage analyze fans' engagement with the number of likes, shares and comments for each post. A post will gain more likes and comments if it boasts richer content (for example, incorporating images and video excerpts). This result also suggests that the use of photos in wallposts is the most effective approach to increasing users engagement [6]. The vividness of post content has a positive effect on the number of shares [7]. One sizeble gap in the existing literature is that of an analysis of the relationship between the affective valence of promotional content (whether messages communicated are positive or negative) in and fan engagement. This is because affective valence is vital in measuring the attention paid to media content [8].

The affective valence of the Facebook wall post content should be identified as a driving factor that influences user action. The affective valence dimension of affect provides evaluative information about stimuli which play a role in both an individual's judgment and decision making [9]. Hence, this study investigated fan engagement based on affective valence wall posts classified as positive in nature if they featured enjoyable events, comfortable surroundings and written messages conveying upbeat emotions. Messages were deemed negative if they contained undesirable consequences, threats or unpleasant image invoking intense emotions.

III. METHODOLOGY

This study is exploratory in nature, adopting an inductive approach in seeking to explore the nature of Facebook fanpage usage relating to

PT.MRT Jakarta. Between June 5 and August 5, 2017, the company's fanpages were checked to identify the effect of image content on user actions. Fanspage user engagement involves activities such as liking, sharing and commenting. To conduct category content analysis, studies of the top 10 official accounts of national organizations contained in Table III below used to promote tourism in their respective countries were reviewed. The reason for referring to these studies lies in their similarity in having examined social media-based promotion managed by government-owned, rather than private sector organisations [10].

TABLE III.

LIST OF CATEGORIES FOR @JAKARTAMRT OFFICIAL ACCOUT FACEBOOK FANPAGE SOCIAL MEDIA CONTENT ANALYSIS

No.	Category
1.	Does the post include other content? Does the post include a photo? Does the post include video? Does the post include a link to a website/blog/other url?
2.	Does the post contain affective valence? Does the post include positive messages? Does the post include negative messages?
3.	Does the post include hashtags (#s)? What are the nature and purpose of any hashtags?
4.	Does the post contain promotion related to future urban transit? Does post promote a specific urban transport-related event? Does the post promoting MRT as a suitable form of urban transit for commuters? Does the post promote greater public awareness of transport options?
5.	Does the post provide information? Does the post provide development of MRT infrastructure? Does the post provide public relation? (e.g. radio,TV,press conference) Does the post provide opinion or review (e.g. urban transit service at other countries?
6.	Are there comments or replies? How many comments or replies are there?

IV. FINDING AND DISCUSSION

An analysis of the @JakartaMRT Facebook fanpage over a period of 31 days, revealed there to be 110 posts of which 18 were not posted by the official administration. A feature on Facebook fanpage allows the user to post content on the fanpage wall that they are following. In this study, only 92 posts posted by the administration were analysed because those posted by followers were non-MRT related such as tending to promote individual products, submitting job applications to PT. MRT Jakarta or even sharing their personal number in a search for friends.

TABLE IV.

COLLECTED DATA FROM @JAKARTA MRT FANPAGES DURING THE MONTHS OF JUNE TO AUGUST 2017.

Purpose of Content	Type of Content	Total Posts
Information		
Development of MRT infrastructure	Photos Videos URL Links Words alone	18 1 1 1
Public relations activity	Photos	22
Promotion		
Promote an event	Photos	6
Promote MRT as suitable urban transit for commuting	Photos	12
Travel awareness	Photos	18
General Greeting	Photos	13

From the contents of Table IV above, it is clear that the two main functions of social media are information dissemination and promotion. The former serves to inform the audience about the development of the MRT infrastructure and is related to public relations activity in order to enhance the reputation and image of PT. MRT Jakarta. This strategy shows the professional manner in which PT. MRT Jakarta communicates with its audience is rewarded by the high number of posts that form part of its public relations activity.

Furthermore, in this context, the current Good Corporate Governance (GCG) policy demands a greater degree of transparency for the public. The transparency of GCG in a social media post is here translated into content that provides more information on the construction process of the facilities, rather than promotes MRT as a sustainable commuting mode that could solve traffic problems and increase the mobility of the public. Even though sharing information could evoke curiosity on the part of the audience to experience the new urban transit system when ready, it is also important to promote changes in PT. MRT Jakarta mobility management strategies by providing more content about individual benefits arising from MRT use rather than that of private vehicle use.

The use of photos in PT. MRT Jakarta social media posts is more prominent than other types of content. Photo posts demonstrate the desire of

PT.MRT Jakarta to display physical evidence to the audience of its capability to provide a reliable mode of transportation. On the other hand, photo posts are also employed as a medium for the public to access that private area of construction that cannot be seen or reached by them.

After exploring all content, the author discovered that 89 % of PT. MRT Jakarta wallposts contain photographic images that influence audience behaviour. In this paper, we identified that the influence of positive messaging on audience engagement. Table V below shows the top five @JakartaMRT posts based on the fanpage users' engagement that involve liking, sharing and commenting on the wallpost.

TABLE V.
TOP 5 POSTS BASED ON AUDIENCE ENGAGEMENT

Wall Post on Facebook	Type of Affective Valance	Type of Content	Total Number of
	Positive	Photo; Link to MRT Jakarta website	9.500 43 8 4 Comments: 14
	Positive	Photo using hastag #MRTupdate #MRT Jakarta	348 18 5 Comments: 28 Replays : 22
	Positive	Link to MRTJakarta event on Facebook using	286 1 Comments : 2 Replays : - Shares : -
	Positive	Photo	244 17 7 Comments: 10 Replays : 4
	Positive	Photo	241 16 6 Comments: 13 Replays : 7

In the descriptive statistical analysis shown in Table V, based on audience engagement, it could be concluded that most fanpage content is related to the development of MRT infrastructure. All of the content demonstrates positive valence, attracting hundreds of audience 'likes'. This interaction is due to the perspective on the part of the commuter that the physical presence of a more modern mode of transport is highly desirable. Positive valance in images portraying the development of MRT infrastucture represents an emotional trigger to the audience that gives them more hope and optimism for the future.

Since 2016, Facebook users have been able to express their online opinions in wallposts using six different animated emoji, for example; "haha", "love", "wow", "sad" and "angry". Facebook supports an extension in the range of the "like" button to differentiate more effectively the online reaction to wallposts. Giving a "love" reaction indicates that users feel more strongly about the post than would be the case with just "like". In this study, four animated emoji which are "like", "love", "haha" and "wow" indicate positive reactions and two animated emoji signify negative ones. In the case of @JakartaMRT, positive valance gives positive audience engagement to each post.

Related to the social media MM campaign, PT. MRT Jakarta uses three #hastags which are #ubahJakarta (For better Jakarta), #MRTupdate and #MRTJakarta. Adding the hash symbol to the front of three content words to online wall post communications not only has a technical function for PT.MRT Jakarta, enabling the audience to easily find relevant content. It could also evoke the spirit of making Jakarta a better place to live through the MRT's development because it will be free from congestion and pollution, while promoting high mobility supportive of economic activity, especially for #ubahJakarta.

Based on the contents of Table V, PT. MRT Jakarta still needs to increase its audience engagement because, compared to its total number of followers, the highest reaction in the top wall post was recorded by only 38.9% of its followers. Related to MM's social media strategy, audience engagement could still not reflect accurately its willingness to choose the MRT as its future commuting mode. Due to this requirement, PT. MRT Jakarta should extend the function of its Facebook fanspage as an opinion and pool survey of the MRT as such an alternative.

The other best practice example of MM social media strategy, as represented by PT. MRT Jakarta, is through campaign collaboration with journalists and bloggers. Several previously-held, open-to-the-public events disseminating online information to stakeholders, boosting online engagement and promoting the MRT as a future urban transit system able to solve problems in Greater Jakarta through social media have proved highly effective.

V. CONCLUSION

The development of the MRT Jakarta construction project was initiated in 2013. With its transit-urban integration, the future purpose of the MRT system is increasing mobility which will eventually further the city's economic growth at the same time as improving citizens' quality of life. To support this effort, an MM social media strategy has been implemented to engage with the target audience through online communication.

In this study, in an effort to expand future use of the MRT, PT. MRT Jakarta posts facebook content on its fanspage wall together with the functions of an information tool of MRT infrastructure development and the promotion of the MRT through events, as an alternate commuting mode and a provider of travel awareness content. Using photographic images in Facebook posts effectively influences audience engagement through "like" and "love" responses. The positive valance of wall posts featured in the @JakartaMRT Facebook fanspage could evoke a positive reaction from the audience.

There is potential for further study to develop Facebook Fanpage content analysis examining six different reaction based on animated emoji in explaining audience engagement. Regarding MM social media strategies for future urban transit, the framework of this study could be replicated to analyze online engagement in the different cities and/or countries which have also implemented MM to induce voluntary behavioral change. However, social media campaigns within MM strategy should not be regarded as quick-fix solutions because achieving behaviorial change is a long-term process.

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