

Examining Government Cross-platform Engagement in Social Media: Instagram vs Twitter and The Big Lift Project

Anatoliy Gruzd^a, James Lannigan^b, Kevin Quigley^c

^a Social Media Lab, Ted Rogers School of Management, Ryerson University, Toronto, Canada

^b University of Toronto, Toronto, Canada

^c MacEachen Institute for Public Policy and Governance, Dalhousie University, Halifax, Canada

Abstract

As governments are increasingly turning to social media as a means of engaging the public, questions remain as to how they are actually using various social media platforms. Do specific platforms engender specific types of messages? If so, what are they, and how do they affect civic engagement, co-participation, and address citizen concerns? In this paper, we compare the use of Instagram and Twitter by ‘The Big Lift’, a bridge re-decking project completed by Halifax Harbour Bridges. Based on a content analysis of Instagram (n=248) and Twitter (n=1,278) public posts, we found that Instagram was used as a more ‘informal’ narrative platform that promoted a clicktivist type of responses from the audience, whereas Twitter was a more ‘formal’ news platform that supported greater two-way communication between the organization and the audience. We conclude that by building and maintaining their active presence and following base on social media, and especially on Twitter, organizations can develop a capacity to address social concerns during disruptive events or infrastructure projects like ‘The Big Lift’.

1. Introduction

In the private sphere, consumers are increasingly able to engage directly with their favorite brands and companies (Barger, Peltier, and Schultz, 2016; Killian and McManus, 2015; Klassen et al., 2018), which has in turn affected their expectations for availability and medium of interaction with institutions. Aware of the shifting tide, government agencies are seeking to

implement social media strategies in an attempt to foster greater levels of engagement with their constituents (Bonsón, Royo, and Ratkai, 2015; Lev-On and Steinfeld 2015; Meijer and Thaens, 2013; Treem and Leonardi, 2013), yet there is little empirical exploration of how they do this across different mediums, or how they approach and adapt their communication on these mediums over time.

Social media engagement is characterized by soliciting user-generated content, responding to citizen suggestions and concerns, or any other attempt to include citizens into a discussion (Mossberger, Wu, and Crawford, 2013). Many government institutions still, however, maintain a one-way style of information dissemination, known as a ‘push’ strategy, instead of a two-way style of engagement, known as a ‘pull’ strategy (Mergel, 2013a; Mergel, 2013b). ‘Push’ strategies largely feature public information with no concern for responses from the public, whereas ‘pull’ strategies attempt to solicit responses from an audience (Mergel, 2013a). These ‘pull’ strategies are essential to building virtual relationships between organizations and their publics (Briones, Kuch, Fisher Liu, Jin, 2011; Taylor and Kent, 1998), but how do these strategies change when different mediums are used, and how do agencies adapt to the unique affordances of each medium?

Recent research has analyzed how public and private organizations use social media (Bonsón, Royo, and Ratkai, 2015; Bretschneider and Parker, 2016; Briones, Kuch, Fisher Liu, and Jin, 2011; Killian and McManus, 2015; Lev-On and Steinfeld, 2015; Picazo-Vela, Fernandez-Haddad, & Luna-Reyes, 2016); but, much of this research conflates social media platforms, which minimizes their important differences and unique affordances. For instance, Twitter was primarily developed as a text-based medium that, until recently, only allowed tweets up to 140 characters, which meant individuals needed to condense their ideas into simple

messages. In contrast, Instagram is a visual-first medium that emphasizes pictures and videos over written text.

Our research advances previous efforts at examining government adoption of social media with three specific contributions. First, we track, from start to finish, a unique case of how a governmental organization engages with their audience on two different social media platforms (Instagram and Twitter), with different affordances, by employing a longitudinal mixed methods analysis of “The Big Lift” (or BigLiftHFX) — a bridge re-decking project affecting Halifax’s Macdonald Bridge. Second, we employ, validate and expand Lovejoy and Saxton’s (2012) coding schema developed to categorize organizational usage of social media. In addition to the three types of posts identified by the prior literature (‘Information’, ‘Community’, ‘Action’), our case revealed two other post types, ‘Presence Maintenance’ and ‘Shared Past Events’, used by the studied organization. Finally, we extend the literature surrounding push and pull strategies (Mergel 2013a) by focusing on an organization’s ability to adapt its communication patterns to a particular platform. Here, we also turn to the literature on risk governance of complex risks and social concerns (Renn and Walker 2008). We argue that by building and maintaining their active presence and following base on social media, organizations can develop a capacity to address social concerns during disruptive events or infrastructure projects like BigLiftHFX. More specifically, we seek to answer the following research questions:

RQ1: How were Instagram and Twitter used by BigLiftHFX? What were the similarities and differences?

RQ2: What platform has a higher level of user engagement (as quantified by likes and replies)?

Building on the previous two questions, we also ask:

RQ3: What does HHB's use of Instagram and Twitter tell us about government's capacity to address social concern during disruptive infrastructure projects?

To situate our work in the context of the prior research, we turn to a recent systematic review of government social media research by Medaglia and Zheng (2017) that identified six broad categories of studies in this growing area, namely: management, context, user characteristics, user behavior, effects and platform properties. Our work contributes to two of these categories: social media management (by examining the types of social media content being posted by BigLiftHFX), and platform properties (by comparing Instagram and Twitter in relation to user engagement and with consideration of their unique affordances).

The paper is structured as follows. First, we provide background information of our case, followed by an in-depth review of the literature on user engagement on social media platforms more broadly, and Instagram and Twitter in particular. We highlight the lack of empirical studies on Instagram use by government agencies, as well as studies that applied the content analysis to examine the actual content of organizational social media use as opposed to what is reported in surveys or interviews. After the background and literature review section, we introduce our approach to data collection and analysis (i.e., what public social media posts we collected and how we categorized and analyzed them). The concluding sections present our results and discuss their broader implications on cross-platform social media use by government agencies.

2. Background and Literature Review

2.1 The Case – Halifax's Macdonald Bridge

From 2016–2018, governments around the western world announced large commitments to infrastructure spending to repair their aging public assets. The 2018 United States Budget has \$200 billion dollars in outlays related to their infrastructure initiative (Office of Management and

Budget, 2018). In late 2016, the UK Government announced its “National Infrastructure and Construction Pipeline”, a £500 billion public-private delivery package for planned infrastructure projects and programs (Government of the United Kingdom, 2016). In Australia, the federal government has committed \$70 billion AUD in infrastructure spending between 2013 and 2021 (Commonwealth of Australia, 2017). The federal and provincial Canadian governments plan to spend collectively as much as \$800 billion over the next decade on infrastructure (Fagan & Greenspon, 2016), and the Canadian federal government plans to double its contribution to \$180 billion CAD over the next 12 years (Government of Canada, 2016).

New infrastructure projects require elaborate planning and execution in order for the project to be successful. When the project involves replacing old infrastructure; the challenges are significant: replacement projects can pollute; they can be noisy; they can delay commutes; they can impact social lives; they can impact local economies as people go out less, or some neighborhoods become less desirable, or inaccessible (Bornstein, 2010; Di Maddaloni & Davis, 2017; O’Kane, 2017). Governments favor announcing new infrastructure plans, but they are less successful at retiring and repurposing assets (Burnsa, Hopeb & Roordac, 1999; Synder & Luby, 2012).

Beginning in August 2015, the Halifax Harbour Bridges (HHB), a Nova Scotia provincial Crown corporation, undertook a 30-month, \$207-million project to re-deck the suspended spans of the Macdonald Bridge. Crews replaced 10- to 20-meter sections, re-decking 762 of the total 1,341 meters. After Vancouver’s Lions Gate Bridge, this is only the second time in history that suspended spans of a bridge have been replaced at night and in use during the day: the project included daily 10.5-hour nighttime closures to traffic as well as frequent weekend closings, as well as the removal of the sidewalk and bicycle lane for the duration of the re-decking.

There are only four ways to travel between Halifax and Dartmouth: one of the two bridges (Macdonald Bridge or MacKay Bridge), passenger ferries, or driving around Halifax harbor (28 kilometers each way). 48,000 vehicles cross the Macdonald Bridge every day; an estimated 34 million vehicles cross the two bridges annually (Canadian Business Journal, 2012). At peak summer times, 600–700 cyclists and 750 pedestrians cross the Macdonald Bridge daily (Fairclough, 2014). Despite its importance to Halifax, the consequences of a bridge disruption—even a temporary one—have never been studied, while the Vancouver experience has only been studied from an engineering perspective (Vejrum et al., 2000).

HHB assumed that people would cope without the bridge during off-peak hours by using an alternative route or adjusting their schedules to travel when the bridge was open. These were significant and untested assumptions, especially considering that 28% of the workforce work non-standard hours (Williams, 2008). Non-standard work hours already have potentially negative effects on personal health and family life, which extended commuting time can negatively impact further (Williams, 2008). Disadvantaged groups with the least capacity to adapt, including low-income workers, the ill and elderly, are disproportionately affected by such disruptions (Cheng, Stough and Kocornik-Mina, 2006; Litman, 2006).

In the early stages, the media, HHB, and the government emphasized the economic stimulus that resulted from the \$207 million infrastructure investment, with 75% of the investment expected to be spent in Nova Scotia (Fairclough, 2014). Yet, small and medium-sized enterprises (SMEs) tend to be under-represented in critical infrastructure (CI) decision-making (Quigley, 2013). Such a project could impact the local economy, tourism, trade, public transit, and emergency services. Depending primarily on the MacKay Bridge also created a single point of failure or “choke point” that was vulnerable to disruptions caused by car accidents or storms

as Halifax is situated on a hurricane path.

Finally, commuters may not have felt confident taking the Bridge during the day if they knew it had been dismantled at night. Evidence suggests that with the proper communication and public policies, people can change modes or times of transportation (Zhu and Levison, 2008; Zhu et al., 2010). Nevertheless, computational models used for planning cannot always predict human and institutional behavior; they can underestimate irrational reactions to risk, creativity, entrepreneurship, volunteerism, loyalty, complexity, adaptability and resilience.

According to the International Risk Governance Council (IRGC) Framework, the MacDonald Bridge project can be classified as a complex risk. The IRGC Framework classifies risks by four types: simple, complex, uncertain, and ambiguous. The classification of risk is “not related to the intrinsic characteristics of hazards or risks themselves but to the state and quality of knowledge available about both hazards and risks” (Renn and Walker, 2008, p.18). Complex risks are often industrial risks and include risks associated with interconnected critical infrastructure; these risks exist when there is difficulty identifying and quantifying causal links between a multitude of potential causal agents and specific observed effects (Renn and Walker, 2008). Complex risks are examined largely on the basis of expert opinion and formal modelling. Importantly, understanding and responding to social concerns is also a critical part of managing a complex risk, and they are too often overlooked or marginalized. We believe that analyzing social media data of a project that is addressing a complex risk will facilitate an understanding of identifying and appraising social concerns.

In a previous study our research team examined the impact on morning commuting time when the bridge failed to open at the specified re-opening, which happened on five occasions (CBC, 2017; Burke, 2016; d’Entremont, 2015; Chronicle Herald, 2015; & Woodford, 2015), and

we concluded that commuting time increased by 33% in the second hour of a bridge opening delay, and 45% in the third hour (Citation Removed for Blind Review). In a second study, we conducted a large-scale survey assessing how the re-decking project impacted residents' social and economic well-being and found that bus delays were the most frequently cited problem (Citation Removed for Blind Review). In this third study, we examine the use of social media by HHB during the re-decking project. HHB established a dedicated Twitter account beginning in February 2015 and an Instagram account beginning in August 2015. In order to examine the distinctions of using Twitter and Instagram by HHB, we first review the relevant literature on civic engagement through social media and outline the technical and social differences between social media platforms.

2.2 Civic Engagement and Social Media

In the contemporary relationship between organizations and the public, a social media presence coupled with audience engagement is considered advisable (Hollebeek, Glynn, and Brodie, 2014). These expectations, which emerged in the private sector, are increasingly moving into the public sector under the guise of 'civic engagement'. Civic engagement refers to actions that citizens take in order to pursue concerns in the communities they belong to (Skoric, Zhu, Goh, and Pang, 2015; Warren, Sulaiman, and Jaafar, 2014). Citizens are using social media to engage in political issues at multiple levels of governance outside of traditional venues, such as meetings or town halls. They are empowered through social media to engage their political representatives (Warren, Sulaiman, and Jaafar, 2014), which has effectively collapsed some of the formality surrounding political contexts (Skoric, Zhu, Goh, and Pang, 2015; Gruzd and Roy, 2016) and traditional avenues of participation.

In the case of HHB and the re-decking project, civic engagement takes the form of

developing interactions surrounding the progress of the bridge, learning opportunities surrounding its history, and airing grievances concerning delays in traffic. There were a few conventional town hall meetings leading up to the re-decking, and the public expressed concerns raised about the noise that the construction would generate. Problematically, there were no town halls in the suburbs, even though suburbanites are likely to experience prolonged commutes if the bridge were closed during their commute. In other words, closing critical transportation infrastructure has an impact on many individuals in the community, and not merely those who live close to the infrastructure. Arguably, social media provides an opportunity for many, near and far, to comment on the impact of the infrastructure disruption.

When compared to traditional participation techniques like public meetings or surveys, posts on social media have a lower threshold for public involvement (Evans-Cowley and Griffin, 2012). Using social media, the public has an opportunity to easily and publicly view and respond to the public views of government officials. While social media has not shown to help foster a strong sense of community in political practice, or help the public establish a significant voice in planning (Evans-Cowley and Griffin, 2012), the accessibility and hypothetically democratic character make social media an appealing alternative for officials to engage with the public. In particular, public digital space allows for increased accountability for officials; when space is mismanaged and features unanswered queries, it can reflect poorly on the reputation of the account (Killian and McManus, 2015).

At the municipal level, organizations can use the public's user-generated content on social media to understand the public's immediate and long-term needs as well as detect which services are being over- or underutilized (Gal-Tzur et al., 2014). Since citizens can voice their concerns in real time, organizations can respond effectively to these concerns (Collins, Hasan,

and Ukkusuri, 2013). Online civic behavior can help reinforce citizens' trust propensity in institutions, despite the majority of posts expressing concern on social issues rather than taking action (Warren, Sulaiman, and Jaafar, 2014). Furthermore, organizations that use social media as a platform for two-way communication are perceived more positively than those who use social media as a one-way medium for communicating information (Brubaker, Mower, Curtis, Gillespie, 2014; Schweitzer, 2014). Merely presenting information on social media does not necessarily engage the public in meaningful manner (Hand and Ching, 2011).

2.3 Social Media Platforms

Instagram is an image- and video-based social media platform, whereby posts can include text-based captions with hashtags and comments. Instagram is the second most daily frequented platform in Canada, behind Facebook, with 61% of online Canadian adults visiting the platform daily (Gruzd, Jacobson, Mai, and Dubois, 2018). Compared with other social media platforms that have both a smartphone application and a web-based component, Instagram originated as mobile-only application (McNely, 2012). Instagram was one of the first social media platforms to have celebrity accounts and has become popular amongst some politicians (Cook, 2017; Hemsley, Tanupabrungsun, and Semaan, 2017). Twitter is largely a text-based social media platform and posts can include images and videos. Like Instagram, Twitter is also hashtag-driven (Gilbert, 2016; Quan-Haase, Martin, and McCay-Peet, 2015) and has been primarily associated with the proliferation and dissemination of news and events (Rathnayake and Suthers, 2017). Furthermore, these different platforms tend to attract different users: Instagram has a primarily younger audience with more women using the platform than men, while Twitter has a higher percentage of users who are more educated and have a higher household income in comparison to Instagram users in Canada (Gruzd, Jacobson, Mai, and Dubois, 2018).

Scholarly research has addressed Twitter use at both the individual- (Chen 2011; Gruz and Roy, 2014; Java, Song, Finin, and Tseng, 2007) and organizational-level (Fischer and Reuber, 2011, 2014; Lovejoy and Saxton, 2012; Saffer, Sommerfeldt, and Taylor, 2013), whereas scholarly research on Instagram has been primarily focused on the individual-level (Al-Kandari, Melkote, and Sharif, 2016; Hochman and Schwartz, 2012; Hu, Manikonda, and Kambhampati, 2014; Weilenmann, Hillman and Jungselius, 2013). As an exception, McNely (2012) identifies how organizations employ Instagram to construct a more ‘organic’ means of communicating an organizational image. And Santarossa and Woodruff (2018) examined how a University used both Instagram and Twitter to organize a health promotion campaign on campus.

In sum, the use of social media implies that government institutions are beginning to present themselves to the public in a more approachable way, which may impact the way that citizens interact with their government officials, other citizens, and politicians. Employing these more informal forms of communication, in lieu of professionalized and concerted PR efforts, might be the future of government-citizen interaction. The use of social media by governments involved in public infrastructure projects could open up spaces for dialogic engagement with the public. This paper examines one such case – the use of Instagram and Twitter by HHB in the context of a public infrastructure project with significant impact on the community. The next section will discuss our data collection and analysis approaches.

3. Method

3.1 Data Collection

Following the previous work in this area (e.g., DePaula, Dincelli, & Harrison, 2018; Fischer & Rebecca Reuber, 2014; Williams et al., 2018), we relied on a manual content analysis of publicly available social media posts to understand how BigLifeHFX used Instagram and

Twitter. To collect Instagram data, we manually collected all of the Instagram posts by BigLifeHFX (n=248) from August 14, 2015 to April 28, 2017. Using Twitter's advanced search function, we automatically retrieved and collected all of BigLiftHFX's posts (n=1,278) from February 23, 2015 to April 28, 2017. In addition to the actual content of the posts, we collected information about the date of publication, the number of likes, and the number of replies on each post. Rather than analyzing the public's posts relating to the re-decking, we exclusively focus on HHB's posts, in order to understand the organizational use of social media in the context of a large infrastructure project.

3.2 Post Classification

In order to categorize BigLiftHFX's posts on Instagram and Twitter, we developed a qualitative coding schema based on Lovejoy and Saxton's (2012) widely adopted schema from their examination of how non-profit organizations use social media. This schema features three broad categories of social media post functions – 'Information', 'Community', and 'Action'. In addition to these three categories, we also added 'Shared Past Events' when BigLiftHFX posted nostalgic images and 'Presence Maintenance' when BigLiftHFX posted information that was anecdotal in nature, mostly to maintain their online presence (based on Naaman, Boase, and Lai, 2010). The additional two categories conceptually correspond to the entertainment and ancillary functions of social media mentioned in Manetti, Bellucci, and Bagnoli (2016), who studied the use of social media by public transportation organizations.

We employed an iterative procedure to code posts. An initial sample of 40 Instagram and 40 Twitter posts were coded using the 5-part schema to identify an initial coder agreement prior to undertaking the coding of the entire dataset. In this sample, Coder 1 and Coder 2 scored a Cohen's Kappa of 0.63 for Instagram posts and 0.68 for Twitter posts. While these are

acceptable results, both coders met and resolved the discrepancies to ensure greater reliability of the coding schema for the entire dataset. The Cohen's Kappa for the entire dataset was 0.77 for Instagram posts and 0.91 for Twitter posts. This result highlights the challenge of achieving a consensus when coding Instagram's photos and their corresponding captions as compared to Twitter's more text-oriented posts. Finally, Coder 3 met with Coder 1 and Coder 2 to resolve the remaining discrepancies, and, in the end, all three coders developed a final consensus on the coding of the entire dataset.

3.3 Cross-platform User Engagement

To compare how users interacted with BigLiftHfx's posts on Instagram and Twitter, we followed Goggins and Petakovic's (2014) theoretical framework on cross-platform engagement. Built on Floridi's (2011; 2016) method of levels of abstraction, the framework offers a mechanism to theorize and compare user engagement across different social media platforms. Even though each platform might have different interface features and affordances, they all belong to the same class of social technologies; thus, they support similar basic functions for people to interact with one another. These basic functions can be categorized and grouped into different levels of abstractions; which then are used to compare user engagement across platforms. Goggins and Petakovic (2014) explain:

Differences in the practices and purposes of participation in each of these social technologies can be conceptualized in terms of the levels of data we observe (ontology) and levels of phenomena we try to explain (epistemology). Abstractions of data and explanation are a foundation of how we think about the differences across both present and future social technologies. (*p. 1381*)

The framework considers participation and affiliation as "base abstractions". The

abstractions of participation are especially relevant to our work as our goal is to examine how people engage with content shared by BigLiftHfx via Instagram and Twitter. Therefore, to study and compare engagement within and between these two platforms, we will use the number of ‘likes’, the most basic level of participation, followed by the number of ‘replies’ which would represent the next level in the abstractions of participation.

We used the independent samples t-test to compare the means of likes and replies, performed in SPSS v24. Prior to running the t-test, we excluded outliers with absolute z-scores of over 3 (Stevens, 2009). When comparing the number of likes, 2 Instagram posts with over 167 likes and 18 Twitter posts with over 11 likes were identified as outliers and removed. When comparing the number of replies, 4 Instagram posts with over 8 replies and 29 Twitter posts with over 2 replies were flagged as outliers and removed.

Following Kahle, Sharon and Baram-Tsabari (2016), who also compared engagement across different social media platforms, we normalized the number of likes and replies by the audience size. Since the information about the number of followers on each platform was not available retroactively, we used the counts at the end of the data collection period as a proxy to assess the maximum audience size reached closer to the end of the project. As of June 1, 2017, BigLiftHFX had 1031 followers on Instagram and 5313 on Twitter (1:5 ratio).

Although the t-test has shown to be robust to departures from normality (de Winter & Dodou, 2010), we performed two additional non-parametric (distribution-free) tests: the independent samples median test and Mann-Whitney U test. The results of the non-parametric tests¹ were consistent with those of the t-test.

¹ Due to space limitations, the resulting non-parametric test scores are not included in the paper but are available upon request.

4. Results

4.1 Post Types

To answer our first research question on “How Instagram and Twitter were used by BigLiftHFX,” we examined a general distribution of the categories used to classify posts: ‘Information’, ‘Community’, ‘Action’, ‘Presence Maintenance’, and ‘Shared Past Events’. The resulting distributions for both Instagram and Twitter are presented in Figure 1. The figure also includes a comparable distribution of post categories from the original Lovejoy and Saxton’s study. The actual counts and additional descriptive statistics for each category and sub-category can be found in Table 1.

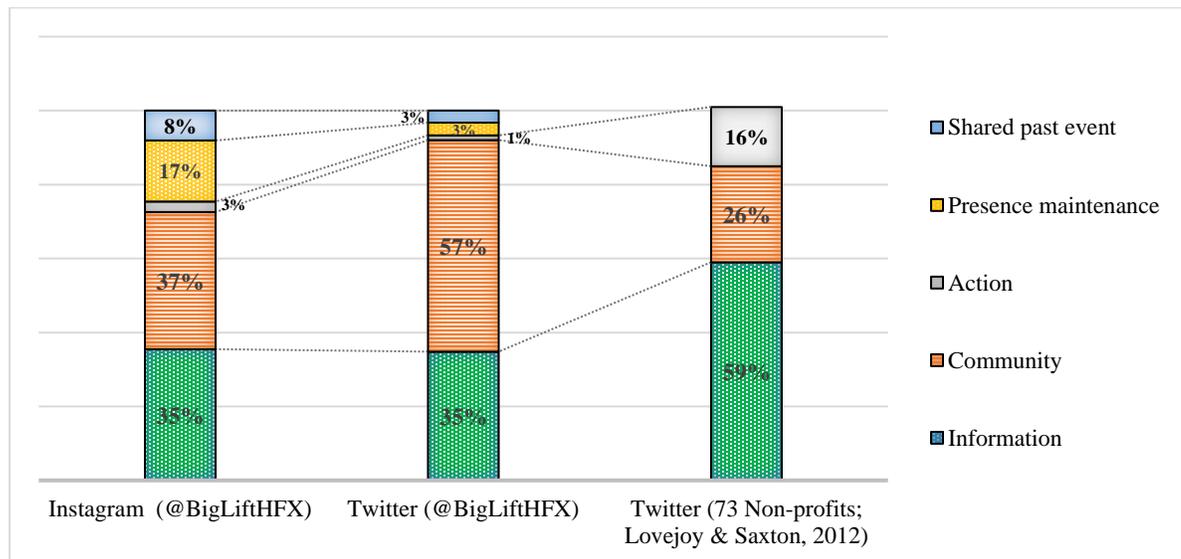


Figure 1. Broad Categories of Instagram and Twitter Posts

BigLiftHFX’s Instagram account was used to engage and inform its followers. The largest most popular category of posts for BigLiftHFX’s Instagram account was the ‘Community’ category (37% of posts). Most of the posts in this category were classified under the sub-category called ‘Giving recognition and thanks’ (see Table 1); this is usually when BigLiftHFX engaged the audience through a practice known as ‘re-gramming’, where they re-

post images from the public. In addition to re-gramming, Instagram allows organizations to engage their audience via replies in the comment section of a post. BigLiftHFX used the commenting feature to reply to some of the comments, but the exact number of their replies were not captured since the analysis was done at the level of Instagram posts and not comments. The second largest category of Instagram posts were information-based posts (35% of posts), including images that highlighted different stages of the project and different engineering equipment. The third and fourth largest categories of Instagram posts were ‘Presence Maintenance’ (17% of posts) and ‘Shared Past Events’ (8% of posts), which featured aesthetic contemporary and historical photos of the bridge, the project and the surrounding area. Although such posts were present on both Instagram and Twitter, these two categories were much more prominent on Instagram.

BigLiftHFX’s Twitter account featured posts predominately from the following two categories: ‘Community’ (57% of posts) and ‘Information’ (35% of posts). Notably, posts classified under in the ‘Community’ category were responses to reply messages from other Twitter users (see Table 1). The second largest category of tweets were information-based posts (35% of posts). Although BigLiftHFX’s Instagram account had the same percentage of ‘Information’-type posts, Twitter posts in this category primarily focused on real-time updates about the status of the project, traffic and lane closures. This is somewhat different from more educationally focused Instagram posts in this category.

From the methodological perspective, when comparing the use of Twitter by BigLiftHFX and the use of Twitter by non-profits that Lovejoy and Saxton (2012) analyzed, we see a much lower proportion of action-driven posts, a slightly lower proportion of information-based posts, and a higher proportion of community-based posts. This suggests that the applied coding schema

is helpful in capturing a unique platform use ‘signature’ for a particular organization type. For example, upon closer examination (see Table 1) of both categories and sub-categories, the lack of action-driven posts is largely due to the absence of posts soliciting donations, selling a product or service, calling for volunteers, all of which are less relevant in the case of BigLiftHFX and are not part of the HHB’s mandate.

Table 1. Descriptive Statistics for each Category and Sub-category of Posts

Broad Category	Sub-categories (if applicable)	Instagram			Twitter		
		Num.of Posts (%)	Mean of Likes (Std.Dev)	Mean of Replies (Std.Dev)	Num.of Posts (%)	Mean of Likes (Std.Dev)	Mean of Replies (Std.Dev)
Information	Information	88 (35%)	37.30 (45.80)	2.13 (3.08)	445 (35%)	2.81 (3.73)	0.46 (0.94)
Community	Giving recognition and thanks	80 (32%)	48.08 (23.27)	1.83 (2.16)	29 (2%)	4.69 (8.54)	0.28 (0.45)
	Acknowledgement of current and local events	1 (<1%)	12 (--)	1 (--)	5 (<1%)	1.4 (1.67)	0 (--)
	Responses to reply messages	--	--	--	678 (53%)	0.50 (0.90)	0.47 (0.70)
	Response solicitation	11 (4%)	35.45 (13.22)	1.82 (1.33)	19 (2%)	3.74 (2.54)	0.37 (0.60)
Action	Promoting an event	1 (<1%)	7 (--)	2 (--)	8 (1%)	1.50 (1.77)	0.38 (0.52)
	Donation appeal	0	--	--	0	--	--
	Selling a product	0	--	--	0	--	--
	Call for volunteers and employees	0	--	--	0	--	--
	Lobbying and advocacy	0	--	--	0	--	--
	Join another site or vote for organization	6 (2%)	31.33 (40.34)	0.5 (0.55)	7 (1%)	3.14 (4.22)	0 (--)
	Learn how to help	0	--	--	1 (<1%)	0 (--)	0 (--)
Additional codes	Presence maintenance	41 (17%)	30.61 (16.13)	0.95 (1.28)	44 (3%)	4.32 (3.18)	0.36 (0.87)
	Shared past event	20 (8%)	24.20 (17.82)	1.55 (1.67)	42 (3%)	4.62 (5.77)	0.64 (0.91)
Total		248 (100%)	38.16 (32.92)	1.73 (2.37)	1278 (100%)	1.74 (3.24)	0.46 (0.80)

4.2 User Engagement

In relation to our second research question, “What platform has a higher level of user engagement”, we found a statistically significant difference (=34.92 per 1000 users) in means of

likes and a statistically significant difference ($=1.43$ per 1000 users) in means of replies between Instagram and Twitter posts, with Instagram generating more likes and more replies from the audience (see Tables 2 and 3; equal variances are not assumed in accordance with the Levene's test). We attribute this to the normative practices and unique affordances of each platform, with Instagram being a more 'clicktivist' medium than Twitter. Other scholars also reported Instagram's tendency to produce more 'likes' when compared to other platforms (Kreiss, Lawrence & McGregor, 2018; Kahle, Sharon & Baram-Tsabari, 2016). This could be in part because Instagram users are more active on the platform than Twitter users. Specifically, even though the percentage of monthly active users on Instagram and Twitter is comparable (33% vs 32%), 61% of Instagram users visit the platform daily in comparison to 45% of Twitter users (Gruzd, Jacobson, Mai & Dubois, 2018).

One of the most interesting observations about how BigLiftHFX engaged with their followers was found when we compared the level of engagement across different sub-categories within each platform. Specifically, we noticed an interesting trend in the use of 'Giving recognition and thanks'-type Instagram posts over the period of the project. First, posts in this sub-category received more likes relatively to other post types for both Instagram and Twitter (see Table 1). Since these platforms were originally designed to support social interactions, posts directed to other users would be expectedly more engaging. But what is interesting is how BigLiftHFX has altered their approach on Instagram to shift from primarily posting a narrative of the bridge development ('Information'-type posts) at the beginning of the project to sharing 'Giving recognition and thanks'-type posts, and specifically re-gramming aesthetic pictures of the bridge or community events related to the project taken by other Instagram users. This change in practice likely led to an increase in the number of likes that they received from

followers, when compared to other post types. This capacity to adapt may suggest a willingness of HHB to engage their social media audience strategically using the means of private counterparts.

Table 2. Independent Samples T-Test for the Number of Likes

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	1898.11	.000	53.27	1504	.000	34.92	.66	33.64	36.21
Equal variances not assumed			23.52	245.03	.000	34.92	1.48	32.00	37.85

Table 3. Independent Samples T-Test for the Number of Replies

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	1489.28	.000	27.96	1491	.000	1.43	.05	1.33	1.53
Equal variances not assumed			12.46	243.36	.000	1.43	.12	1.21	1.66

4.3 Risk Governance of Complex Risks and Social Concerns

This section addresses our third research question about what HHB's social media use can tell us about government's capacity to address social concern during disruptive infrastructure projects more broadly. While including social concern is part of risk appraisal, the analysis of complex risks tends to overemphasize the perspectives of the experts. Social concerns, however, are not trivial. Major infrastructure projects are disruptive to citizens, and some citizens are impacted more than others. Consequently, it is important that the government be and seem to be responsive to its citizens' concerns as a fundamental tenet of accountability.

Based on the content analysis conducted to answer the first two research questions, it is

difficult to see how Instagram addresses social concern. On Instagram, there appears to be a narrative that engages a subpopulation which is particularly interested in the re-decking project from the point of view of the phenomenal and complex engineering feat that it was. Instagram offered the opportunity to engage directly with that group, though it is unclear how much of the engagement was thoughtful engagement on questions of complex industrial engineering and how much was an opportunity to simply capture spectacular sights as a form of organizational propaganda. Thus, while Instagram use may have positively increased the public profile of the project and allowed public access to the project, Instagram's content seems geared towards an audience that is more technically-oriented. This reinforces Renn and Walker's (2008) concern that there continues to be a strong bias towards the perspective of the technical expert in this type of exercise.

In a parallel study (*Citation Removed for Blind Review*), the principal concerns raised by the public were bus delays and the impact of bridge closures on people's professional and social lives. Echoing this result, HHB's use of Twitter appears to address social concerns more effectively than Instagram in that Twitter frequently amplified issues that ran in the popular press, including delayed openings and commutes.

5. Discussion

By analyzing HHB's evolving strategy and use of the two platforms, we have validated an existing coding schema, illustrated additional rhetorical tactics, and demonstrated how HHB adapted to the unique affordances of the two mediums over time. From our findings, HHB used a hybrid approach to social media, with Twitter occupying a hybrid of information posts and attempts to engage audience members, and Instagram being a primary venue for engagement through narrative-based posts, and aesthetic re-grams of the bridge in development. HHB's

ability to adapt to the unique affordances of each medium illustrates that HHB might have been taking cues on how to engage on social media from the private sector, paying close attention to the contours of each medium.

Increasingly, citizens expect to receive information from, and interact with, governments on social media, and governments are, consequently, expected to engage with social media when managing large-scale, disruptive infrastructure projects. Failure to do so can make organizations and governments seem out of touch, insensitive, or unprepared to interact with citizens. These demands will become more common as citizens become more dependent on social media and as governments enact more large-scale infrastructure projects over the next decade. Yet maintaining an active presence on social media is not enough – that presence must also be perceived as authentic and accurate. When successful, governments can use social media to “signal concern with their stakeholders” (Utz, Schultz, and Glocka 2013, p.41) and generate a more positive public perception.

Social media platforms offer the public the possibility to participate electronically through the stages of development and maintenance of a project. This means that social media will ideally outline the entire process, transparently, to the public and key officials (Nik-Bakht and El-Diraby, 2015). When this is combined with repeated social media engagement to queries and comments, government agencies and municipal organizations can continue to communicate with current stakeholders, improve their satisfaction and enhance agency image (Nik-Bakht and El-Diraby, 2015).

Our research examined a case study of how BigLiftHFX relied on two distinct social media platforms, Instagram and Twitter, to inform and engage the public around the re-decking project in Halifax. Based on the content analysis of posts generated by BigLiftHFX during the

project, BigLiftHFX used Instagram and Twitter in different ways, but in similar ways to other public institutions by employing a primarily ‘pull’ strategy (Manetti, Bellucci, and Bagnoli, 2016). For example, BigLiftHFX’s Twitter posts contained many informational messages related to more pragmatic concerns with bridge maintenance. In particular, aside from responses to replies from the audience, their discussion revolved around traffic related information that occurred on the Macdonald Bridge. With Twitter’s 140-character limit at the time of data collection, there was not as much room for lengthy two-way discussions. (Instagram, for example, has a much higher character limit on posts and comments.) BigLiftHFX employed frequent short replies to their followers, attempting to answer questions related to road closures, delays in building, or structural concerns. This strategy was fairly consistent across time, and is a stark contrast to their Instagram use.

BigLiftHFX’s Instagram use changed over time, with a much higher proportion of their recent posts including re-grams. The original reason given for creating the Instagram account was to watch the process unfold using pictures, and the account adopted one of the main conventions of Instagram: posting aesthetically pleasing pictures for (and from) their audience of followers. The approach taken by BigLiftHFX aligns with the regular affordances of Instagram, yet it might fall short of the supposed dialogic communication that much of the literature presupposes is the purpose of state involvement on social media.

The conventions of a particular medium may have a much stronger impact on the types of messages conveyed rather than the source (the type of organization) itself. In particular, the conventions present on Instagram tend to discourage the more news-oriented character-constrained nature of Twitter posts. In other words, for the purpose of encouraging greater transparency and dialogic interaction between organizations and individuals, there may be

certain social media platforms that are better suited for the underlying structure of this type of exchange over others. This also has consequences, however, for how people interact with the mediums. In sum, the approach taken by BigLiftHFX is one that employs both ‘push’ and ‘pull’ strategies simultaneously.

Beyond the different uses of these two mediums by BigLiftHFX, the audience’s engagement rate is substantially different: Instagram followers tend to have both higher amounts of likes and replies on average than Twitter users. We find on the other end, however, that BigLiftHFX was more responsive on Twitter than on Instagram. While our results show significant differences between the use of these two mediums by the audience and by BigLiftHFX, it is difficult ultimately to compare their underlying semantic contexts since interactions are patterned differently.

6. Conclusion

In conclusion, this study is a novel contribution to cross-platform comparisons since this is the first study to use the same coding schema to compare a primarily text-based social medium with a primarily picture-based social medium. Not only have we continued to validate the use of Lovejoy and Saxton’s (2012) coding schema in the context of a government agency using social media, we have further specified the entertainment and ancillary functions (Manetti, Bellucci, and Bagnoli, 2016) of social media posts in more detail and demonstrated how these two types can contribute to the development of audience rapport in a unique longitudinal case. In particular, the use of ‘re-gramming’ near the end of our Instagram dataset shows an adaptation in strategy from BigLiftHFX to continue to remain relevant to their audience. Finally, the use of a blend of ‘push’ and ‘pull’ strategies among mediums is another contribution to this growing literature on how government organizations might be changing their approaches of

communicating with their publics from a primarily ‘push’ based tactic to a more resilient strategy of employing a variety of mediums to connect with different audiences.

Future research to complement our methodological design could usefully track the flow of influence and recognition via retweets on Twitter, since this type of post is still underdeveloped theoretically. Additional research could begin to theorize and map out online and offline networks of influence that institutions and other government agencies utilize when developing their social media accounts, and whether key actors are maintained throughout, or if there is a degree of fluidity to social media networks.

Future research may also consider how Instagram can be used to improve an organization’s ability to address social concerns. For example, in which ways can powerful visuals from such a public project be used to allay broad social concerns, such as commuting time, bus delays and the impact on social lives.

Additionally, analyzing the potential for a ‘depth’ of interactions between users and organizational officials would make a substantial contribution for understanding the possibility for dialogic interaction and the democratic capacity of social media platforms. This could be examined through in-depth interviews with social media managers from organizations.

Finally, as the current study has focused on a single case of how BigLiftHFX relied on two distinct social media platforms, Instagram and Twitter, future research should go beyond these two platforms and also examine the use of social media by other government agencies to validate our results.

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