From Likes to Change: Assessing the Impact of Citizen Engagement on the European Commission's Social Media Platforms

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Abstract

This research undertakes an examination of the function that emotional resonance plays in the social media communications disseminated by the European Commission (EC) and its subsequent influence on public involvement across a multitude of platforms such as Facebook, Instagram, Twitter, and YouTube. The findings of this research underscored that communications laden with emotional resonance considerably amplify public engagement, though the magnitude of this amplification is dependent on the individual platform. Furthermore, both positive and negative forms of emotional resonance exhibit a noteworthy influence on public participation. However, it has been observed that the impact of negative emotional resonance is more distinct and profound. Our research underscored the pivotal significance of employing strategies tailored to specific platforms and integrating emotional resonance into public communications as a means to stimulate participation in policy discourse.An analytical examination of both engagement rates and sentiment across various platforms unveils distinctive tonal nuances within the European Commission's discourse.

The impact of emotional resonance on public engagement is noted to be contingent upon the specific social media platform employed, as certain platforms demonstrate a more pronounced moderating effect on the association between emotional resonance and engagement relative to others. This research provided the foundational framework for the enhancement of communicative strategies within a multi-platform digital governance environment comprising multiple platforms.

Keywords: social media, public institutions, emotional resonance, public engagement, platform-specific strategies, digital governance

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Introduction

In recent years, it has been observed that the ascendance of social media platforms precipitated noteworthy transformations in the communication strategies employed by institutions, inclusive of public organizations, to engage with their respective audiences. Consequently, the significance of citizen participation in the process of communication mediated through social media platforms, gained escalated acknowledgment. This participatory process transcends the conventional one-directional dissemination of information from public bodies to citizens. Rather, it encapsulates an interactive discourse, fostering a two-way dialogue between the engaged parties.

The notion of engagement within the context of social media has been the subject of comprehensive scholarly investigation in recent years, with researchers delving into diverse facets of this phenomenon. One such study, conducted by Dolan et al. (2016), scrutinized social media engagement behavior through the theoretical lens of the uses and gratifications paradigm, emphasizing the motivations and benefits users acquire from their interaction with social media platforms. Concurrently, an academic study undertaken by Dragseth (2020) probed the application of social media for fostering engagement among students, specifically within the field of political science education.

Another important aspect of engagement in social media pertains to its integral role in activation campaigns directed towards consumers. Mirbagheri et al. (2019) conceptualized and developed a scale to measure consumers' engagement with social media activation campaigns. Complementarily, a comprehensive analysis conducted by Smith et al. (2015) scrutinized public engagement with organizations via social media channels, highlighting the importance of two-way communication between public institutions and citizens. The distinctive role of platform type concerning engagement with social media and its corresponding advertising

was examined meticulously by Voorveld et al. (2018). This research established that the magnitude of engagement diverges significantly across distinct social media platforms.

In addition to understanding the multifaceted dimensions of engagement within social media, it is of crucial importance to acknowledge the significance of citizen participation in the realm of public institutions. Citizen engagement is instrumental in guaranteeing transparency and accountability within public decision-making procedures. Furthermore, the proactive engagement of citizens can facilitate the formulation of efficacious policies and initiatives that are more adept at meeting the requirements of the broader community. Moreover, the importance of citizen engagement in the process of communication through social media cannot be overstated. Through social media, public institutions can engage in an interactive dialogue with citizens, build trust, and develop more effective policies and programs. As such, further research, and exploration of the concept of engagement in social media is critical for ensuring that public institutions continue to effectively communicate with and serve the needs of their communities.

Citizen participation via social media platforms can further contribute to the empowerment of individuals and collective entities, effectively granting them a decisive voice in public decision-making processes and providing a mechanism for holding public institutions accountable for their actions. This empowerment strategy can potentially engender the construction of robust, resilient communities possessing enhanced capacities to navigate both challenges and opportunities.

It is also important to note that while social media has the potential to be a powerful tool for citizen engagement, there are also challenges and risks associated with its use. These include issues related to privacy, security, and the spread of misinformation and disinformation. As such, public institutions must be mindful of these risks and take steps to mitigate them, while also leveraging the power of social media to engage with citizens in a meaningful way.

Overall, the rise of social media has transformed the way public institutions communicate

with citizens, placing a greater emphasis on engagement and two-way communication. Understanding the various aspects of engagement in social media is critical for public institutions to effectively communicate with and serve the needs of their communities. By leveraging the power of social media to engage with citizens, public institutions can build trust, empower individuals and groups, and develop more effective policies and programs that effectively address the needs of the community.

Literature review

In examining the influence of citizen engagement on the social media platforms of the European Commission, it is imperative to discern and elucidate the fundamental concepts that underlie this research. The concepts in question encompass engagement, social media platforms, and sentiment analysis, constituting the foundational pillars of numerous scholarly discussions centered around these topics.

Engagement, defined as the active interaction of users with digital content, is a fundamental element of any effective social media strategy. It encapsulates various forms of participation, from comments and shares to likes and views (Mirbagheri & Najmi, 2019). Smith and Gallicano (2015) argue that engagement helps in establishing profound relationships with users, and it can vary according to the type of platform (Voorveld et al., 2018). The concept has found applicability in numerous contexts, including public health (Heldman et al., 2013), student learning (Dragseth, 2020), and corporate social responsibility (Doncel-Martín et al. (2023)].

The significance of engagement reaches a higher dimension in the political and public sphere. With social media platforms becoming an integral part of contemporary political communication (Flew & Iosifidis, 2020; Krzyżanowski, 2020), citizen engagement has become paramount, as seen in the activities of European Union (EU) agencies (Müller, 2022). There is a myriad of ways in which citizens engage with politics on social media, from commenting on posts to sharing and liking content (De Wilde et al., 2022). This interaction has been

correlated with a variety of outcomes, including voting behaviour (Marquart et al., 2020) and vaccination attitudes. (Mascherini & Nivakoski, 2022).

Simultaneously, social media platforms are becoming recognized as powerful tools for promoting and managing engagement. This dual functionality is exemplified through the case study of the European Commission's endeavors in Romania.(Rus et al., 2021). Recognizing the potential of these platforms to facilitate citizen engagement, EU institutions have taken steps to optimize their use, implementing various strategies (Bene et al., 2022; Kanol & Nat, 2021; Özdemir & Rauh, 2022).

When evaluating the influence of citizen engagement on the social media platforms of the European Union, researchers utilize a variety of methodologies, including sentiment analysis. This approach entails a systematic process of identifying and categorizing the emotional undertones conveyed by textual expressions, with the objective of assessing public sentiment, attitudes, and emotions towards specific subjects.(Wei et al., 2021). It has been applied in diverse contexts, such as analyzing the emotional distribution in EU smart city communication (Kowalik, 2021) and exploring public opinions on climate change policy (Wei et al., 2021).

The European Union's social media landscape is remarkably complex, as shown by numerous studies. These platforms can simultaneously facilitate positive engagement, such as public service promotion (Hancu-Budui et al., 2020), and breed negative phenomena like hate speech (Doncel-Martín et al., 2023) and digital vigilantism (Allen & van Zyl, 2020). Furthermore, the influence of these platforms is shaped by broader societal and political developments, such as migration and smuggling across virtual borders (Bankston, 2021).

In conclusion, comprehending the impact of citizen engagement on the social media platforms of the European Commission encompasses a multifaceted matter. These platforms offer opportunities for substantive citizen engagement and public communication, yet their influence is contingent upon an intricate interplay of individual behavior, institutional strat-

egy, societal trends, and technological advancements. This intricacy necessitates a nuanced comprehension of each constituent element and their collective contributions to shaping the landscape of citizen engagement within the context of the European Commission's social media platforms. Consequently, it calls upon researchers, policymakers, and practitioners to continuously explore this evolving domain in order to maximize the advantages of citizen engagement while mitigating potential drawbacks.

The present study

Grounded in the aforementioned theoretical framework, the primary objective of the current research endeavour was to examine the extent of public engagement manifested on diverse official social media platforms employed by the European Commission. Specifically, this investigation encompassed platforms such as Facebook, Instagram, Twitter, and YouTube. Furthermore, the study sought to analyse and juxtapose the discernible patterns, trends, and distinctive attributes of online user interactions and responses observed within these platforms. In order to structure the inquiry, the research questions (RQs) that guided this investigation were as follows:

- RQ_1. How is the communication with emotional resonance associated with higher public engagement levels?
- RQ_2. Does social media platforms influence the emotional resonance on public engagement?
- RQ_3. Does social media platforms moderates the effect of emotional resonance on public engagement?

To answer these questions, we assumed the following:

- H_1: Communications with emotional resonance are associated with higher public engagement levels.

- H_2: Social media platform influences the emotional resonance on public engagement.
- H_3: The effect of emotional resonance on public engagement is moderated by the social media platform utilized.

The novelty of our study lies in the fact that we have systematically compared and contrasted user engagement and emotional resonance across multiple social media platforms utilized by the European Commission. While previous research has typically focused on the impact of citizen engagement within a single social media platform, our comprehensive cross-platform analysis makes this study unique.

Within this context, we have pursued an integrated approach to comprehending the potential influence of emotional resonance on the levels of public engagement observed within these platforms. Furthermore, our investigation encompasses an exploration of the moderating influence exerted by the underlying social media platform on the impact of emotional resonance, a novel aspect that has not been thoroughly explored in prior research.

The pioneering methodology implemented in this research allowed us to draw robust conclusions concerning the intricate interplay between communication strategy, emotional resonance, selection of platform, and public engagement. Consequently, our research has not only provided critical understanding of the modalities of citizen engagement on the social media platforms employed by the European Commission, but also proposed an advanced paradigm for comprehending how such engagement can be effectively harnessed and optimized for public outreach and policymaking.

Ultimately, this study has expanded the current discourse in the field of digital communication and citizen engagement, and opened up new avenues for future research on optimizing communication strategies in a multi-platform social media environment.

Method

Procedure used for data gathering

We used the Fanpagekarma, a prevalent tool for conducting analytics and monitoring on social media platforms to extract data for the official Facebook, Twitter, Instagram, and YouTube channels of the European Commission. The data included post ID, message content, post type, post date, number of likes, comments, shares, and the rounded figure of followers for each post made by the European Commission, in the period from feb 2019 to apr 2023.

The engagement rate metric is commonly employed to gauge the extent of audience interaction with a brand or organization on social media platforms, and total number of reactions (comprising likes, comments, and shares) were calculated, and divided by the total follower count. A sentiment analysis method was used on engagement rate to reveal the trends and a linear regression analysis was conducted to test the hypothesis.

Results

Overview of data analysis

We used R (Version 4.3.0; R Core Team, 2023) and the R-packages *boot* (Version 1.3.28.1; Davison & Hinkley, 1997), *caret* (Version 6.0.94; Kuhn & Max, 2008), *dplyr* (Version 1.1.2; Wickham et al., 2023), *flextable* (Version 0.9.1; Gohel & Skintzos, 2023), *ggplot2* (Version 3.4.2; Wickham, 2016), *ggpubr* (Version 0.6.0; Kassambara, 2023a), *interactions* (Version 1.1.5; Long, 2019), *knitr* (Version 1.43; Xie, 2015), *lattice* (Version 0.21.8; Sarkar, 2008), *lm.beta* (Version 1.7.2; Behrendt, 2023), *lubridate* (Version 1.9.2; Grolemund & Wickham, 2011), *MASS* (Version 7.3.60; Venables & Ripley, 2002), *Matrix* (Version 1.5.4.1; Bates et al., 2023), *misty* (Version 0.4.11; Yanagida, 2023), *mitools* (Version 2.4; Lumley, 2019), *mvtnorm* (Version 1.2.2; Genz & Bretz, 2009), *naniar* (Version 1.0.0; Tierney & Cook, 2023), *NLP* (Version 0.2.1; Hornik, 2020), *nortest* (Version 1.0.4; Gross & Ligges, 2015), *papaja* (Version

0.1.1; Aust & Barth, 2022), *psych* (Version 2.3.3; William Revelle, 2023), *readxl* (Version 1.4.2; Wickham & Bryan, 2023), *relaimpo* (Version 2.2.6; Grömping, 2006), *rstatix* (Version 0.7.2; Kassambara, 2023b), *sasLM* (Version 0.9.9; Bae, 2023), *SentimentAnalysis* (Version 1.3.4; Proellochs & Feuerriegel, 2021), *survey* (Version 4.2.1; Lumley, 2004), *survival* (Version 3.5.5; Terry M. Therneau & Patricia M. Grambsch, 2000), *tinylabels* (Version 0.2.3; Barth, 2022), *tm* (Version 0.7.11; Feinerer et al., 2008), and *writexl* (Version 1.4.2; Ooms, 2023) for all our analyses.

The initial assumptions assessment was performed by descriptive univariate analysis, data screening for outliers, and missing cases analysis, to verify univariate normality. An additional layer of sentiment analysis was carried out to provide a more comprehensive understanding. Lastly, a moderated linear regression model was used as the methodological tool for hypothesis testing.

Preliminary analysis

Some extreme high values were identified on Facebook engagement rate (values over .00484), Instagram engagement rate (values over .0215), Twitter engagement rate (values over .000696) and Youtube engagement rate (values over .000962) and replaced with missing values, however only 5.15% scores were missing so we decided to remove entire cases.

Results suggested that all engagement rates were highly positively skewed and highly leptokurtic (see Tables 1 and 2) and the univariate normality assumption of the dependent variable was not met.

Please Insert Tables 1 and 2 around here

Sentiment analysis

An exhaustive sentiment analysis was conducted on the dataset, considering scenarios with and without extreme outliers, as illustrated in Figure (**ref?**)(fig:sent-NEXT)). This analysis

suggested distinctive tonal variations employed by the European Commission across different social media platforms.

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In the case of Facebook, the sentiment's indicator mean value was 0.14 (SD=0.10), showed a tendency to a positive tone (M=0.14, SD=0.10 with extreme outliers). The sentiment ranged between -0.27 and 0.63 (-0.27 and 0.65 with extreme outliers), the discourse with a negative connotation averaged at 0.08 (SD=0.06), while the discourse with a positive undertone demonstrated a mean of 0.22 (SD=0.09), thereby further substantiating a propensity for positivity (M=0.08, SD=0.06, respectively M=0.22, SD=0.09 with extreme outliers).

In contrast to Facebook, the sentiment indicator on Instagram averaged at 0.12, which points towards a mildly positive sentiment, with the spectrum extending from -0.22 and 0.46 (-0.22 and 0.46 with extreme outliers). The mean sentiment score for negatively perceived discourse was 0.07 (SD=0.05), and the positively perceived discourse showed an average of (M=0.07, SD=0.05, respectively M=0.20, SD=0.09 with extreme outliers), once again suggesting a bend towards positive discourse on this platform.

Conversely, Twitter displayed a broader sentiment spectrum. Although the sentiment indicator mean was marginally higher than Facebook and Instagram at 0.15, it ranged from -0.62 and 1 (-0.67 and 1 with extreme outliers), implying a more diverse expression of sentiments. Negative discourse manifested an average of 0.07 (SD=0.07), identical to Instagram but more negative than Facebook. Interestingly, Twitter maintained the highest average score for positive discourse, at 0.22 (SD=0.12 with extreme outliers), equal to the positivity in Facebook and surpassing that on Instagram.

On YouTube, the sentiment indicator's mean value was observed to be the lowest amongst the evaluated platforms at 0.10, spanning from -0.19 and 0.34 (-0.23 and 0.34 with extreme

outliers), thereby indicating a more tempered sentiment. Negative discourse on YouTube scored the lowest mean of 0.03 (SD=0.03), while positive discourse registered the minimum average of 0.13 (SD=0.06 with extreme outliers) compared to the other platforms.

In conclusion, despite a general inclination towards a slightly positive mean sentiment across all platforms, Twitter demonstrated the most substantial sentiment range, signifying the potential for both intensely negative and positive discourse. Instagram and Facebook depicted a modestly positive sentiment with less variability, while YouTube exhibited the most tempered sentiment range, with the lowest averages for both positive and negative discourse.

A linear regression model was fitted using 12446 cases from the purified dataset, values on engagement rate over .000929525 were removed because of extreme outliers and the normality of dependent variable was not met (Anderson-Darling test =680, $p < 0.001$).

The results suggested that the null hypothesis **H_0:** *Communications with emotional resonance are not associated with higher public engagement levels* could be rejected ($F(2, 12441)=11.06$, $p < 0.001$) and the *H_1: Communications with emotional resonance are associated with higher public engagement levels* was plausible, however the engagement levels was explained only by 0.16% by the positive and negative resonance communications ($R^2=0.0016$, RSR=0.0002).

The positive *($B=0.00004$, $t=2.64$, $p = 0.008$, $\beta=0.02$)* and negative *($B=0.00010$, $t=3.51$, $p < 0.001$, $\beta=0.03$)* emotional resonance communications were both positively associated statistically significant with engagement rates, and high values on emotional resonance, positive or negative, were associated with high values on engagement rates. However, the relative predictors relevance showed that negative emotional resonance (62.09%) contributed more on engagement rates explanation than positive emotional resonance (37.91%)

Furthermore, we observed that the effect of social media platform was statistically significant on all platforms compared with Twitter and the null hypothesis **H_0:** *The effect of emotional resonance on public engagement is not moderated by the social media platform* could be re-

jected. ($F(5, 12438)=1{,}240.04$, $p < 0.001$). Adding the new as categorical predictor increased the prediction power at 33.24% from 0.16% ($R^2=0.332$, RSR=0.0002), as the most relevant predictor was social network (99.61%), followed by negative emotional resonance (0.28%) and positive emotional resonance (0.12%)

Negative emotional resonance was still statistically significant positively associated by public engagement *($B=0.00008$, $t=3.59$, $p < 0.001$, $\beta=0.03$)*, but not positive emotional resonance *($B=0.00001$, $t=1.02$, $p = 0.31$, $\beta=0.01$)*, and compared by Twitter, engagement rates increased statistically significant on Facebook *($B=0.00038$, $t=77.88$, $p < 0.001$, $\beta=0.58$)*, Instagram *($B=0.00049$, $t=11.07$, $p < 0.001$, $\beta=0.08$)* and Youtube *($B=0.00005$, $t=12.82$, $p < 0.001$, $\beta=0.10$)*.

Finally, the hypothesis H_3: *The effect of emotional resonance on public engagement is moderated by the social media platform utilized* was also plausible ($F(11, 12432)=568.57$, $p < 0.001$), the model with interaction terms explaining 33.41% of engagement rate's variance ($R^2=0.334$, RSR=0.0002) and had a statistically significant better prediction power than the second model ($F(6, 12432)=6.34$, $p < 0.001$).

The main effect of negative emotional resonance emerged as statistically significant *($B=0.00012$, $t=4.62$, $p < 0.001$, $\beta=0.04$)*, contrasting with the main effect of positive emotional resonance which did not manifest the same significance. *($B=-0.00000$, $t=-0.02$, $p = 0.981$, $\beta=0$)*Both effects were observed to be moderated by the underlying social network. Furthermore, in comparison to the influence on Twitter, both Facebook and YouTube exhibited statistically significant positive associations with the engagement rate, a phenomenon not witnessed with Instagram.*($B=-0.00026$, $t=-1.39$, $p = 0.165$, $\beta=-0.04$)*.

The positive association between negative emotional resonance and engagement rate *($B=0.00012$, $t=4.62$, $p < 0.001$, $\beta=0.04$)* was moderated statistically significant and negatively by Youtube *($B=-0.00035$, $t=-3.46$, $p < 0.001$, $\beta=-0.04$)* and Facebook *($B=-0.00019$, $t=-2.24$, $p = 0.025$, $\beta=-0.03$)*, messages with negative emotional resonance posted on these social platforms re-

ducing statistically significant the initial positive association. No moderation effect of Instagram was identified on association between negative emotional resonance and engagement rate *(B=0.00207, t=1.23, p = 0.218, β=0.02)* (see Fig. 5)

Please Insert Fig. 5 around here

Between positive emotional resonance and engagement rate was no statistically significant association, *(B=-0.00000, t=-0.02, p = 0.981, β=0)*, but our results showed a positive and statistically significant interaction effect with Instagram *(B=0.00278, t=3.74, p < 0.001, β=0.11)* and Youtube *(B=0.00017, t=2.97, p = 0.003, β=0.05)* (see Fig. 6)

Please Insert Fig. 6 around here

Contrasting with Twitter posts, communications imbued with positive emotional resonance exhibited a statistically significant increase in engagement rate when disseminated on Instagram or YouTube, with the effect manifesting more potently on Instagram relative to YouTube. Notably, no interaction effect correlating with positive emotional resonance was observed on the Facebook platform. *(B=0.00005, t=0.89, p = 0.374, β=0.02)*

Discussion

The present research undertook a detailed exploration to examine public engagement across an array of social media platforms implemented by the European Commission, with particular attention dedicated to the influence of emotional resonance within the disseminated content. The paramount role of social media within the communication strategies of public institutions has been extensively acknowledged (Smith & Gallicano, 2015), thus underscoring the exigency for a profound understanding of the intricacies of engagement dynamics.

Our collected data validates our primary hypothesis (H1), implying that communications imbued with emotional resonance, regardless of its positive or negative polarity, are associated with augmented public engagement. Nevertheless, the capacity of emotional resonance

to illuminate engagement levels remains marginal (0.16%). This finding is consistent with the complex nature of engagement behaviours outlined in existing academic discourse (Dolan et al., 2016; Dragseth, 2020; Mirbagheri & Najmi, 2019), thereby underscoring the need for further scrutiny of additional factors influencing public engagement.

This investigation embarked on a quest to explore public engagement across various social media platforms utilized by the European Commission, with an emphasis on the impact of emotional resonance within content. The role of social media in public institutions' communication strategies is pivotal (Smith & Gallicano, 2015), necessitating a deep understanding of engagement dynamics.

The data supports our first hypothesis (H1), suggesting that communications rich in emotional resonance, whether of positive or negative valence, are associated with enhanced public engagement. However, the ability of emotional resonance to explain engagement levels is negligible (0.16%). This corroborates the complex nature of engagement behaviors expounded in scholarly literature (Dolan et al., 2016; Dragseth, 2020; Mirbagheri & Najmi, 2019) and points towards the necessity for further examination of supplementary factors influencing public engagement.

Our secondary hypothesis (H2) proposed that the choice of the social media platform would significantly influence the effect of emotional resonance on public engagement. The empirical evidence corroborates this assertion, indicating that different platforms potentially cater to diverse user expectations and conventions. This alignment with prior research revealing platform-specific variations in engagement patterns (Voorveld et al., 2018) underscores the necessity for the European Commission to recognize and adapt to these heterogeneous engagement patterns when designing their communication strategies.

The tertiary hypothesis (H3) posited that the chosen social media platform would moderate the impact of emotional resonance on public engagement. The acquired data affirmed this premise, demonstrating a statistically significant moderating effect. This indicates that the

characteristics of individual platforms may shape the public's interaction with emotionally resonant messages, highlighting the need to tailor such communications to align with the norms specific to each platform.

This research is constrained by its reliance on secondary data obtained from platforms, suggesting that future studies could potentially reap benefits from primary data collection methodologies. Furthermore, this study did not associate Engagement Rate (ER) with significant simultaneous events, potentially overlooking the effect of emotional reactions provoked by these events. Future investigations could probe these associations, thereby enhancing our understanding of emotional impacts and expanding the existing body of knowledge in this domain.

The third hypothesis (H3) asserted that the social media platform would moderate the impact of emotional resonance on public engagement. Our data sustained this assumption, revealing a statistically significant moderating effect. This suggests that platforms may shape the way the public interacts with emotionally resonant messages, emphasizing the importance of customizing such communications to align with each platform's norms.

Notwithstanding the above findings, it is essential to recognize the inherent limitations of this study. The scope of this research was confined to the European Commission's use of four primary social media platforms. Future inquiries could potentially explore other platforms or public institutions to determine the universality of the observed patterns. Furthermore, while our focus lay primarily on emotional resonance, future research could delve into other aspects of communication, such as tone, complexity, and framing.

This research has also limitations due to the use of secondary data obtained from platforms, suggesting future studies could benefit from primary data collection. Additionally, this study did not associate Engagement Rate (ER) with significant concurrent events, potentially overlooking the impact of emotional reactions based on these events. Future studies could explore these associations to understand emotional impacts better, thus extending the

existing knowledge in the field.

To conclude, this study underscores the imperative role of both emotional resonance and platform-specific norms in propelling public engagement on social media. The ability to establish an emotional connection with the audience, made possible through well-conceived and executed posts, emerges as a powerful tool for amplifying engagement levels. Such engagement transcends mere augmentation of reach or visibility of public institutions, such as the European Commission, and represents a conduit for cultivating a dynamic and interactive association between these institutions and the citizenry they serve.

Understanding these dynamics enables public institutions to tailor their communication strategies more effectively. By acknowledging the varying norms and expectations tied to different social media platforms, institutions can ensure that their messages resonate more strongly with their intended audiences, ultimately enhancing the impact and penetration of these messages. The choice of platform is not incidental but plays a significant role in how emotional resonance influences engagement, urging public institutions to be thoughtful and strategic in their selection and use of these platforms.

Moreover, by refining their social media strategies based on these findings, public institutions have the opportunity to foster greater citizen engagement. Higher engagement can lead to increased public awareness, enhanced understanding, and potentially even behavioural change - critical goals for public communication strategies. It can also help public institutions gain insight into public sentiment, thus providing valuable feedback that can be used to improve policies and services.

In addition, the insights derived from this study can help public institutions increase the effectiveness of their public communication. By leveraging emotional resonance and considering platform-specific norms, these institutions can design messages that are more likely to engage citizens and generate a meaningful response. This has the potential to transform the landscape of public communication, making it a more interactive, responsive, and impactful

domain.

Despite its limitations, this study provides an invaluable point of departure for further research into the intricate world of social media engagement. It opens up avenues for exploring other influential factors and for deepening our understanding of the relationship between emotional resonance, platform norms, and public engagement. These insights could be crucial in helping public institutions navigate the complex dynamics of social media engagement, enhancing their ability to communicate effectively with the public, and ultimately, improving their service to society.

In conclusion, this study accentuates the paramount importance of emotional resonance and platform-specific norms in stimulating public engagement. The findings infer that the formation of an emotional bond with the audience through meticulously constructed posts may serve to magnify the levels of engagement. By understanding these dynamics, public institutions like the European Commission can refine their social media strategies, enhance citizen engagement, and bolster the efficacy of their public communication. Despite the limitations, the study provides a valuable starting point for future research into the multifaceted world of social media engagement.

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Table 1

Descriptive analysis. Presence of extreme outliersa

Variables	N	Mean	SD	Median	Min	Max	Skew (SE)	Kurt (SE)
Facebook	3371	0.0015	0.0019	0.0010	0	0.0404	6.4933 (0.042)	81.9762 (0.084)
Instagram	3182	0.0067	0.0069	0.0048	0	0.1589	6.4272 (0.043)	93.0693 (0.087)
Twitter	14944	0.0002	0.0006	0.0001	0	0.0297	21.1298 (0.02)	837.7101 (0.04)
Youtube	3411	0.0007	0.0130	0.0002	0	0.7420	55.0118 (0.042)	3128.44 (0.084)

Table 2

Descriptive analysis. Extreme outliers removed

Variables	N	Mean	SD	Median	Min	Max	Skew (SE)	Kurt (SE)
Facebook	3241	0.0012	0.0009	0.0009	0	0.0048	1.4594 (0.043)	1.8452 (0.086)
Instagram	3089	0.0059	0.0041	0.0047	0	0.0214	1.3995 (0.044)	1.7972 (0.088)
Twitter	14132	0.0001	0.0001	0.0001	0	0.0007	1.488 (0.021)	2.1633 (0.041)
Youtube	3164	0.0002	0.0002	0.0001	0	0.0010	1.4692 (0.044)	1.4995 (0.087)

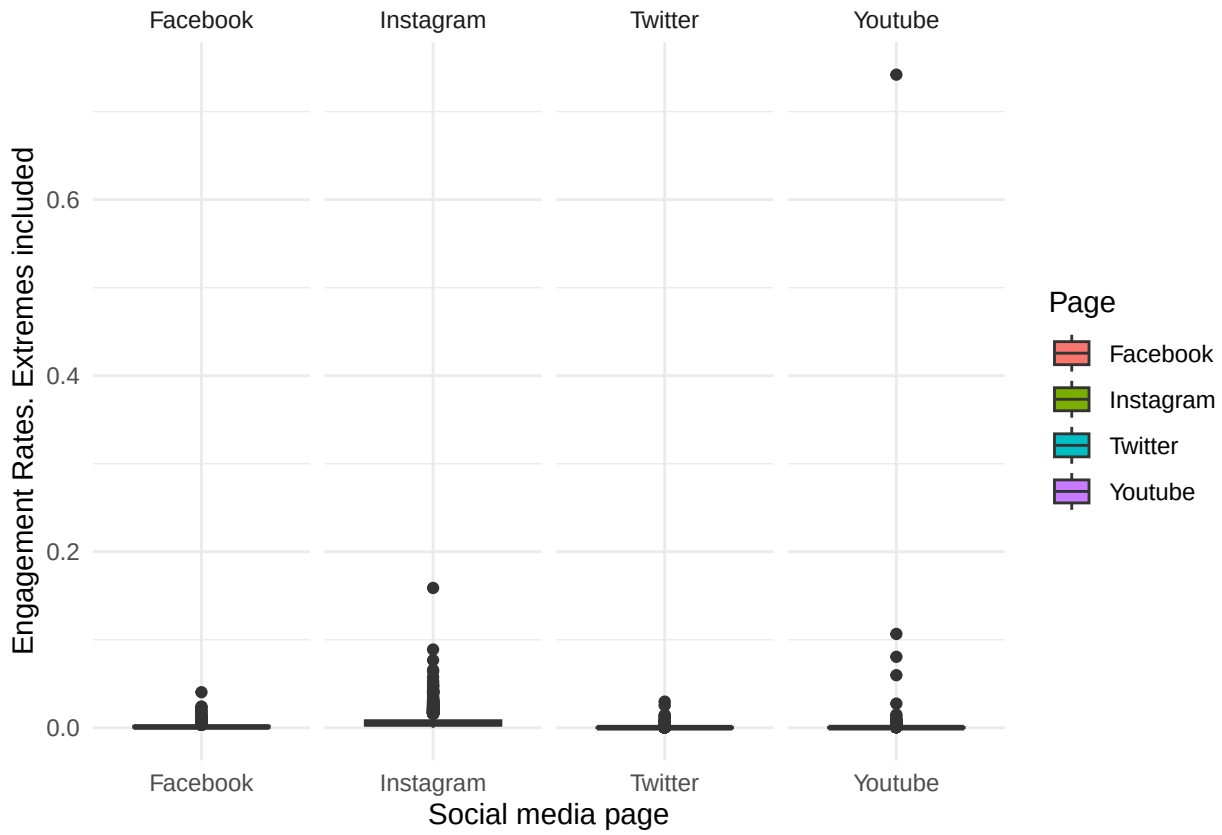

Figure 1

Boxplot of engagement rates on social media channels. Extremes included

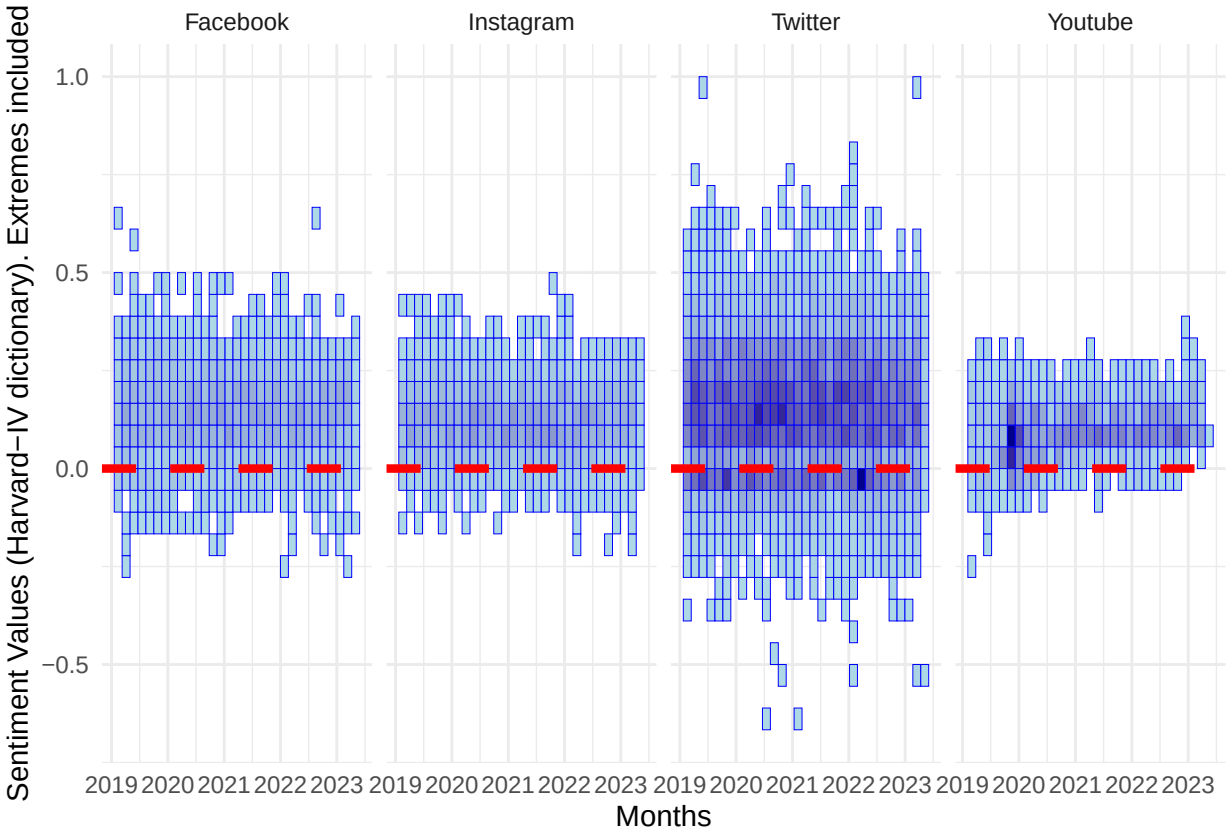

Figure 2

Sentiment analysis chart on social media channels. Extremes included

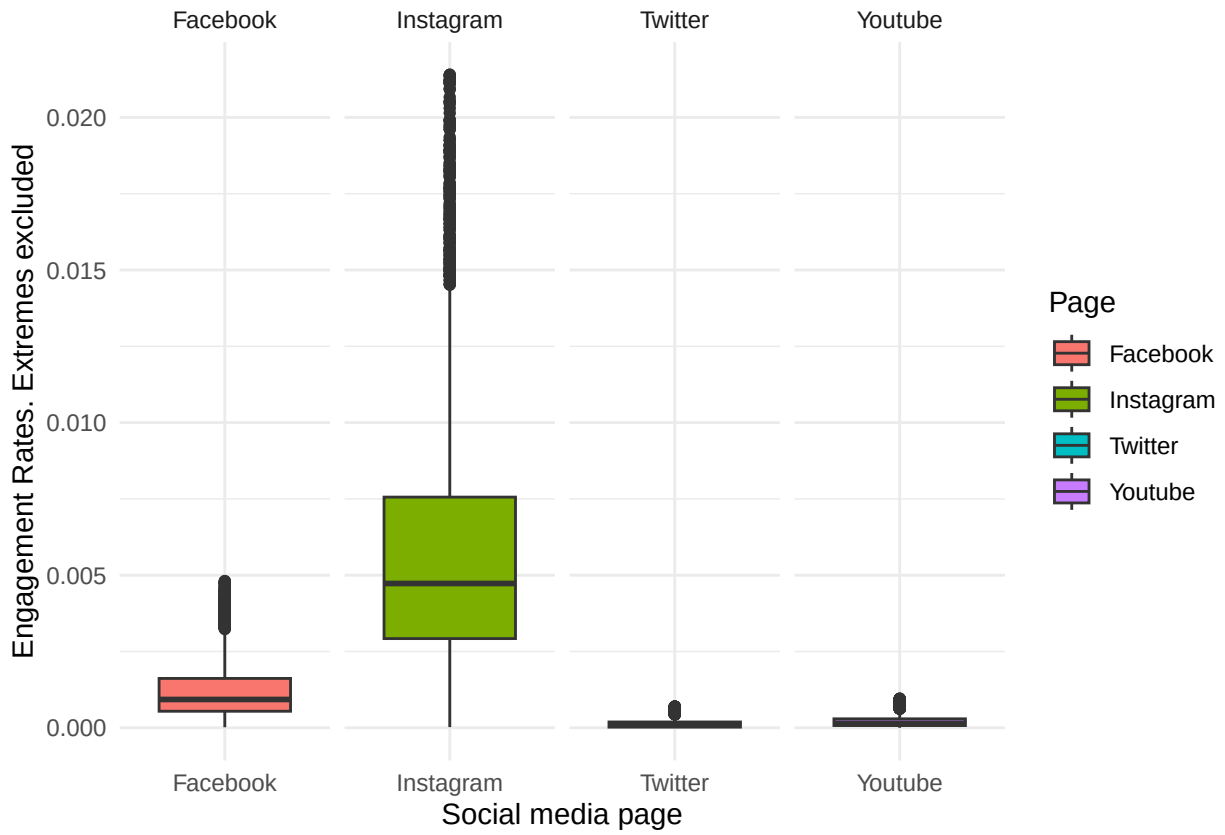

Figure 3

Boxplot of engagement rates on social media channels. Extremes excluded

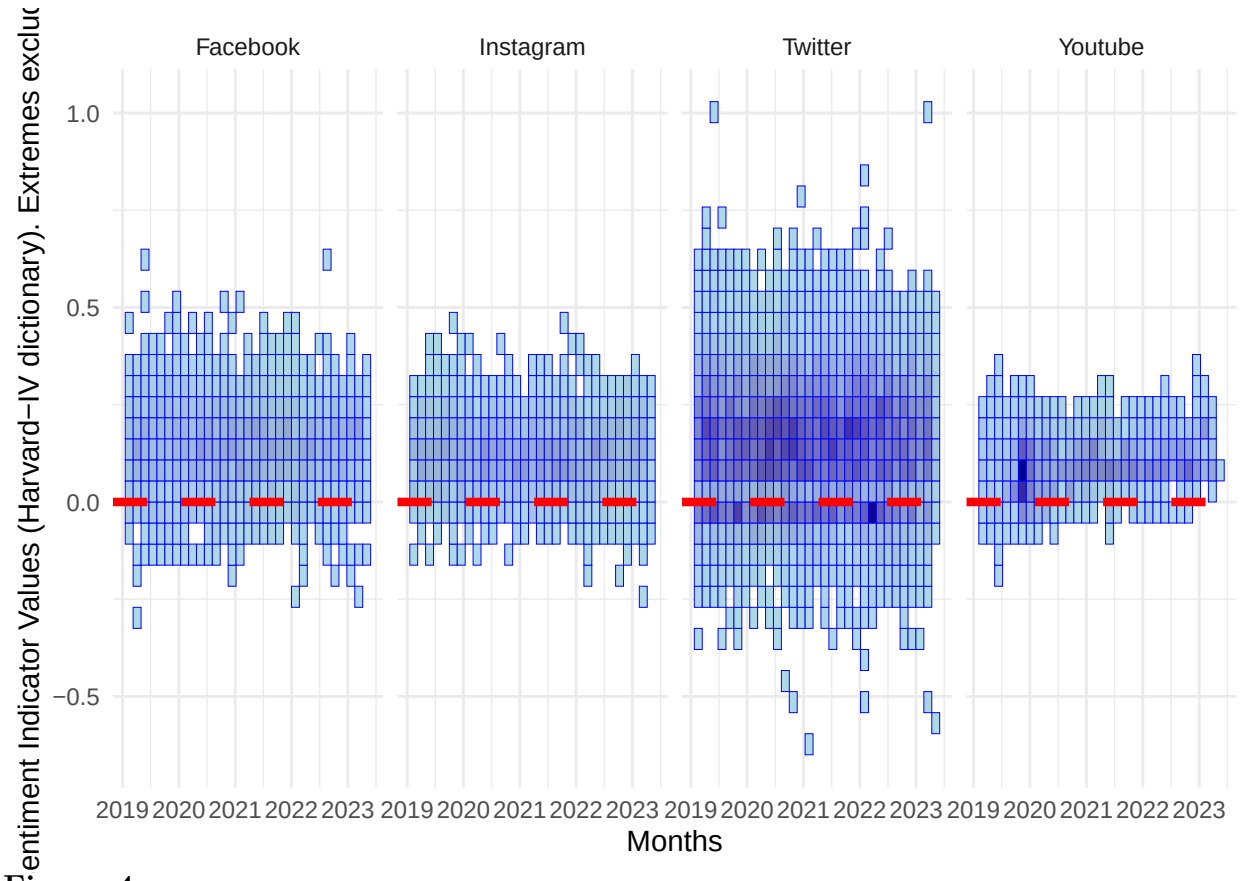

Figure 4

Sentiment analysis chart on social media channels. Extremes excluded

Figure 5

Interaction effect between social network and negative emotional resonance on engagement rate

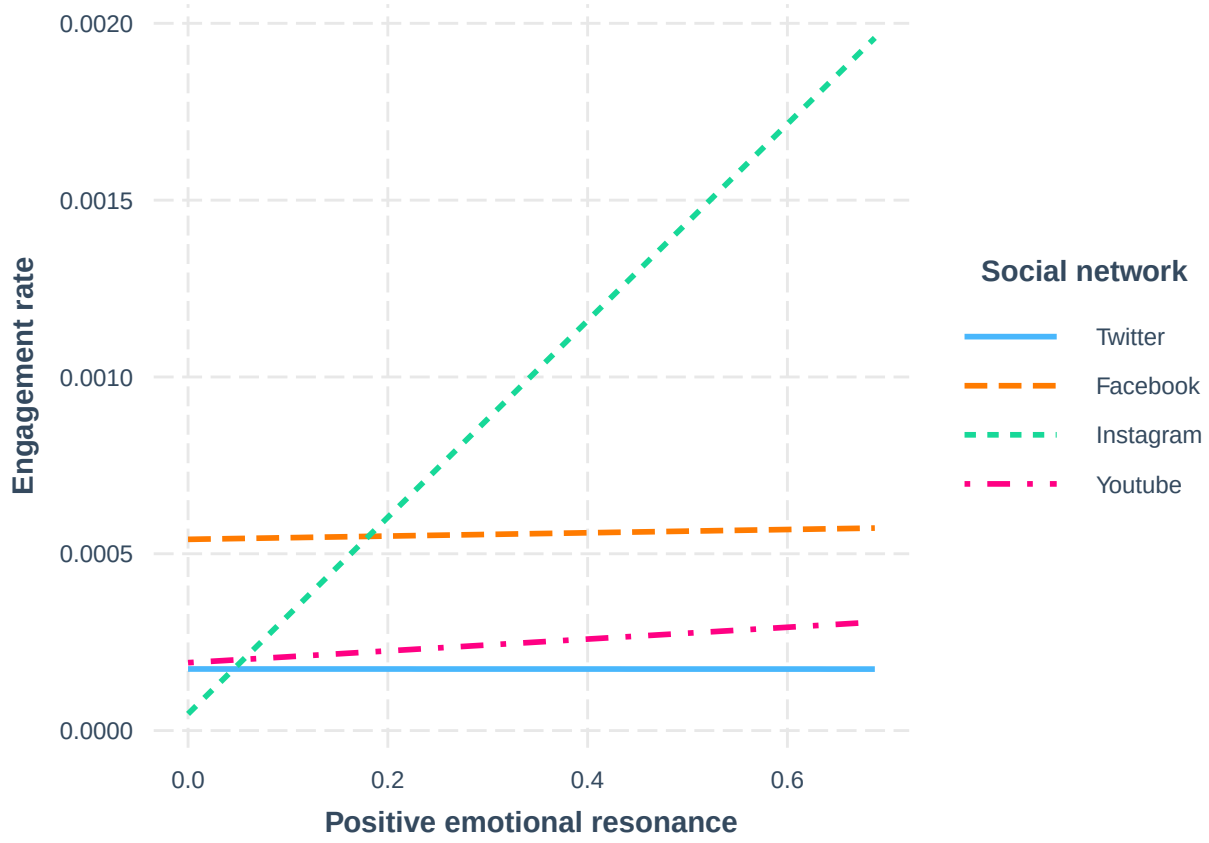

Figure 6

Interaction effect between social network and positive emotional resonance on engagement rate