

Citizens' Engagement on Regional Governments' Facebook Sites. Empirical Research from the Central Europe

Pavel BACHMANN

University of Hradec Králové, Hradec Králové, Czech Republic
pavel.bachmann@uhk.cz

Abstract. Citizens' engagement is becoming a cornerstone for the next development of public administration. Nowadays, with a social media communication widespread, the public institutions and citizens relationship is challenged. Therefore, an article aims on the way of communication used by the government towards to citizens as well as the level of citizens' engagement. The study used a content analysis of Facebook sites with stress on six aspects: (1) page activity measured by the number of posts published, (2) page popularity measured by the number of likes, (3) citizens loyalty measured by the number of followers, (4) responsiveness measured by the number of users' reactions, (5) involvement measured by the number of comments, and (6) virality measured by the number of sharings. The research sample is represented by the official Facebook pages of 13 regions of the Czech Republic. The study findings showed high regional differences according to individual aspects of engagement as well as a total engagement of citizens.

Keywords: Social Media, Engagement, Public administration, Facebook, Regional Authorities, Content Analysis, Czech Republic.

1 Introduction

Increased interest of citizens to participate in public sphere in hand with the advances of information and communication technologies (ICT) have created new challenges for innovative form of citizen and public sector relationship. Fung [4] in his article mentions that citizen participation supports three main aspects of governance: effectiveness, legitimacy, and social justice. An advent of ubiquitous use of ICT, and specifically social media (SM) bring new possibilities on the side of citizens as well as public involvement.

SM serves as a technology which facilitates the dissemination and sharing of information. SM tools are mainly represented by general platforms as Facebook, Instagram, Twitter, or YouTube, communication tools as Skype or SecondLife, or professional tools as LinkedIn or ResearchGate. These social network platforms are greatly useful to enhance mutual communication at the agency, community, and policy level.

2 Background and Conceptual Framework

2.1 Current Research on Social Media Use in Public Sector

Social media have commonly begun to be used in a various field of public administration. Prior studies have investigated use of social media, and specifically the Facebook, in the public sector particularly with a focus on information science [9, 11], public administration [14, 17], communication [10, 13] and public health [6]. Regarding the geographical location, the highest number of research studies in the field was conducted in the Western Europe and USA. However, very little research was done in the area of citizens' engagement by the Facebook sites [2, 16]. Moreover, no research studies in the field of engagement exist in Central and Eastern European countries.

2.2 Conceptual Framework and Propositions

Various conceptual frameworks were designed to capture a people engagement on Facebook page related to the environment of business, nonprofit and public organizations [2, 6, 12]. In 2012, Jan H. Kietzmann et al. designed a honeycomb framework [12] to investigate facets of the social media from user experience. It deals with seven functional blocks of social media: identity, conversations, sharing, presence, relationships, reputation, and groups. Each block comprises (1) specific facet of social media user experience, and (2) its implication for firms. The framework is frequently used for description of Facebook and Youtube engagement. In 2013, Bonsón, Royo, and Ratkai [2] concentrated their research directly on citizen engagement and developed metrics as popularity, commitment, virality for the Facebook page engagement measurement. The framework of their approach to communication between government and citizens (G2C) and citizens to government (C2G) is illustrated in Fig. 1.

Despite of the great success of both previous studies, it should be stated that frameworks are, at least in some sense, a bit outdated, nowadays. Application of Kietzmann' framework is limited by his main orientation on business sector. Next, the challenge of Bonsón, Royo, and Ratkai' study lies in fact that it does not include facets of page credibility and reputation and is outdated in Facebook friends and followers understanding.

Resulting from the above, the research gap exists in both: formulation appropriate framework and metrics for measuring of citizens' engagement as well as to obtain a new knowledge about the level of citizens' engagement in Central and Eastern European countries. Therefore, the study objective is twofold, it aims on the development of a new set of metrics for measuring of citizens' engagement and the examination of current state of art in citizens' engagement on Facebook sites administered by regional governments located in the Czech Republic.

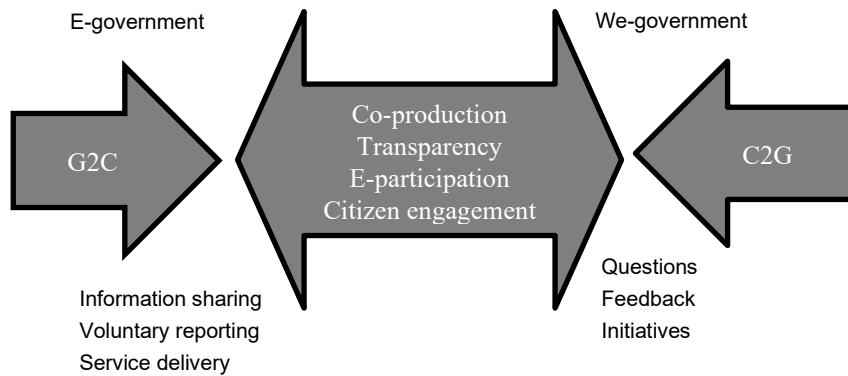


Fig. 1. The role of Facebook on G2C and C2G communication. [2]

3 Method and Research Sample

3.1 Method

The study is based on the content analysis of Facebook pages. This kind of analysis conducted in online environment is a part of so-called Internet mediated research [7]. For the purpose of this study a new set of metrics to measure an engagement impact was set up. These metrics are partially based on the previous research of Bonsón where the metrics of activity, virality and popularity are formulated. However, the previous metrics were revised and extended.

Following metrics were formulated: activity, popularity, responsiveness, involvement, virality, evaluation, and loyalty; these metrics are summarized in Table 1. The first metrics - *Activity* - is expressed in number of posts published during a period set. The second metrics - *Popularity* - includes number of page likes. Although it may seem that this metrics clearly reflects the fans base of the site, its interpretation is not so distinct. As the page like is only a one-click activity, the user (citizen) doesn't have to see page posts anymore. The Facebook algorithm do not publish page posts into the feed of those who have liked the page. Moreover, likes can also be collected through marketing campaigns with incorrect targeting, which can bring fans with no interest of the page or the matters of the region. The third metrics - *responsiveness* (also called popularity in other studies) - can bring a better reflection of citizens' engagement than the previous two metrics as it is calculated as number of the reactions on a specific post. In 2016, the five new reactions as love, haha, wow, sad, and angry were introduced besides the original like. New responses on the post published enable us to better recognize the views and needs of the users, which play in important role in communication between citizens' and the regional government. Involvement is expressed by the number of comments. Writing a comment requires much higher participation, consideration and thinking of citizens than a simple one-click reaction. This kind of citizen participation can also contribute to solve issues common for the

public government and citizens. *Virality*, expressed through the number of posts shared, is a metrics with a high impact on the expansion of communication across the region. In this way, the communication can affect much broader auditorium than just page fans and/or followers base. Last two metrics are then devoted to evaluation and loyalty. Since *evaluation* is clearly expressed by the average score of reviewers, the loyalty is represented by the number of followers. *Loyalty* as a metrics can be considered as more important than popularity as in this case the citizens must to sign up to “follow” the matters on Facebook. All the followers (citizens) are then notified in their feeds about new posts, change of statuses and all other page actions.

Table 1. Metrics of citizen engagement on Facebook pages (APRIVEL).

Activity	A	Number of posts
Popularity	P	Number of page likes
Responsiveness	R	Number of posts reactions (Like, Love, Haha, Wow, Sad, Angry) /total posts
Involvement	I	Number of posts commented/total posts
Virality	V	Number of posts shared/number of posts
Evaluation	E	Score of reviews
Loyalty	L	Number of followers
Total engagement	E	$E = A+P+R+I+V+E+L$

3.2 Data

The data of analyzed facets were gathered during a seven-day period from Nov. 30, 2018 to Dec. 6, 2018. Data were processed in MS Excel and for the purpose of regional comparison (see Fig. 2) also transformed into standardized scores ranged from 0 to 10 pts. scale, where the maximum value for each metrics were taken as a basis for calculation.

3.3 Sample

Research study focuses on analysis of Facebook pages of Regions existing in the Czech Republic. According to the Act no. 129/2000 on Higher-level territorial self-governing units [1] is the Czech Republic divided into 13 regions and one capital city with regional status. The capitol Prague was excluded from the sample due to several highly different facts: much higher tourist attention, almost doubled GDP per capita (547,096 CZK), as well as significantly higher population (1,272,690 inhabitants) than in majority of regions. The main characteristics of the regions researched are summarized in Table 2.

Table 2. List of regions included in the sample. [5]

Name of the Region	Population ¹	Area (km ²)	GDP per capita (CZK)
Central Bohemian	1,274,633	11,014.97	253,912

South Bohemian	637,460	10,056.79	251,106
Vysočina	512,727	6,795.56	234,530
Plzeň	574,694	7,560.93	216,639
Karlovy Vary	310,245	3,314.46	216,639
Ústí nad Labem	830,371	5,334.52	229,146
Liberec	439,262	3,162.93	229,146
Hradec Králové	555,683	4,758.54	244,549
Pardubice	505,285	4,519	230,880
Olomouc	639,946	5,266.57	211,467
Moravian-Silesian	1,236,028	5,426.83	222,638
South Moravian	1,169,788	7,194.56	254,684
Zlín	590,459	3,963.55	222,885

¹ Census of Czech Statistical Office, 2011

4 Analysis and Results

4.1 Activity

Publishing *activity* of page admins and editors in examined regions ranged from 2 to 40 posts during given 7 days. The most active were Liberec region with almost six posts published per day (5.7) and Central Bohemian with almost five posts (4.6). Contrariwise, the least active were South Bohemian and South Moravian region with one post per day (1.1), and mainly Ústí region with only 0.3 post per day.

4.2 Loyalty and Popularity

At first, the *loyalty*, as more significant metrics, is presented. The region with the highest number of loyal citizens is Moravian-Silesian region with 12,042 followers. Two other regions with a nearly ten thousand fan base follows: Hradec Králové (9,970 followers) region and Central Bohemian region (9,833 followers). On the other side of spectrum, there are two regions with less than three thousand followers: Olomouc (2,279 followers), and Zlín (1,529 followers) region. At second, the *popularity*, as an additional metrics, is presented. The most popular region regarding the number of page likes is Moravian-Silesian region with 11,802 likes. Next, there are two regions with a nearly ten thousand fan base: Hradec Králové (9,832 likes) region and Central Bohemian region (9,699 likes). On the other side of range, there are three regions with less than three thousand fans: Plzeň (2,813 likes), Olomouc (2,253 likes), and Zlín (1,460 likes) region. At third, the next additional metrics is an *evaluation*. Among the best regions are South Bohemian (5.0 review average score out of 5.0 maximum), Vysočina (4.9), Moravian-Silesian (4.8), and Hradec Králové (4.8) region. On the other hand, the regions as Karlovy Vary, Ústí, and South Moravian got only 4.1 or

respectively 4.0 pts. average score evaluation. Three regions – Central Bohemian, Pardubice, and Zlín regions – did not make a review option available for citizens.

Table 3. Responsiveness of Facebook pages of Regions.

Region	No. of followers	No. of page likes	Review score
Moravian-Silesian	12042	11802	4.8
Hradec Králové	9970	9832	4.8
Central Bohemian	9833	9699	n/a
Pardubice	8230	8171	n/a
Ústí	6847	6716	4.1
Liberec	6337	6236	4.7
Karlovy Vary	5447	5384	4.1
South Bohemian	4628	4524	5.0
Vysočina	4082	4041	4.9
South Moravian	3314	3211	4.0
Plzeň	3150	2813	4.5
Olomouc	2279	2253	4.2
Zlín	1529	1460	n/a

4.3 Responsiveness

More exact findings on citizens' engagement are provided through responsiveness metrics. Expressed in absolute value, the highest number of reactions got Karlovy Vary (125 reactions per day) and Liberec (108 reactions per day) region. Nevertheless, the ratio reactions / posts provide more interesting insights. For example, the South Bohemian region got 695 reactions on only 8 posts per week, while Liberec region got 756 reactions on their 40 posts. The relative responsive responsiveness than differentiate a lot from the absolute. Relatively, the most successful region is South Bohemian (87 reactions per post), following by South Moravian region (48 reactions per post). On the contrary, less than 10 reactions per posts were recorded in Zlín (8.5), Olomouc (5.9) and Central Bohemian (4.6) region. Results are provided in Table 4.

Table 4. Responsiveness of Facebook pages of Regions.

Region	No. of posts	No. of reactions	Reactions / posts
South Bohemian	8	695	86.9
South Moravian	8	382	47.8
Moravian-Silesian	12	423	35.3
Karlovy Vary	25	872	34.9
Hradec Králové	20	571	28.6

Ústí	2	56	28.0
Pardubice	11	251	22.8
Liberec	40	756	18.9
Vysočina	16	260	16.3
Plzeň	10	109	10.9
Zlín	15	128	8.5
Olomouc	16	94	5.9
Central Bohemian	32	146	4.6

4.4 Involvement

The highest involvement of citizens in the region' agenda was recorded in Karlovy Vary region (2.7 comments per post) and South Bohemian region (2.38). Vice versa, in eight examined regions (62 % out of the sample) only 0.5 comments per post or lower was found. Results are summarized in Table 5.

Table 5. Involvement of citizens on a Facebook page.

Region	No. of posts	No. of comments	Comments / posts
Karlovy Vary	25	67	2.68
South Bohemian	8	19	2.38
Moravian-Silesian	12	19	1.58
Hradec Králové	20	24	1.20
Pardubice	11	12	1.09
South Moravian	8	4	0.50
Liberec	40	15	0.38
Central Bohemian	32	11	0.34
Vysočina	16	3	0.19
Olomouc	16	3	0.19
Zlín	15	2	0.13
Plzeň	10	1	0.10
Ústí	2	0	0.00

4.5 Virality

Similarly to the previous metrics, there were also significant differences between regions in the case of virality. Viral communication was recorded especially in Karlovy Vary region, where one post was shared 34 times in average, and in South Bohemian region with 16 sharings per post. On the contrary, almost no virality was found in

Olomouc and Central Bohemian region with 1.13, resp. 0.69 sharings per post. Detailed results are summarized in Table 6.

Table 6. Virality of posts published on a Facebook page of the Region.

Region	No. of posts	No. of shared posts	Sharings / posts
Karlovy Vary	25	851	34.04
South Bohemian	8	131	16.38
Moravian-Silesian	12	105	8.75
Hradec Králové	20	140	7.00
Liberec	40	238	5.95
South Moravian	8	45	5.63
Pardubice	11	51	4.64
Vysočina	16	72	4.50
Zlín	15	66	4.40
Plzeň	10	43	4.30
Ústí	2	7	3.50
Olomouc	16	18	1.13
Central Bohemian	32	22	0.69

5 Discussion and Conclusion

The study results can be interpreted from the three perspectives: (1) work of administrators and editors of the region's Facebook site, where the frequency of posts, quality of its content, used graphics, quality of multimedia and other factors should be taken into account; (2) the relationship built with citizens, which is presented by metrics such as popularity, loyalty and evaluation; and (3) citizens' engagement represented by metrics as responsiveness, involvement, and virality. Naturally, the citizens' engagement is made up of all these activities. The first activities are to establish a first communication with citizens; the second activities are then used to build a base of friends and followers and increase overall credibility of the page to deepen mutual citizen vs. government relationship; and finally, the third activities represents the relationship itself and as such reflect the real engagement of the citizens. For this reason, the last activities as an engagement output can be considered as the vital contribution of this study. The Figure 2 illustrates the main insights of the citizens' engagement for the Facebook sites of the regions examined.

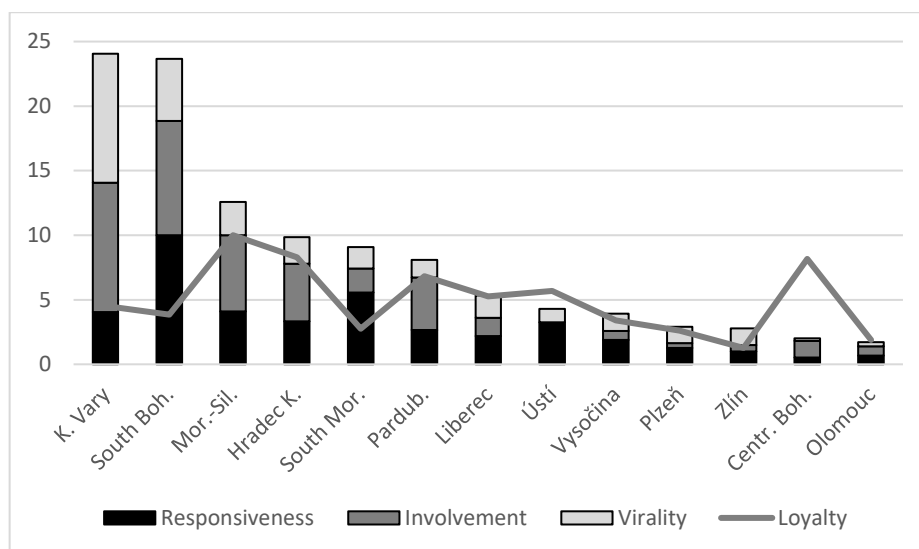


Fig. 2. Citizens' engagement on regional governments Facebook pages.

Various implications for administration of public sector can be raised over the paper findings. We consider following implications as the most vital: (a) Significant differences among regions in citizens' engagement were found. It is related to the total engagement as well as to the engagement related to individual metrics. The differences exist mainly between activity, popularity, and virality of examined Facebook pages. (b) Activity represented by the number of posts per chosen time period is not associated with the level of citizens' engagement, in any way. For example, the regions with very high publishing activity as Liberec (40 posts per 7 days) and Central Bohemian (32 posts per 7 days) dispose of only medium or low level of responsiveness, involvement and virality. (c) The highest variances in citizens' engagement were recorded in virality metrics. The posts published by Karlovy Vary region were shared fifty times more frequently than posts published by Central Bohemian region. The study has brought several interesting insights into the field of citizens' engagement for regional administration. However, there are still many other opportunities for research and many more other metrics to examine in the context of social networks use in a public sector.

References

1. Best, P, Manktelow, R., Taylor, B. J.: Social Work and Social Media: Online Help-Seeking and the Mental Well-Being of Adolescent Males. *The British Journal of Social Work* 46(1), 257–276 (2016). DOI: 10.1093/bjsw/bcu130.
2. Bonson, E., Royo, S., Ratkai, M.: Citizens' engagement on local governments' Facebook sites. An empirical analysis: The impact of different media and content types in Western Europe. *Government information quarterly* 32(1), 52-62 (2015). DOI: 10.1016/j.giq.2014.11.001.

3. Czech Republic. Act no. 129/2000 Coll. (Law on Regions) on higher-level territorial self-governing units, https://ipfs.io/ipfs/QmXoyvizjW3WknFiJnKLwHCnL72vedxjQkDDP1mXWo6uco/wiki/Regions_of_the_Czech_Republic.html , last accessed 2018/12/01.
4. Fung A.: Putting the Public Back into Governance: The Challenges of Citizen Participation and Its Future. *Public Administration Review* 75, 513-522 (2015). DOI: 10.1111/puar.12361.
5. Geohive. Census of Czech Statistical Office, 2011, <http://www.geohive.com/entry/czech.aspx>, last accessed 2018/10/10.
6. Grajales, F.J., Sheps, S., Ho, K., Novak-Lauscher, H., Eysenbach, G.: Social Media: A review and tutorial of applications in medicine and health care. *Journal of medical internet research* 16(2), e13 (2014). DOI: 10.2196/jmir.2912.
7. Hewson, C.: Gathering data on the Internet. *Qualitative approaches and possibilities for mixed methods research. The Oxford Handbook of Internet Psychology*. Oxford University Press, UK (2007).
8. Househ, M.: The Use of Social Media in Healthcare: Organizational, Clinical, and Patient Perspectives. In: Courtney, K. L., Shabestari, O., Kuo, A. (eds.) *Enabling Health and Healthcare Through ICT: Available, Tailored and Closer*. p. 244 (2013).
9. Janowski, T.: Digital government evolution: From transformation to contextualization. *Government information quarterly* 32(3), 221-236 (2015). DOI: 10.1016/j.giq.2015.07.001.
10. Kennedy, H., Moss, G., Birchall, C., et al.: Balancing the potential and problems of digital methods through action research: methodological reflections. *Information communication & Society* 18(2), 172-186 (2015). DOI: 10.1080/1369118X.2014.946434.
11. Khan, G. F., Yoon, H.Y., Kim, J., Park, H.W.: From e-government to social government: Twitter use by Korea's central government. *Online information review* 38(1), 95-113 (2014). DOI: 10.1108/OIR-09-2012-0162.
12. Kietzmann J. H., Hermkens, K., McCarthy, I. P., Silvestre, B. S.: Social media? Get serious! Understanding the functional building blocks of social media. *Business Horizons* 54(3), 241-251 (2011). DOI: 10.1016/j.bushor.2011.01.005.
13. Lecheler, S., Kruikemeier, S.: Re-evaluating journalistic routines in a digital age: A review of research on the use of online sources. *New Media & Society* 18(1), 156-171 (2016). DOI: 10.1177/1461444815600412.
14. Ma, L.: Diffusion and assimilation of government microblogging. *Public management review* 16(2), 274-295 (2014). DOI: 10.1080/14719037.2012.725763.
15. McCarthy, J.: Blended learning environments: Using social networking sites to enhance the first year experience. *Australasian Journal of Educational Technology* 26(6), 729-740 (2010).
16. McNutt, K.: Public engagement in the Web 2.0 era: Social collaborative technologies in a public sector context. *Canadian public administration-Administration publique du Canada* 57(1), 49-70 (2014). DOI: 10.1111/capa.12058.
17. Song, C., Lee, J.: Citizens' use of social media in government, perceived transparency, and trust in government public. *Public performance & management review* 39(2), 430-453 (2015). DOI: 10.1080/15309576.2015.1108798.
18. Young, J.: The current status of social media use among nonprofit human service organizations: An exploratory study (Doctoral dissertation). Virginia Commonwealth University, Richmond, VA., <https://digarchive.library.vcu.edu/handle/10156/3775>, last accessed 2017/10/10.