

## Role of Social Media in Leveraging Urban Community Empowerment

Gita Aprinta Ester Betseba<sup>1</sup>, Endah Triastuti<sup>2</sup>

<sup>1</sup>ORCID iD: 0000-0002-6040-3587, Universitas Indonesia, Jl. Salemba Raya No. 4, Jakarta 10430, Indonesia

<sup>2</sup>ORCID iD: 0000-0001-7173-7729, Universitas Indonesia, Jl. Salemba Raya No. 4, Jakarta 10430, Indonesia

\*Corresponding author, e-mail: gita.aprinta71@ui.ac.id

### Abstract

**Introduction:** This study tries to explore the significant roles of Twitter in creating leverage community participation as part of community empowerment in urban context. Twitter's characters encourage people to informalize current issue in easy digestive forms. This study argues that Twitter practice will improve urban community for better life in every aspects. Also this study focusing on how urban community utilize Twitter to participate in city issues.

**Methods:** This research used several data collection and processing including online data mining through Netlytic, online observation and semi structured interview within time period from 2021–2022.

**Findings:** The research's finding portrayed results in three achievements. *First*, Twitter significantly created leverage empowerment in a form of community participation to improve the city quality of life. *Second*, community empowerment was gained through holistic process and come. *Third*, using Twitter as appropriated and integrated strategy is a design of community empowerment. Twitter, in particular #laporhendi can be alternatives space for community discussion and participation amongst residents and local government and lead to community empowerment. Practically, urban community has the same opportunity to access Twitter and creates dynamically interaction and communication in Twitter in many direction, one to one ways, or two ways.

**Originality:** Although research about social media and community empowerment has been studied for decades, many research tends to explore and focus on rural and marginal community. There were few studies emphasize and discusses from the urban community point of view.

**Keywords:** Social Media, Urban Community Empowerment, Community Informatics, Community Participation, #laporhendi.

### Introduction

Previous studies show that ICT plays a significant role (Tye et al., 2018) in enabling community empowerment, such as women and poor rural community (Lakshmi, 2014; Ullah, 2017). According to WHO community empowerment refers to the process of enabling communities to increase control over their lives including involvement, participation or engagement of communities. For many reason, most of the ICT and community empowerment study focus on rural and disadvantage community (Noruwana et al., 2018; Ukomadu, 2018; Ullah, 2017). Whereas ICT for community empowerment should not be understood or limited to rural areas but also made available for people who are already experiencing its benefits, such as people with ICT easy access in urban areas context.

This study argues that ICTs are also opening up as a tool of community empowerment in urban community contexts. Although the community empowerment frequently understanding as social action and has been studied in diverse fields such as political science, management, health studies, and sociology (Hur, 2006), community

empowerment also concerns with alternatives approaches (Leong et al., 2015). In the context of this research is social media's approach. However the practice of community empowerment does not only understood as a change activity in physical, economic or social needs. We emphasized the term of urban community empowerment on how communities or urban society pays participate as formed of collaboration to their city environment. The argument based on what sholars said how technological innovation in communication systems contributes in organizational and economic restructurations on urban geography, cities and inter-city areas (Shin & Shin, 2012). Thus, ICTs have become a key tool for cities to enhance innovaton and to improve the management of urban services. Hence, our main purpose of this paper is to explore the application of ICTs in particular social media for the empowerment of urban community regarding their participation in city governance such as social and environment issue.

Social media is define as a bridge to connect the communities with its environment, such as government, other communities, and so on. The exploration of the term social media including: social networking sites, online communities, blogging and micro blogging. According to Lachapele (Lachapelle, 2011), social media involves the use of various technological tools and methods for sharing and discussing information. Meanwhile, Dufty, (2012) defined social media as a collection of internet-based applications that enable people to communicate and share resources and information..

It implies the capability of all parties to share information and communication to achieve community empowerment. Scholars stated that the used of social media strongly improve the socio-economic well-beng communities. However in recent years social media have been already used as an alternative communication channel in emergency situation or in crisis response (Sarrica et al., 2018; Tye et al., 2018; White, 2011). Meanwhile only few researches focus on how social media utilized to empower the urban community in contributing city governance. This research is to fill this gap, at the same time author social media might be used for community empowerment within urban environments (Foth, 2018). Thus, social media became an inherent part of this study as a new set of media, technologies and communication environment has emerged to changes on how we shape city and urban community (de Waal, 2011).

Hence, the question arose for this research is how social media leveraging urban community empowerment in particular to enhance participatory culture in series of city issues such as. Burges & Green (2018) stated that participatory culture can be seen as co creation and sharing in the social media era though any social media might be limited by its audience, features, norm of used, yet social media provide the wider opportunity for community.

However, the Indonesia government started the inicitave of integrating ICT with urban development around 2018-2019 in a program called 'The Movement towards 100 smart cities'. The growth of social media, in this research refers to Twitter is continuing the ability of ICTs to develop empowerment within community. Twitter in particular has become one of the most widely adopted internet platforms for online communication. The reason is Twitter seen as a perfect environment for open and unrestricted discussion in public space (Liu & Weber, 2014). According to Kemp, (2022) Twitter users in Indonesia in 2022 had increase to 18.45 million users. It equivalent to 6.6% of the total population in early 2022.

Semarang was selected as the research object due to the growth of community activities in Semarang such as sustainable economic activities (Budihardjo et al., 2022), urban farming (Rahdriawan & Arriani, 2020), environmental quality in urban settlement

(Yuliastuti & Saraswati, 2014) or urbanization-driven industrial activities (Buchori et al., 2022). The other reason is that community activities through social media have a big role and becoming an accelerator of community participation in social movements in the city (Setyono et al., 2019; Yuniningsih & Suwitri, 2018). Regarding the Smart city movement, Semarang municipality made a transition map through Cygos or Semarang Cyber Government in 2016. The purpose of Cygos is to transform from manual government administration to cyber government. One of the implementations of cyber government is to use social media to provide information, answer public complaints, communicate and connect with citizens. With the Semarang Mayor Regulation Number 34 year of 2017 drawn the guidelines for managing complaints regarding public services. Consequently the complaint facilities provided by Semarang Municipality government through various social media. One of them is Twitter.

Furthermore some scholars have emphasised that social media are important for sustainability issues (Godemann & Michelsen, 2011). One example that illustrate this situation is 'Lapor Hendi'. 'Lapor Hendi' is an application to facilitate Semarang citizen in informing the local government regarding social, economy and environmental problems in their neighbourhood. The fact 'Lapor Hendi' as a part of Open Government Indonesia (OGI) was launched in 2012. OGI has three programs. One of them is 'LAPOR' which stand for Aspiration Service and People's Online Complaint to arrange an open government action plan for various government institutions based on co-creaton principle (Yuwanto, 2021). 'Lapor Hendi' can be acces through various ICTs application, one of them is social media, Twitter. Using the hashtag #laporhendi, the society able to inform and communicating the city issues by mentioning Semarang municipality major or related government agency.

This research applying community informatics as a theoritical lens. Folowing the scholars academic argument that pointed how ICT is increasingly hoped to improve local communities and facilitate empowerment in urban areas (Saad-Sulonen & Horelli, 2010), this study attempted to devise an integrated framework for understanding urban community empowerment through a new approach enhanced by the phenomenon called community informatics. Community informatics is a technology strategy which links between ICT and economic and social development efforts at the community levels (Gurstein, 2008) by utilized tools such as website, social media platform and other information system software to deal with local concerns and perhaps influence policy decisions (Pitkin, 2001).

The author argue that community informatics showing a process of social construction of community knowledge through technology and finally encouraging them to taking part in collaboration, engagement, and involvement from all parties, including the community. The process of discovering, enhancing, and expanding individuals is known as community empowerment and has become a central vernacular in urban planning development (Pigg, 2009). Community informatics provide new opportunities for the civic society to digitally mediate, present, and engage with the ICT environment as part of technological change and globalization. Hence, this phenomenon offers a community-driven approach to the design and use of ICT.

Some previous studies on urban community empowerment show that ICT is increasingly being implicated in the global production of city-region-space and participatory and urban planning (Staffans & Horelli, 2014). Other advantages are improving urban life (Bibri & Krogstie, 2017; Shepard, 2011; Townsend, 2013). The concept of ICT for empowerment was viewed as a global phenomenon (Walsham,

2017) and related to the widespread use of these technologies. Consequently, Semarang municipality chose to use several social media platforms, including Twitter, to provide information and promote interaction between the local government and members of society.

The concept of empowerment itself has been studied in diverse fields. In this research empowerment is focusing at the community level, therefore, empowerment is defined as process and mechanism in which a community gains a greater efficacy of their objectives (Tye et al., 2018). The empowerment process of this research is occur on Twitter.

Overall this research follows of the studies within the philosophical of constructivism paradigm. Its research design to develop a framework role of social media in leveraging community empowerment in urban context (Adom et al., 2016). The case study of Semarang Municipality was chosen to promote the complexity than can help understand the meaning of community empowerment (Lauckner et al., 2012).

## Methods

The problem discussed in this study concerns the use of social media for urban community empowerment in Semarang municipality regarding city governance. Hence, this research adopted a qualitative design with case study methodology. According to Myers & Avison (2002) qualitative studies are used to explore and gain an in-depth understanding of humans in the social and cultural contexts in which they live (Rahi, 2017)

Subsequently, the data were collected by observing the content and urban community interaction with the city on twitter using hashtag #laporhendi. Hashtag #laporhendi is an innovation public service and complaint initiative by the Mayor of Semarang, Hendrar Prihadi. Using the same name as the mayor, #laporhendi launched since 2016 and being used by the resident Semarang as complaint service with fast responded. Scholarly mentioned that hashtag as a tool play a significant role in the phase of acquaint to people or community (Guo & Saxton, 2014), developing and strengthen emergent ties, and stimulate information and invites audience attention (Brock, 2012). The data was collected in two phases. The first phase occurred from 2021 to 2022, we collected through Netlytic web software with some category such as twitter content with two way interaction between society member and Semarang local government; the citizen twitter account/user has fair highly engagement based on information consumption, sense of presence, interest immersion, and social interaction (Smith & Gallicano, 2015).

Netlytic is a cloud based text and social network analyzer to collect, identify and analyze Twitter data in particular or topical themes regarding #laporhendi. The second phase occurred in between Desember 2021-February 2022. We also conducted a semi structured interviews to two person as a representative of local citizen of Semarang municipality to gather information how they utilized Twitter for community empowerment process. The interview was consider as additional data to richness and enhance the research findings.

## Results

We were analyzed data as we collected it using Netlytic, an web based application online data gathering. Our main focus is to analyze online conversatiton addressed to hashtag(#) #laporhendi on Twitter. The hashtag #laporhendi usually used together with

the mentions to Twitter accounts of @hendrarprihadi, @P3Mkotasmg. In this research we don't emphasize on certain issue such as flood, poverty or other certain social issue but on how the resident or community employ Twitter in leveraging community empowerment process through their participation culture.

#laporhendi is a hashtag to index keywords for general issue in Semarang municipality. The hashtag allows people to easily write down the opinion, complaint or event environment situation in their neighbourhood. The research finding shows that most Semarang resident mention Twitter account of provide reports or complaints regarding water supply issue, power outages, Covid-19 vaccinated, and document processing in certain government agency. They often mention the personal Twitter account of the major @hendrarprihadi regarding important matters, as implied below:

DATE	USER	POSTS, N = 14
2021-04-11	mesyanum	pagi pak @hendrarprihadi mohon bantuannya kami pagi ini dtg ke kecamatan ngaran timur utk tanya prosedur selanjutnya dan sudah melengkapi permintaan petugas kecamatan malah dimarahin dan ditinggal begitu saja dengan membanting pintu didepan orang banyak #laporHendi
2021-04-15	GanyJatayu	#LaporHendi #laporPLN @pin_123 @PLNAreaSemarang Listrik di daerah Selorejo,tinjomoyo, benden duwur, gajahmungkur mati!!! Kapan hidungnya ini untuk bekerja? @PsmkotSemarang @hendrarprihadi @disperkim_smg
2021-04-15	GusBS	#LaporHendi #LaporPakWali @hendrarprihadi #LaporDisperkim @disperkim_smg CC/ @P3Mkotasmg Nyuwun Tulung... Pulu di depan Masjid Al Galah, jl Kesatrian dkt kr kec Candiani, sdh bng hari Padam Lagi... Kurang nyaman saat PP Tarawih & Subuhan di Ramadhan. Matur Sembah Nuwun 🙏🙏🙏 <a href="https://t.co/NZPF39KuVL">https://t.co/NZPF39KuVL</a>
2021-04-15	Wulan88	@hendrarprihadi #laporhendi lampu jalan di jalan petudungan udah 2 hari mati, klo malem smp gelap banget. Bikin merasa gak aman, tolong dibantu pak. @pin_123
2021-04-16	rikywindoyo	@hendrarprihadi @DUKCAPILKOTASMG @dukcapil_jateng #laporhendi apakah aplikasi Si Dnok tdk bisa digunakan? Saya daftar utk pengurusan akte kelahiran dan KK sepanjang hari kemarin belum mendapat kode aktivasi/verifikasi utk lgjin baik smkWA. Mohon bantuan lebih lanjut bpk/bu
2021-04-17	Wulan88	@hendrarprihadi @disperkim_smg #laporhendi lampu jalan di Jin Petudungan, Smg Tengah mati udah 3 hari. Tolong dibantu pak, terima kasih
2021-04-17	RendyPratamaAd2	Met mlm pak @hendrarprihadi mau lapor lampu penerangan jin di jalan Soekarno Hatta setelah terowongan mati smua & dpan kampus USM keadaan jin gelap gulita nihon segara dtindak lanjutin soalnya rawan begal & kecelakaan #laporhendi <a href="https://t.co/WLSEK83vP">https://t.co/WLSEK83vP</a>
2021-04-18	GandaLD	Listrik rumah sering mati di JL. Wlaron 2 Rt.12 Rw.02 dan sekitar pdhi tidak ada hujan&angin, pernah ada petugas berkata travo kelebihan daya namun hingga saat ini tidak ada tindak lanjut dari petugas PLN @pin_123 @hendrarprihadi mohon ijin bapak 🙏 #Laporhendi #pinsemarang

Figure 1. The Netlytic Dataset #laporhendi (source: Author Data summary from Netlytic, 2021)

According Figure 1, people mentioned the major's personal Twitter account to report or complain about the conditions or problems in their environment. They also used the hashtag #laporhendi to categorize and accommodate complaints from the people. For the city major, Hendrar Prihadi, also known as 'Mas Hendi', will gives direct and indirect feedback to all posts were mentioned to his personal account. Sometimes on related subject or complaint, other resident will taking a participation and create short conversation on Twitter. Below are the example of conversation on Twitter among Semarang resident and the city major:



Figure 2. Twitter conversation between Semarang city Major and the Residents (source: Author Primary Data, 2021)

According to Figure 2, the conversation was initiated by Hendrar Prihadi. He persuades the Semarang resident to report or inform the condition in their neighbourhood due to potential problem since rainy season is coming. The report should

have a picture as evidence and also #laporhendi. The majors emphasized on waste problem. The tweet was respond by several residents with the information of the matter above.

From the beginning, #laporhendi initiated to integration of a one-stop complaint service to make it easier for the public, so they are not confused about where the report should be addresses. Technically, #laporhendi is managed by Community Complaints Service Center (P3M) under twitter account @P3Mkotasmg. P3M were responsible to respond and forwarding all informations and complaint to relevant government agency for further action as implied below:



Figure 3. Information about Transportation Issue in Semarang  
(source: Author Primary Data, 2021)

Figure 3 portrays how Semarang residents under Twitter account @clouwdbeard complain and ask about the bus shelter facilitation (Mintojiwo B (near from SDN Kalibanteng Kidul 01) and WR Supratman B bus shelter). She mentioned @P3Mkotasmg in her tweet about the inconsistency between the Transemarang application and the availability of a bus shelter at particular locations. Thus, @P3Mkotasmg responded by forwarding the tweet to @Transsemarang as a relevant government agency who has responsible to the issue above. In responding @P3mkotasmg, Trans Semarang provides an information to the sender about the location of bus shelter.



Figure 4. @P3Mkotasmg responded to the Resident Complain on Twitter  
(source: Author Primary Data, 2021)

Meanwhile another passenger complaint about the lateness of public transportation (USM Bus Shelter), as the mentione below:

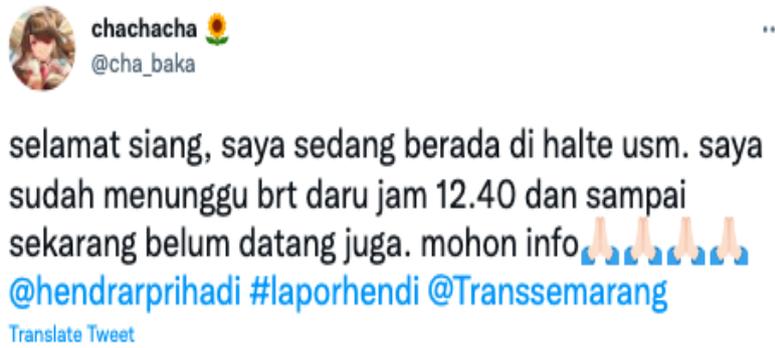


Figure 5. A Twitter posted regarding Public Transportation Service (source: (Cha\_baka, 2022))

Another data shows how the resident of Semarang actively to report problems regarding the bureaucracy and website one of government agency.

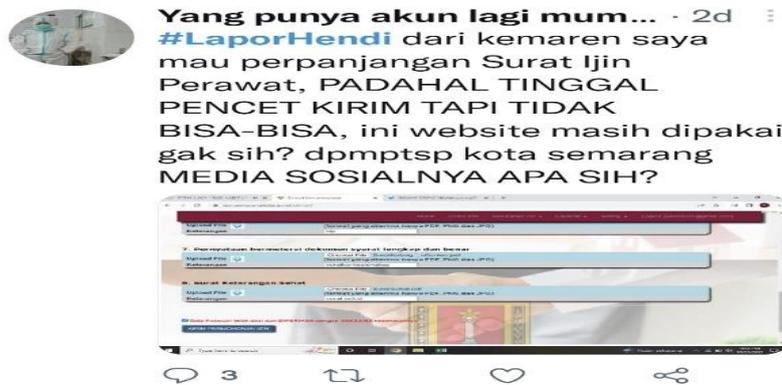


Figure 6. User Complaint with the hashtag #laporhendi (source: (Wahyuning, 2022))

Figure 6 shows user @wahyuning2012 using #laporhendi complaint about one of the government agency website (DPMPSTSP Semarang City) does not work properly and she had difficulties to extend her job certificate (nursing certificate). The tweet was respond the day after the original tweet posted.



Figure 7. Twitter responded from the Semarang Municipality (source: (Wahyuning, 2022))

Some other complaint addressing in #laporhendi portrays about the missing of public facilities as shown as Figure 8 below:



Figure 8. Tumini one of Twitter user mentioned about the missing trash bin on certain location (Pandanaran Road on the north side--Semarang) (source: (Elmanohara, 2022))

To further elaborate community empowerment on Twitter, we conducted semi structured interview to two community members as a representative of Semarang residents. These interview was used as additional data to enrich the study result. One of informant explain that he operates Twitter with a particular purposes. Mostly for information's searching. He is rarely employ Twitter to discuss or submit information about certain issues. But he does know that about #laporhendi. Meanwhile the other informant describe that Twitter promotes communications and connection between resident and Semarang municipality. He says that Twitter offered direct feedback, opinion and evaluation to the local government. It means that local government took all complaints seriously and tried to resolve for the better urban quality lives.

## Discussion

The observation and interview results indicate that social media in the research context is Twitter enable the capacity for community to create, share and participate communication activities to provide empowerment and upliftment, indicated by a constructive attitude towards city matters and issues. These community members consider themselves as instrumental in contributing to addressing issues and promoting improvement in the city. #laporhendi being captures as 'voice' of the community as a form of their participation to the city. By communicating the issues as well as the complaint through the social media, the community initiate their participation in social media, increasing the connection and engage more to the Semarang municipality. Thus in this context, social media enables communities to attain collective participation and leveraging the role of community empowerment (Leong et al., 2015)

Based on the results of the research #laporhendi became a media to share their ideas, their needs, and their opinion for the improvement of Semarang public service quality. Thus their participations is considering as a medium of empowerment in community. It's impossible to achieve the empowerment without participation and involvement the community in particular way (Nikkhah & Redzuan, 2009)

Meanwhile from community informatics perspective as the theoretical background, twitter is a media convergence with information technologies to support and expand the practives of community and citizenship regarding their participation to their city, in this research context is Semarang municipality.

This research offers three achievements, *first*, the twitter function adequately in empowering the urban community. *Second*, the urban community gained empowerment through the process, from discovering the issue to social action. *Third*, the using of

Twitter as empowerment strategy should be used as appropriate and integrate the community's needs as a basic design of the tools used.

The empowerment comes from the collaborations between the government and other parties to facilitate improvement in people's lives and residences. Twitter is designed to organize the techniques employed by communities to pursue their common objectives and manage the development and processing of information to contribute to the liveable city. In the context of urban communities, Twitter can be operated as a collaborative tool between community and local government, Semarang. One of empowerment outcomes is collaboration. With Twitter, collaboration among the community or resident members were possible. They were encouraged to contribute in city governance in their own capacity.

According to social media studies, online activity is strongly connected with offline experiences (Boyd & Ellison, 2007). However, the use of Twitter for empowerment discussed in this study relates to people sharing a special interest and is used to mobilize action in the city. The process of community empowerment through Twitter follows a process, namely discovering that communities are not alone in their situation, expression, and taking action. Through the knowledge and transmission of information, changes can be made to benefit the city and community (UNESCO & The World Bank, 2021). Thus, urban communities are able to act actively to change their lives and participate in their environment.

From the community informatics perspective, Twitter had potential to connect one community to another and promote development and empowerment (Gruzd & Haythornthwaite, 2013). In Semarang Municipality context, Twitter is seen as technology strategy based on the consideration that the community needs to prioritize the implementation of ICT (Saadi et al., 2007). Hence, the study showed that the objective of community informatics is to enable community achievement and empowerment. ICT, particularly Twitter, is created and used to impact the social life of every individual (Asongu & le Roux, 2017) and realize the interaction between the community and digital technology.

A major challenge for community informatics is developing the means to manage this type of interaction by enabling enriched, electronically enhanced empowerment. This should be implemented while ensuring that such interactions do not disintegrate into empowerment by plebiscite or instant public opinion polling (ibid). The processes related to the latter are referred to by scholars as 'appropriating, integrating, and repurposing existing technology as community supports, while equally facilitating the development of technologies which in their very design reflect the specific ontology of communities'. Simply stated that Twitter enabled and empower communities toward collaborative action (Gurstein, 2010).

Twitter, in particular #laporhendi can be alternatives space for public discussion amongst residents and local government. Practically, urban community has the same opportunity to access Twitter and creates dynamically interaction and communication in Twitter in many direction, one to one ways, or two ways. Interactions in Twitter can occur between the government and its citizens, amongst the government agencies, and amongst the community (Yuwanto, 2021).

However this research carrying its limitation. The author conducted this study in the context urban community informatics. The notions of community was different than major notions that were offered by previous scholars. Compare to other community definitions, urban community may refers to whoever who lived in urban areas,

electronically based and interaction by means of internet platforms. Community informatics as theoretical lens often underlying in system information fields than communication study. Yet, community informatics may applicable to used in communication research since the field of communication was flux. Another problems in this research in, that the findings did not provide all the answer we hoped for this research.

Despite its limitations, the authors believe that this study should be of interest to practitioners and researchers in the areas of social media and community empowerment. Through online data mining and semi structured interview as part of qualitative study, this study present the concept of twitter enabled urban community empowerment in participation, collaborating and co-creation forms.

### **Conclusion**

Finally this research offers two contribution. *First*, this study explore the role of social media in leveraging community empowerment. Community empowerment in this study addressed as community participation. Twitter as a media expands the capability of the community to participate in their city by shared their opinion, complaint and suggestion. This study found that hashtag #laporhendi facilitate urban community in helping Semarang municipality improve their public services and environment. Several recent studies on community empowerment limited its focus by emphasizing on the social action, yet empowerment could be recognize in a different approaches. *Second*, this study addresses the gap in ICT research by adapt the community informatics as theoretical lens to enhance the research to urban community context and not only limited to rural and disadvantage community. This study also gain practical insight. Our findings propose the pratical consideration to the local government to provide with ICTs platform to improve the effectiveness of community participation action and achive maximum empowerment to the Semarang municipality. Further research is needed to examine the research finding. It might be preferable to used media ecological theoretical framework and sees social media not only as means of communication, but more as social environment (Routsalainen & Heihonen, 2015). It also possible to emphasize on user perspective and considering phenomenological to capture users lived experience to achieve community empowerment.

### **Conflict of Interest**

The author declares no conflict of interest with any financial, personal, or other relationships with any person or organization related to the material discussed in the manuscript.

### **Acknowledgements**

The author is grateful to all informant for a great respond and support in conducting data collections. The author is also grateful to LPDP BUDI-DN for funding this research from the beginning to completion.

### **References**

- Adom, D., Yeboah, A., & Ankrah, A. K. (2016). Constructivism Philosophical Paradigm: Implication for Research, Teaching, and Learning. *Global Journal of Arts Humanities and Social Sciences*, 4(10), 1–9.
- Asongu, S., & le Roux, S. (2017). Enhancing ICT for Inclusive Human Development in

- Sub-Saharan Africa. *Technological Forecasting and Social Change*, 118, 44–54.  
<https://doi.org/10.1016/j.techfore.2017.01.026>
- Bibri, S. E., & Krogstie, J. (2017). Smart sustainable cities of the future: An extensive interdisciplinary literature review. *Sustainable Cities and Society*, 31, 183–212.  
<https://doi.org/10.1016/j.scs.2017.02.016>
- Boyd, danah, & Ellison, N. (2007). Social Network Sites: Definition, History, and Scholarship. *Journal of Computer-Mediated Communication*, 13.  
<https://doi.org/10.1109/EMR.2010.5559139>
- Brock, A. (2012). From the blackhand side: Twitter as a cultural conversation. *Journal of Broadcasting & Electronic Media*, 56(529–549).  
<https://doi.org/doi:10.1080/08838151.2012.732147>
- Buchori, I., Rahmayana, L., Pangi, P., Pramitasari, A., Sejati, A. ., Basuki, Y., & Bramiana, C. . (2022). In situ urbanization-driven industrial activities: The Pringapus enclave on the rural-urban fringe of Semarang Metropolitan Region, Indonesia. *International Journal of Urban Sciences*, 26(2), 244–267.
- Budihardjo, M. ., Ardiansyah, S. ., & Ramadan, B. . (2022). Community-driven material recovery facility (CdMRF) for sustainable economic incentives of waste management: Evidence from Semarang City, Indonesia. *Habitat International*, 119.
- Burgess, J., & Green, J. (2018). *Youtube: Online video and participatory culture*. John Wiley & Sons.
- Cha\_baka. (2022). *Status*. Twitter.  
[https://doi.org/https://twitter.com/cha\\_baka/status/1583702659818672128](https://doi.org/https://twitter.com/cha_baka/status/1583702659818672128)
- de Waal, M. (2011). *The ideas and ideals in urban media. From social butterfly to engaged citizen. Urban informatics, social media, ubiquitous computing, and mobile technology to support citizen engagement* (M. Foth, L. Forlano, C. Satchell, & M. Gibbs (eds.)). MIT Press, Cambridge.
- Dufty, N. (2012). Using social media to build community disaster resilience. *Australian Journal of Emergency Management*, 27(1), 40–45.
- Elmanohara. (2022). *Status*. Twitter.  
<https://doi.org/https://twitter.com/elmanohara/status/1174623214384738304>
- Foth, M. (2018). Participatory urban informatics: toward citizen-ability. *Smart and Sustainable Built Environment*, 7(1), 4–19.  
<https://doi.org/https://doi.org/10.1108/SASBE-10-2017-0051>
- Godemann, J., & Michelsen, G. (2011). Sustainability Communication -- An Introduction. In J. Godemann & G. Michelsen (Eds.), *Sustainability Communication: Interdisciplinary Perspectives and Theoretical Foundation* (pp. 3–11). Springer Netherlands. [https://doi.org/10.1007/978-94-007-1697-1\\_1](https://doi.org/10.1007/978-94-007-1697-1_1)
- Gruzd, A., & Haythornthwaite, C. (2013). Enabling Community Through Social Media. *Journal of Medical Internet Research*, 15(10), e248.  
<https://doi.org/10.2196/jmir.2796>
- Guo, C., & Saxton, G. . (2014). Tweeting social change: How social media are changing nonprofit advocacy. *Nonprofit and Voluntary Sector Quarterly*, 43(1), 57–79.  
<https://doi.org/doi:10.1177/0899764012471585>
- Gurstein, M. (2008). *What is Community Informatics (and Why Does It Matter)?*
- Gurstein, M. (2010). *Towards an Urban Community Informatics*.
- Hur, M. . (2006). Empowerment in terms of theoretical perspectives: exploring a typology of the process and components accross disciplines. *Journal of*

- Community Psychology*, 34(5), 523–540.
- Kemp, S. (2022). *Digital 2022: Indonesia*. Datareportal. <https://doi.org/https://datareportal.com/reports/digital-2022-indonesia#:~:text=Twitter users in Indonesia in,total population at the time>.
- Lachapelle, P. (2011). *The Use of Social Networking in Community Development*, 17.
- Lakshmi, P. V. (2014). Case 8: India--ICTs and the Empowerment of Rural Women. In Y. Kalyango & D. H. Mould (Eds.), *Global Journalism Practice and New Media Performance* (pp. 117–129). Palgrave Macmillan UK. [https://doi.org/10.1057/9781137440563\\_10](https://doi.org/10.1057/9781137440563_10)
- Lauckner, H., Paterson, M., & Krupa, T. (2012). Using Constructivist Case Study Methodology to Understand Community Development Processes: Proposed Methodological Questions to Guide the Research Process. *The Qualitative Report*, 17(13), 1–22. <https://doi.org/https://doi.org/10.46743/2160-3715/2012.1790>
- Leong, C. M. L., Pan, S. L., Ractham, P., & Kaewkitipong, L. (2015). ICT-Enabled Community Empowerment in Crisis Response: Social Media in Thailand Flooding 2011. *Journal of the Association for Information Systems*, 16(3). <https://doi.org/10.17705/1jais.00390>
- Liu, Z., & Weber, I. (2014). *Is Twitter a Public Sphere for Online Conflicts? A Cross-Ideological and Cross-Hierarchical Look*. [https://doi.org/10.1007/978-3-319-13734-6\\_25](https://doi.org/10.1007/978-3-319-13734-6_25)
- Myers, M. D., & Avison, D. (2002). *Qualitative research in information system: a reader*. Sage.
- Nikkhah, H., & Redzuan, M. (2009). Participation as a medium of empowerment in community development. *European Journal of Social Science*, 11.
- Noruwana, L., Chigona, W., & Malanga, D. F. (2018). How Information and Communication Technologies Empower Disadvantaged Communities in Cape Town, South Africa. *Proceedings of the Annual Conference of the South African Institute of Computer Scientists and Information Technologists*, 171–178. <https://doi.org/10.1145/3278681.3278702>
- Pigg, K. (2009). Introduction: Community Informatics and Community Development. *Community Development*, Spring 200, 1–8. <https://doi.org/10.1080/15575330509489867>
- Pitkin, B. (2001). *Community informatics: hope or hype?* 8 pp. <https://doi.org/10.1109/HICSS.2001.927117>
- Rahdriawan, M., & Arriani, R. (2020). Motives and dynamic of community based aquaponics for urban farming in Semarang. *IOP Conference Series: Earth and Environmental Science*, 448(1).
- Rahi, S. (2017). Research design and methods: A systematic review of research paradigms, sampling issues and instruments development. *International Journal of Economics & Management Science*, 6(2), 1–5.
- Routsalainen, J., & Heihonen, S. (2015). Media ecology and the future ecosystemic society. *European Journal of Future Research*, 3(1), 3–9. <https://doi.org/doi:10.1007/s40309-015-0068-7>
- Saad-Sulonen, J., & Horelli, L. (2010). The Value of Community Informatics to Participatory Urban Planning and Design: A Case-Study in Helsinki. *J. Community Informatics*, 6.
- Saadi, R., Maine, L., Berg, C., Buderer, J., Cole, B., Conille, G., Dengler, M., Dengler, M., Feijóo, C., Fernández, B., Gómez-Barroso, J., Johnston, P., Lester, T., Lutz,

- B., Martin, A., Merz, C., Lietaer, B., Nayan, A., Edozien, N., & Zinnbauer, D. (2007). ICT for education and development. *Info*, 9.
- Sarrica, M., Farinosi, M., Comunello, F., Brondi, S., Parisi, L., & Fortunati, L. (2018). Shaken and stirred: Social representations, social media, and community empowerment in emergency contexts. *Semiotica*, 2018(222), 321–346. <https://doi.org/doi:10.1515/sem-2016-0208>
- Setyono, A., Handoko, L. B., Purwanto, Salam, A., Noersasanko, E., & Waluyo, D. E. (2019). Development of Mobile e-Participation System to Enhance e-Government Performance. *2019 International Seminar on Application for Technology of Information and Communication (ISEMANTIC)*, 288–293. <https://doi.org/10.1109/ISEMANTIC.2019.8884221>
- Shepard, M. (2011). *Sentinent city: ubiquitous computing, architecture and the future of urban space*. MIT Press, Cambridge.
- Shin, Y., & Shin, D.-H. (2012). Community Informatics and the New Urbanism: Incorporating Information and Communication Technologies into Planning Integrated Urban Communities. *Journal of Urban Technology*, 19(1), 23–42. <https://doi.org/10.1080/10630732.2012.626698>
- Smith, B., & Gallicano, T. (2015). Terms of engagement: Analyzing public engagement with organizations through social media. *Computers in Human Behavior*, 53, 82–90. <https://doi.org/10.1016/j.chb.2015.05.060>
- Staffans, A., & Horelli, L. (2014). Expanded Urban Planning as a Vehicle for Understanding and Shaping Smart, Liveable Cities. *The Journal of Community Informatics*, 10. <https://doi.org/10.15353/joci.v10i3.3439>
- Townsend, A. (2013). *Smart Cities: Big Data, Civic Hackers, and the Quest for a New Utopia*. W.W. Norton and Company.
- Tye, M., Leong, C., Tan, F. T. C., Tan, B., & Khoo, Y. H. (2018). Social Media for Empowerment in Social Movements: The Case of Malaysia's Grassroots Activism. *Communications of the Association for Information Systems*, 42, 408–430. <https://doi.org/10.17705/1CAIS.04215>
- Ukomadu, C. (2018). *The Role of Social Media in Community Development in Nigeria: The Owe Unity Forum (Oaf) Model*.
- Ullah, M. S. (2017). Empowerment of the Rural Poor through Access to ICT: A Case Study of the Union Information and Service Centre Initiative in Bangladesh. *Journal of Creative Communications*, 12(2), 81–97. <https://doi.org/10.1177/0973258617708366>
- UNESCO, & The World Bank. (2021). *Cities, culture, creativity: leveraging culture and creativity for sustainable urban development and inclusive growth*.
- Wahyuning. (2022). *Status*. Twitter. <https://doi.org/https://twitter.com/Wahyuning2012/status/1584918599374114821>
- Walsham, G. (2017). ICT4D research: reflections on history and future agenda. *Information Technology for Development*, 23, 1–24. <https://doi.org/10.1080/02681102.2016.1246406>
- White, C. M. (2011). *Social Media, Crisis Communication, and Emergency Management: Leveraging Web 2.0 Technologies*.
- Yuliasuti, N., & Saraswati, N. (2014). Environmental quality in urban settlement: the role of local community association in East Semarang sub-district. *Procedia-Social and Behavioral Sciences*, 135, 31–35.
- Yuniningsih, T., & Suwitri, S. (2018). Community Participation in Developing City

Branding Semarang City, Jawa Tengah, Indonesia. *Prosiding Semnasfi, 1*.  
<https://doi.org/10.21070/semnasfi.v1i1.1140>

Yuwanto, Y. (2021). *Deliberative Democracy in Virtual Public Space: A Case Study of Semarang City's "LAPOR Hendi."* <https://doi.org/10.4108/eai.9-10-2020.2304719>