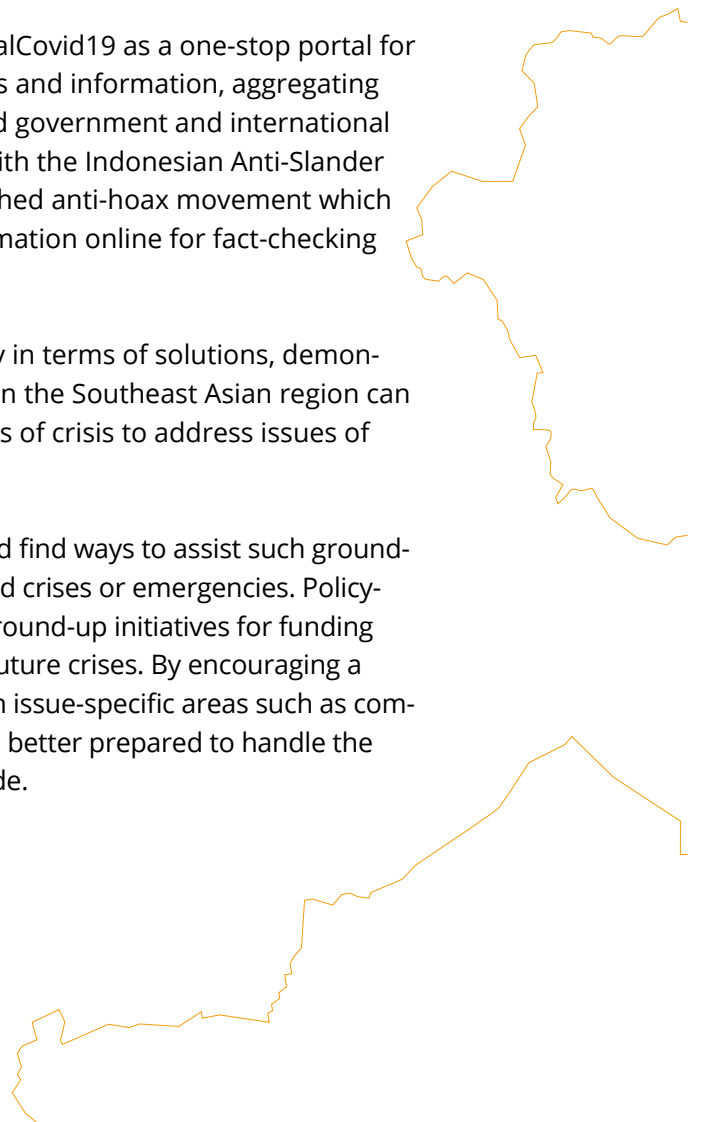


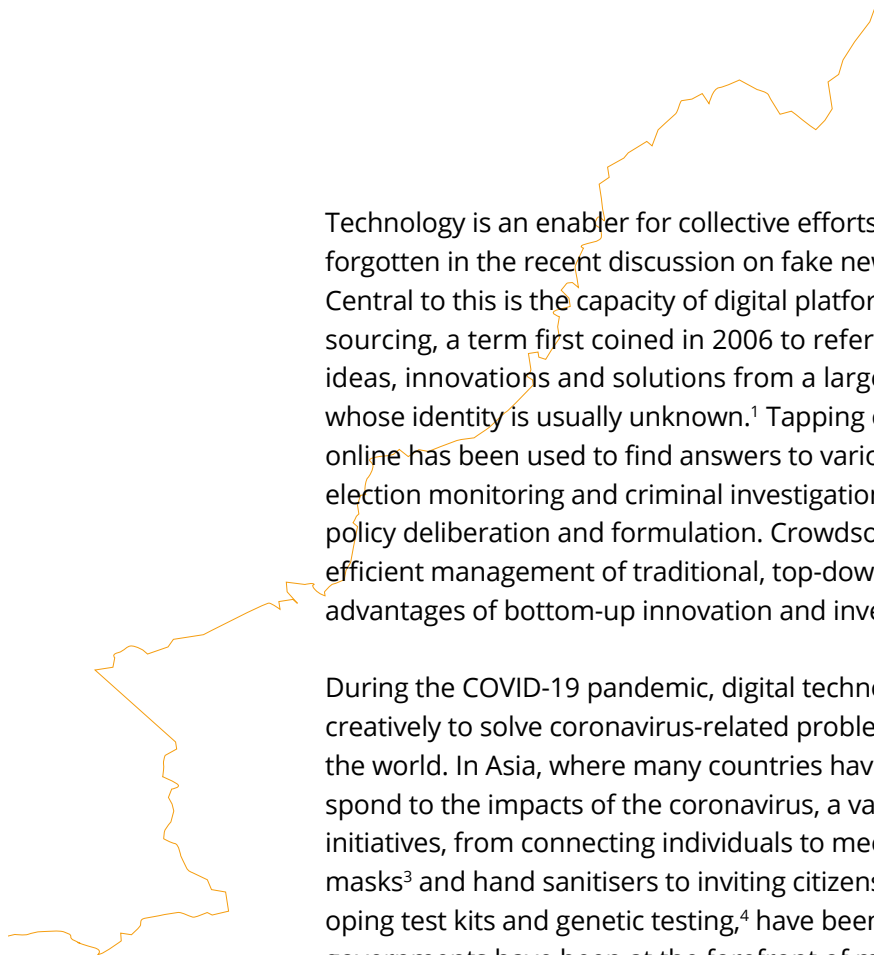
**CROWDSOURCING
DURING
THE INFODEMIC:
TECHNOLOGY
AND GROUND-UP
INITIATIVES
DURING COVID-19**

Jennifer Yang Hui

KEY TAKEAWAYS

- Pandemic-related misinformation was a significant challenge in Southeast Asia. Social media platforms like WhatsApp, Facebook and YouTube were rife with false content such as COVID-19-related causes and remedies. Misinformation impacts not only health choices but also economic as well as political and social relations. Given its dire and possibly long-lasting consequences, solutions are urgently needed to tackle the infodemic.
- Grassroots movements have stepped in to address the challenges of the infodemic. These ground-up initiatives crowdsourced for volunteers in a bid to find previously unknown expertise and solutions to misinformation related to the health crisis.
- Volunteers in Singapore, Malaysia and around the world established Corona Tracker.com, a site that consolidates COVID-19-related information from credible news sites and other sources worldwide, providing live global updates, charts, and maps of the virus's spread.
- Volunteers in Indonesia built KawalCovid19 as a one-stop portal for accurate coronavirus-related news and information, aggregating information and data from trusted government and international sources. They also collaborated with the Indonesian Anti-Slander Community (Mafindo), an established anti-hoax movement which crowdsources COVID-19 misinformation online for fact-checking purposes.
- These initiatives possess ingenuity in terms of solutions, demonstrating that the tech community in the Southeast Asian region can mobilise resources quickly in times of crisis to address issues of public concern.
- Going forward policymakers should find ways to assist such ground-up efforts and sustain them beyond crises or emergencies. Policymakers could identify promising ground-up initiatives for funding and scaling-up in preparation for future crises. By encouraging a wide set of actors to collaborate on issue-specific areas such as combating misinformation, they will be better prepared to handle the challenges of the next digital decade.






Technology is an enabler for collective efforts, an aspect often forgotten in the recent discussion on fake news and hate speech. Central to this is the capacity of digital platforms to conduct crowdsourcing, a term first coined in 2006 to refer to the open call for ideas, innovations and solutions from a large number of people whose identity is usually unknown.¹ Tapping on collective intelligence online has been used to find answers to various challenges such as election monitoring and criminal investigation and also in aspects of policy deliberation and formulation. Crowdsourcing combines the efficient management of traditional, top-down processes with the advantages of bottom-up innovation and inventiveness.²

During the COVID-19 pandemic, digital technologies have been used creatively to solve coronavirus-related problems in many parts of the world. In Asia, where many countries have been struggling to respond to the impacts of the coronavirus, a variety of crowdsourcing initiatives, from connecting individuals to meet the need for surgical masks³ and hand sanitisers to inviting citizens to contribute to developing test kits and genetic testing,⁴ have been implemented. While governments have been at the forefront of many COVID-19-related crowdsourcing initiatives, the unpredictable and fast-moving nature of the pandemic presented opportunities for ground-up initiatives to fill the gap for solutions.

This paper examines Southeast Asia-based crowdsourcing initiatives focusing on providing accurate and reliable information during the COVID-19-induced “infodemic.” According to the World Health Organisation (WHO), an avalanche of misinformation (information that is untrue, but believed by those disseminating it to be true) has been swiftly spreading through social media channels and other media outlets, presenting a serious threat to public health and social order.



The challenge posed by the infodemic is not about false digital content per se. The media landscape has shifted dramatically since previous health epidemics, such as

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- 1 Howe, Jeff. 2006. “The Rise of Crowdsourcing.” *WIRED*, 1 June. (<https://www.wired.com/2006/06/crowds/>).
 - 2 Brabham, Daren C. 2009. “Crowdsourcing the Public Participation Process for Planning Projects.” *Planning Theory* 8, 3: 242–262.
 - 3 Chiu, Karen. 2020. “This 30,000-person online chat tells you where to buy masks during the coronavirus outbreak.” *South China Morning Post*, 11 February. (<https://www.scmp.com/abacus/culture/article/3050040/30000-person-online-chat-tells-you-where-buy-masks-during>).
 - 4 Indonesia Pasti Bisa. 2020. “Pasti Bisa Project.” (<https://indonesiapastibisa.com/#project>).

the SARS outbreak in 2003, with the increasingly fragmented information ecosystem affecting the reception of information. In many countries, official websites now compete with social media platforms as well as closed private chat apps for attention. Even among credible official and news sites, information is dispersed across various digital locations, creating gaps in knowledge and access to information that aggravate pandemic-related misinformation.

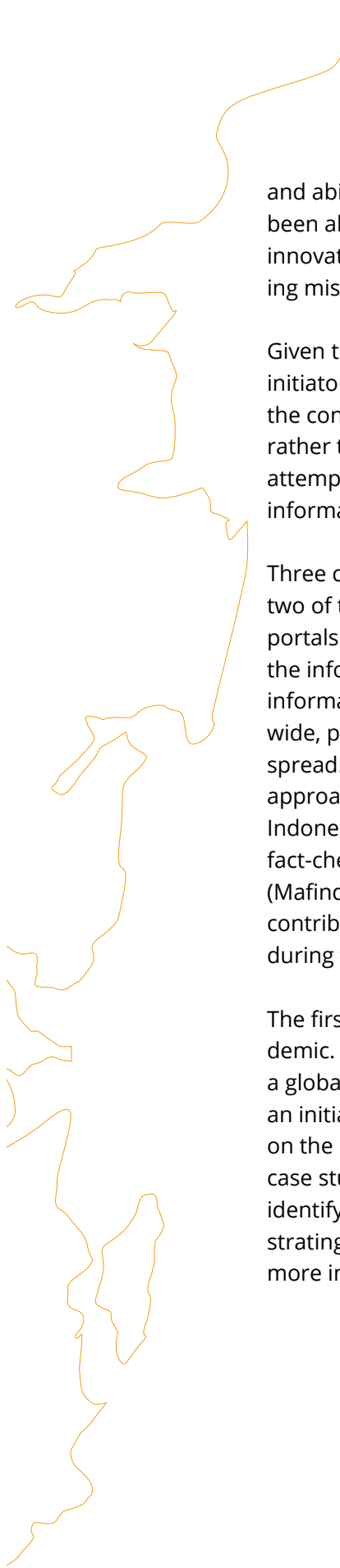
The infodemic challenge was particularly acute in the early part of the COVID-19 outbreak in Southeast Asia, when the authorities were struggling to make sense of the local impacts of the coronavirus. Although governments around the world worked swiftly to contain the impacts of the pandemic and the infodemic, a flood of news and conspiracy theories overwhelmed the already confusing information environment. Misinformation continued to spread unabated on open social media platforms like Facebook and also in closed instant messaging apps like WhatsApp. In Malaysia, for example, the false claim that eating alkaline foods can cure or prevent COVID-19 has been shared widely on YouTube, Facebook and Twitter.⁵ Meanwhile, in Indonesia, claims that the medicines that authorities purchased from China were deadly and also harmful to human foetuses made its rounds on many social media platforms.⁶ And in Vietnam, a news article falsely reported that black cats were being consumed as cures for COVID-19.⁷ Misinformation affects people's health choices, contributes to social stigma, impacts inter-group relations and trust in public institutions, with consequences that may outlast the pandemic.

To address the challenges of the infodemic, crowdsourcing initiatives in Southeast Asia, with the support of existing fact-checking initiatives, have focused on creating websites carrying credible news and information related to the pandemic. These ground-up initiatives, with their vast networks

5 AFP Malaysia. 2020. "Health experts say there is no evidence that eating alkaline foods can prevent or cure COVID-19." AFP Fact-Check, 24 April. (<https://factcheck.afp.com/health-experts-say-there-no-evidence-eating-alkaline-foods-can-prevent-or-cure-covid-19>).

6 Kementerian Komunikasi Dan Informatika Republik Indonesia. 2020. "[DISINFORMASI] Obat Avigan yang Dipesan Jokowi adalah Obat Pembunuh Janin." Kominfo, 24 March. (https://www.kominfo.go.id/content/detail/25324/disinformasi-obat-avigan-yang-dipesan-jokowi-adalah-obat-pembunuh-janin/o/laporan_isu_hoaks).

7 Kertscher, Tom. 2020. "Black cats in Vietnam are being killed and consumed as a COVID-19 cure." Politifact, 8 May. (<https://www.politifact.com/factchecks/2020/may/08/south-west-news-service/Evidence-lacking-that-cats-eaten-as-COVID-19-cure/>).



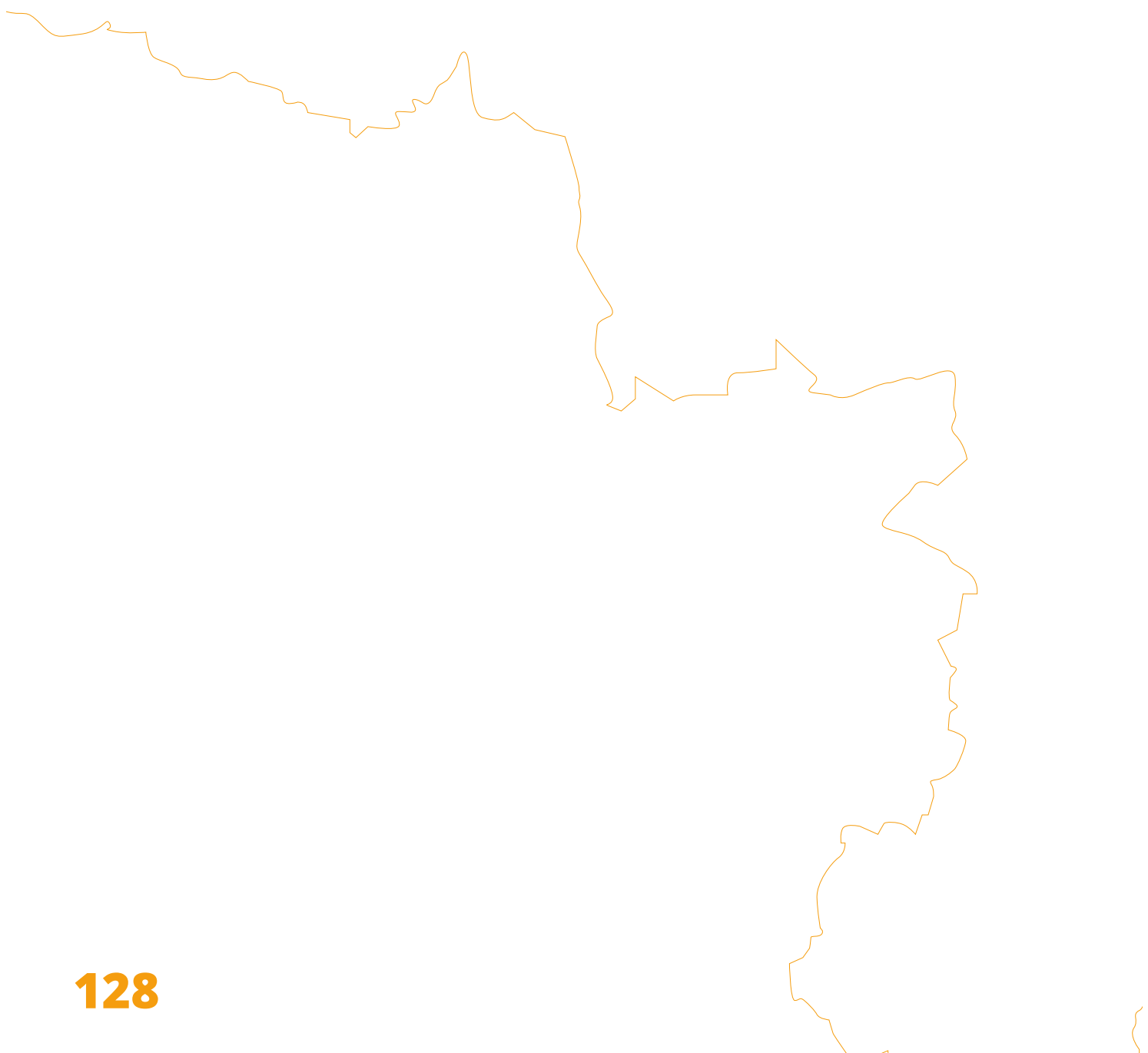
and ability to quickly mobilise and attract new volunteers, have been able to gather resources with different expertise and to find innovative solutions for providing accurate information and clarifying misperceptions during the pandemic.

Given the sudden and unexpected nature of the pandemic, the initiators and volunteers felt that the best way to provide clarity in the confusion was to make readily available information clearer rather than find new data. The portals created by these initiatives attempted to steer public attention to verified, official news and information.

Three crowdsourcing case studies will be outlined in this paper. In two of the initiatives, volunteers came together to create one-stop portals for official news and verified information as solutions to the infodemic. CoronaTracker.com consolidates COVID-19-related information from credible news sites and other sources worldwide, providing live global updates, charts, and maps of the virus's spread. KawalCOVID19 is an initiative that focuses on a data-driven approach to providing accurate information on the pandemic in Indonesia. The paper also examines the work of KawalCOVID19's fact-checking partner, the Indonesian Anti-Slander Community (Mafindo), an established anti-hoax movement which crowdsources contributions from netizens to counter COVID-19 misinformation during the pandemic.

The first two initiatives arose organically in response to the pandemic. CoronaTracker.com was established regionally and found a global audience while the second initiative, KawalCOVID19, was an initiative by Indonesians and the Indonesian diaspora, focusing on the pandemic-related challenges in the archipelago. The third case study, Mafindo, has successfully leveraged crowdsourcing to identify false online content in Indonesia for several years, demonstrating a reliability that makes its role during the pandemic even more important.

Through the case studies, policymakers can glean lessons on leveraging cyberactivism that arises during times of crisis to address concerns such as misinformation and even disinformation (information that is false and created and disseminated to fulfil a particular agenda). Ground-up initiatives can become credible voices promoting legitimate narratives to those who might otherwise be susceptible to misinformation/disinformation, trapped within their filter bubbles. ■



Studies on crowdsourcing for emergency responses show that crises are highly emotive situations that galvanise mobilisation for a perceived good cause.⁸ Digital platforms and social media help tap the crowd's "cognitive surplus" for mapping out the extent of crises, among other goals, during emergencies.⁹ Most studies, however, focus on crowdsourcing efforts conducted by disaster relief agencies. Few examine ground-up initiatives that spring up during disasters. The 2010 Haitian earthquake was the first case where technologically-savvy volunteers crowdsourced information that would aid in the disaster response, generating academic and policy interest in cyberactivism amid disasters.¹⁰ In Russia, ground-up crowdsourcing efforts were notable in tackling wildfires.¹¹ Web-enabled digital tools have also helped non-state actors organise and even form a distinctive disaster management system during the 2008 Wenchuan, 2010 Yushu and 2013 Lushan earthquakes.¹²

Most crowdsourcing initiatives during times of crisis utilise existing digital platforms like the Ushahidi, an open-source application for election monitoring. Some, however, have created new platforms. This is particularly common in crowdsourcing initiatives during elections. For example, VotoSocial, a crowdsourcing platform launched during the 2013 Honduras elections, allowed users to authenticate scanned digital polling records and transcribe them into a digital system.¹³ Similar platforms were launched in different parts of the world. The Contemos Nosotros (Let Us Count) platform was set up in El Salvador.¹⁴ In Southeast

- 8 Benkler, Yochai. 2011. *The Penguin and the Leviathan: How Cooperation Triumphs Over Self-Interest*. New York: Crown Business; Meier, P. 2013. "Opening Keynote Address." *Crisis Mappers*. (<http://irevolution.net/2013/11/20/opening-keynote-crisismappers-2013/>).
- 9 Riccardi, Mark T. 2016. "The power of crowdsourcing in disaster response operations." *International Journal of Disaster Risk Reduction* 20: 123–128; Meier, Patrick, and Diane Coyle. 2009. "New Technologies in Emergencies and Conflicts." *Unfoundation.org*. (www.globalproblems-globalsolutions-files.org/pdf/UNF_tech_emergency_tech_report2009/Tech_EmergencyTechReport_full.pdf); Ziemke, Jen. 2012. "Crisis Mapping: The Construction of a New Interdisciplinary Field?" *Journal of Map & Geography Libraries: Advances in Geospatial Information, Collections & Archives* 8, 2: 101–17.
- 10 National Geographic Society. 2012. "How Crisis Mapping Saved Lives in Haiti." *nationalgeographic.org*, 2 July. (<https://blog.nationalgeographic.org/2012/07/02/how-crisis-mapping-saved-lives-in-haiti/>).
- 11 Asmolov, Gregory. 2015. "Vertical Crowdsourcing in Russia: Balancing Governance of Crowds and State–Citizen Partnership in Emergency Situations." *Policy & Internet* 7, 3: 292–318.
- 12 Lin, Peng. 2017. "Crisis crowdsourcing and China's civic participation in disaster response: Evidence from earthquake relief." *China Information* 31, 3: 327–348.
- 13 VotoSocial. 2015. "Only Real Votes Should Decide Elections." (<http://votosocial.github.io/>).
- 14 Arias, Carlos R., Garcia, Jorge and Alejandro Corpeño. 2015. "Population as Auditor of an Election Process in Honduras: The Case of the VotoSocial Crowdsourcing Platform." *Policy & Internet* 7, 2: 185–202.

Asia, the KawalPemilu.org (Guard the Election) is a platform that compiled open data published by the Indonesian General Elections Commission (KPU) for cross-checking by volunteers during the 2014 and 2019 elections.¹⁵

While this study does not focus on the issue of trust in crowdsourcing platforms, it acknowledges that during times of crisis, the issue of trust in information and platforms is more crucial than ever. During the infodemic, the competition between misleading sites and official news sites has become stiffer than ever. Understanding such concerns, the UNESCO, for example, has launched #DontGoViral, an online campaign that crowdsources for creative content that is culturally relevant to mitigating the impact of the infodemic in Africa.

There are indications that some people trust the information on crowdsourced sites like Wikipedia more than official sites. Despite academic concerns over its credibility and reliability of sources, crowdsourced site Wikipedia is still seen as a valid information source, at least for background research for some.¹⁶ A YouGov survey showed that its British respondents see Wikipedia authors as being trustworthy at least “a fair amount of time” compared to professional journalists.¹⁷ One 2011 study even found that Wikipedia articles were comparable to qualified healthcare databases like the Physician Data Query.¹⁸ The concepts of trust and distrust are important to the creators and designers of the digital environment as these influence how users form and sustain relationships online. Trust is likewise important in better understanding people’s relationship to the news.

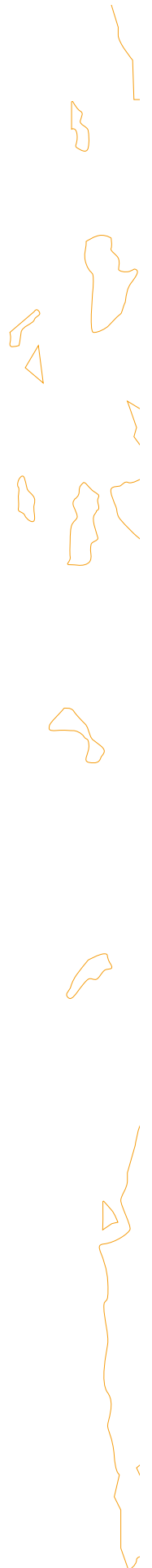
There is a symbiotic relationship between news sites and online aggregators that compile their news articles. News aggregators are websites that curate other news organisations’ content on their platforms using algorithms, human judgment or a mixture of both. They usually do not produce

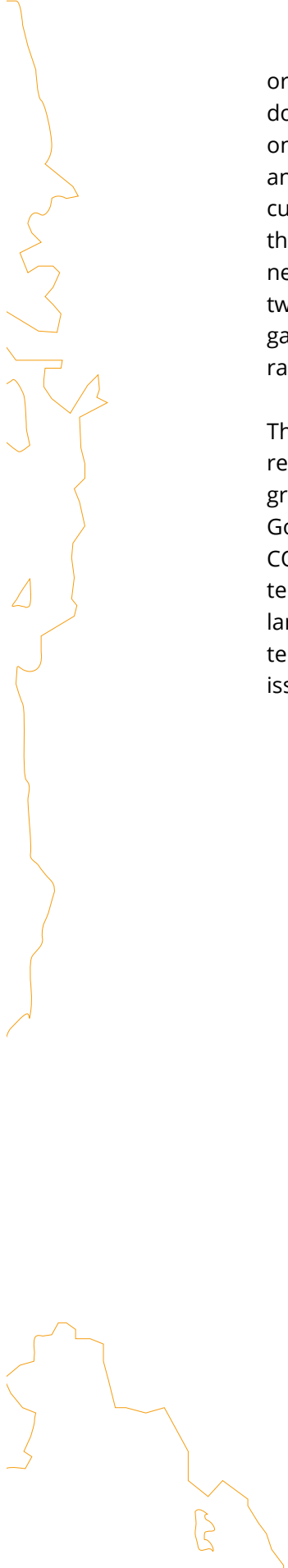
¹⁵ KawalPemilu. 2019. “Jaga Suara 2019.” (<https://kawalpemilu.org/#pilpres:o>).

¹⁶ Knight, Charles and Sam Pryke. 2012. “Wikipedia and the university, a case study.” *Teaching in Higher Education* 17, 6: 649–659.

¹⁷ Jordan, William. 2014. “British people trust Wikipedia more than the news.” YouGov, 9 August. (<https://yougov.co.uk/topics/politics/articles-reports/2014/08/09/more-british-people-trust-wikipedia-trust-news>).

¹⁸ Wolchover, Natalie. 2011. “How accurate is Wikipedia?” *Live Science*, 24 January. (<https://www.livescience.com/32950-how-accurate-is-wikipedia.html>).





original news content. A study showed that most aggregator users do so to find out new information and are not looking for opinions on issues.¹⁹ Most modern news aggregators like Flipboard, Toutiao and Apple News fulfil the need for a trusted site to assemble and curate relevant information.²⁰ A 2016 Edelman survey even showed that respondents trusted Google's news aggregator more than the news articles assembled by the search engine.²¹ And in an ironic twist, the Oxford Internet Institute launched a junk news aggregator to present Facebook articles from untrustworthy sources to raise awareness of the challenges of misinformation online.²²

This study does not have access to metrics on the portals' audience reception. It attempts to provide initial insights, however, into how grassroots actors followed the path of major tech companies like Google, which had made government announcements related to COVID-19 more visible on its search results,²³ to direct netizens' attention back to verified official news and information. It is therefore largely supply-focused, an approach that is just as important in better understanding how grassroots movements attempt to resolve issues during the pandemic. ■

¹⁹ Lee, Angela M. and Iris Chyi Hsiang. 2015. "The Rise of Online News Aggregators: Consumption and Competition." *International Journal on Media Management* 17, 1: 3–24.

²⁰ Arendt, Kelsey. 2019. "The (digital) morning news routine: how mobile news aggregators have evolved beyond the homepage." *Parse.ly*, 5 September. (<https://blog.parse.ly/post/9001/mobile-news-aggregators-have-evolved-beyond-the-homepage/>).

²¹ Edelman. 2016. "2016 Edelman Trust Barometer." *Edelman Research*, 16 January. (<https://www.edelman.com/research/2016-edelman-trust-barometer>).

²² European Research Council. 2019. "Junk News Aggregator aims to restore Trust in Media and Democracy." *erc*, 8 May. (<https://erc.europa.eu/projects-figures/stories/junk-news-aggregator-aims-restore-trust-media-and-democracy>).

²³ Moon, Mariella. 2020. "Google Search will highlight government's COVID-19 announcements." *Engadget*, 4 April. (<https://www.engadget.com/2020-04-04-google-covid-19-special-announcements.html>).

COMBATING THE INFODEMIC BY CROWDSOURCING

The COVID-19 pandemic was a crisis that provided opportunities for ground-up crowdsourcing initiatives to fill the gap in terms of addressing uncertainties. The combination of more spare time and dependence on digital technology during times of uncertainty meant that crowdsourcing initiatives have greater take-up rates than usual.

Table 1 outlines the digital platforms created by the initiatives as well as social media platforms used for volunteer recruitment, public input and publicity:

Table 1: Digital Platforms Used by the Crowdsourcing Initiatives

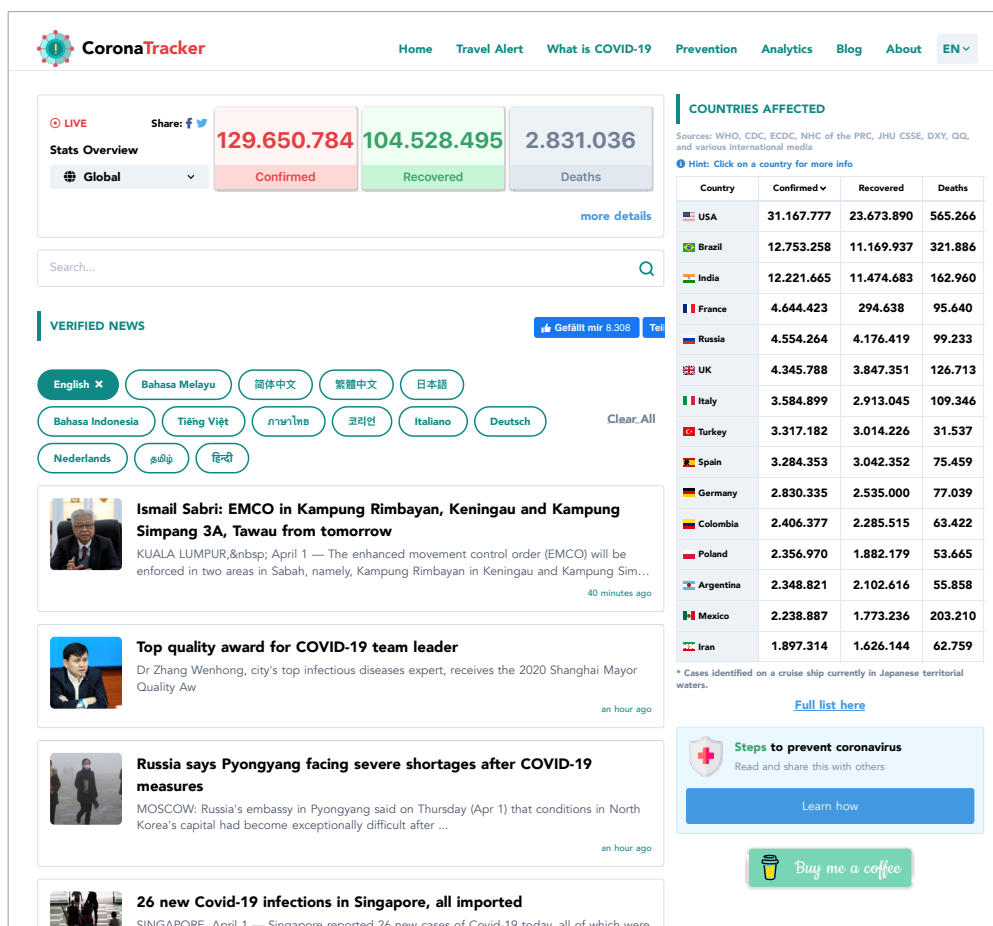
Initiatives	Focus	System(s)	Volunteer Recruitment Platform(s)	Public Input	Publicity Channel(s)
Corona-Tracker	Global	News Aggregator	Facebook	Telegram	Website
		Github	LinkedIn		Telegram
Kawal-Covid19	Indonesia	Information Site	Twitter	Facebook Messenger	Website
		Mobile app (Android)			Facebook
Mafindo	Indonesia	Facebook Group	N/A	Email	Facebook
				Online Form	Website
				SMS	
		Website		WhatsApp	WhatsApp (bot operated)
				Twitter	

■

CoronaTracker.com was created in late January 2020, when news that the coronavirus was spreading all over the world had many trying to make sense of what was happening. Dr. Lau Cher Han, a Malaysian data scientist, used LinkedIn, Facebook, and Telegram to call for volunteers keen to collaborate to create innovative solutions to the pandemic, and received responses from interested individuals from all over the world.

More than 460 volunteers worldwide went on to build the CoronaTracker portal (Figure 1). Full-stack web developers built the web and mobile applications while user interface (UI)/ user experience (UX) designers helped ensure that the portal was user-friendly and that its information architecture and flow were correct.

Figure 1: CoronaTracker.com Portal



The site displays current global data on the COVID-19 pandemic, such as the total number of confirmed cases, recovery and deaths in countries that are affected by the coronavirus. On its landing page is a news aggregator showing both global and local news in various languages. Web crawlers, written in Python, were used to automatically scrape data and news articles from reliable sources such as the WHO, Johns Hopkins University, and news outlets like the BBC and Reuters. Information on “Travel Alerts”, for example, were sourced from the International Air Transport Association (IATA). The articles were also filtered and fact-checked for accuracy by volunteers. Medical doctors from the field of epidemiology and biology, for example, were enlisted to ensure that health-related articles and information on the site were medically sound.

The portal features the “Buy Me a Coffee” function²⁴ (the coffee mug icon at the bottom left-hand corner of Figure 1), which enables donations from fans who wish to support their work. CoronaTracker volunteers do not otherwise receive a material incentive for their participation, and are rewarded only by an intrinsic sense of having contributed to a worthy cause.

CoronaTracker.com saw itself as having performed well in the competition for eyeballs. According to its founder, Dr. Lau Cher Han, the retention rate for the portal had been “very high”, with viewers spending an average of two to three minutes per session when browsing the site, and the site’s bounce rate was low (less than 50%) as of July 2020.²⁵ ■

²⁴ Buy Me a Coffee. 2020. (<https://www.buymeacoffee.com/>).

²⁵ Interview with Dr. Lau Cher Han, Founder of CoronaTracker, 8 July 2020.

As coronavirus-related hoaxes (referring to the general phenomenon of falsehoods) proliferated in Indonesia, a group of volunteers began the task of recruiting technologically savvy individuals to find solutions. KawalCovid19 tweeted a call for volunteers, and was soon attracting almost a thousand volunteers for the initiative.²⁶

Figure 2: KawalCovid19 Portal



Among other solutions, the KawalCovid19 volunteers built a portal (Figure 2) for accurate coronavirus-related news and information. The initiative believed that a one-stop portal was necessary for providing “information leadership” during the crisis, especially during the confusing period in early March 2020, when Indonesia announced its first two confirmed COVID-19 cases. To ensure that accurate information found more audience, the initiative reached out using social media platforms like Instagram, Twitter and Facebook as well.

²⁶ Interview with Ainun Najib, Co-Founder of KawalCovid19, 13 July 2020.

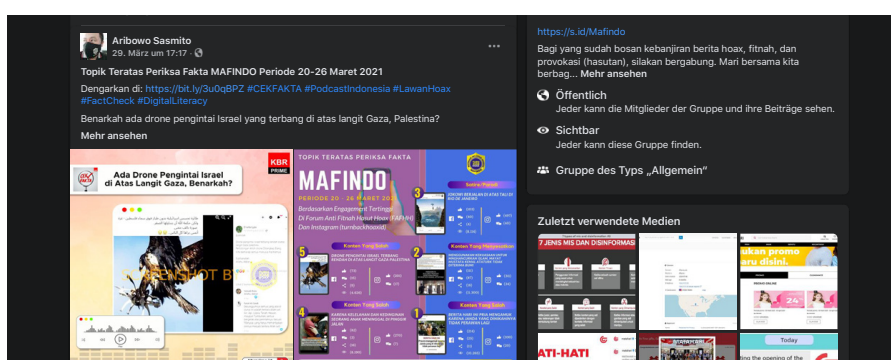
The KawalCovid19 portal shows updated statistics on confirmed cases, the number of those undergoing treatment, the number of those who have recovered and the number of deaths. News explainers on the portal also clarify any pandemic-related misconceptions. To ensure that the information on its site is accurate, KawalCovid19 verifies any information it puts on its portal with experts. Medical practitioners like doctors, virologists and epidemiologists are among those consulted before articles and infographics are put up on the site and shared on the initiative's social media channels. The site provides links to official sources related to the pandemic, such as the WHO website, the UNICEF Indonesia portal and official Indonesian government press releases and websites.

To debunk coronavirus-related hoaxes, KawalCovid19 partnered with an established fact-checking network, the Indonesian Anti-Slander Community (Mafindo). Mafindo gathers misleading content from anonymous volunteers online for fact-checking purposes. ■



Mafindo is an Indonesian civil society organisation established in 2015 that leverages crowdsourcing to identify and fact check false/misleading content. It is a part of the Poynter Institute's International Fact-Checking Network (IFCN), which requires the organisation's adherence to "non-partisanship and fairness, transparency of sources, transparency of funding and organisation, transparency of methodology, and a commitment to open and honest corrections."²⁷

Figure 3: Forum Anti Hasut Fitnah dan Hoax Facebook Page



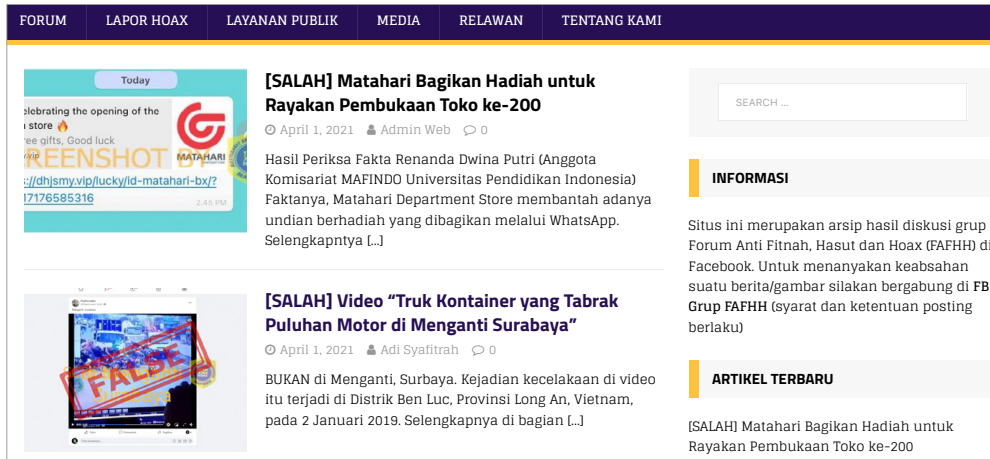
The public may report hoaxes to the initiative's fact-checking team via several channels: email, SMS, WhatsApp or through an online form on the TurnBackHoax website.²⁸

To debunk pandemic-related hoaxes, Mafindo's fact-checking team worked with health practitioners, academics and university students. They also collaborated with local journalists, who have a much better understanding of the situation on the ground. Although the COVID-19 outbreak had affected the work of Mafindo's journalist partners, preventing them from reaching people and situations due to lockdowns and road closures in some Indonesian cities, it has not significantly impacted Mafindo's work, by and large due to its online nature.

²⁷ IFCN Signatory. 2019. "Mafindo Profile." (<https://ifcncodeofprinciples.poynter.org/profile/mafindo>).

²⁸ Laporan Hoax. 2020. "Hoax Reporting." [turnbackhoax.id](https://turnbackhoax.id/lapor-hoax/). (<https://turnbackhoax.id/lapor-hoax/>).

Figure 4: Examples of Fact-Checked Articles on the TurnBackHoax Website



The results of their fact-checking are posted on Mafindo’s public Facebook group, Forum Anti Hasut Fitnah dan Hoax (FAFHH) (Figure 3) and the TurnBackHoax website (Figure 4). The fact-checked articles are classified into one of seven types of misinformation and disinformation based on the framework formulated by media scholar Claire Wardle: misleading content, fabricated content, manipulated content, false connection, imposter content, false context or satire/parody.²⁹

Members of the FAFHH group can also contribute articles and provide feedback if they find mistakes or insufficient details in the fact-checked results.³⁰ Mafindo has also built an API platform called the *Yudistira*, which is used to share its fact-checked articles with online media partners for dissemination purposes. ■

²⁹ Wardle, Claire. 2017. “Fake News. It’s complicated.” *First Draft*, 16 February. (<https://firstdraftnews.org/latest/fake-news-complicated/>).

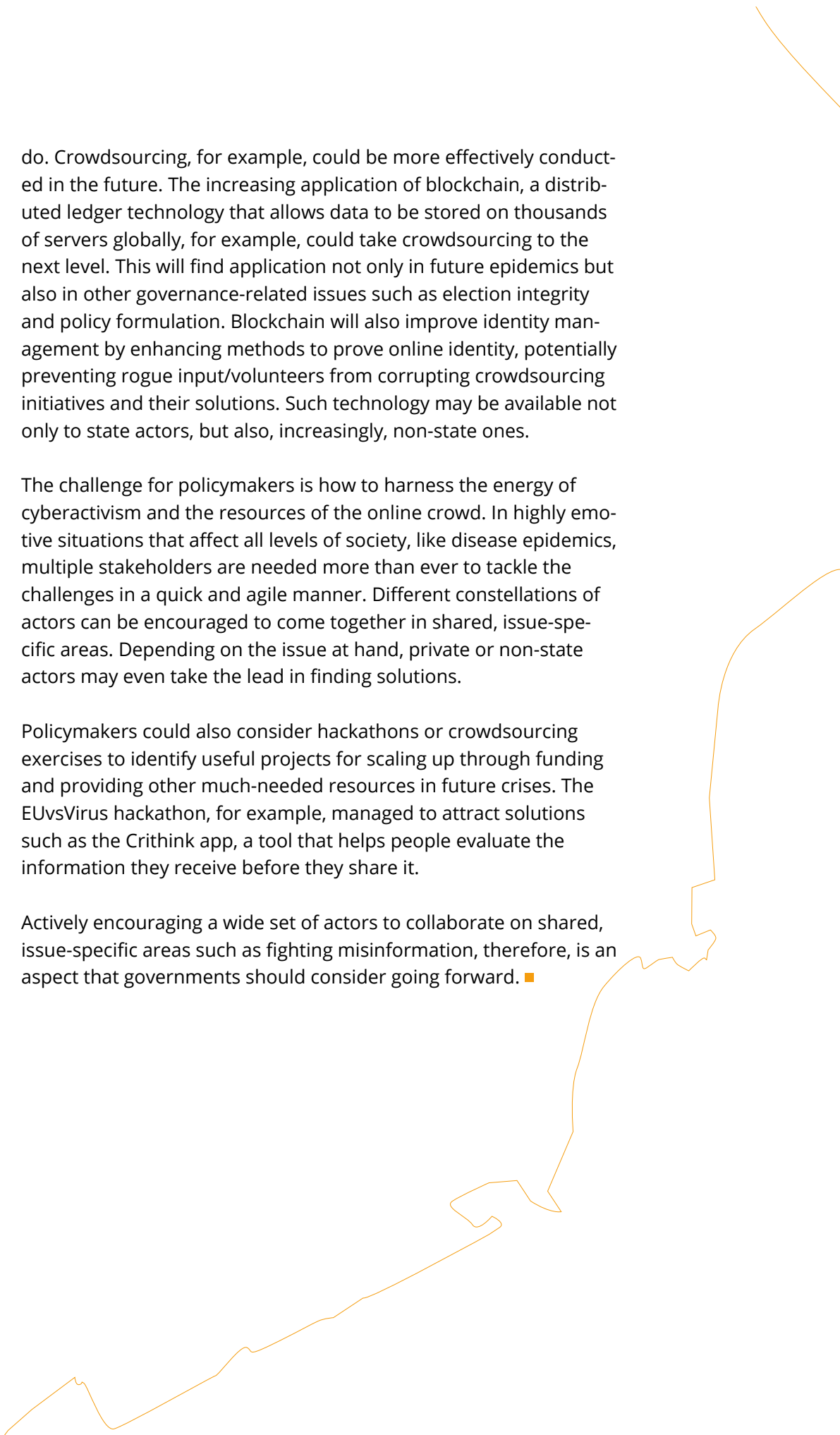
³⁰ Interview with Septiaji Eko Nugroho, Founder and Chairman of Mafindo, 9 July 2020.

The three initiatives show that crowdsourcing for previously unknown solutions has been successful in terms of finding volunteers. Whether the proposed solutions “work” in terms of securing trust in the portals is, however, unclear. The initiatives had no benchmarks for measuring success as the situations during the pandemic were often fluid. The fact that volunteers showed up simply meant that many people cared enough to want to do something to tackle the pandemic even though they may not necessarily know what to do or how to go about it. This paper acknowledges the importance of trust in the platforms and believes that this will be an important area for future studies on crowdsourcing.

The case studies present several implications for the next digital decade. In any situation where governments fall short in providing information leadership, non-state actors can leverage online crowdsourcing to fill the gaps. While it is therefore tempting to argue that these non-state actors are competing with state actors for relevance during such times, the reality is much more complex. For example, the crowdsourcing initiatives highlighted in this paper depended on official data and information for their solutions as well. Although official communication remains an important aspect of governance during such times, it can be drowned in the sea of online noise in already-confusing times. And there is a need for credible voices to reach some segments of netizens who are inclined to dismiss official messages, being isolated within their filter bubbles. Instead of competing, ground-up initiatives can lend a credible voice to point people to verified information. It is therefore profitable for both sides to work towards a complementary relationship to tackle the most urgent problems in times of crises.

Non-state actors possessing a high level of technical knowledge and other expertise are likely to remain important actors during a crisis, able to mobilise quickly due to their horizontal way of organising to maximise ingenuity.

The evolution of technology also means that ground-up initiatives could benefit from technological advancements as much as states



do. Crowdsourcing, for example, could be more effectively conducted in the future. The increasing application of blockchain, a distributed ledger technology that allows data to be stored on thousands of servers globally, for example, could take crowdsourcing to the next level. This will find application not only in future epidemics but also in other governance-related issues such as election integrity and policy formulation. Blockchain will also improve identity management by enhancing methods to prove online identity, potentially preventing rogue input/volunteers from corrupting crowdsourcing initiatives and their solutions. Such technology may be available not only to state actors, but also, increasingly, non-state ones.

The challenge for policymakers is how to harness the energy of cyberactivism and the resources of the online crowd. In highly emotive situations that affect all levels of society, like disease epidemics, multiple stakeholders are needed more than ever to tackle the challenges in a quick and agile manner. Different constellations of actors can be encouraged to come together in shared, issue-specific areas. Depending on the issue at hand, private or non-state actors may even take the lead in finding solutions.

Policymakers could also consider hackathons or crowdsourcing exercises to identify useful projects for scaling up through funding and providing other much-needed resources in future crises. The EUvsVirus hackathon, for example, managed to attract solutions such as the Crithink app, a tool that helps people evaluate the information they receive before they share it.

Actively encouraging a wide set of actors to collaborate on shared, issue-specific areas such as fighting misinformation, therefore, is an aspect that governments should consider going forward. ■

The Author

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Interviews

Interview with Dr. Lau Cher Han, Founder of CoronaTracker, 8 July 2020.

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Interview with Ainun Najib, Co-Founder of KawalCovid19, 13 July 2020.