Government Policy in Strengthening Innovative Ecosystem as the Representation of Integration and Collaboration in Covid-19 Prevention and Handling in Surakarta Indonesia

Argyo Demartoto(✉)

Universitas Sebelas Maret, Surakarta, Indonesia
argyodemartoto_fisip@staff.uns.ac.id

Abstract. Conducive environment in facing Covid-19 pandemic development innovation ecosystem should be developed consciously and continuously. This research aims to study government policy in innovative ecosystem and to strengthen integration and collaboration in facing pandemic in Surakarta Indonesia. This study is an exploratory qualitative research with key informants and main informants. Medical workers in Dr. Moewardi Hospital, Sangkrah Public Health Center and administrative staffs of Sangkrah Village served as supporting informants. This research studies the government policy implementation in innovative ecosystem in handling Covid-19 pandemic in Surakarta. Data collection was conducted in 2021 through observation, in-depth interview and documentation with interview guide, field note and documentation being qualitative research instruments. Data was validated using data source triangulation and then interactive data analysis was carried out. The result of research shows that Health technology innovation in Covid-19 management should run sustainably. Because of its low cost and quick test result, GeNoSeC19 is used in Surakarta to do test and to detect Covid-19 case quickly and accurately. Surakarta's Government, in collaboration with a cellular operator IndosatOoredo, launched 5G network operation in Surakarta and performed service digitalization procedures in Smart City (e.g. in getting Identity Card and Family Card using corresponding application). 5 G network facilitates an easy accessible public service process. Surakarta's Government also makes innovation by providing mobile vaccination service for elderpeople and over in vaccine acceleration program. The implication is Surakarta Government's success in coping with Covid-19 using an integration and collaboration-based innovative ecosystem.

Keywords: Innovative Ecosystem · Integration · Collaboration · Covid-19 Management

I. Permana and E. Rochmawati (Eds.): ICOSI-HSN 2022, 55, pp. 7–14, 2022.
https://doi.org/10.2991/978-94-6463-070-1_3

1 Introduction

Medical, technical, and social innovations are required in facing Covid-19 pandemic. Innovation process is an event of transforming input into output involving and affected by many factors including innovation input factor consisting of human, physical and non-physical, intangible resources, and innovation ecosystem. Innovation output is known as a product, while innovation outcome is the effect of product produced [1]. Conducive ecosystem fosters honest and clean, self-confident, independent and progressive, creative and innovative, tolerant and solidarity, participative and collaborative mindset and behavior, and consciousness of right and obligation as citizen. Conducive environment or climate in innovation ecosystem of development should be build consciously and continuously, thereby becoming habit and culture [2].

It has been two years since Covid-19 pandemic transmits throughout world and there has been no sign of subsidence, particularly in the presence of new variant, like Omicron that worryingly will be dominant virus leading to positive case explosion in Indonesia. Covid-19 pandemic has waked us up and made us aware of the national preparedness and resilience. Five Covid-19 health technologies have been launched by the Republic of Indonesia's government: Rapid Test Kit, PCR Test Kit, Mobile Lab BSL-2, Emergency Ventilator and Artificial Intelligence application to detect Covid-19 [3]. It is time to prioritize technology innovation for national resilience purpose. Therefore, an innovative ecosystem model is required to be constructed with mutual need motivation.

Considering the Covid-19 Dashboard Data of Kota Surakarta, 33,581 people have been infected positively with corona virus in Surakarta per Sunday March 6, 2022, with 1,143 deaths, 3,392 still positive active, and 29,033 people cured. Meanwhile, in Sangkrah Pasar Kliwon Surakarta, there are 387 confirmed cases, with 325 people cured, 27 under isolation, 1 under treatment, and 34 died. Science and technology support drives the government to accelerate economic recovery, meaning that public mobility will be more massive than that before. Health technological innovation in Covid-19 management should run sustainably. All parties, including government, universities, industry, and community are responsible for continuously bearing health technology innovation that can improve the quality of people life; moreover we predictably will live adjacently with this virus in the next years [4].

The policy of social and physical distancing leads to the reduced intensity of face-to-face activity and direct contact with others. For that reason, digital transformation is needed in all aspects ending up in less contact society, less contact economy and even e-gov (electronic government) for public service. To accomplish the innovation, each of parties plays specific role in technology innovation according to their own capacity with mutual cooperation (gotong royong) spirit to build innovation ecosystem. In governance innovation, integration and collaboration are required as the manifestation of procreation and cooperation [5].

Since the first Covid-19 case was reported in Surakarta Indonesia, all elements of community, either government or private, have taken any attempts to fight against this pandemic, one of which is to launch Covid-19 handling health innovation. This research aims to study government policy in innovation ecosystem and to strengthen integration and collaboration in dealing with pandemic in Surakarta Indonesia analyzed using an exploratory qualitative approach.

2 Method

This explorative research revealed the attempt of government policy in strengthening innovation ecosystem as the representation of integration and collaboration in Covid-19 prevention and management in Surakarta Indonesia [6].

Data collection was carried out using observation, in-depth interview and documentation. To validate the data, the author used data source triangulation, then an interactive data analysis was carried out involving data reduction, data display and conclusion drawing/verification [8].

Key informants employed in this study were Health Service Office, Covid-19 Management Acceleration Task Force of Surakarta City, and citizens of Sangkrah Surakarta who have been vaccinated at least twice, including those who have ever been infected with Covid-19 and the supporting informants were medical workers, nurses, and administrative staffs in Dr. Moewardi Hospital of Surakarta, Puskesmas Sangkrah Surakarta, Staff of Kelurahan Sangkrah, Chairperson of Solo Balapan Railway Station, and passenger of Commuter Line Train for Yogyakarta-Surakarta trajectory [7]. The author also obtained data from Covid-19 Dashboard Data of Kota Surakarta.

3 Result and Discussion

Considering the result of exploration on government policy, the integration and collaboration-based innovative ecosystem strategy becomes an appropriate attempt of coping with Covid-19 in Surakarta. The smart Covid-19 technology innovation at high speed level can benefit the community and make science and technology a "puller". It is suggested by the head of Covid-19 Handling Task Force. Indeed innovation ecosystem, particularly Covid-19 handling, should be present with innovative product according to the people's need and be able to trigger the growth of local health industry with high domestic content. A variety of Covid-19 handling technology innovations born from innovation ecosystem has helped lower Covid-19 curve in Indonesia, including Surakarta. For example, RI-GHA antibody rapid test not only handles health sector but also contributes to economic sector by lowering the price of antibody rapid test in the market. We cannot avoid disruptive factor like corona virus mutation and evolution, from alpha, beta, to delta variant, invading different parts of the world, including Indonesia. The dynamic of Covid-19 case in Indonesia, and also in Surakarta, is facing the second-wave Corona virus [9].

The chairperson of Health Service Office states that transmission case is uncontrolled, and thereby creates a high peak that then slopes itself. It will result in so many deaths that an attempt should be taken to flatten the curve. In Surakarta, there is an increase in Covid-19 positively confirmed cases by 225 cases per February 21, 2022. Patients cured are reported in 147 cases. With the increase and the cure patients, there are totally 3.156 active cases. The figure is higher than the total active case during Delta variant, about 2,500 cases. In 2021, the number of active case has surpassed the highest peak of active case during delta variant transmission. The attempt of handling it has been optimized by increasing the number of concentrated isolation centers.

Such condition affects economic sector or trade off between handling attempt and economic performance decline. The attempt has been taken to make the curve slope by

reducing transmission rate (*rB) affected by number of contact with infected people (due to mobility) and probability of being infected. The number of contact has been controlled by reducing mobility rate and it will have an impact on economic decline. Meanwhile the probability is reduced by applying health protocol and vaccination [10].

The Chairperson of Surakarta City's Health Service Office stated that the change of transmission rate is affected by mobility and probability. In which probability decreases to around 0.4 (compliance level of 60%) due to people's compliance with health protocol, but in early June 2021 there was an indication of an increase in probability due to the people's reduced compliance with health protocol implementation. In addition to the factor, the appearance of delta variant with higher transmission rate also contributed to the increase of rate. On the other hand, the dynamic of people mobility decreased in January 2022 following the peak phase, and impacted the people's economic need. Such condition should be treated seriously by reapplying the health protocol more tightly, reducing people mobility, and accelerating vaccination process.

Some scenarios taken to control the transmission rate apparently can reduce the daily confirmed case occurring. Nevertheless, the successful control measure is highly dependent on the extent to which the people comply with health protocol specified by he government. The restriction of public transportation mobility conducted by obliging the people to have first-dose vaccine certificate and recommendation of negative Covid-19 infection is an administrative attempt taken by the government to keep suppressing the virus transmission rate in an area.

The need for a quick, accurate, simple, and affordable testing instrument is a determinant of whether or not the product is sold well in the market. The use of GeNoSeC19 spreads quickly because it has low cost and its result can be obtained within minutes [11]. The Head of Balapan Railway Station states that Balapan Station provides GeNoSeC19 examination service per June 21, 2021 and this test instrument has been used in Adi Sumarmo Airport of Surakarta. It is confirmed by the passengers of Commuter Line Train for Yogyakarta-Surakarta trajectory. In controlling pandemic situation currently, some attempts are still required to take as many as possible tests and to detect Covid-19 quickly and accurately. Thus, the Covid-19 positive confirmed people can be isolated immediately to break the transmission chain. For that reason, the use of GeNoSeC19 is very helpful to the process. The innovative product should be appreciated and supported in order to be used broadly. The opinions attenuating its use spirit within community should be corrected. The governmental policy of GeNoSeC19 use within society is based on goodwill to utilize this product immediately in detecting Covid-19 more quickly. Vaccination should be optimized. Surakarta Government has entered vaccine stage for adolescent aged 18 years or more per July 2021, following the priority of medical workers, elders, and those in productive age group previously. This attempt is accelerated to reach 70% of population to get Herd Immunity [12].

Government needs innovation to help prevent, detect, and respond quickly to Covid-19 pandemic handling, including vaccine, supplement, screening, diagnosis, medication, and health equipment technology related to Covid-19. Meanwhile, industrial sector should be involved in producing the result of research and health innovation massively.

Vaccination is game changer contributing to bearing the latest ecosystem along pandemic time [13]. The ecosystem intended is the result of consumer behavior currently highly affected by such factors as convenience, user experience, and loyalty to them.

Surakarta City Government in collaboration with Indosat Ooreedo cellular operator launches 5G network operation in Surakarta. Collaboration is an attempt of waking up together through a variety of economic development and digital transformation programs. Those programs are the activities of empowering Micro-, small-, and medium-scale enterprises up to 2023, the sustainable development of youths' digital talent and collaborative support for smart city [14].

Indosat Ooredo support will also be realized into the training for 10 (ten) thousands Micro-, small-, and medium-scale enterprises, the facilitation, training, and building for 2 (two) thousands young content creators, the augmented reality training facilitation for 500 (five hundreds) young blogger coming from Solo city, smart information center in *Balai Kota Surakarta* (the Office of Surakarta City Government) connecting the municipal command to neighborhood associations throughout Surakarta City to present a real time information throughout the city. Cooperation established between the parties is expected to generate the acceleration of economic recovery handling, Covid-19 handling, and public service.

Not only five G (5G) is a problem of speed or latency (the speed of data from the origin to destination), but its use can also be empowered by the community, particularly the villagers. The Covid-19 Management Task Force of Surakarta City stated that some *kelurahans* (villages) have used surveillance camera that can detect the people's activity (e.g. people neither wearing mask nor implementing social distancing, the presence of robot automation, smart village that can connect the villages (kampongs) existing in Surakarta to the service offices, so that the grievance of citizens or others can be connected quickly. In the presence of 5 G network, public service will not be limited to working hours but it can be 24 h. All citizens can access it, because in millennial-digital era everything needs quick connection.

Surakarta City Government supports the citizens' activities during Covid-19 pandemic. Before launching 5G, Surakarta City has committed the procedures of digitizing service in Smart City. All public services are on one grasp, e.g. people do not need to go to Demographic and Civil Registration Office to get Identity Card (Indonesian: Kartu Tanda Penduduk thereafter called KTP) and Family Document (Indonesian: Kartu Keluarga), they just need to download the related application. In the presence of 5G, public service can be provided more quickly, more easily, and more accessibly to all citizens. Surakarta City is the first one in Indonesia to be the location of 5G launching because of its cultural wealth, abundant number of MSME industry, and particularly full support from Surakarta City Government. The 5G launching in Solo is expected to create economic and other potencies in order to be beneficial in economic recovery acceleration. Indosat as the most prominent cellular operator in Surakarta gives the best solution to the member of community to create potency and to accelerate MSME business.

5G technology is beneficial in education, health, automation of anything, and quick information dissemination to wide society. In the presence of Indosat 5G network in Surakarta City, public service can be provided quickly or without delay, and data transfer can run quickly. The momentum of Indosat Ooredoo 5G launching is the result of

sustainable collaboration taking part in the acceleration of Indonesian digital transformation. Surakarta along with other three cities – Jakarta, Surabaya, and Makasar – is expected to encourage the people in Surakarta and other two cities to keep utilizing this fifth-generation cellular phone technology development.

The deployment of 5G network in coexistence with 4G will remain to be the backbone of digital transformation throughout Indonesia. The 5G technology is developed in the area supported by adequate 5G ecosystem like urban areas and super-prioritized tourist destinations. Government makes the 5G launching a jump point toward more digital, integrated, smarter, and advanced Indonesia. Through 5G, digital technology adoption and innovation in various sectors can be improved continuously, for economic, health technology, education technology, electronic government, smart city, and other sector digital developments.

In addition, Surakarta City government supports the development of 5G technology with an adequate spectrum to encourage high-quality sustainable digital resource and talent to support 5G. New innovation to support economic recovery attempt in Surakarta with 5G technology in the form of Indosat Ooredo-Covid-19 Vaccination car operating for 3 months to cater on target vaccination for more than 4 (four) thousands elders and pre-elder in Surakarta City. The Indosat vaccination operation began on June 23, 2021 in RW 7 of Kelurahan Mojosongo. The car is equipped with 5G network to ensure that the process of uploading system onto the Ministry of Health's picker system is conducted quickly and safely. Surakarta City government makes innovation using proactive technique by providing mobile vaccination for the people aged 50 years and older in the vaccination acceleration program held in front of Ngasopuro Market, Banjarsari, Solo. People aged 50 years or older just need to come to the mobile vaccination location to do vaccination by showing electronic identity card of Solo citizens, and they will receive Covid-19 vaccination provided by medical workers.

The chairperson of Surakarta City's Health Service Office in vaccination activity states that vaccination acceleration program makes innovation by approaching the community, despite close distance of health facilities in Surakarta. There are 17 public health centers (Puskesmas), 3 (three) clinics, and 19 hospitals, all of which keep operating to provide vaccination service and are close to the people's residence. However, the result of analysis shows that the vaccination program have very low achievement in some points. Thus, vaccination is held using mobile vaccination method in those points. This car was actually intended to provide IVA test, but it is used for mobile vaccination purpose. The mobile vaccination activity is held in eight different locations in Solo City. In fact, people welcome this activity welcomed enthusiastically. This program is expected to reach broader scope, and thereby creating herd immunity. He said that the mobile vaccination program, according to its capacity, provides service to 100 persons per day, but if people are highly enthusiastic, they will increase the quota by 10%. "If the number of people who want to be vaccinated is larger, they are recommended to go to Puskesmas Stabelan or PKU Hospital of Surakarta, the location of which is closer," he said.

One of Sangkrah citizens who participate in mobile vaccination program explains that he welcomes this program enthusiastically. This program provides service well and people welcome it well by showing Solo e-KTP (Electronic Identity Card). He actually has registered online for the vaccination, but there is no call for it. Knowing the mobile vaccination service, he then registers for it directly.

In preventing and handling Covid-19, Surakarta City government provides first-rate service to the service users to provide service efficiently. The Covid-19 pandemic restricts us from doing mobility and anything, particularly social distancing in communication and face-to-face meeting. Any activity done normally previously should be done in a new normal situation, to which some people need to adapt. Service users, of course, expect new breakthrough that facilitate them to get service. The innovation is the part of service improvement for the community [15].

4 Conclusion

The Covid-19 prevention and handling program in Surakarta needs integrated and collaborative process. These two processes are represented through the synergy of innovation ecosystem with sustainable technology development. The attempt has been taken through an innovation related to Covid-19 detecting test method, GeNoSeC19, to accelerate the process of detecting Covid-19 cases accurately. In addition, the optimization of vaccination is conducted through socialization to grow awareness within the community leading to the birth of a new ecosystem along pandemic time. Surakarta City government supports the optimization of digital communication instrument use through operating the 5G network, doing service digitalization procedure in smart city, and optimizing the mobile vaccination program for people aged 50 years and older to encourage the vaccination acceleration program. Public participation in using various technology innovations represents an ecosystem in line with Surakarta Government policy to prevent Covid-19 pandemic.

References

1. Al-Dossary, M.L., Lotayif, M.S., Aldulaimi, S.H.: The impact of innovation management in achieving sustainable development dimensions during covid-19 circumstances. Journal of Statistics Applications & Probability, 253–269 (2022).
2. *Granstrand, O., Holgersson, M.:* Innovation ecosystems: a conceptual review and a new definition, *Technovation, 90–91 (2020).*
3. Petrova, E.V., Avadhanula, V., Michel, S., Gincoo, K.E., Piedra, P.A., Anandasabapathy, S.: Remote laboratory management: respiratory virus diagnostics, Journal of Visualized Experiments, 146 (2019).
4. Wang, B., Wang, L., Kong, X., Geng, J., Xiao, D., Ma, C., Wang, P.H.: Long-term coexistence of sars-cov-2 with antibody response in covid-19 patients, Journal of Medical Virology 92(9), 1684–1689 (2020).
5. McGuirk, P., Dowling, R., Maalsen, S., Baker, T.: Urban governance innovation and covid-19, Geographical Research 59(2), 188–195 (2021).
6. Stebbins, R.A.: Exploratory research in the social sciences (qualitative research methods). 1st edition. Sage Publications Inc, Thousand Oak, California (2001).
7. Etikan, I., Musa, S.A., Alkassim, R.S.: Comparison of convenience sampling and purposive sampling, American Journal of Theoretical and Applied Statistics, 5(1), 1–4 (2016).
8. Huberman, M., Miles, M.B.: The qualitative researcher's companion. Sage Publications Inc, Thousand Oak, California (2002).
9. Xu, S., Li, Y.: Beware of the second wave of covid-19, The Lancet 395(10233), 1321–1322 (2020).

10. Dai, L., Gao, G.F.: Viral targets for vaccines against covid-19, Nature Reviews Immunology 21(2), 73–82 (2021).
11. Sutomo, S., Sagala, S., Sutomo, B., Liem, W., Al Hamid, H.: Strengthening the strategic and operational response for reducing covid-19 transmission in Indonesia, Kesmas: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal) 16(1), (2021).
12. Randolph, H.E., Barreiro, L.B.: Herd immunity: understanding covid-19, Immunity, 52(5), 737–741 (2020).
13. Hunter, R., Actor, J.: The pathogenesis of post-primary tuberculosis. A game changer for vaccine development, Tuberculosis, 116, S114–S117 (2019).
14. Bartelt, V.L., Urbaczewski, A., Mueller, A.G., Sarker, S.: Enabling collaboration and innovation in Denver's smart city through a living lab: A social capital perspective, European Journal of Information Systems, 29(4), 369–387 (2020).
15. Secundo, G., Gioconda, M., Del Vecchio, P., Gianluca, E., Margherita, A., Valentina, N.: Threat or opportunity? A case study of digital-enabled redesign of entrepreneurship education in the Covid-19 emergency, Technological forecasting and social change, 166 (2021).