The Effectiveness of Smart City Program Through Batu Among Tani Teknologi (BATT) in Batu City, Indonesia

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Abstract. This paper explains the effectiveness of implementing the Batu Among Tani technology (BATT) program in Batu City. BATT itself is one of the leading smart city concepts of the Batu City Government, which aims to protect and develop agricultural quality. BATT is here to solve some of the fundamental problems of agriculture in Batu City, focusing on harvests, brokers' intervention, lack of agricultural information, and several other complaints. This research uses qualitative research with a descriptive approach—sources of data obtained through interviews with relevant stakeholders and observations and documentation. Data is processed through data collection, data reduction, data display, and conclusion drawing. The results showed that the BATT Program, which began running effectively in September 2017, was not optimal. First, the server capacity is limited so that it often experiences interruptions and the benefits of services provided are less than optimal. Second, the lack of participation of farmers as active users of BATT. The factor of the lack of outreach and ongoing assistance is the cause. Third, the program has not effectively delivered price updates and cut off the brokers's intervention chain. However, this program is criticized for converting agricultural land to non-agriculture for the past 5 (five) years in Batu City.
Keywords: BATT; Effectiveness; Farming; Smart City

INTRODUCTION

The globalization of information technology coincides with internet penetration in government activity spaces. Consequently, it requires local governments to make actual adaptations by presenting a public service system that is prime, efficient, and effective based on the internet. The needs of society that are increasingly complex and very demanding of convenience need to be responded to appropriately by the government by integrating technological sophistication in the concept of government. The public is increasingly educated on the need for intensive participation in the management of public services so that they want an interactive, communicative, and transparent government in managing public affairs/services. Based on this, the central and local governments in Indonesia initiated the integration of information technology in government management (Pritama, Hakim, & Shobaruddin, 2015), which is currently known as the smart city

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concept (Herdiana, 2019; Meijer & Rodr, 2015). Smart City is inseparable from efforts to integrate information technology in public services. In practice, the effectiveness of public services is strongly supported by information technology (Jalma et al., 2019; Ulqadri & Arif, 2019)

The presence of the smart city concept, which is now a role model for the city's public service management system in many developed and developing countries, is inseparable from the development of internet technology, which began to stir in the 1960s. Allwinkle & Cruickshank (2011) said that the period marked a drastic change in public services where the public could easily access information on websites owned by the government. Although the information provided is limited to a few things such as land use, urban policies, and planning, all of which are only one-way because there is no interaction between the community and the government, in the next period, it has greatly inspired the birth of the smart city concept with various kinds of improvements. One improvement is the broader penetration of information technology in government, from the administrative area to electronic-based public services (Fahlefi, 2014; Holle, 2011; Nugraha, 2018). Since 1990, many governments and researchers have used the term smart city to frame public service innovations based on information technology (Ramaprasad et al., 2017), whose scope of use continues to grow today. Thanks to the help of the Internet of Things (IoT) smart city management can be done well (Kim et al., 2017), one of which is through the use of big data in public decision making (Abaker et al., 2016),

Smart City is a designation given to a city that combines information and communication technology (ICT) to improve the quality and performance of urban services, especially in solving problems such as pollution, energy, and transportation (Benevolo et al., 2016). Moreover, it can advance the urban economy (Caragliu & Del, 2018). Because it provides positive benefits for meeting public needs, the topic of smart cities has become increasingly popular lately (Nilssen, 2018). There is an integration between digital systems, humans, and the environment (Caird & Hallett, 2019), making it easier for the city government to perform its essential functions: regulation, protection, service, and development. The overarching goal of a smart city is to improve the quality of life for its citizens through smart technology to create an ideal and sustainable city (Yigitcanlar, 2018). Moreover, currently, the use of information technology in smart cities is used as an indicator to measure the success of governance in the world (Govindaraju, 2016).

A city needs to meet several basic requirements to be categorized as a smart city. Carragliu et al in (Nuzir, 2015) mention that these requirements are related to integrating social capital, investment in human resources, and infrastructure of traditional and modern communication systems in economic growth and governance. The intended result is an increase in the community's

economic capacity, which continues to work well by relying on proper natural resource management and governance that takes place in a participatory, accountable, and transparent manner. Furthermore, Cohen (2012) in (UGM PSPPR Team, 2016) states that there are 6 (six) dimensions of a smart city: (1) Smart economy; (2) Smart Mobility; (3) Smart environment; (4) Smart people; (5) Smart living; and (6) Smart governance. The city has the flexibility to apply the dimensions according to the needs and problems. Chamdra & Hariadi (2016) said that each city has its uniqueness and different challenges so that it can be understood if the dimensions of the smart city applied are adjusted to the needs of the city so that it is challenging to cover all dimensions.

The city that has begun to implement the smart city concept to improve the quality of public services and increase public participation in government oversight is Batu City. As one of the urban centers that continue to thrive, the Batu City Government is fully aware of internet diffusion, and public demands for fast and excellent public services urgently need to be realized in several regional policy engineering. Smart City is intended to respond to Batu City's needs for a public service system to realize community welfare. Furthermore, Smart City based on internet applications is expected to make the relationship between the government and the community more intense and harmonious in Batu City, leading to collaborative efforts for project development.

Geographically, Batu City is an agricultural base (strategic commodity) promoted as one of the local advantages. Its potential is extraordinary to get earnest attention from the government. The problem is that the agricultural public services have not worked optimally. It indicates several fundamental problems experienced by farmers, especially related to agricultural information, commodity prices, fertilizers, and the dominance of brokers. This problem has not been resolved because of the lack of attention from the Batu City Government. Farmers have difficulty submitting complaints to the government directly due to time constraints and the readiness of the related bureaucracy.

For this reason, the Batu City government in 2017 launched the Batu Among Tani Teknologi (BATT) program based on the Batu Mayor Regulation Number 79 of 2017, concerning Position, Organizational Structure, Description of Duties and Functions and Work Procedures of the Batu smart city Management Unit. The Batu City smart city program spends a budget of 10 billion, consists of 3 (three) parts with different functions. First, Among Tani is an application aimed at farmers to improve the quality of their agricultural products. This application is helpful for farmers in selling agricultural products to communicate directly with buyers without going through agents and submit complaints such as prices, fertilizers, and others. It is hoped that farmers can be

independent in developing and advancing their agricultural yields. Second, Among Warga, the people of Batu City can directly submit complaints and criticisms of public services by the Batu City government bureaucracy. For example, the problem of damaged roads, traffic jams, and others. Lastly, Among Kota, which deals with information and service systems in Batu City. This application conveys detailed information such as news, tourist attractions, public transportation, community administration, and contact complaints. This application can be downloaded directly by the public through an Android-based Smartphone on the Google PlayStore.

This research looks at the implementation or how adequate the BATT program is in approximately two years (September 2017-December 2019). Smart city studies that focus on efforts to develop and protect agriculture need serious attention from the government. Indonesia, an agrarian region, requires an effective and efficient agricultural public service model through smart city applications. Therefore, Batu City becomes a suitable model to examine how effective the smart city program is. Through the evaluation, problems will be obtained, and practical solutions to be developed elsewhere.

Several previous studies have confirmed the benefits of smart cities in the efficiency and effectiveness of public services. Priskadini April Insani (2017), mentions that smart cities, through the advantages of information technology, have provided convenience for the public in accessing public services, as happened in other cities such as Bogor, Jakarta, Bandung, Surabaya, and Makassar. Abroad, the City of Barcelona, the study of Bakıcı, et al (2013), said that smart cities brought drastic and positive changes in reducing congestion, economic growth, transportation, and city services. With electronic services and open data, Barcelona has succeeded in becoming a smart city reference in the world. In the city of Bandung, through the research of Budi Sutrisno and Idil Akbar(2017), it can be seen that the presence of smart government has succeeded in simplifying the bureaucratic chain so that it is more efficient and able to increase public participation because of the rapid responsiveness of the Bandung City government in following up on input and complaints from the community. In the health aspect, such as Erni Saharuddin's research (2017), found that the implementation of E-Health in Yogyakarta by taking the locus at the Mantrijeron Public Health Center was able to provide benefits for improving the quality of services to patients, especially pregnant women and parents of MCH service users. This application can provide faster service and can provide a more accurate patient database. Further convenience, the number of people served is increasing, and the reporting system is getting better.

This study takes a different perspective from previous studies that look at the performance of smart cities in terms of public services, administration, education, health, security, and

transportation. This study takes a different angle because it places agricultural issues as the focal point in looking at smart city performance. Previously there had been researched from (Diamond, 2019) about BATT in Batu City. This study found the benefits of BATT in the economic aspect to minimize crop failure; expand market share and save time and cost. This study is different because it looks more deeply into the use of BATT in processing community complaints, the level of farmer participation and profits, brokers' intervention, and the accuracy of the data.

The research by contextualizing smart cities in agricultural services is fundamental. First, Batu City is an agrarian/agro-tourism area that continues to try and survive amid the increasingly massive conversion of agricultural land to non-agriculture. Thus, the BATT concept is also an entry point to examine the direction of the arrangement of Batu City in the future. Second, BATT can inspire other agricultural centers to produce public service innovations to prosper farmers amid efforts to achieve national food sovereignty.

METHODS

To expedite and facilitate the collection and analysis of data, the author uses a qualitative descriptive method. This model helps to analyze the effectiveness of the BATT implementation in Batu City. This research model examines objectively and naturally a phenomenon (Sugiyono, 2009). The qualitative approach is to analyze and understand the phenomenon of the implementation of smart cities, a necessity for almost all cities in Indonesia. The qualitative method means understanding a social phenomenon in detail that is still uncommon (Straus, 2003). The usefulness of qualitative methods lies in guiding more complex and in-depth details about a social phenomenon. Qualitative methods are also relevant for obtaining in-depth descriptions and interpretations.

In this study, data collection techniques use in-depth interviews (Depth Interview), documentation techniques, and literacy techniques. Interviews were conducted with several relevant stakeholders, such as the Department of Agriculture and Agricultural Assistance Personnel (TPP), who also doubled as farmers (BATT users). Documentation is obtained through reports. Finally, data analysis is carried out in 3 ways: reduction, display, and interpretation (Salim, 2006) and ends with conclusions.

RESULTS AND DISCUSSION

In its development, the city faces increasingly complex and complicated problems as one of the final destinations of human movement. The city struggles with several fundamental problems: congestion, bureaucratic inefficiency, poverty, crime, and others. It is a consequence of the high

growth of the city that creates massive urbanization flows. It estimates that around 50 percent of the population in Indonesia lives in urban areas. Data from Worldmeters said that in 2019 55.9% of the population in Indonesia lived in cities (Jayani, 2019)

Cities must present public service innovations into the smart concept in responding to the dilemma breakthrough in integrating public service systems in information technology. The aim is to overcome the flow of urbanization and facilitate public services for the community and make the public able to exercise control and supervision (Jim & Chen, 2019). Smart City will make synergies and collaborations easy to identify the problems to be deciphered appropriately.

Batu City is known as a tourism destination based on agriculture (agrotourism). However, most of the population of Batu City work as farmers, up to 21,252 people (BPS Kota Batu, 2018). Therefore, to improve the quality of economic and regional growth, the city of Batu presents Batu Among Tani Teknologi (BATT) - a smart city concept designed to maximize the development of the agricultural sector. With this, it is hoped that Batu City will not lose its primary identity as an agricultural base. Furthermore, BATT is expected to provide a sustainable stimulus for agriculture to synergize with other leading sectors such as tourism, trade, and industry. Batu City is aware that its local resources (agriculture) need to be managed properly and efficiently. BATT is expected to be a breakthrough to develop the agricultural sector in Batu City further. By providing a smart city as one of the supporting infrastructures, it is hoped that there will be a significant increase in agricultural production.

Since officially operating effectively in December 2017, this BATT is designed to support the realization of Batu City's 2018 Vision, "Empowering Villages, A Glorious City, The Realization of Batu City as an International Agro-Tourism Center with Character, Competitive and Prosperous". Agriculture becomes a fundamental aspect that must be considered for its sustainability with program innovations that are right on target. There needs to be an engineering program to protect the sustainability of agriculture in Batu City. The presence of BATT can be a serious effort by the Batu City government in seeking formidable agriculture in Batu City.

Agricultural conditions in Batu City are indeed worrisome, especially from the aspect of land availability. The conversion of agricultural land has been quite massive in the last ten years. In 2015 alone, data from the Department of Agriculture and Forestry (Distanhut) stated that in the period 2003-2013, agricultural land shrank by 11.5% due to residential areas, hotels, restaurants, and other business sectors. This degradation is also closely related to the 70% shrinkage of apple farmland in 2011 (Adifirsta, 2017a). This trend continues to this day. Land conversion haphazardly makes Batu City lose its identity/main character as an agricultural agro-tourism-based city.

Currently, the image of Batu is synonymous with tourism which is unfortunately developed through the conversion of agriculturally productive land. This fact shows that there is disorientation towards the development of Batu City, which is no longer based on local wisdom and potential.

On the other hand, the number of farmers continues to decline. Agricultural census data in 2003 showed the number of farmers in Batu City was 19,326 households. Based on the last 2013 agricultural census, farmers in Batu City decreased by 1,968 to 17,348 (Eko Widianto, 2015). This figure is likely to continue to increase at the direction of Batu City development which has recently been extremely focused on developing tourism, business units, and housing which results in the conversion of productive land functions. This fact is inseparable from the farming profession, which no longer promising as a source of primary economic income. It is also intertwined with the high rate of land conversion. From the same source, it was recorded that the shrinkage of agricultural land was 11.5% from 2003-2013. In 2003, agricultural land was recorded at 2,681 hectares, and in 2013 2,373 hectares were remaining. The agricultural land has been transformed into a residential area, tourism, and the business sector (hotels, restaurants, shops).

The choice of professional change made by farmers is the most reasonable step because the accumulation of income as farmers is not sufficient to support daily living costs. As a result, productive lands that are owned are sold or converted into commercial land. Despite the dilemma, this choice is still made because of the urgency of the necessities of life that the farming profession cannot fully cover. The farmers must bear high production costs but with small profits. There is no balance between expenditure and income, On the other hand, the invasion of imported goods such as apples in Batu City makes farmers unable to compete.

So far, the Batu city government has also received strong criticism from the public because it seems to facilitate economic capitalism by supporting the conversion of agricultural land to business and tourism centers. Economic capitalism demands local governments to simplify investment regulations. The realization is through the Batu City Regional Regulation Number 7 of 2011 concerning the Batu City Spatial Plan. The regulation further justifies the strengthening of economic capitalism by explaining that of the total 2,888.82 Ha of land needed to realize Sustainable Agriculture and Food Land (LP2B), the Batu City government only allocates 1,252.00 Ha. It means that there are 1,636.82 agricultural and food lands in Batu City that are likely to turn into economic (non-productive) areas, especially housing, hotels/villas. Furthermore, data from the East Java Province Environmental Status (SLHD) report in 2015) shows that 51.67 percent of river water quality in Batu City is impoverished. The data confirm the previous SLHD data in the period

2009-2011 there was a significant decrease in the number of springs from 109 to 57 (Adifirsta, 2017b).

The failure portrait above shows the lack of attention from the Batu City Government in maintaining the sustainability of its regional status as an agricultural center. Water conservation measures have not become a top priority. Poor water quality and declining water sources are directly correlated to farmers' lives. Farmers will find it increasingly difficult to get good quality water, which makes agricultural production not optimal.

BATT effectiveness

BATT is the response of the Batu City Government in saving the continuity of agriculture. The main reason for this policy was to create a resilient agricultural area with various facilities provided. With that, farmers will experience an increase in income to be no more changing the profession of farmers and land conversion. BATT is the flagship application of Batu City besides Among Warga and Among Kota. BATT's primary focus is to solve agricultural problems more effectively, efficiently, and serve. Thus, BATT is expected to "talk" and prosper farmers as the majority profession in Batu City.

The BATT application provides an interactive space between farmers, consumers, and the government. This application allows farmers to submit significant complaints related to agriculture, especially regarding pests, fertilizers, prices, and brokers intervention. For example, farmers can submit information/complaints about pests attacking and then be followed up by the Department of Agriculture as the responsible Regional Apparatus Organization (OPD). Farmers can also consult directly on fertilizers with officers who will be sent directly by the Department of Agriculture.

This application also provides an online interaction space between farmers and buyers/consumers to manage their agricultural products directly. Farmers can post their agricultural products directly and provide their prices to slowly break the chain of brokers intervention, which has been one of the main obstacles behind the small economic benefits that farmers get. This BATT application does have exclusive features. There are only three categories of people who can access it: farmers, agricultural extension workers, and potential buyers. All three also have to go through a verification process by entering their email address and phone number. Farmers use this application as sellers, general citizens as buyers, and farmer experts as information providers in farmer discussion forums.

The BATT feature is focused on comprehensive information about Batu City's agricultural details. The goal is to facilitate farmers' production, marketing and become scientific material for

the Batu City Government in taking strategic agricultural policies. The information conveyed starts from planting, care, harvesting, agricultural commodities, farmer profiles, and land area.

In its implementation, BATT needs to get evaluations and important notes. First, Server Quality. The BATT application has a limited capacity because it can only be installed on Android with 2 gigabytes of Ram. Specifications like this are less effective because they can only reach Android users. I-Phone and Android users with capabilities below 2 gigabytes cannot use this application. As a result, users are limited. On the other hand, after Eid 2019, the BATT server is currently experiencing a downturn due to massive data migration. This period resulted in this application being unusable and ultimately unable to provide benefits to farmers. The confession of Mrs. Sri Wahyuni clarified this fact as the Head of the Methods and Information Section of the Agriculture Service (6 August 2019). In his presentation, Sri Wahyuni saw that the current server was not very representative to accommodate and respond to farmers' complaints submitted through BATT. The features are also less attractive and often down, so that the capacity needs to be upgraded.

Second, BATT users. Until now, the BATT application has only been recorded on the Internet installed by 1,648 users. This number is minimal compared to the number of farmers in Batu City based on the latest agricultural census data (BPS Kota Batu, 2018) , which reached up to 21,252 households. Of the total 1648, 40% of the BATT applications used by farmers were installed directly by the Agricultural Assistance Team (TPP) using the TPP officer's email and cellphone number. According to Mr. Aji's confession as TPP officers (9 August 2019), the considerations used to simplify the process verification are because some farmers do not understand the use of email. Furthermore, only 340 active users. Several things cause the small number of BATT users such as the lack of socialization. So far, the socialization carried out in collaboration with the Agriculture Service and the Communication and Information Service (Kominfo) has only focused on agricultural extension and farmer groups and mainstream media and leaflets. There is no specific forum that only focuses on BATT socialization. Primarily through farmer groups, it is not practical because many farmers in Batu City do not join farmer groups. So far, the socialization carried out is exceedingly partial and does not touch all levels of farmers in Batu city because it is only carried out at the sub-district level.

This pattern is insignificant in attracting the interest of farmers. The operation of BATT requires special skills and ongoing assistance, so insufficient if it is only through mainstream media, leaflet, and brief socialization. So far, the BATT application has not been able to be used wisely and adequately. Apart from the lack of socialization, it is also due to operating the BATT

features. Some farmers do not understand the function and purpose of the application and how to use it. The old socialization patterns through village forums proved to be less effective without directly practicing the BATT application. Many farmers have a low-quality understanding of information technology, so it needs unique tactics, for example, through gradual assistance (socialization and practice).

Second, there are still many farmers who do not have an android phone. The average age of farmers is 40 years old, which incidentally is less familiar with Android. They are accustomed to using conventional patterns in submitting complaints or marketing their agricultural products. It is undoubtedly a severe note because it is outside the authority of the Department of Agriculture. Continuous education is needed for farmers to use Android-based BATT applications as soon as possible. Otherwise, it is challenging to expect BATT to solve the fundamental problems of agriculture in Batu City.

Third, the response of officers. The Batu City Agriculture Service formed a special team called Quick Response to Public Opinion (Crop). One of its main tasks is to respond to all information and farmer complaints submitted through the BATT application. A Task Force then assisted the Crop team (Satgas) called the Village Facilitator (TPP). The TPPs are spread throughout the Batu City villages with the provision that each village gets 2 TPPs. However, this number is very unrepresentative considering the vastness of the Batu area, which in some areas such as Bumi Aji, has a reasonably heavy terrain. As a result, 10% of the total complaints are not responded to well.

However, despite being limited in general, TPP's performance in responding to farmer complaints is satisfactory. For example, in Bumi Aji Sub-district until April 2019, 39 complaints were recorded that could be adequately handled. The indicator is that farmers do not report back their complaints, so they are considered positive. Farmers are also satisfied with the services provided by TPP through the testimonies provided (interview with Mr. Aji, 9 August 2019). In the process, every incoming complaint will be verified for 1 x 24 hours by the officer and then followed up. Farmers submit complaints through the BATT application, which is accommodated in advance to the Command Center (Kominfo Service). Then forwarded to the operator (Department of Agriculture) and then to the Task Force and TPP.

In responding to complaints/information submitted by farmers, the Task Force, together with TPP, will make an appointment to meet with farmers. After the complaint is resolved, there will be further communication where the farmer can convey the problem's progress. The problem is that the BATT application does not provide unique features for farmers and users (agriculture service)

to submit follow-up reports. Communication is done conventionally via telephone or WhatsApp application. As a result, it is difficult to monitor the development of agricultural problems. Sometimes officers are also late in responding to information from farmers due to the unsupported BATT system. Several times at the same time, many reports made the system error. As a result, the complaint is not detected because the system is considered closed to cancel. Several residents' complaints were ultimately not recorded and handled because they were not detected in the system.

Fourth, increasing the benefits (profits) of the economy. The BATT application has not been effective in profitable transactions for buying and selling between farmers and consumers. The aim of making transactions efficient and effective (shortening costs and time) has not been entirely successful due to the limitations of the BATT application. Farmers can indeed market their agricultural products through the BATT application. Nevertheless, only to that extent, payment transactions are still carried out outside the application to become impractical. Ideally, this application is like an online buying and selling application such as OLX and Bukalapak, where transactions become one. Both applications also have the advantage of preventing fraud from occurring because there is a guarantee where consumers get their money back when the goods purchased do not arrive, or the quality is not as expected. Unfortunately, the BATT model cannot capture the era's spirit where consumers want safe, guaranteed, and practical goods transactions. The lack of support for the BATT system is due to the rule of law prohibiting applications managed purely by the government other than business entities to manage public money. The government needs to hold or cooperate with one of the BUMDs of Batu City to manage the money.

The next issue is about updating prices. The BATT application is complicated to update prices and their fluctuations in real-time. So far, prices are updated every 4 pm with invalid data. The unintegrated market into BATT makes it challenging to track and determine commodity prices with certainty. As a result, farmers often find it difficult to set prices according to market conditions to become varied and challenging to control. Some farmers sell below the minimum price, and conversely, some farmers sell above the average price. This condition allows speculators whom big players dominate to play and control prices.

Fifth, Farmer resistance, Batu City has three sub-districts, Junrejo, Batu, and Bumi Aji. All three have different characteristics of farmers. Bumi Aji Subdistrict has a relatively high resistance level because it has many prominent and wealthy farmers. These farmers are very critical in seeing changes or community empowerment programs offered by the government. In the case of Bumi Aji, farmers in meeting forums often underestimate the BATT program (interview with Mr. Adi (TTP

officer, as well as a farmer), 9 August 2019). Their question is how much transaction value can be facilitated through this BATT. Of course, it is not easy to match the transaction value they have received so far with the limited application. Their transactions can be worth hundreds of millions either per/week or month. They also have a market share with interconnected networks. For them, the BATT application does not provide benefits, so it does not need to be followed. In contrast to Bumi Aji, in Batu and Junrejo sub-districts, the characteristics of farmers are open and easy to talk to. They are very responsive to government innovation programs. The BATT program is supportive because it provides marketing alternatives and profit-enhancing models through information technology provided by the BATT application.

Sixth, broker intervention. BATT is considered difficult to minimize the intervention of brokers. Apart from the minimal application, 20% of Batu farmers are also brokers. They can freely play the price. Their principle is to seek as much profit as possible so that they work like the mafia. Brokers who have solid financial capital often sell 2-3 times more agricultural products. Farmers then lose the opportunity to get the ideal price because it is difficult to get out of the snares of brokers. The brokers continue to work in various modes. They usually pay farmers directly with a contract system for owning the land. This term is commonly known as contract farm laborers. Farmers work their land with a profit-sharing system. They are both farmers and brokers. Another mode is, for example, farmers plant carrots with a harvest period of 40 days. On the 20th day, the brokers will buy the carrots at a specific price. Thus, farmers' carrots are bought for 20 days which does not have a high selling value because in the next 20 days, when the carrots are ready to be harvested and sold, it is the right of the brokers.

On the other hand, farmers also do not want to speculate further. Farmers prefer to directly hand over to brokers because their crops are bought, even at low prices. Furthermore, farmers are concerned that if they are not immediately sold to brokers who will take their goods, their agricultural products will not sell well in the market. For farmers, if that happens, their losses will be even more significant, especially for many vegetables, for example, which can only last a short time.

From the facts above, the Batu Among Tani Teknologi (BATT) Program implementation has not been as effective as it was intended when it was initiated. Incidents repeat the fundamental mistakes of implementing public policies in many Indonesian cities, specifically socialization, community participation, and bureaucratic readiness. Significant improvements need to be done immediately by conducting intensive collaboration with farmers because community participation, especially policy objects, is the key to the success of public policies. (MF Akbar et al., 2018). This is in line with the findings in (Caird & Hallett, 2019) , who sees that the primary key to the success

of a smart city lies in the policy portfolio resulting from collaboration between relevant stakeholders other than the state, namely the private sector and of course the community (Tran et al., 2019). This participation is the leading spirit in smart city policies where the community can carry out control and participation functions (Krivý, 2016).

The low participation of farmers and socialization is also due to the dominant top-down paradigm in this BATT policy. However, as found in (Angelidou & Angelidou, 2017), the non-implementation of the bottom-up approach in smart cities' planning and implementation process resulted in low community participation due to weak policy ties built due to feelings of unfulfilled needs. It is also confirmed through research by (Fernandez-anez et al., 2017) in Vienna, Austria, which proves that the success of a smart city is determined by a consensus (compromise) between the government, the private sector, and the community. Therefore, the involvement of the three is an effective strategy for developing a smart city because it is based on an integrated and comprehensive understanding of relevant stakeholders regarding the smart city design that will be used.

The results of this study indicate the effectiveness of the implementation of BATT as an operationalization of Smart City in Batu City. In contrast to the results of research conducted by April Insani (2017), Bakıcı, et al (2013), Budi Sutrisno and Idil Akbar (2017) and Erni Saharuddin (2017), who found the benefits of smart city programs because of their effective implementation. Government capacity, capability, and community participation are the keys to all these programs, which have not been seen in the results of this study.

CONCLUSIONS

Since BATT was implemented in 2017 until December 2019, it has not been performed correctly. The main problem relates to socialization, community participation, and readiness of the bureaucracy. It shows a need for significant comprehensive improvements so that BAT, which functions to improve the welfare of farmers, can be realized.

Farmers, especially those who are resistant to this program, need to be approached persuasively – introducing in detail the economic benefits obtained. To provide more comprehensive benefits simultaneously, the government needs to prevent the conversion of agricultural land to non-agriculture, which has become increasingly intense in recent times. If there is no special protection through regulations and vigorous enforcement, even though the BATT program has been running well, the sustainability of the agricultural sector in Batu City will still be threatened. It means that the BATT program will run effectively and is also very much determined

by the availability of land. In this context, the government needs to ensure the stability of the amount of agricultural land, increasing the zoning of agricultural land in the Spatial and Regional Planning (RTRW) of Batu City.

Regarding socialization, the Batu City government needs to maximize social media. The reach and speed of social media, if appropriately managed, will make it easier for the government to deliver intelligent city policies (Molinillo et al., 2019). Therefore, socialization through the website, Instagram, Twitter, and WhatsApp groups can be maximized. Because the information is complex, the quality of the message conveyed needs to be made simple to make it more exciting and understandable. Massive socialization will help mainstream the urgency of BATT in the public sphere so that public awareness, farmers, can be awakened. In addition, direct socialization still needs to be improved, accompanied by assistance so that the transformation of ideas and skills is not interrupted. To make this happen, the relevant bureaucratic human resources (Agriculture Department) need to be added and their capacity continuously improved.

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