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Evaluation of Surabaya Smart City Implementation in Realizing Smart Government, Smart Economy, Smart Environment, Smart Living, Smart People, and Smart Mobility

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ABSTRACT
The Surabaya government policy which is called a "smart city" is a manifestation of the implementation of the E-government program in Surabaya. Regional innovation aims to improve the performance of local governments in the digital era. The target of these regional innovations is directed at accelerating the realization of welfare in society by improving the quality of public services. The purpose of this study is to evaluate the implementation of smart city policies in Surabaya which have been realized in the implementation of Smart Government, Smart Economy, Smart Environment, Smart Living, Smart People, and Smart Mobility. Then, the application of smart city can be seen in the implementation of policies with 4 factors that influence implementation, namely natural resource factors, communication, attitudes and bureaucratic structures. The method used in this research is descriptive qualitative using a literature study approach. The indicators that determine the success of the Surabaya City Government policy in realizing a smart city will also be studied to determine the success rate of the smart city policy in Surabaya by referring to the policy evaluation criteria or indicators, namely: 1) Effectiveness; 2) Adequacy; 3) Equity; 4) Responsiveness; 5) Accuracy in assessing the driving and inhibiting factors of program implementation.

Keywords: *Evaluation, Implementation, Public Policy, Smart City.*

1. INTRODUCTION

The increasing number of residents in big cities such as Surabaya, East Java is certainly an important issue for the government to be able to provide fast and precise services, as well as ease of fulfillment of services for citizens, thus causing the government to change the concept of government in its city to become a Smart city or Smart City.

Smart city is a vision and hope of a city in maximizing its human and technology resources. So that there will be a lot of convenience and efficiency that will be obtained by the community. Smart city is a concept that emphasizes the existence of a smart city structure that can play a role in making it easier for people to obtain information quickly and accurately [1].

A study result was also disclosed by reference [2], that several cities that have implemented the concept of a smart city can further reduce the problems that exist in the city. Therefore, we can conclude that the implementation of a smart city is very important for a big city like Surabaya to manage human resources and technology so that it can be a solution to the problems faced by modern society today.

The government policy in the formation of smart cities in Indonesia is a manifestation of the implementation of the e-government program. This is related to the issuance of Presidential Instruction No. 3 of 2003 concerning the National Strategic Policy for e-government development [3]. This policy is practical in nature, in which it contains the necessary steps in accordance with the duties, functions, and authorities of each in implementing national e-government

development guided by national policies and strategies. In addition, it is also supported by the issuance of Government Regulation no. 38 of 2017 concerning Regional Innovation [3]. The regulation explains that this regional innovation aims to improve the performance of local governments. The target of these regional innovations must be directed to accelerate the achievement of social welfare by improving the quality of public services.

Currently, Surabaya is included in the three cities in Indonesia which are smart cities, along with Jakarta and Bandung. Surabaya itself has received the Smart City Awards in 2011. The award was given to Surabaya, because it is considered that the city has been able to carry out the principles of a smart city with supporting indicators in the form of smart governance, smart environment, and smart living.

Even though big cities in Indonesia have quite a lot in common, the application of the Smart City concept has a different background. The difference in the potential of each region will affect the concept of the smart city that will be built, be it differences in factors of natural resources and human resources. Therefore, it is necessary to conduct an in-depth evaluation of policy implementation so that its implementation can run smoothly and successfully.

Why this policy considered important for evaluation? Based on the results of several literature studies, it was found that the implementation of a smart city would greatly assist the performance of the government to meet all the needs of society for public services. Do not forget that all parties take part in the success of a policy implementation, such as from the central and local governments as service providers, private sector participation, to the community as service recipients. So this research is intended to determine the level of success of Surabaya in implementing smart city. Meanwhile, according to reference [4], with technology, it will make it easier for a city to build a more effective and sustainable planning.

2. THEORY OF BASED

2.1. Public Policy Evaluation

Policy is an aspect of action that aims to be validated by a number of actors in facing a problem, so that the concept of policy is very appropriate because it focuses interests based on what is actually being implemented, not about what is proposed or intended for the government. Policy implementation will not take place until the goals or objectives are set by the policy decision maker. Implementation is a process of activities carried out by various actors so that in the end it will get results that are in accordance with the aims or objectives of the policy itself. The factors that can influence implementation according to reference [5], are as follows: (1) Communication, where implementation can be carried out effectively if the measures and objectives of the policy can be understood by individuals, such as, who is responsible for the success of the policy objectives, the clarity of the objectives and measures of the policy needs to be communicated appropriately by the implementer, and uniformity or consistency of the basic objectives and measures need to be communicated so that later the implementer can accurately understand the objectives and measures of the policy, (2) Resources, no matter how consistent and clear the program implementation is, as well as how accurate the communication is sent, if the executor who is in charge of the program lacks the resources to carry out his duties, then the component of resources such as the number of staff needs to be considered, then the expertise of the executor regarding information. relevant and adequate to be able to implement policies and ensure that programs can be better directed, as well as the existence of supporting facilities used to carry out program activities such as facilities and infrastructure, (3) Disposition or attitude, one of the factors that can affect the effectiveness of policy implementation is the attitude of the implementer, if the implementer agree with parts of the policy content, they will carry it out happily but if it is different from policy makers, the implementation process will experience many obstacles. There are three forms of implementer response to policies, namely awareness of the implementer, implementation instructions to respond to programs for acceptance or rejection, and intensity of response. The existence of support from the leadership greatly influences the implementation of the program in order to achieve it efficiently and effectively, (4) Bureaucratic Structure, regarding the implementing agency of a policy, cannot be separated from the bureaucratic structure. The bureaucratic structure is the characteristic, pattern and norm of relationship, both potential and real, with what it has in carrying out policies.

According to reference, policy evaluation is an objective, systematic, and empirical examination of the influence of public policies and programs on targets in relation to the objectives to be achieved [6]. According to reference the term evaluation has an interrelated meaning, each of which refers to the application of several value scales to the results of policies and programs [7]. From these two definitions, evaluation can be understood as giving value to policy outcomes. Thus, by evaluating the benefits, a policy will be found. Prof. approach. Reference [8], states that public policy evaluation has three scopes of understanding, namely evaluation of policy formulation, evaluation of policy implementation, and evaluation of policy environment. These three components determine whether the policy will be successful and beneficial or not.

Based on this statement, it can be seen that the evaluation of public policies is concerned not only with

their implementation, but with the formulation, implementation and environment of public policies, along with the explanation, are still in the same source [8]: (a) Evaluation of Public Policy Formulation/ Formulation In general, evaluation of public policy formulation with regard to whether public policy formulation has been implemented, (1) Using an approach that is appropriate to the problem to be solved because every public problem requires a different model of public policy formulation, (2) Addressing the core problem because every problem solving must actually lead to the core of the problem, (3) Following procedures that are accepted simultaneously, both in the framework of validity and in the framework of equality and integration of formulation steps, (4) Utilizing existing resources optimally, both in the form of time resources, funds, human resources, and strategic environmental conditions. (b) Evaluation of Public Policy Implementation. The evaluation of public policy implementation is divided into three according to the timing of the evaluation, namely before it is implemented, when it is implemented, and after it is implemented: (1) Evaluation during implementation is usually called process evaluation, (2) Evaluation after policy is also called policy consequence evaluation (output), or evaluation of policy impact / influence (outcome), or assumptive evaluation. (c) Evaluation of the Public Policy Environment In principle, the evaluation of the public policy environment provides a clearer description of how the policy context is formulated and implemented. Most of these efforts fall on the descriptive side with the aim of building a common understanding to build general wisdom in order to understand the performance of public policies.

Types of Policy Evaluation James Anderson in reference [9] divide policy evaluation into three types. Each type of evaluation introduced is based on the evaluators' understanding of the evaluation, namely: (1) The first type, policy evaluation is understood as a functional activity. If policy evaluation is seen as an activity that is as important as the policy itself. Policy makers and administrators always make judgments about the benefits or impacts of policies, programs, and projects. Evaluations like this will encourage conflict because different evaluators will use different criteria so that the conclusions they get are different despite the benefits of the same policy, (2) The second type is a type of evaluation that focuses on the workings of certain policies or programs. This type of evaluation will talk more about honesty or efficiency in implementing the program. However, evaluation using this type using this type has a weakness, namely its tendency to produce little information about the impact of a program on society, (3) The third type is the type of systematic policy evaluation. This evaluation looks objectively at the policy programs implemented to measure their impact on society and sees the extent to which these stated goals have been achieved. Systematized evaluation is directed to see the impact of a policy based on the extent to which the policy responds to community needs or problems. The consequence provided by systematic evaluation is that this valuation will provide an idea of the impact of the policy and recommend policy changes based on the actual facts on policy makers and the general public.

Policy success or failure is judged by the indicators that have been developed. William Dunn developed five indicators or evaluation criteria including the following [10]: (1) Effectiveness: have the desired results been achieved? (2) Adequacy: To what extent can the results achieved solve the problem? (3) Equity: Are costs and benefits evenly distributed among different groups of people? (4) Responsiveness: Are costs and benefits evenly distributed among different groups of people? (5) Accuracy: Was the result useful?

This study evaluates the implementation process of smart city policies in the city of Surabaya. Is the application of smart city in Surabaya in accordance with the concept of smart city or not.

2.2. Smart City

Some experts define the meaning of smart city as follows: Smart City is a broad, integrated approach in increasing the efficiency of a city operation, improving the quality of life of its inhabitants, and growing the regional economy. Cohen further defined Smart City by weighting environmental aspects to be: Smart City uses ICT intelligently and efficiently uses a variety of resources, resulting in cost and energy savings, improving services and quality of life, and reducing environmental footprint - all supporting innovation and the economy, environmentally friendly [11] Meanwhile, Smart City is also defined as a city that is able to use human resources, social capital, and modern telecommunication infrastructure to realize sustainable economic growth and high quality of life, with wise resource management through government based on community participation [12] IBM (International Business Machines Corporation) divides smart city into six types. The six types of smart city division according to IBM are [13]: (1) Smart Economy, the implementation and measurement of smart city in the smart economy aspect, there are 2 parts, namely the ability to compete and the innovation mechanism, (2) Smart People, economic capital, social capital and human capital are the capital that must be fulfilled in development. Smart people are arguably the core goals that should be met in creating a smart city, (3) Smart Governance, Smart governance has three criteria, namely public participation in deciding whether online or in person, developing the quantity and quality of public services and openness by the government, (4) Smart Mobility, Smart mobility includes mobility and smart transportation mechanisms, in the future it is desirable that public services be realized

for mobility and transportation, (5) Smart Environment, Smart environment has characteristics that encompass this aspect, namely the sustainability mechanism and how to manage its resources well, (6) Smart Living, in smart living there are criteria for three kinds of aspects to be fulfilled, namely the preparation of infrastructure, facilities and information.

The concept of smart city development does not only discuss the use of information and communication technology (ICT) [14]. Rather, it emphasizes the problems that are the main problems in the city [15]. A city can also be said to be a smart city if it has the following criteria [14]: (1) First, a city that has a good planning organization in the field of economy, human resources, governance, mobility, environment and life which is built based on a harmonious combination that is parallel to one another, (2) Second, cities that are able to be well connected in terms of infrastructure including roads, bridges, railways, airports, ports, communications, fulfillment of electricity and other fuels, and can better optimize their resources, (3) Third, a city that is able to collaborate between physical infrastructure, information technology infrastructure, social infrastructure, and business infrastructure that can intelligently collect within the city. So that existing activities are connected to each other., (4) Fourth, a city that can make efficient, sustainable, fair and livable use of city life, (5) Fifth, a city that has implemented a minimum of smart computing technology including city administration, education, health, public safety, smarter and interconnected transportation.

3. RESEARCH METHODOLOGY

This research was conducted using a qualitative descriptive method with a literature study approach or literature study, by collecting data using secondary data through literature review. Qualitative research is research that uses empirical data in the problem-solving process, namely data that is described descriptively or data that is not in the form of numbers. Data collection is based on literature study, namely the approach carried out by the method of collecting library data, reading and taking notes, and processing material from research. The references used are references from journals, books, research report articles, and websites from the internet, so that they can produce output from several references that are relevant to the formulation of the problem. This is done to examine more deeply the previous studies and will produce broader conclusions on the existing merger. While data analysis uses content analysis, which is to examine or examine more deeply, critically to the data obtained by the author, namely analyzing and examining critically and deeply about how to evaluate the implementation of smart cities in the city of Surabaya and conclude and provide recommendations or suggestions [16].

4. RESULT

Smart City-based development now becomes a trend of urban development in the world. It also has become necessity that must be adapted by regions, cities and districts throughout Indonesia. New challenges and problems in urban planning require a comprehensive approach that involves cross-sectors that including economic, social, and government with the development of urban society [17]. But in practice, implementing Smart City in local governments requires careful planning because this concept emphasizes the importance of innovation for the typical problems of each city or district by utilizing the latest and newest technology.

The Ministry of Communications and Information Technology in collaboration with other ministries in 2017, initiated the Movement towards 100 Smart Cities or encourage the creation of 100 smart cities in 2019 in order to develop Smart City in Indonesia [18]. In realizing a smart city the implementer of this policy is the Surabaya City government led by the mayor, namely Mrs. Tri Rismaharini and all the agencies in the Surabaya City government are also involved and participate in implementing success in realizing a smart city Surabaya. Because the indicators covering smart city consist of: smart government, smart economy, smart environment, smart living, smart people, and smart mobility. So to create a smart city Surabaya all stakeholders in the Surabaya City Government must participate and mutually succeed in this policy. Because in the direction of a smart city the role of services based on information and communication technology is needed. The importance of developing human resources and technology owned by the government so that it can be created into smart human resources and technology. In this case, the Surabaya City government makes the Communication and Information Office in collaboration with all agencies in the city of Surabaya as the Policy Executor [2].

4.1. Communication in Policy Implementation

Implementation can be carried out effectively if the policy objectives can be understood by the decision makers and also the implementer who are responsible for the success of policy objectives. In the other hand, clarity of the objectives and measures of the policy needs to be communicated appropriately by the implementer and also the objectives of the policy. In this case the City of Surabaya has carried out the Socialization of Policy Implementation which aims to achieve policy objectives. The city of Surabaya has socialized the implementation of the smart city program by creating a media center program. The media center program aims to provide information to the public and increase community participation in providing input to the government regarding problems that exist in the community, with the

aim of accelerating and facilitating government performance in solving problems that exist in society [17].

Every year, the input form in the media center is also different, it can be said that the people of Surabaya have used media center services to find out a variety of information they need. This media center is not only trusted to report problems but also as a place where the community Surabaya City gets the information [17].

4.1.1. Resources in Policy Implementation

Surabaya City Government Resources in realizing a Smart City Human Resources (HR) in the Surabaya City government play an important role in realizing Surabaya smart city, this is because the one who acts as the originator and implementer of the smart image is the Surabaya City government itself. One of the things done by the Surabaya City government to monitor and improve the quality of its employees' human resources is by providing an e-controlling facility program, this program is intended to physically find out the program for employee performance each month, whether it is in accordance with the plan or not.

Every month there is always an evaluation of the performance of the Surabaya city government human resources in implementing the smart city, which can be seen from the e-performance of each civil servant (PNS) so that the performance of civil servants can be compared between planning and realization at the end of each year. And the provision of incentives in the form of government employee allowances (TPP) and performance fees for civil servants is also adjusted to the performance they carry out and what they fill every day. Thus, each employee has their own burden and the performance of one service can be compared with other agencies [2].

To realize a Surabaya smart city, the Surabaya City government also provides HR improvement programs for the community as implementer, this is carried out by the Ministry of Communication and Information, namely the implementation of the Broadband Learning Center (BLC) program. The Broadband Learning Center (BLC) program is an internet training program, where The Surabaya City Government through the Communication and Information Service (Diskominfo) in making this policy is not playing games because the Surabaya City Government considers that there is still a digital divide in the City of Surabaya, this can be seen from the internet hot spot point facilities that have been provided by the Office of Communication and Information which are spread in several areas. points throughout the city of Surabaya. Where there are still around 2 million internet users, even though the total population of Surabaya City reaches 2.9 million, this has initiated the Surabaya City Government to make an internet training program policy for the people of Surabaya with the Broadband Learning Center (BLC) which is an internet literacy program. by providing learning materials about Information and Communication Technology or ICT for free and obtaining certificates. The main purpose of implementing the BLC program is to make the people of Surabaya not stuttering the technology of the digital era as it is today, the Surabaya City Government is very aware that the facilities provided to implement a smart city in the City of Surabaya will not be successful and will be useless if it is not accompanied by people who are literate about the use of technology. Regarding the BLC program, the Surabaya City Government has collaborated with PT Telkom Regional Division V East Java, this BLC program is an effort to accelerate towards the city of Surabaya cyber city or a modern city based on information technology that has been widely applied in big cities around the world. There are 23 BLC points spread across the city of Surabaya where at each point there are 2 teaching instructors recruited by the Ministry of Communication and Information from S1 or D4 graduates whose educational backgrounds are from majors in the same field as computers and informatics [19].

4.2. Disposition or Attitude in Policy Implementation

The city government of Surabaya has a strong commitment in implementing smart city in the city of Surabaya. One form of the commitment of the Mayor of Surabaya, Tri Rismaharini, towards a smart city in the city of Surabaya is based on Presidential Decree No. 81/2010 concerning the Grand Design of Bureaucratic Reform so that world-class government is expected and will be achieved in the year 2025 [18]. In supporting and realizing a smart city in Surabaya, Mrs. Tri Rismaharini issued Mayor Regulation Number 5 of 2013 concerning Guidelines for the Use of Information and Communication Technology in the Implementation of Local Government, Mayor Regulation Number 60 of 2013 concerning Second Amendment to Amendments to Regulation of the Mayor of Surabaya Number 83 of 2012 concerning Technical Guidelines for Giving Performance Money in Direct Expenditures, Mayor Regulation Number 89 of 2011 concerning Procedures for Electronic Disbursement of Surabaya City Regional Budget Funds, Regulation W alikota Number 79 of 2014 concerning Amendments to the Amendment to Regulation of the Mayor of Surabaya Number 89 of 2013 concerning Procedures for Electronic Disbursement of Surabaya City Regional Budget Funds and Mayor Regulation Number 28 of 2013 concerning Electronic Licensing and Non-Licensing Services in the City of Surabaya [2].

The concept of a smart city in Surabaya is carried out by applying the e-government concept which emphasizes

the Management of Regional Development in terms of city planning, namely e-project, e-budgeting, e-controlling, e-procurement, e-delivery, and e-performance [2]. Then, e-government is a system that can be used for CPNS recruitment, measuring employee performance, promotion, periodic salaries, and transfers to retirement. It is hoped that by building a smart city the process will quickly become easy and can be monitored. If in the past planning used books or hard copy, now planning is done by e-budgeting. By taking an example, if there is a need for costs to carry out technical supervision in the official planning system and one package requires 6 people, then the figure will come out. And in the application there is also a standard hourly overtime pay, travel transport fees, and between one unit and another have the same price. Likewise, with the cost of official travel, which standards have been determined by each ceiling and budget ceiling stipulations. Then, after the agency submits it to e-budgeting, then corrections are made and if when corrected the budget allocation exceeds the predetermined ceiling, they will not be able to use the allocation of expenditure costs for their office. The Surabaya City Government also provides Emergency Services 112 Surabaya Command Center, where this service is used as a complaint service center provided by the City Government for the people of Surabaya through telephone number 112.

4.3. Bureaucratic Structure in Policy Implementation

In terms of bureaucratic structure, the implementation and implementation of this smart city policy was directly carried out by the Mayor of Surabaya as a Performance Evaluator of the executors. Implementing the policy involves all SKPD or Dinas in Surabaya city because all offices in the city of Surabaya will be involved in e-government services. As the main executor, the Mayor appointed the Surabaya City Communication and Information Agency.

4.4. Evaluation of Policy Implementation

The efforts made by the city government of Surabaya to create a Surabaya Smart City bear fruit, because in 2011 Surabaya was awarded an award and was awarded the Smart City award at the 2011 Smart City Award. Which is the Smart City Award is an award for a city that has successfully built an information technology system. and integrated communication so as to improve the quality of public services to the community. The awards given are in four categories, namely smart governance, smart economy, smart living, and smart environment. Which is the assessment of smart governance is based on public participation or participation in decision making, public services, and government transparency; thus the implementation of smart city policy in the city of Surabaya can be said to be a successful and effective implementation.

The large number of residents in the city of Surabaya, of course, does not discourage the city of Surabaya in implementing a smart city. So that in 2015 the City of Surabaya got the Indonesian Smart City Index (IKCI) score with the highest score for a city with a large population of more than 1 million. This certainly makes the Smart City Policy an Adequacy that must be implemented and its success always maintained.

The biggest challenge faced by the Surabaya City Government in implementing smart city both internally (government) and externally (society) lies in Human Resources (HR), maybe the use of information technology for the younger generation today is very easy but it is different from the previous generation [2]. This is a challenge in itself for the Surabaya City Government to not only prepare the readiness of government employees but also to prepare the readiness of all Surabaya City people in order to apply the smart city concept based on information and communication technology in the city of Surabaya. The success of the city of Surabaya in this case certainly provides responsiveness for technology literate citizens and modernity citizens, for all the easy access and services that the people of Surabaya can get.

Was the result achieved useful? Of course it is very useful so that the people of Surabaya get fast and easy service. However, there are things that must be fulfilled by the city of Surabaya before becoming a city labeled smart city, where the city of Surabaya in the smart governance category has excelled in terms of public involvement in decision making, citizen participation, and the licensing administration system, population administration system, monitoring system. public area. In the Smart Living category, namely because in Surabaya there is an online new student admission system, online school SIM, free Wi-Fi facilities in public areas, tourism portals and CCTV traffic monitoring. Meanwhile, in the smart environment category itself was successfully obtained by the City of Surabaya because in Surabaya there is a disaster early warning system, an IT-based waste management system, and an IT-based water monitoring system. However, Surabaya still failed to get the smart economy title in 2015 because the title of entrepreneurship and the labor market still did not meet the standard.

In Surabaya there are 2 areas that have attracted attention in developing the urban concept through Smart City [18]. So in this study it is said that, Margo Rukun Village and also Kampung Lawas have a significant contribution in village development towards Smart City participation. Why is that, the data states that the people in Margo Rukun Village are at least capable of managing and contributing in the economic field, namely, creating a technology-aware environment, using the internet,

providing facilities and infrastructure, education level, several activities and youth associations to build villages, and village communities. Margo Rukun is also active in service applications provided by the government. So that there will be an interaction, relationship, or reciprocity between the government and the community.

Regarding smart people in the city of Surabaya, based on the research produced, he said that the qualifications of the measurable model indicators in the city of Surabaya, related to smart people, some other sub-models influence each other, The sub-model consists of [20]: Level of Qualification, Participation in Public Life, Cosmopolitan Open-Mindedness, Perception Model of Getting a New Job, and Creativity. So based on this, it can be concluded that the model in the simulation has several variables that can help increase the level of Smart People in the city of Surabaya, with several things such as university certification, life skills programs, scholarships, public services, transparency, and entrepreneur empowerment in the city government of Surabaya.

5. CONCLUSION

The Surabaya city government in realizing Surabaya Smart City is by implementing the concept of e-government which includes Electronic Innovation for Regional Development and Services to the Community. To see how the implementation of the Surabaya City Government Policy in realizing a Smart City, indicators in determining the policies of the Surabaya city government can be studied based on Edward III's implementation theory and through 4 studies of the implementation concept of Edward III, the Surabaya City Government in carrying out policy implementation has been arguably successful, success The implementation of the Surabaya City Government policy can be proven by the Surabaya City Government through the efforts made in realizing Smart Government, Smart Economy, Smart Environment, Smart Living, Smart People, and Smart Mobility. And the efforts made by the Surabaya City Government to create a Surabaya Smart City have had good results, because in 2011 Surabaya was awarded an award and was awarded the Smart City title at the Smart City Award 2011. Which is the Smart City Award is an award for a city that has successfully built an information technology system. and integrated communication so as to improve the quality of public services to the community. The awards were given in four categories, namely Smart Governance, Smart Economy, Smart Living, and Smart Environment. In the four categories that were contested, the City of Surabaya won three categories namely Smart Governance, Smart Living and Smart Environment which managed to beat 60 other cities or districts. of all 33 provinces in Indonesia. Then Surabaya in 2015 also received an award as the Indonesian Smart City Index (IKCI) by obtaining the highest score for a city with a large population of more than 1 million. So that the success of implementing a smart city in the city of Surabaya is very important to improve so that the city of Surabaya can become a city that is used as an example of its success in implementing smart cities by various regencies or cities in Indonesia which are still starting to implement it.

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