Budapest International Research and Critics Institute-Journal (BIRCI-Journal)
Humanities and Social Sciences
ISSN 2615-3076 Online)
ISSN 2615-1715 (Print)
www.bircu-journal.com/index.php/birci
Budapest Institute

Public Information Management Sustainability Priority Model With A Socio-Technical Approach and Analytic Network Process (ANP) Methods (Case Study of Salatiga City PPID)

Retnowati[1], Sariyun Naja Anwar[2], Purwatiningtyas[3]
[1,2,3]*Faculty of Vocational Studies, Stikubank University, Indonesia*
retnowati@edu.unisbank.ac.id, Sariyunna@edu.unisbank.ac.id, Purwati@edu.unisbank.ac.id

Abstract

Public information disclosure (KIP) has been mandated by law since 2008 in Indonesia, which indicates that every citizen has the right to information. This has also been done by countries that implement open government data. The implementation of KIP has not met expectations, as evidenced by the fact that not all districts/cities have information management units, there are still provinces with uninformative and uninformative status, and information disputes are still high. Obstacles such as the change of leader, the mechanism of knowledge that is shared between staff in each management unit has not been evenly distributed, also the utilization of information technology has not been optimized. The potential for the sustainability of public information management could be threatened with discontinuation. In fact, information that is easy, cheap and fast with optimal management is needed by the community. The solution offered in this research is a socio-technical approach, in which aspects of infostructure, infoculture and infrastructure. In order to find the indicators needed for each socio-technical aspect, the soft systems methodology was used, so that a conceptual model of the sustainability of public information management was built. Based on the criteria and sub-criteria indicators found, the Analytic Network Process (ANP) is used to determine the main objective of the need for sustainable management of public information. The results show that the objectives of sustainable information management are based on four priorities. The results of data processing show that from the socio-technical approach the highest priority is technology, followed by the quality of human resources and organizational culture, followed by infrastructure and information management processes. Meanwhile, the priority goals for the sustainability of public information management are firstly that information is available accurately and on time, followed by maintaining the right to public information being fulfilled, increasing public trust in the government and improving the quality of state apparatus performance.

Keywords
public information disclosure; soft systems methodology; Analytic Network Process (ANP)

I. Introduction

The right to information is the right of everyone, protected by law both nationally (PP No. 62 of 2010, 2010; UU KIP No. 14 of 2008, 2008) and internationally (DPADM UN-DESA, 2013; Obama, 2009). In Indonesia, information disclosure was born since the reform era with the Law on Public Information Disclosure no. 14 of 2008 (UU KIP). The UU KIP requires Public Bodies to form an Information Management and Documentation Officer (PPID). PPID is the administrator who provides information and documents to the public. The main objective of PPID is to guarantee access to public information in order to

achieve transparent, participatory, accountable, fair, effective and efficient governance (Blasio & Selva, 2016; Februananingsih, 2012; Haris, 2015; Helsinki, 2011; Mcnutt et al., 2016; Nam & Pardo, 2011; OECD, Rotterdam, 2009; Rotberg, 2014; Sheng, 2008). Public information governance by PPID must be maintained, so sustainability is an important key (Isa et al., 2019). In addition, information governance is part of the Information System that must be maintained so that the organization operates optimally (Esteves et al., 2012; Standing & Jackson, 2007). The management is done electronically, so that efforts to open data and information are carried out through the concept of open data (Van Schalkwyk et al., 2015), in order to make it easier for the public to access data and use it for various purposes (Axelsson et al., 2019; Jetzek et al, 2014; Osman et al., 2019; Pereira et al., 2017).

The application of KIP by PPID in Indonesia has not met the expectations of the UU KIP. First, 26 district/city governments that have not established PPIDs in 2019 (Informatics Division of Banjar City Diskominfo, 2019). Second, from 34 provinces, there are 5 provinces that are less informative and 10 provinces that are not informative (RI Central Information Commission, 2019). This means that the percentage of PPID that has not met the criteria is 44%. Third, the register of information disputes in 2018 was 1280 cases, and 69% resolved through the dispute cessation mechanism in 2019 (RI Central Information Commission, 2019). Fourth, in 2019, 70% of dispute submissions were done manually rather than electronically (RI Central Information Commission, 2019). In addition, the results of research by several researchers in Indonesia, highlight the implementation of KIP and explain the obstacles faced (Lendong, 2018; Pratikno et al., 2012; Zulaikha & Paribrata, 2017). The problems found included the commitment of the leaders (Marietha et al., 2017; Susanto, 2011). Commitment constraints are caused by leadership changes that are not followed up (Khusna & Sugiharto, 2018; Zulaikha & Paribrata, 2017). Previously owned knowledge & skills were not shared with their successors (O.P, 2017) so managers had to learn again (Harimurti, 2016). The implementation technical constraints faced by several regions and institutions (Erdianto et al., 2012; Marietha et al., 2017; Pratikno et al., 2012), namely information technology that must be optimized (Harimurti, 2016; Mubarok et al., 2015; Nupikso, 2015).

Several problems were identified in the early stages of this observation, indicating that there are problems in managing knowledge from social and technical factors. Social factors are related to culture, behavior, quality of team work and the complexity of the knowledge that PPID must create and manage. Meanwhile, technical factors related to information technology support in the form of infrastructure that helps PPID create the best social conditions, so that the mandate of UU KIP no. 14 2018 can be achieved. From several studies it is known that the creation and management of knowledge that is supported by social and technical factors can be done with a socio technical systems (STS) approach (Bostrom & Heinen, 2014; Geels, 2019; Islam, 2008).

This research focuses on efforts to maintain and improve the management of KIP, requires a thorough analysis of the reality that occurs and captures the wishes of KIP managers so that the organization's expectations can be realized. Taking into account the research on KIP that has been carried out in Indonesia, where this research has not discussed the management of KIP which has the potential to stop, this is a gap in this research. KIP management is a theme that deserves further research, in order to create a conceptual model for sustainable management of information disclosure for Information and Document Management Officers (PPID) in Indonesia. PPID which was formed in the form of a centralized or decentralized structure, shows the diversity of perspectives and knowledge possessed by stakeholders with all the consequences of conflicts that occur.

Their diverse perspectives and knowledge need to be managed with one of the socio-technical systems approach (Socio Technical Systems/STS). STS is a system that focuses on the reciprocal relationship between actors (humans) and the technology used and how social interactions occur in the workplace, to complete assigned tasks in accordance with standard operating procedures. The STS approach is concerned with utilizing human and technical aspects based on the organizational structure that binds them, to achieve holistic optimization (Davis et al., 2014; Hong et al., 2016; Lyytinen & Newman, 2008; Sadok & Welch, 2017; Smith et al. ., 2005), including the management of information in the field of public information disclosure by the government (OGD) (Cruz & Lee, 2016; Larquemin et al., 2016).

The implementation of public information disclosure that has been running for a decade must be continued by strengthening the management and knowledge creation of its managers, through synergies between managers, technology and willingness to share tasks and knowledge, as stated in the STS theory. PPID as a managing official must be able to organize PPID Assistant from the perspective of organizational governance in the perspective of sociotechnical dynamics (Ramadhan & Putri, 2018), where sociotechnical dynamics states that technology and humans interact actively. That is, humans cannot be free from technological developments, as stated by Stiegler about "original technology" (Stiegler, 1998). In the context of public information disclosure, it appears that a sociotechnical perspective can support research because of the degree of closeness between the use of information technology and humans, namely the management, within the PPID which ultimately forms an adequate management of information for the benefit of the community. There are several perspectives on components or variables from a sociotechnical perspective. Starting from Leavitt who explains that the sociotechnical components are structures, technology, actors and tasks (Leavitt, 1965) that are interconnected with one another. Then Hughes stated that the sociotechnical component is divided into six components that are interconnected and dependent on each other, namely goals, people, infrastructure, technology, culture and processes (Davis et al., 2014; Hughes et al., 2017).

When a socio-technical approach is used in this research, it means that the management of public information is observed based on the information structure aspect consisting of people, process, technology, culture and goals. This criterion needs to be deepened by observing and understanding the wishes of public information managers within the PPID environment. This effort is carried out using a soft systems methodology (SSM) approach, which explains that SSM can be used to describe the root problems encountered and provide solutions through a conceptual model that is built based on the transformation expected by the stakeholders. SSM has been used by researchers to provide solutions to problems that are complex and require change through agreement and involving all parties, such as problems within organizations (Ferrari et al., 2002; Wang et al., 2015) and government (R. Retnowati et al. al., 2019; Retnowati Retnowati et al., 2019; Sensuse & Ramadhan, 2012).

When the conceptual model has been carried out, it can be seen the criteria and sub-criteria that are able to provide support for the sustainability of information management. From each resulting sub-criteria, a strategy is needed through determining the main priority by finding the highest score for each criterion and sub-criteria that have been obtained. The strategy used is the calculation of criteria and sub-criteria using the ANP method. The Analytic Network Process (ANP) method is a generalization of the Analytical Hierarchy Process (AHP) method which considers the dependencies between hierarchical elements. In the selection process, many decisions cannot be arranged hierarchically. Therefore, ANP

is suitable to be used because it involves the interaction and dependence of high-level elements in the hierarchy on low-level elements (saaty, 2008b, 2008a). ANP provides opportunities for interaction and feedback from each sub-criteria and criteria in a case where the hierarchical value is to be calculated. The ANP stages are (saaty, 2008b) 1) the unweighted supermatrix stage; 2) The weighted supermatrix stage; 3) The limit supermatrix stage, where the supermatrix is obtained by increasing the Weight of the weighted supermatrix, by multiplying the supermatrix by itself several times. The ANP method has been used by several researchers for research cases in government and other fields (Jiang et al., 2019; Kaluku et al., 2021; Saaty & Vargas, 2006), which shows that ANP can also be used in this study. . Based on the background that has been stated, the formulation of this research is as follows: (1) How to identify and build a sustainability model of public information management with the SSM approach, and (2) how to determine the weight criteria and objectives for each socio-technical aspect described in the model so that the management of public information can be achieved.

II. Research Methods

The first step is to make preparations, by taking data through observation, in-depth interviews and focus group discussions. The second step is to conduct research with stages (1) analyzing with the SSM approach, namely identifying problems, structuring problems by paying attention to socio-technical aspects (infrastructure, structural info, culture info) by producing a rich picture, determining root definition through the CATWOE concept, describes the conceptual model; stage (2) calculates the criteria and sub-criteria depicted in the conceptual model with the ANP method. The third step is to readjust the conceptual model with the ranking results as a priority in the final description of the sustainability model of public information management.

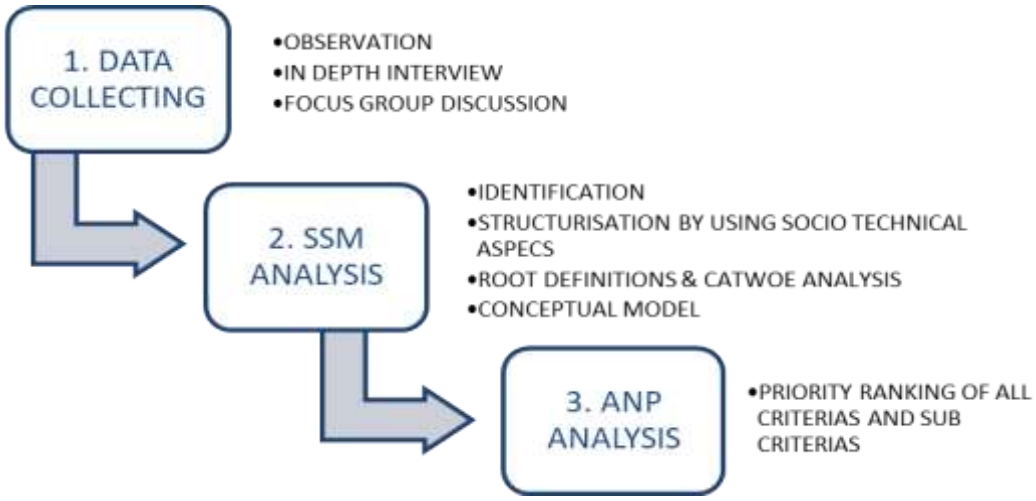

Figure 1. *Research Stages*

III. Results and Discussion

The results of the problem recognition study at PPID Salatiga City were obtained through the interview process, FGD and observation. The observation method is carried out by looking at the situation of the place, facilities, service activities at the front office, and supporting facilities in the IT sector in the PPID organization of Salatiga City. Interview and FGD methods were used to complete observations and deepen information management that was ongoing and the root of the problem was not yet clear. The interviews involved informants who are resource persons involved in managing information at PPID. Excavation of information from interviews obtained results including the main tasks, stakeholders, and their roles.

From the observations, it was found that the situation at PPID Salatiga City was very conducive in implementing performance and providing services to the community both online and offline. ICT facilities are quite adequate with a website that has been organized and is quite smooth to use. While the results of the interview, it can be seen that the Salatiga City PPID has tried to implement KIP well through regulatory powers that cover information management, service principles, and main tasks and functions which are understood quite well. Even so, the main obstacle appears to be in the management of information caused by several things, including constraints in terms of (1) info-structure, (2) infra-structure and (3) info-culture. Of the three constraints, the researcher grouped the constraints into criteria and sub-criteria, so that the specific matters in question could be identified, as shown in table 1.

Table 1. Grouping of Constraints, Criteria and Sub Criteria

OBSTACLES	CRITERIA	SUB CRITERIA
Info-Structure	People / HR	Speed of service for the process of providing information/documents
		Accuracy and accuracy of the information provided
		Hospitality in public service
	Process	Suitability of classification/codification of information/Documents
		Length of time for preparing and providing information
Infra-Structure	Tecnology	Availability of software such as social media and websites
		Availability of software for adequate data security
Infra-Structure	Infrastructure	Network availability and speed covering all OPD
		Availability of adequate data storage media in all OPD
Info-culture	Organizational Culture	Willingness to share knowledge/skills between staff and OPD
		Willingness to coordinate between staff and OPD
		Support from leadership/management in information management
GOAL	Hopes	Availability of timely and accurate information and documents for the public,
		Openness of public information can be maintained to increase public trust in the government, especially local governments
		The performance of the state apparatus is getting better

These numerous problems were narrowed down to the information management carried out by the PPID Assistant, namely 29 OPD and 1 DPRD in the city of Salatiga, in collaboration with the City PPID led by the Main PPID. The OPD is obliged to collect data from various units under it, then a classification of information is made, namely open or excluded information, manually. The list is then proposed to the City PPID for approval. At the City PPID level, the list of information is checked and the classification is confirmed according to the mandate of the law. In this phase the list of proposals can be rejected due to differences in perceptions of subjective understanding of the classification of information. Therefore PPID Utama has an important task as a decision maker through the Feasibility Test. If approved, the DIP can be ratified, then announced and uploaded through the official PPID website, taking into account that not all files are stored in the city PPID. However, if the proposed DIP cannot be accepted, then the Assistant OPD/PPID is obliged to correct it.

Stakeholders are generally aware that the management of data and information that is currently being carried out is not optimal, and has not even considered the aspects of data security and automation. The results of the understanding of the problem that explain the process and the expectations desired by the stakeholders are depicted in the rich picture below.

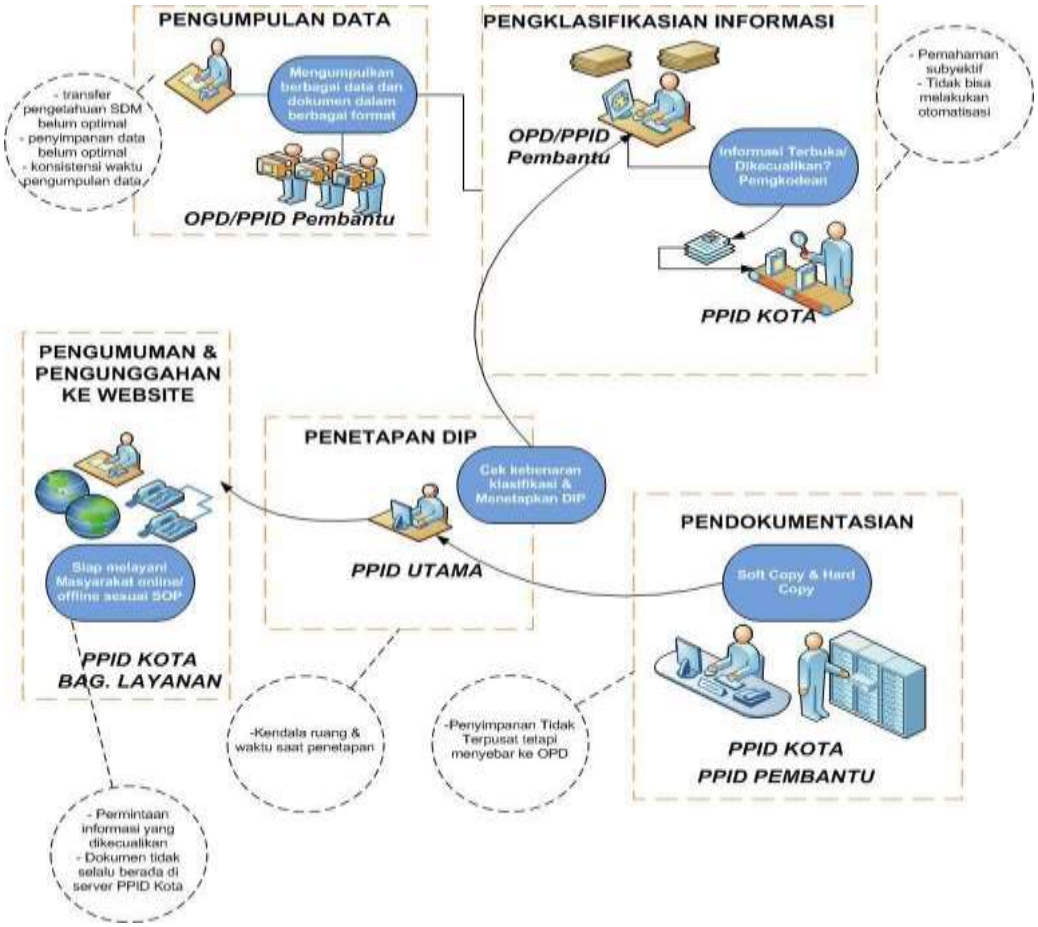

Figure 2. *Rich Picture of Current Data Management*

Root Definitions

The form of the 'root definition' is: A system to do X, by (means of) Y in order to do Z. With X, Y, Z as follows:

X : what does the system do

Y: how is it done

Z: why did it work

From this form, the "root definition" is formulated as follows: PPID, both Assistant PPID and city level, can optimally manage information (X). The management must be carried out through the management of providing and providing information by taking into account the aspects of info-structure, infrastructure and info-culture(Y). Data and Information Management is carried out to ensure sustainable management of public information disclosure (Z). Meanwhile, in the analysis of CATWOE elements (Client, Actor, Transformation, World view, Owner, Environment) are as follows:

C : community

A : Supporting PPID Staff, City PPID, Main PPID

Q : Management of data and information that pays attention to aspects of data and information management that pays attention to aspects of info-structure, infrastructure and info-culture

W : Ensure sustainable management of public information disclosure

O : PPID Salatiga City

E : management of data and information in accordance with the mandate of the law, with a cost burden that may be met through the state's own budget

Based on the CATWOE analysis, the conceptual model scenario to be built can be described, as shown in Figure 3.

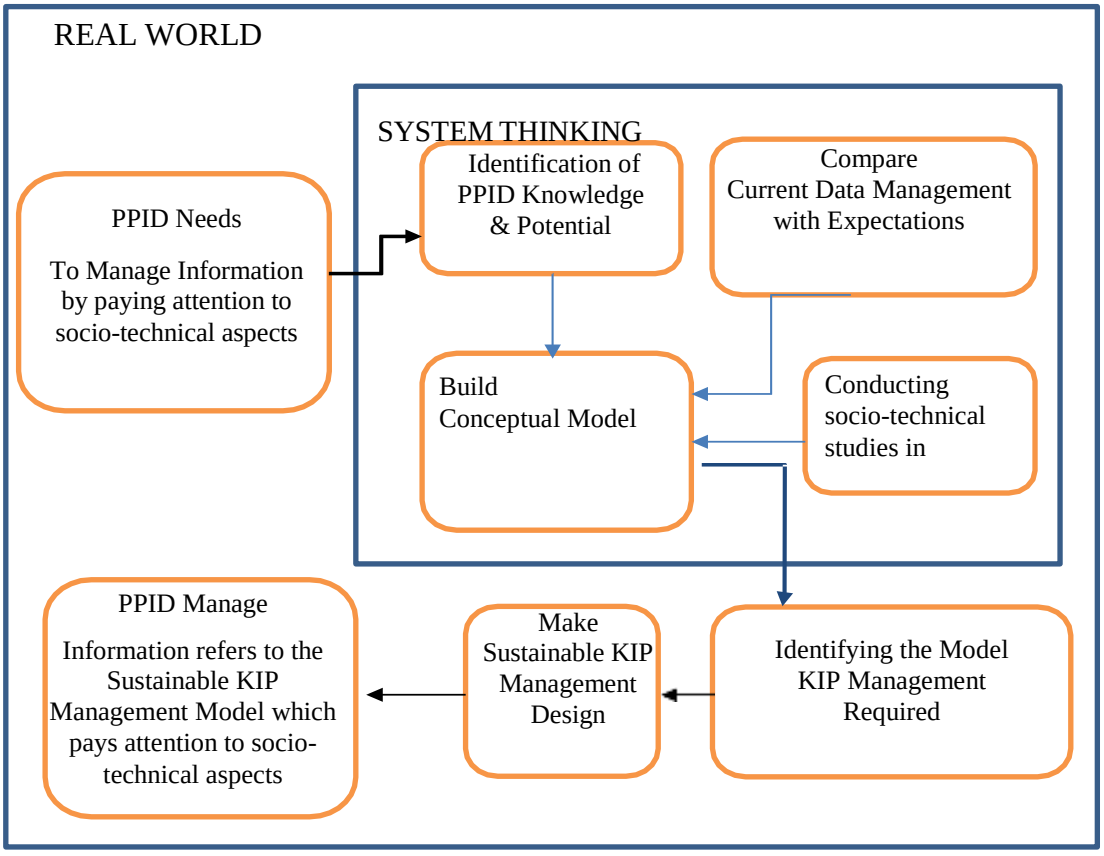

Figure 3. *The Conceptual Model Built*

Comparing and Adapting the Model to the Real Situation

NO	CONCEPTUAL MODEL	REALITY MODEL	IMPLEMENTATION
1	Building a Conceptual Information Management Model	Need to build an information management model that pays attention to security and automation aspects	PPID Assistant and City have the same view on the classification of information by taking into account the socio-technical aspects (information on structure, infrastructure and information on culture)
2	Identify All Knowledge and Potential	Socialization and motivation for commitment, improving service quality and willingness to share knowledge	All stakeholders
3	Building the Concept of a Sustainable Information Management Model: - Comparing what's going on with what's expected	Coordinate with the holder interest in PPID City Form a wish list that can combine the current system with the one to be designed	All stakeholders
4	Identification of the built model	- Need Speed of service for the process of providing information/documents - Need the accuracy and accuracy of the information provided - Need Hospitality in public services - Need for classification/codification of information/documents - It takes a long time to prepare and provide information - Need Availability of software such as social media and websites - Need Availability of software for adequate data security - Need network availability and speed that reaches all OPD - Availability of adequate data storage media in all	PPID City PPID Assistant

		OPD - Willingness to share knowledge/skills between staff and OPD - Willingness to coordinate between staff and OPD - Support from leadership/management in information management	
5	Sustainable Information Management Model For PPID	Sustainable Information Management has Goals:	PPID City PPID Assistant
		- Availability of timely and accurate information and documents for the public,	
		- Openness of public information can be maintained to increase public trust in the government, especially local governments	
		- The performance of state apparatus is getting better quality	
		- - Where the Goals must pay attention to aspects of People, Process, Technology and Infrastructure as well as culture	

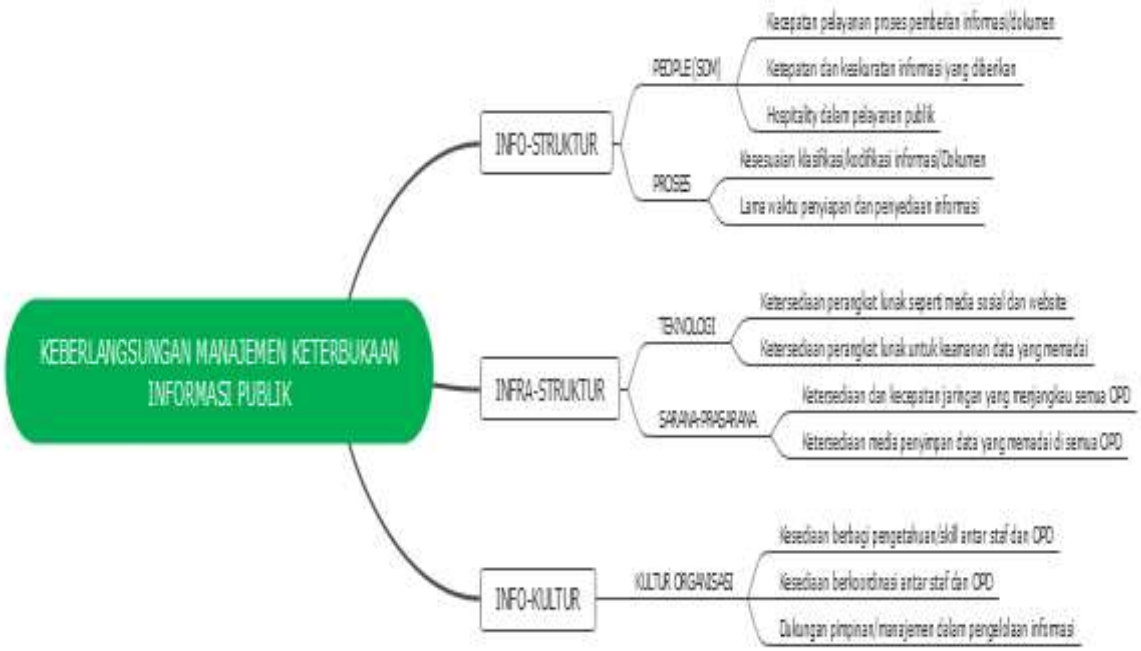

Figure 4. *Criteria and Sub Criteria for Sustainable Public Information Management*

3.1 Information Management Criteria Strategy with ANP

In accordance with the objectives of information management, obtained from the results of in-depth interviews, FGDs and observations, namely (1) Availability of timely and accurate information and documents for the community, (2) Openness of public information can be maintained to increase public trust in the government, especially local governments, (3) The performance of the state apparatus is getting better. By paying attention to the socio-technical concept consisting of info-structure, info-culture and infrastructure as shown in Figure 5.3, it is also necessary to know the main objectives that have urgency to manage public information disclosure in a sustainable manner. Therefore, ANP is used to analyze the priority objectives. There are 5 criteria, 12 sub-criteria, and 4 alternatives that are used to determine the priority aspects of public information management as shown in Tables 2 and 3.

Table 2. Criteria – Sub Criteria

CRITERIA	SUB CRITERIA
People / HR	Speed of service for the process of providing information/documents
	Accuracy and accuracy of the information provided
	Hospitality in public service
Process	Suitability of classification/codification of information/Documents
	Length of time for preparing and providing information
Technology	Availability of software such as social media and websites
	Availability of software for adequate data security
Infrastructure	Network availability and speed covering all OPD
	Availability of adequate data storage media in all OPD
Organizational Culture	Willingness to share knowledge/skills between staff and OPD
	Willingness to coordinate between staff and OPD
	Support from leadership/management in information management

Table 3. Priority Goals/Expectations

Hope	the right to public information is fulfilled
	Availability of timely and accurate information and documents for the public
	Openness of public information can be maintained to increase public trust in the government, especially local governments
	The performance of the state apparatus is getting better

Based on the identification of the interrelationships between the sub criteria, it can be seen that in choosing the priority aspects, interrelated sub criteria are used. Therefore, the appropriate method used to determine the priority goals of sustainable public information management is the ANP method.

3.2 Weight Analysis of Each Sub Criteria

Table 4. Weight Criteria and Sub Criteria in Criteria PEOPLE/HR

CRITERIA	CRITERIAPEOPLE/HR	PRIORITY WEIGHT
WEIGHT	0.22	
Speed of service for the process of providing information/documents	0.0788	0.0170
Accuracy and accuracy of the information provided	0.0661	0.0142
Hospitality in public service	0.1472	0.0317

Table 5. Weight Criteria and Sub Criteria in Process Criteria/SOP

CRITERIA	PROSES/SOP	PRIORITY WEIGHT
WEIGHT	0.23	
Suitability of classification/codification of information/Documents	0.0982	0.0211
Length of time for preparing and providing information	0.0154	0.0033

Table 6. Weight Criteria and Sub Criteria on Technology Criteria

CRITERIA	CRITERIA PEOPLE/HR	PRIORITY WEIGHT
WEIGHT	0.24	
Availability of software such as social media and websites	0.2088	0.0449
Availability of software for adequate data security	0.1008	0.0217

Table 7. Weight Criteria and Sub Criteria in Sarpras Criteria

CRITERIA	SARPRAS	PRIORITY WEIGHT
WEIGHT	0.21	
Network availability and speed covering all OPD	0.1150	0.0247
Availability of adequate data storage media in all OPD	0.0203	0.0044

Table 8. Weight Criteria and Sub Criteria in Organizational Culture Criteria

CRITERIA	CULTURE	PRIORITY WEIGHT
WEIGHT	0.10	
Willingness to share knowledge/skills between staff and OPD	0.0418	0.0090
Willingness to coordinate between staff and OPD	0.0495	0.0107
Support from leadership/management in information management	0.0579	0.0125

3.3 Weight Sub Criteria Analysis in General

The amount of weight sub-criteria for each criterion does not describe which sub-criteria is the most significant overall. For this reason, it is also necessary to look at the Weight sub-criteria in general as shown in Table 5.8. After calculating the priority weight of each sub-criteria, then calculating the priority weight for each alternative to the existing sub-criteria. The objective of sustainable information management is based on four priorities, namely (1) the right to public information is fulfilled (T1), (2) information and documents are available accurately and on time (T2), (3) public information disclosure can be maintained to increase public trust to the government, especially local governments (T3), (4) The performance of state apparatus is getting better quality (T4). The four goals are then coded as T1, T2, T3 and T4, which are the expectations aspired by all stakeholders

in accordance with the mandate of UU KIP No. 14 of 2008. From the four objectives, priority objectives are sought as a form of sustainable management of public information.

In this analysis, as well as the comparison matrix analysis of criteria and sub-criteria, the value of the highest priority weight means that the goal becomes the most important priority of the sub-criteria. Table 9 is a table of alternative priority weight recapitulation.

Table 9. Priority Weight Recapitulation

Criteria	Weight	Sub Criteria	Weight	T1	T2	T3	T4
PEOPLE/HR	0.2921	Speed of service for the process of providing information/documents	0,079	0,029	0,022	0,016	0,012
		Accuracy and accuracy of the information provided	0,066	0,024	0,101	0,056	0,020
		Hospitality in public service	0,147	0,033	0,031	0,029	0,022
PROCESS/SOP	0.1136	Suitability of classification/codification of information/Documents	0,098	0,035	0,027	0,020	0,012
		Length of time for preparing and providing information	0,015	0,006	0,004	0,003	0,002
TECHNOLOGY	0.3096	Availability of software such as social media and websites	0,209	0,050	0,045	0,022	0,025
		Availability of software for adequate data security	0,101	0,039	0,027	0,020	0,012
SARPRAS	0.1353	Network availability and speed covering all OPD	0,115	0,030	0,031	0,023	0,001
		Availability of adequate data storage media in all OPD	0,020	0,008	0,006	0,004	0,003
CULTURE	0.1492	Willingness to share knowledge/skills between staff and OPD	0,042	0,015	0,012	0,009	0,006
		Willingness to coordinate between staff and OPD	0,049	0,018	0,014	0,010	0,007
		Support from leadership/management in information management	0,058	0,022	0,016	0,012	0,008
PRIORITY WEIGHT			1,000	0,310	0,336	0,224	0,130

Based on the results of data processing above, each criterion weights as follows: Technology (0.3096), HR (0.2921), Organizational Culture (0.1492), Sarpras (0.1353), and Process/SOP (0.1136). This implies that the criteria for technological readiness supported by good human resources and organizational culture are the most important criteria among other criteria. Meanwhile, the results of the evaluation of sustainable information management objectives that have the highest priority weight are that information and documents are available accurately and on time (T2), the public's right to information is fulfilled (T1), information and documents are available accurately and on time (T2) , public information disclosure can be maintained to increase public trust in the government, especially local governments (T3). The performance of the state apparatus is getting more qualified. Therefore, accurate and timely information and documents must be maintained and services improved.

Based on the proposed model, the information management strategy in an open data perspective by taking into account good socio-technical techniques, the strategy that must be carried out can refer to Figure 3.

IV. Conclusion

This study succeeded in understanding how information management is carried out by PPID, where a change in information management is needed to be better. Therefore, with the SSM approach, a model has been successfully built that takes into account the socio-technical aspects. By using qualitative research methods, this research has provided an understanding of the importance of preparing technology, which consists of software and hardware used to manage and upload information for the benefit of the community. After the technology is well prepared, the human resources capabilities need to be improved and spread evenly across all management units and information providers, so that the prepared technology can be used properly. When technology and human resources are adequate, another thing that must be considered is the support of organizational culture, namely the willingness of human resources and leadership commitment to share information so that there is no sharp gap in understanding the management of KIP, especially when there is a change of leader. Another thing that must be considered is the support for infrastructure such as networks, storage media capacity and data security need to be considered. The thing that is no less important is to keep the SOP running properly.

If all the aspects that have been mentioned can be implemented properly, it is hoped that the goal of sustainable information management can be achieved, where the highest priority weights are that information and documents are available accurately and on time, the public's right to information is fulfilled, public information disclosure can be maintained for increasing public trust in the government, especially local governments, as well as improving the quality of the performance of state apparatus.

References

Axelsson, K., Benoist, L., Dawkins, E., & Andr, K. (2019). Advancing sustainable consumption at the local government level : A literature review. 231, 1450–1462. https://doi.org/10.1016/j.jclepro.2019.05.176

Bidang Informatika Diskominfo Kota Banjar. (2019). Kemendagri Dorong Inovasi Pengelolaan dan Informasi Publik Pemda. Pemerintah Kota Banjar Jawa Barat.

Blasio, E. De, & Selva, D. (2016). Why Choose Open Government ? Motivations for the Adoption of Open Government Policies in Four European Countries. 9999(9999).

Bostrom, B. R. P., & Heinen, J. S. (2014). STS Application MIS Problems and Failures : A Socio- Technical Perspective PART II : The Application of Theory. 1(4), 11–28.

Cruz, R. A. B., & Lee, H. J. (2016). A Socio-Technical Model for Open Government Data Research. Asia Pacific Journal of Information Systems, 26(3), 339–366. https://doi.org/10.14329/apjis.2016.26.3.339

Davis, M. . C. ., Challenger, R. ., & Jayewardene, D. . N. . W. (2014). Advancing socio-technical systems thinking: A call for bravery. Applied Ergonomics: Human Factors in Technology and Society. https://doi.org/10.1016/j.apergo.2013.02.009

DPADM UN-DESA. (2013). Open Government Data And Services. Un Padm Desa.

Erdianto, K., Karanicolas, M., & Chan, C. C. (2012). Implementasi Sebuah Kajian Dari Tiga Badan Publik Indonesia Hak Atas Informasi Publik : Sebuah Kajian Dari Tiga

Badan Publik Indonesia (C. C. Chan & T. Mendel (eds.); 1st ed.). Centre for Law and Democracy & Yayasan Dua Puluh Delapan.

Esteves, F. M., Santos, J. R., & Anunciação, P. F. (2012). Sustainability in the Information Society : A Proposal of Information Systems Requirements in View of the DPOBE Model for Organizational Sustainability. CENTERIS 2012 - Conference on ENTERprise Information Systems / HCIST 2012 - International Conference on Health and Social Care Information Systems and Technologies, 5, 599–606. https://doi.org/10.1016/j.protcy.2012.09.066

Februariananingsih, N. (2012). Keterbukaan Informasi Publik Dalam Pemerintahan Terbuka Menuju Tata Pemerintahan Yang Baik. Jurnal Rechts Vinding, 1(1), 135–156.

Ferrari, F. M., Fares, C. B., & Martinelli, D. P. (2002). The Systemic Approach of SSM : The Case of a Brazilian Company. Systemic Practice and Action Research, 15(1).

Geels, F. W. (2019). ScienceDirect Socio-technical transitions to sustainability : a review of criticisms and elaborations of the Multi-Level Perspective. Current Opinion in Environmental Sustainability. https://doi.org/10.1016/j.cosust.2019.06.009

Harimurti, R. M. A. (2016). Pengembangan Manajemen Data dan Informasi Menggunakan Analisis Soft Systems Methodology Pada Pemerintah Daerah DIY. Jurnal Penelitian Pos Dan Informatika, 6(1), 37–58. https://doi.org/10.17933/jppi.

Haris, O. K. (2015). Good Governance (Tata Kelola Pemerintahan Yang Baik) Dalam Pemberian Izin Oleh Pemerintah Daerah Di Bidang Pertambangan. Yurika, 30(1), 58–83. https://doi.org/10.20473/ydk.v30i1.4879

Helsinki, P. I. N. (2011). Governance Theory As A Framework For Empirical Research – A Case Study On Local Environmental (Issue March). University of Helsinki Finland.

Hong, J., Lee, O. D., & Suh, W. (2016). Creating knowledge within a team : a socio-technical interaction perspective. Knowledge Management Research & Practice, August 2014, 1–11. https://doi.org/10.1057/kmrp.2015.27

Hughes, H. P. N., Clegg, C. W., Bolton, L. E., Machon, L. C., Hughes, H. P. N., Clegg, C. W., Bolton, L. E., & Machon, L. C. (2017). Systems scenarios : a tool for facilitating the socio- technical design of work systems systems. Ergonomics, 0139, 1–17. https://doi.org/10.1080/00140139.2017.1288272

Isa, A. M., Sharif, S. M., Ali, R. M., & Nordin, N. M. (2019). Managing Evidence of Public Accountability : An Information Governance Perspective. International Journal of Innovation, Creativity and Change, 10(7), 142–153.

Islam, M. S. (2008). Towards a sustainable e-Participation implementation model. European Journal of EPractice, 5(October), 1–12.

Jetzek, T., Avital, M., & Bjørn-andersen, N. (2014). Generating Sustainable Value from Open Data. International Federation for Information Processing, 62–82.

Jiang, H., Shao, Q., Liou, J. J. H., Shao, T., & Shi, X. (2019). Improving the sustainability of open government data. Sustainability (Switzerland), 11(8), 1–27. https://doi.org/10.3390/su11082388

Kaluku, M. R. A., Dai, R., Pakaya, N., & Padiku, I. R. (2021). Development of government employee performance measurement models: Using Analytical Network Process and Simple Additive Weighting methods. IOP Conference Series: Materials Science and Engineering, 1098(3), 032052. https://doi.org/10.1088/1757-899x/1098/3/032052

PP No. 62 Tahun 2010, (2010).

Khusna, I. H., & Sugiharto, U. (2018). Peran PPID Dalam Mewujudkan Keterbukaan Informasi Publik PPID Service in Making Public Information Openness Abstraksi Tujuan dibuatnya UU No . 14 Tahun 2008 tentang Keterbukaan Informasi Publik (KIP) salah satunya adalah mendorong partisipasi masyarakat. Promedia, 4(1), 17–55.

Komisi Informasi Pusat RI. (2019). Laporan Kinerja Komisi Informasi Pusat.
Larquemin, A., Buteau, S., & Mukhopadhyay, J. P. (2016). Open Government Data and Evidence-based Socio- economic Policy Research in India : An overview. The Journal of Community Informatics, 12, 120–147.
Leavitt, H. J. (1965). Applied Organizational Change in Industry; structural, technological and humanistic approaches. In Handbook of Organizations. (pp. 1144–1170). Rand McNally & Company.
Lendong, R. N. (2018). Catatan 10 Tahun UU KIP_ Tiga Persoalan Hambat Keterbukaan. Komisi Informasi Pusat Republik Indonesia.
Lyytinen, K., & Newman, M. (2008). Explaining information systems change : a punctuated socio-technical change model. October, 589–613. https://doi.org/10.1057/ejis.2008.50
Marietha, S. R., Kusuma, A. R., & Amin, J. (2017). Implementasi Undang-Undang Nomor 14 Tahun 2008 Tentang Keterbukaan Informasi Publik Di Pemerintah Provinsi Kalimantan Timur. EJournal Administrative Reform, 5(2), 427–437.
Mcnutt, J. G., Justice, J. B., Melitski, J. M., & Ahn, M. J. (2016). The diffusion of civic technology and open government in the United States. 21, 153–170. https://doi.org/10.3233/IP-160385
Mubarok, M., Adi Nugroho, H., & Nugroho, E. (2015). Landasan Hukum dan Kesesuaian Keterbukaan Desa Berbasis Open Government Data. Semnaskit.
Nam, T., & Pardo, T. A. (2011). Conceptualizing Smart City with Dimensions of Technology , People , and Institutions. The Proceedings of the 12th Annual International Conference on Digital Government Research, 282–291.
Nupikso, D. (2015). Implementasi Keterbukaan Informasi Publik Dalam Website Pemerintah Daerah Implementing Public Information Disclosure in Local Government Websites. IPTEK-KOM, 17(2), 113–128.
O.P, R. E. (2017). Tanggapan atas kegiatan evaluasi keterbukaan informasi publik provinsi jawa barat.
Obama, B. (2009). Transparency and Open Government. The White House.
OECD, Rotterdam, T. N. (2009). Focus on Citizens – Public engagement for Better Policy and Services. OECD PUBLISHING.
Osman, I. H., Latef, A., Irani, Z., Lee, H., & Medeni, T. D. (2019). A cognitive analytics management framework for the transformation of electronic government services from users ' perspective to create sustainable shared values. European Journal of Operational Research, 278(2), 514–532. https://doi.org/10.1016/j.ejor.2019.02.018
UU KIP No. 14 Tahun 2008, Pub. L. No. 14/2008 (2008).
Pereira, G. V., Macadar, M. A., Luciano, E. M., & Testa, M. G. (2017). Delivering public value through open government data initiatives in a Smart City context. Information Systems Frontiers, 19(2), 213–229. https://doi.org/10.1007/s10796-016-9673-7
Pratikno, Sukarno, A. W., Srikandini, A. G., Rahmawati, A., Hanif, A., Purwanto, E. A., Lele, G., Hanif, H., Wahyuni, H. I., Putra, I. G. N., Ambardi, K., Aini, N., Nazala, R. M., Margono, S. A., & Setianto, W. A. (2012). Kajian Implementasi Keterbukaan Informasi dalam Pemerintahan Lokal Pasca Undang-Undang Nomor 14 Tahun 2008 (1st ed.). Fisipol UGM Yogyakarta dan Yayasan TIFA.
Ramadhan, H. A., & Putri, D. A. (2018). Big Data , Kecerdasan Buatan , Blockchain , dan Teknologi Finansial di Indonesia: Usulan Desain, Prinsip, dan Rekomendasi Kebijakan. Direktorat Jenderal Aplikasi Informatika Kementerian Komunikasi dan Informatika.

Retnowati, R., Manongga, D., & Sunarto, H. (2019). Development of sustainability systems for open government data (OGD) management by combining the shel model and soft systems methodology analysis. Journal of Theoretical and Applied Information Technology, 97(12).

Retnowati, Retnowati, Listiyono, H., Purwatiningtyas, P., Wedaningsih, A. S., & Rahmaziana, L. (2019). Analisis Readiness Penerapan Keterbukaan Informasi Publik (Kip) Dengan Pendekatan Soft Systems Methodology (Ssm). Dinamik, 24(1), 41–56. https://doi.org/10.35315/dinamik.v24i1.7838

Rotberg, R. I. (2014). Good Governance Means Performance and Results. Governance: An International Journal of Policy, Administration, and Institutions, 27(3), 511–518. https://doi.org/10.1111/gove.12084

Saaty, T. L. (2008a). Competitive priorities and knowledge management: An empirical investigation of manufacturing companies in UAE. International Journal Service Science, 26(6), 83–98. https://doi.org/10.1108/JMTM-03-2014-0020

Saaty, T. L. (2008b). The Analytic Hierarchy and Analytic Network Measurement Processes: The Measurement of Intangibles. European Journal Of Pure And Applied Mathematics, 1(1), 122–196. https://doi.org/10.1007/978-3-540-92828-7_4

Saaty, T. L., & Vargas, L. G. (2006). Decision Making With the Analytic Process Network Process. In Manufacturing Systems (Vol. 95). http://www.amazon.com/dp/0387338594

Sadok, M., & Welch, C. E. (2017). A Socio-Technical Approach To Sustainability In Organizations : An Exploratory Study. Twenty-Fifth European Conference on Information Systems (ECIS), June.

Šajeva, S. (2010). The Analysis Of Key Elements Of Socio-Technical Knowledge Management System. Economics And Management, 2007, 765–774.

Sensuse, D., & Ramadhan, A. (2012). Enriching Soft Systems Methodology (SSM) With Hermeneutic in e-Government Systems Development Process. December 2015.

Sheng, Y. K. (2008). What is Good Governance ? United Nations Economic and Social Commission for Asia and the Pacific.

Smith, A., Stirling, A., & Berkhout, F. (2005). The Governance Of Sustainable Socio-Technical Transitions The governance of sustainable socio-technical transitions. December 2017. https://doi.org/10.1016/j.respol.2005.07.005

Standing, C., & Jackson, P. (2007). An approach to sustainability for information systems. Journal of Systems and Information Technology, 9(2), 167–176.

Stiegler, B. (1998). Technics And Time: The Fault of Epimetheus. Standford University Press.

Susanto, E. H. (2011). Eksistensi Kepemimpinan dan Transparansi Informasi dalam Reformasi Birokrasi. Sociae Polites, 14(34), 43.

Van Schalkwyk, F., Willmers, M., & Mcnaughton, M. (2015). Information Technology for Development Viscous Open Data: The Roles of Intermediaries in an Open Data Ecosystem Viscous Open Data: The Roles of Intermediaries in an Open Data Ecosystem. https://doi.org/10.1080/02681102.2015.1081868

Wang, W., Liu, W., & Mingers, J. (2015). A systemic method for organisational stakeholder identification and analysis using Soft Systems Methodology (SSM). European Journal of Operational Research, 246(2), 562–574. https://doi.org/10.1016/j.ejor.2015.05.014

Zulaikha, & Paribrata, A. I. (2017). Implementasi Kebijakan Keterbukaan Informasi Publik di Jawa Timur Tahun 2016. Jurnal Studi Komunikasi, 1(2), 131–162. https://doi.org/10.25139/jsk.v1i2.168