

# Information System Strategy and Application Governance in The Government of Bandung Regency

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**Abstract**—The Use of information system in supporting government process will improve the efficiency, effectiveness, transparency and accountability of governance. This is in line with what has been stated in the Presidential Instruction no. 3 of 2003 which confirms that the use of technology in the government will improve the quality of public services to be more effective and efficient. The lack of guidance or policies regarding Development Strategy and Governance Application in The Government of Bandung Regency leads to a priority in application development in an effort to improve the government services. Gap analysis method is used to see the usability of the current applications and compare them with the future conditions. Some of documents and policies related to the application used in the Government of Bandung Regency are taken into account in preparing the strategies.

**Keywords**—*information system, strategy, governance, application*

## I. INTRODUCTION

The use of Information and Communication Technology (ICT) in the government process or commonly called as e-Government has become one of the required agendas for the government, i.e. to meet the community demands in establishing good governance. The development in e-government requires some strategic planning and direction, so that it can support the performance of the government institution. Both strategic planning and direction can be arranged in an information system strategic plan for a period of three to five years [1]. The use of ICT in the government processes will improve the efficiency, effectiveness, transparency and accountability of the government This is in line with the Presidential Instruction No. 3 of 2003 which confirms that the use of technology in the government will improve the quality of public services, to be more effective and efficient [2].

The Government of Bandung Regency is currently preparing IT Master Plan as a part of Its strategies and development in the management of applications. In the Revised ICT Development Master Plan 2010-2015 The Government of Bandung Regency there are some points regarding the applications as follows [3]:

1. The blueprint of the E-Government application system for The Government of Bandung Regency.
2. The functional service approach in the governance system in order to prepare the application blue print.
3. Required application system development standards in ensuring that the inter system communication can be done by any application developer vendor.
4. Service, administrative and institutional functions grouped into Function Block groups
5. Institution module based on Function Block
6. The Government of Bandung Regency website as one of the strategies in implementing E-Government development

In the Revised ICT master plan, it is described in detail how the applications will be developed. It can be seen from the function block group that classifies the applications based on service, administration, and institutional functions. It will help the IT organization unit particularly in creating some application development plans. However, this document does not expressly state short term priority scale of the application development. It will help the IT organization unit either develop a more optimal strategy or monitor the strategy. Currently, the government unit uses some applications from some vendors in its operational activities without giving any information to the IT organization unit. Furthermore, this priority scale is also needed to determine what critical services that the community set as their priority. However, this document has also no detailed explanation of on each of the existing applications and on how to process the inventory of all IT applications.

The lack of support from the Head of Regency certainly becomes a challenge in the implementation of the application development strategy. The absence of proper planning related to development or application development in each organization unit is caused by:

1. The applications have not been used for a long time because they does not support business processes.
2. There are some relatively similar applications proposed to be built by SKPD (local government unit)
3. Applications developed by SKPD do not have some planning documentation that conforms to the existing standards

4. The The integrated applications have not met the Required application standards that must be fulfilled by all e-Government applications (Reliable, Interoperable, Scalable, User-Friendly, Integrate-able)
5. There is no feasible research document that can justify that the applications submitted to be built by SKPD is in line with the needs

## II. RELATED WORK

The development of eGovernment is not only limited to the application of information technology, but also includes IT strategy, government strategy, infrastructure, and adaptation and integration of IT / IS infrastructure. The process of organizing eGovernment is a complex and systematic process. eGovernment strategy must be able to harmonize government strategy with information technology strategy continuously and dynamically. In this dynamic process, the most important part is the merger process of the information services and the government information system [4]. The application development strategy should be an integral part of the Government's long-term plan to improve their service to the society as well as their performance.

Information System Strategic Planning is an important process in helping organizations to identify their strategic applications and to align their organizational strategies with effective information systems, to achieve organizational goals. Currently, the increasing role of information system strategic planning becomes the most important factor in eGovernment. Information system strategic planning plays a major role and gives some major contributions to businesses and organizations [5].

## III. RESEARCH METHODOLOGY

The method used in this research is a design science research methodology (DSRM) proposed by Pepper. There are six stages to be done, i.e. identification of problems and motivation, defining the objectives of a solution, design and development, demonstration, evaluation, and communication. [12].

### A. Identification of Problems and Motivation

In this step, there will be some identification of issues on development strategy and application, especially that pertains to government. Problem identification is conducted through a literature review on related paper discussing the existence of application development strategy. The motivation for doing this research is to help the government in determining the strategy for application development.

### B. Defining the objectives of a solution

This phase will include some discussion on development strategy and governance application. The purpose of this research, however, is to get governance application policy and application development priorities.

### C. Design and Development

In this step, there will be some Analysis towards the Document or Policy Related to Governance Application related to the applications used in the Government of Bandung Regency. At this stage, there will also be Gap Analysis Information System. The results of the analysis can be useful inputs for planning and determining budget priorities in the future to realize good governance.

### D. Demonstration

In this step, there will be some development on governance application policy based on the best practices issued by ISACA in the COBIT 5 framework. By translating the vision and mission of The Government of Bandung Regency and considering the aspirations of the executive and each work unit (SKPD), as well as the analysis towards current conditions there will be some application development priorities.

### E. Evaluation

In reference to the application governance policy and the application development priorities, this step will involve some evaluation taken by IT unit in the government institution, i.e. by showing the gap analysis in the information system in current conditions.

### F. Communication

The development of strategy and governance applications in The Government of Bandung Regency will be presented in an international conference.

## IV. STRATEGIC NEEDS

The development of eGovernment is not only limited to the application of information technology, but also includes IT strategy, government strategy, infrastructure, and adaptation and integration of IT / IS infrastructure. The process of organizing eGovernment is a complex and systematic process. eGovernment strategy must be able to harmonize government strategy with information technology strategy continuously and dynamically. In this dynamic process, the most important part is the the merger process of the information services and the government information systems system [4]. The application development strategy must be integral with the Government's long-term plan, i.e. to improve either their service to the society or their performance.

Information System Strategic Planning is an important process in helping organizations identify their strategic applications and align their organizational strategies with effective information systems, to achieve organizational goals. Currently, the increasing role of information system strategic planning becomes the most important factor in eGovernment. Information system strategic planning plays a major role and gives some major contributions to businesses and organizations [5].

Since the issuance of the Presidential Instruction (INPRES), number 3/2003 on National Policies and Strategies in the Development of e-Government, the government are committed to implement ICTs in the management of public administration

and public services. INPRES No. 3/2003 is motivated by the changes that require the establishment of a clean, and transparent government, which is capable of responding the changing demands. The Implementation of ICT in the governmental administrative office is to a certain extent still far behind the technological development. It is partly due to some limits in the implementation of the technological advancement. On the other hand, research and development are not adequately available in the case of technological adaptation.

The main objective of ICT applications within the Government is to provide some maximum benefits and impacts for the stakeholders. The selection of technology which is capable of supporting the achievement of targets appropriately, effectively and efficiently to meet the needs of stakeholders is required. The Implementation of ICT in the administration of government should consider the development of information and communication technology in its planning. One of the factors to be considered is the growing number of internet users in Indonesia as can be seen in the following figure[6].



Fig. 1. Internet Users-in Indonesia

The Data in figure 1 shows that 51% of Indonesians are actively using the internet. It should be able to be used by the local government, i.e. to develop IT-based services that can be accessed easily by the community. It should also take social media into account, i.e. to communicate or interact with the community. It is in line with the Decree of the Minister of Administrative and Bureaucratic Reform No. 83 of 2012 on the Guidelines in the Use of Social Media of the Government Agencies. Several studies related to application development strategy in Government District are as follows

*A. Implementation of e-Government*

The development of e-Government is a part of the development in electronic-based government, aimed at improving the quality of public services effectively and efficiently. e-Government involves some examination towards the management system and the work process in the central government, i.e. by optimizing the use of information technology. The use of information technology includes two related activities, ss what has been stated in the Presidential Instruction No.3 of 2003, namely Presidential Instruction No. 3/2003 [7]

1. Data processing, information management, management systems and work processes electronically;
2. The Use of advances in information technology so that public services can be accessed easily and cheaply by people in all regions of the country.

*B. Integration and Interoperability Issues*

Since the issuance of the Presidential Instruction No.3 of 2003, the development of e-government application in Indonesia has been growing. 2014 is believed to be the beginning of the development where almost all government agencies organize the development of e-government system both that of the Central and Regional ones. The information system starts to develop yet it has not been integrated. The issue of integration and interoperability is still a major problem that is expected to be bridged soon. In 2015-2018, Indonesia's e-government development is targeted to enter the era of integration. It is expected to be realized by the development of SaaS (software as a service), PaaS (Platform as a Service) and IaaS (infrastructure as a service) [8].

*C. Information Disclosure and Transparency*

Information is a basic requirement for one's personal development and social environment and it is also an important part of the national security. The right to get information belongs to one's human right, and public information disclosure is one of the important features of a democratic country that upholds the sovereignty of the people, i.e. in establishing real state governance. General information disclosure is a means of optimizing the mass surveillance towards the administration of the state and other governmental agencies and any issues derived from the public interest and public management should be taken as the factors to be considered in the development of information society [9]. The mindset of an increasingly developed and developing society will increasingly call for a variety of information needed. Nowadays people are becoming more critical and courageous to express their opinions. It will require them to seek some information relevant to the situation and condition they face. The enactment of Law 14/2008 on Public Information Disclosure, has created a major challenge for the government and community to be able to implement it as well as become a legal obligation for Governmental agencies to provide information needed by the community [10]

*D. Empowerment and Active Role of Communities in Dissemination of Information*

the empowerment of all factors in the order of life may require some participation of the community. The government, in this case, to a certain extent should facilitate what is needed by the community, so that it will create a synergistic communication, both in informing the issues of development and in receiving some inputs from the community by promoting a more open climate in receiving, processing and serving public information. It is a new paradigm in the democratic and autonomous era of life, where information becomes a critical need because this information is used-to

increase knowledge that will change attitudes and behavior of society. The society will then be intelligent, knowledgeable, skilled and independent in improving their welfare. The information society is a society of which quality of life, as well as prospects for social change and economic development, largely depends on increasing information and its utilization. In such societies, living standards, work patterns and fun, education systems and marketing of goods are greatly influenced by the accumulation of the increasing information and knowledge. It is proven by the growing intensity of information and service production, excellent communication through media and many of which are conducted electronically [11].

**V. IS DEVELOPMENT STRATEGY**

In developing the information system (IS) development strategy, the study uses the approach designed by Ward and Papard in the Strategic Planning for Information System book [12]

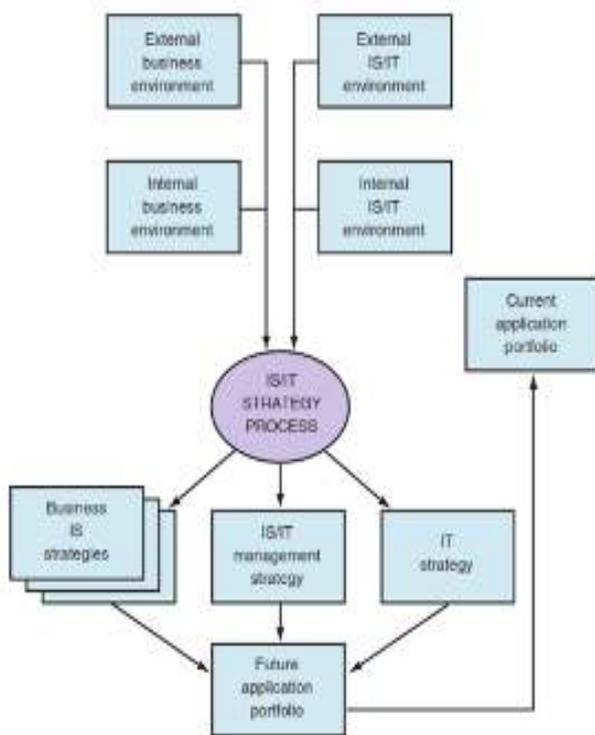


Fig. 2. IS and IT Management strategies [12]

*A. Internal Business Environment Analysis*

Internal Business Environment Analysis includes the aspects of current government strategy, goals, resources, processes, and culture of organizational business values

*B. Analysis of External Business Environment*

The Analysis of External Business Environment Includes some aspects related to the application development plan such as policies related to e-government implementation, Integration and Interoperability Issues, Information Disclosure

and Transparency, and Empowerment and Active Role of Communities in Dissemination of Information

*C. Environmental analysis of information systems and internal information technology*

This phase involves some conditions under the current information system (IS) and information technology (IT) portfolio. It also involves some identification of applications used by SKPD and how effective they are in supporting government services

*D. Analysis of external IS and IT environments*

The Analysis of external IS and IT environments includes some policies and strategies for IT technology and human resource management as well as IS and IT Management strategies. The procurement of the applications is also monitored using some applications at SKPD.

**VI. INFORMATION SYSTEM STRATEGY AND GOVERNANCE APPLICATION IN THE GOVERNMENT OF BANDUNG REGENCY**

The information system development strategy in The Government of Bandung Regency should be in line with the established ICT policies and guidelines. The Guidelines and Policies in ICT in a local government must be in line with the guidelines and policies of the west java regional government and central government. The initial draft of RPJMD (Medium-Term Development Plan) of WEST JAVA PROVINCE 2013-2018 mentioned that the consequences of the development of West Java 2013-2018 would be controlled by the needs of creative and innovative breakthroughs based on science, technology, art, and culture, especially to improve the competitiveness of the region. The government sector, the business community, academia, and community-based communities, are facing the challenges and demands of change.

*A. Analysis towards Document or Policies Related to the Governance Application*

Based on the data obtained, the documents and policies related to the application governance in The Government of Bandung Regency are as follows

TABLE I. RELATED DOCUMENTS AND POLICIES

No.	Document	Content
1	Regent's Circular Letter Number: 489/660/PPI	The Use of SKPD Official e-mail
2	Regent's Decree Number: 45/2010	The Use of Website Utilization in Government District
3	Regent's Circular Letter Number: 489/387/PPI	The Use of Internet Network of Government District
4	Regent's Decree Number: 555/Kep.266-KPDE/2007	Determination of Domain Usage of bandungkab.go.id as the official website of the local government

5	Regent Regulation Number: 489/Kep.305-BAPAPSI/2010	Team Determination and Operational Plan of Mobile Community Access Point (M-CAP) of the local government
6	Regent Regulation Numer: 36/2014	Master Plan for Technology, Information and Communication Development the local government within 2014-2015
7	Regent's Circular Letter Number: 555/539A/BAPAPSI	The Use of Legal Software and Open Source Software (OSS)

8	Revised ICT Master Plan	Revised Master Plan of ICT Development of Government District 2010-2015
9	Regency Regulation Number: 4/2014	Regional Development Planning System of the local government

### B. Gap Analysis of Information System

Gap analysis is a tool that can be used to evaluate the performance of local government, especially in providing excellent public services. The results of the analysis can be useful inputs for planning and determining future budget priorities in realizing good governance. Gap analysis is also one of the most important steps in the planning and evaluation phases. The Implementation of an application in the Government of Bandung Regency comes from the Central Government's, Provincial Government's or local government's initiatives either from the ICT Unit or each

SKPD. The acquisition of applications/information systems shows different data formats and business processes that leads to some difficulties at the operational level. These difficulties include some double entry where there are some identical data in different applications and data consolidation. The Gap Analysis of Information System in the Government of Bandung Regency takes the four aspects of feature, implementation, integration, and standardization into account.

TABLE II. GAP ANALYSIS OF INFORMATION SYSTEM

No	Aspect	As Is Condition	To Be
1	Features	<ul style="list-style-type: none"> <li>It involves some development of some mandatory applications by the central government</li> <li>Mandatory applications still need to be tricky to get the required output internally</li> </ul>	<ul style="list-style-type: none"> <li>Feature adjustments should be in accordance with he needs of the users and internal stakeholders of the local government</li> <li>Applications should be developed the independent data derived from some internal needs without taking the needs of the central government for granted. Furthermore, they should also be integrated with the central data</li> </ul>
2	Implementation	<ul style="list-style-type: none"> <li>Not all applications developed or realized are accompanied by training and transfer of knowledge to users and application administrators</li> <li>Most of the existing applications in SKPD are not equipped with proper documents</li> <li>Assistance and helpdesk functions are inadequate due to the limited human resources of IT</li> <li>It involves some optimization towards the use of mandatory application and they must be used by all SKPDs.</li> </ul>	<ul style="list-style-type: none"> <li>All the requests used in the local government should be supported by some documents in the form of application usage instructions.</li> <li>Counseling functions can be increased, by allocating a certain number of personnel and staffs, either in online or offline technical guidance mechanisms</li> <li>All SKPDs are required to use applications that are mandatory and are utilized by all SKPDs</li> </ul>
3	Integration	<ul style="list-style-type: none"> <li>Existing applications are still partially dispersed</li> <li>Applications developed by SKPD do not currently meet interoperability standards (minimal data integration)</li> </ul>	<ul style="list-style-type: none"> <li>Group similar applications and related applications should be integrated into an app.</li> <li>Primary data maps should be built and there should be some authority in each primary data, so that each work unit will be mapped in primary data</li> </ul>
4	Standardization	Development standards Application is still not enough to be applied in SKPD	<ul style="list-style-type: none"> <li>There should be some obedience towards applicable regulatory and application development standards common to literature</li> <li>There should be some Delivery systems from well-organized and well-documented developer vendors</li> <li>The vendor's knowledge can be acquired completely so that post-contract operational constraints will end up with no adverse impact</li> </ul>

## VII. GOVERNANCE APPLICATION POLICY

One of the policies related to governance is the publication of Bandung Regent Regulation No. 19 on Governance Applications in the government of Bandung Regency in 2016. As a part of the implementation of the regulation, the COBIT 5 framework is used as a reference in application development, i.e as an integral part of information system strategy in the government of Bandung Regency. Based on the best practices in COBIT 5 Document, i.e. BAI 03 process - Identification and Solution Management. The policy is about:

- a. Ensuring the alignment between development and the application development using RIP and RDP ICT documents of the local government;

- b. Ensuring that stakeholders participate actively in using the applications governance.
- c. Ensuring that the applications are built and developed by the needs of business process automation to achieve the effectiveness and efficiency of the implementation of government tasks;
- d. Ensuring the creation of interoperability among the applications generated to ensure the rapid and accurate exchange of information, upgrade requirements and software migration, and multi-sectoral data needs.

## VIII. APPLICATION DEVELOPMENT PRIORITIES

- a. By understanding the vision and mission of the Government of Bandung Regency and considering the aspirations of the executive and each work unit, as well as analyzing current conditions, and the application development priorities.
- b. Application development will be prioritized in the internal applications in each SKPD; then, the applications will be able to be used by the leaders and applications will be accessible for the community. It is

in line with the mission of bureaucratic reform planned by the Government of Bandung Regency

- c. The next priority is the development of applications that may involve some collaboration and integration of in Integration in SKPD.
- d. The third priority is the development of applications that will be the Support for the of increased regional potential in and investment interest to the government of Bandung Regency.

## VIII. CONCLUSION

Information System Strategy and Governance Application in the government of Bandung Regency should be in line with the established ICT policies and guidelines. The governance application policy is based on the best practices issued by ISACA in COBIT 5 Document. The development of applications will be prioritized on the internal applications where each of the development involves some collaboration and integration from all organization units. However, it will also be a source for the improvement of regional potential and the investment interest.

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