

# Information Technology Governance Profile in E-Government

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**Abstract**— Information Technology (IT) governance can be adopted as the ability of government and private agencies to improve the performance of building strategic plans in order to improve services to their stakeholders. The purpose of this research is to find out how the implementation of e-government, the implementation of governance and the influence of e-government on the IT governance of Palembang. The data is collected in 19 regional working unit (OPD) at local government of Palembang. Using the IT governance approach, this research is a mixed method research where qualitative and quantitative methods are conducted in one study. The data collection process is conducted by observing e-government in 19 OPDs of Palembang, through interviews, questionnaires and documents related to the purpose of this research. The research method is combined to be done to get all the facts related to the development of e-government model for improving the quality of strategic plan of IT e-government in Palembang Government environment. The results of this study are expected to describe the capacity of governance in accordance with the four aspects including Planning and Organizing, IT Procurement and Development, Implementation and Management and control and management.

**Keywords**— *IT Governance, Information Technology, E-government, ICT, Palembang.*

## I. INTRODUCTION

Indonesia is one of the countries which develops E-Government to face the globalization era that is more democratic. E-Government is also used by the government as an effort to develop electronic-based governance in order to improve the quality of public services effectively and efficiently. As the result of the previous research shows that e-government based on the principle of good governance has increased significantly, it means that e-government can be used to implement the governance and there is also a positive influence between the implementation of e-government with the implementation of e-governance, and the existence of an e-government system gives a new hope for the central governments and local governments in handling the quality improvement of public services that impact on a good governance.

Palembang is one of the cities that implement various of e-government applications in each OPD, but in its implementation there are deficiencies such as lack of Standard Operational Procedure (SOP), no coordination, overlapping, lack of strategic master plan for the advancement of government in the future, lack of software supervision. Based on the previous research therefore this research will analyze how well e-government is implemented and managed in each

OPD. This e-government governance can be viewed using aspects based on ICT Pura number 248/PER/DJPPI/KOMINFO/10/2011 which is used as a reference for organizational performance at 30 Local Working Units or Organisasi Perangkat Daerah (OPD) of Palembang.

Therefore, the research is conducted by analyzing the governance of e-Government in Palembang. Palembang as one of the Regional Government of South Sumatera Province which strongly supports the implementation of IT in the process of development and service tasks implementation to the community.

## II. LITERATURE REVIEW

### A. *Electronic Government*

In general definition, E-Government is an information management system and Internet-based community service. This service is provided by the government to the public. By utilizing the internet, it will bring up a lot of service module development from the government to the community that allows the active role of the community where expected that the community can independently register the licenses, monitor the settlement process, conduct it directly for any licenses and other public services. All these things with the help of internet technology will be done from anywhere and anytime [1].

The benefits that can be achieved from e-government implementation are: (1) enhancing the sense of public democracy which is reflected on the courage to express aspiration to online media; (2) the existence of environmental awareness, because it can reduce the use of paper that is widely used in government environment; (3) Ease of access (time, place, condition) are fast, so it will create efficiency and convenience; and (4) it will create public acceptance evenly.

Gil-Garcia and Martinez-Moyano [2] states that a system with great benefits certainly have a big challenge. The challenges faced by e-government are (1) the possibility of high hyper-surveillance due to loss of user's personal privacy, (2) the costs incurred is bigger, (3) the difficulty of reaching users in remote areas, and (4) there is a great possibility of misunderstanding in interpreting transparency and accountability because it was developed by the government.

### B. *Implementation of E-government*

The Implementation of e-government in the management perspective based on Presidential instruction No. 3 of 2003 on national policies and strategies of E-government development

is a "fresh air" for the implementation of communication and information technology in the field of government. Today there are many central government agencies and autonomous regional governments that take the initiative to develop public services through communication and information networks in the form of websites. However, the implementation of the majority of the Autonomous Local Government website is still at the first level (preparation) and only a small percentage that have reached the second level (maturation), while the third level (consolidation) and the fourth (utilization) have not been achieved. It means that the implementation of e-government in Indonesia is only at an early stage. Therefore, that there are many government agencies that claim to have applied e-government, however in fact, it was only at the stage of web presence [3]. The main challenge is in the ability and management readiness as well as actors rather than e-government support technologies. If it is not addressed then it can lead to the emergence of digital divide.

### C. E-Government in Indonesia

The Implementation of e-government started when the issuance of Presidential Instruction (Inpres) of Republic of Indonesia Number 3, 2003 which regulates the National Strategy and Policy relevant with the Development of e-government with the following considerations:

- 1) That the utilization of information and communication technology in governance process (e-government) will improve efficiency, effectiveness, transparency and accountability of governance.
- 2) That to organize a good governance and improve the effectivity and efficiency of public services is necessary to have e-government policy and development strategy.
- 3) That in its implementation required an equality of understanding, synchronization of action and step integration from all elements of government institutions, then it is considered necessary to issue a Presidential Instruction for the implementation of policies and strategies for the development of e-government nationally. (Inpres No. 3 of 2003, page.1)

Based on the survey conducted by United Nations in 2016 shows that Indonesia ranked 116<sup>th</sup> in the world. This rating is lower than the previous survey in 2014. The table below is the e-government ranking table in Southeast Asia.

TABLE I. E-GOVERNMENT IN SOUTH EAST ASIA

Country	E-Government		World E-Government	
	2014	2016	2014	2016
Singapore	0.9076	0.8828	3	4
Malaysia	0.6115	0.6175	52	60
Brunei Darussalam	0.5042	0.5298	86	83
Thailand	0.4631	0.5522	102	77
Philippines	0.4705	0.5766	95	71
Vietnam	0.4705	0.5143	99	89

Indonesia	0.4487	0.4478	106	116
Cambodja	0.2999	0.2593	139	158
Myanmar	0.1869	0.2362	125	169
Lao People's	0.2659	0.3090	152	148
Timor Leste	0.2528	0.2582	161	160
Sub Regional average	0.4950	0.5132		
World Average	0.4950	0.4922		

Table 1 shows that Indonesia is still left behind from Thailand, Philippines and Vietnam in implementing e-government. Based on survey results in 2014, the number of internet users in Indonesia reached 88.1 million [4]. This amount is too far from the development of e-Government in Indonesia.

### D. E-Government in Palembang

According to Presidential Instruction (Inpres) of Republic of Indonesia Number 3 of 2003 which regulates the National Strategy and Policy related to the Development of e-Government, and Regulation of Mayor of Palembang No 92 of 2011 About E-Government Development in the Environment of Palembang Government. It makes every Regional Working Unit (OPD) that exist in the scope of Palembang Government is obliged to implement what have been arranged in the governance. This Regulation was made in order that OPD in Palembang has wide openness to its special society in the terms of public information.

In the terms of use of information systems or e-government system of Palembang is compulsory. It is because Palembang has declared itself as an international city since 2012. This City has been widely known in other neighboring countries because there are many activities that have been implemented. However, the use and implementation of e-government itself has not been optimal and its use is still very limited for the internal OPDs itself.

Here are the results of E-Government research in 5 OPDS:

- 1) Department of Cooperatives and Small and Medium Enterprises or Usaha Kecil Menengah (UKM)  
All inside and outside services are not exist or active.
- 2) Social Service of Palembang  
Generally, there are the website, information system, and services inside and outside have been inactive. For the outside service is only available for Facebook, email, Instagram, and those services are quite active.
- 3) Regional Planning and Development Agency (BAPPEDA),  
Has a web page that is <http://bappedalitbang-palembang.id/> and there is a special page for civil servant or Pegawai Negeri Sipil (PNS) called DUK.
- 4) Public Health Office  
This Public service unit has serveral information systems for internal and external stakeholders including an e-schedule for employee activities displayed on the flash-shaped LCD screen, a web page that is [dinkes.palembang.go.id](http://dinkes.palembang.go.id), an attendance system using fingerprint and also has only attendance information system.

5) Civil Service and Human Resources Development Agency

It has a webpage that is bkpsdm.palembang.go.id, an attendance information system, SIMPEG, SIPD, mutation information system, an Instagram social media and the presence of KIOSKA

Furthermore, currently, all the systems are still based on desktop. Therefore, Palembang has an IT Strategic Plan as a guide to develop and build all information systems including e-government to mobile based applications for the future.

E. E-Government Measurement Concepts

This research will use the concept developed by ICT Pura no 248/PER/DJPPI/KOMINFO/10/2011 [5]. This concept consists of four aspects, the aspects will be detailed in the table below:

TABLE II. ASPECT OF IT GOVERNANCE

No	Aspects	Information
1	Planning and Organizing	<ul style="list-style-type: none"> <li>IT Strategic Master Plan (IT RENSTRA)</li> <li>IT Planning Documents</li> <li>E-government unit</li> <li>Blue Print</li> <li>Architecture Documents</li> <li>Standard of Application Type</li> <li>Methodology and Standard Mechanisms</li> <li>Methodology and Standard Mechanisms</li> <li>Measurement Methods and Cost-benefit Analysis</li> <li>Socialization and Education</li> </ul>
2	IT Procurement and Development	<ul style="list-style-type: none"> <li>Website (e-procurement)</li> <li>Funding</li> <li>Budget</li> <li>Legal Software and Products</li> <li>IT Team</li> </ul>
3	Implementation and Management	<ul style="list-style-type: none"> <li>Redundant infrastructure</li> <li>Data center</li> <li>Asset management</li> <li>Information security management</li> <li>Help desk management</li> </ul>
4	Control and Development	<ul style="list-style-type: none"> <li>Performance audit procedures</li> <li>Reward procedures</li> <li>E-government competition</li> <li>E-government award</li> <li>E-government rating</li> </ul>

III. RESEARCH METHODS

This research is a mixed method research where qualitative and quantitative methods are conducted in one study. The

purpose is to observe the existing e-government, interviews, questionnaires and documents related to the purpose of this study. The research method is combined to be done to get all the facts related to the development of e-government model and the implementation in Palembang to improve the quality of IT governance of e-government services in the areas of Palembang Government.

A. Data collection technique

The data collection procedure in this research will involve three stages:

- The first stage is to review the previous research from journals, articles, conference proceedings, books and other materials relevant to the research. Regulations, government reports and other relevant documentation are also examined to capture the ability of IT governance in improving e-government performance. These data include: Infrastructure on the external and internal parts of the city government of Palembang, a decree of the organizational structure of OPD in Palembang, and the types of e-government services conducted.
- The second stage will be an interview session. This research will use semi-structured interview to get the views and opinions from participants related to the use of IT e-government governance capability in improving public services in Palembang, as in this study there are 19 OPDs from 30 OPDs consisting of 19 respondents, namely; 8 Heads of Service, 4 IT Staff, and 7 Head of Public Relations in the areas of Palembang Government. Interview will be used to identify the current situation in the use of e-government IT governance to improve the public services in Palembang.
- The third stage, the questionnaire will be done. The data collected from the literature review and interview will be used to support in developing e-government models based on IT governance. At the beginning of this phase, an instrument test with a small number of participants will be conducted. The purpose of the trial is to ensure that the questionnaire develops well. Then, the questionnaire will be structured and presented at 6-point to examine the relationship between the role of IT governance capability and the environmental performance of the organization. The 6-point scale is used to measure the participants' perceptions in using IT governance in improving the performance of the Palembang government, which then gained an overview of IT governance of e-government to improve the government's performance.

B. Data Analysis

To process the results of IT governance of e-government of Palembang, the method of data collecting is used to analyze the data, the purpose is to group the data with the same characteristics into the same group and the data with different characteristics to the other group. At this stage the data

collecting is made into four different aspects based on the planning and organizing aspects, procurement and development aspects, implementation and management aspects, supervision and development aspects.

After getting the results, then the next is the development of e-government model to get an overview of IT governance success of e-government by using SPSS software and Microsoft Excel to generate a graphical picture. An overview of the analysis results will be used for governance-based e-government development for Palembang.

IV. FINDINGS AND DISCUSSIONS

A. Description of Research Results

This research was conducted in 19 regional working units (OPD) of Palembang that consist of 10 agencies, 7 bodies and 2 offices. Therefore the researchers will go further to discuss and analyze the governance of Palembang e-government is running, resulting an overview of Palembang governance to every government stakeholders including the community, industry, and social, as well as the influence of e-government performance on the government governance in Palembang. Moreover, that can be linked with existing problems with the implementation of e-government as one of the goals in achieving a rational government, and good governance.

B. Overview Result of Governance in 19 OPDs of Palembang

From the discussion of recapitulation of respondents' answers above, based on the assessment of four aspects, namely; planning and organizing aspects, procurement and development aspects, implementation and management aspects, supervision and development aspects. The biggest issue of e-government development in Palembang government has been seen, there are still many aspects that are still not fulfilled. However, in reality, e-government has been running for approximately 6 years from the release period of the General Director of Post and Information Technology Regulation No. 248/PER/DJPP/KOMINFO/10/2011 About Profile and Guidance of ICT Pura Program Implementation.

From the questionnaire results with 25 points of statement, then through the percentage graph will be described by OPD with the highest results and the lowest results according to the assessment of the four aspects on Figure. 1 below:

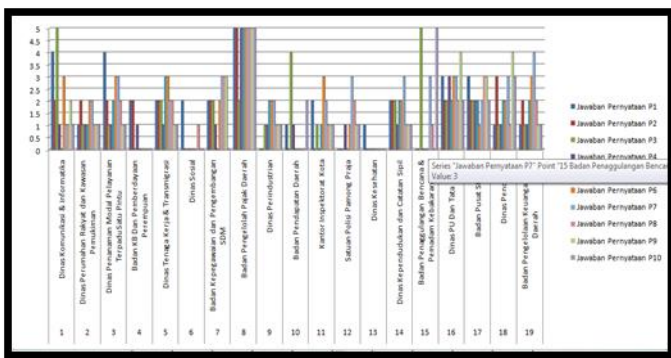


Figure. 1 Graph of Aspects Percentage of Planning and Organizing.

From the results of questionnaires with 10 points of statement, then on the percentage graph has been seen that there is 31.5% of respondents already has the master plan, IT strategic and IT Blueprint, however it is not updated. In addition, only 5.2% of respondents updating the documents periodically. In contrast, the descriptive results show that 52.6% of respondents in OPDs of Palembang that have IT master plan or IT strategic plan used as guidance or reference in organizing IT projects. In term of procedure standard of project management, more than 42% of respondents argue that there is no standard mechanism and standard of project management in the implementation of various IT projects and also framework of the mechanism used as the basis for calculating the cost benefit of any projects. This finding of research is similar with Hermana and Silfianti [6] which state that Indonesian Government is still facing several issues and constraints in implementing e-government. This is because the human resource competency is low in managing and developing the e-government.

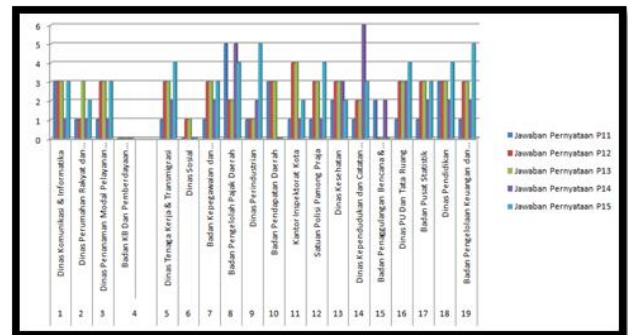


Figure. 2 Graph of Percentage of Procurement and Development Aspects.

On Figure.2 shows the percentage of IT procurement and development aspect in OPDs of Palembang. The results of current study, which is 36.8% of OPDs of Palembang employing experts from industry and university for preparing IT requirement and communication in each OPD. This is because Adoption of a new technology involves risk and uncertainty. People in countries with a high score on uncertainty avoidance are more risk-averse and do not approve of making changes and hence has a lower adoption rate to new technology/innovation [7].

In term of IT procurement, 52.6% of OPDs in Palembang utilize the applicable laws and regulations concerning the procurement of goods and services, as guidance and reference in procurement of IT products and services. This finding is supported by Auriol [8] which argues that there is a requirement of regulation in e-procurement as legal framework to avoid a corruption.

## V. CONCLUSION

Based on the research results and discussion on the influence of e-government on the implementation of governance in Palembang can concluded as follows. :

In the aspect of planning and organizing, the overall summary of respondents' answers in 19 OPDs of Palembang shows that in the terms of IT e-government planning is still lacking in its application, and also in the terms of organizing, it still seems less attention for the development of IT e-government. in the governance environment.

In the aspect of procurement and development, the summary of all respondents' answers in 19 OPDs of Palembang shows that in the aspect of procurement and development, in the development of IT e-government, the government should pay attention to the investment and operational resources to improve the implementation of IT e-government in the governance environment.

In the aspect of implementation and management, the overall of respondents' answers in 19 OPDs of Palembang shows that in the aspect of implementation and management, there are still many have not been applied, only limited to the future planning.

In the aspect of supervision and development, the overall recap of respondents' answer in 19 OPDs of Palembang shows that in the supervision and development, there is still a lack of awards in terms of IT e-government development, so that the e-government of Palembang is still unable to get the highest ranking in e-government IT competition.

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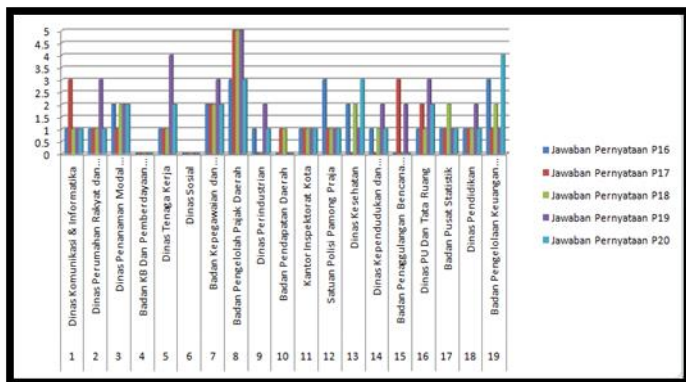


Figure 3. Graph Percentage of Implementation and Management Aspects.

In Figure.3 shows the percentage of implementation and management aspects of IT governance. The findings indicate that 47.3% of respondents has no backup systems, help desk and data centers in their operational public services and it will be planned to be built immediately. In addition, the finding also show that the porposition of IT asset management and IT security and communication management at 31.5% and 36.8% respectively. To sum up, based on the findings, Palembang Government needs to improve capacity of implementing and managing their IT.

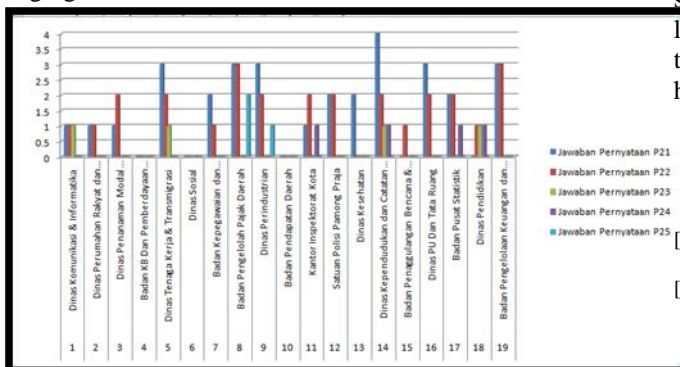


Figure 4. Graph Percentage of Monitoring and Development Aspects.

Figure.4 shows the implemented the supervision and development aspects in OPDs of Palembang. The Regional Tax Management Agency and the Department of Population and Civil Registration get the highest percentage of all in the assessment terms of supervision and development aspects with a score of 8 from a scale of 1 to 25. In contrast, 26.3% of respondents state that there is no mechanism of IT performance and communication audit conducted by external and internal parties. In term of reward mechanism, the finding shows that there is 26.3% respondents have reward procedures for those who successfully build and implement IT and also punishment for those who violate IT governance. However it is not consistently implemented. In addition, respondent also indicate that more 80% of Palembang OPDs never received any awards from other institutions including internal and external Indonesia related to the development of IT communication.