Evaluation of governance financial management information system (SIPKD) with framework of COBIT 5 in the government of Denpasar city

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Abstract. Denpasar City Government is one of the government agencies that have implemented the Regional Financial Management Information System (SIPKD). SIPKD is an integrated application that is used as a tool for regional governments for improving the effectiveness of the implementation of various regulations in the field of regional financial management based on the principles of efficiency, economic, effective, transparent, accountable and auditable. Research Evaluation of SIPKD governance in Denpasar City Government was conducted based on the framework of the COBIT 5 (Control Objective for Information & Related Technology) framework of ISACA 2012, which was modified according to the conditions at the study site. The research method used was descriptive-quantitative evaluation and cascading evaluation method at the COBIT 5 stage, by distributing questionnaires to each admin as many as 40 respondents, to get scores in the form of numbers and conducting structured interviews with BPKAD leaders to obtain the expected capability level conditions. Evaluation of SIPKD governance with COBIT 5 uses the PAM (Process Assessment Model) analysis as a reference in determining its attributes, with the results of the capability level currently at the level 3 established process in the APO01 process of 77% achieved, APO012 of 78% achieved, DSS04 by 77% mostly achieved, EDM03 by 78% largely achieved, and MEA03 by 77% largely achieved, which means that in the management of SIPKD the Denpasar City Government has been well established in managing SIPKD conducted by all SIPKD administrators and operators along with BPKAD leaders in Denpasar. And the results of the interview the desired results are at level 4 predictable process.

1. Introduction
The implementation of information technology (IT) in government agencies is very important to support the effectiveness of public services, resulting in the need of efficient knowledge and training on the part of the human resources befitting their respective fields. The Government of Denpasar City is one of the government agencies that have implemented SIPKD (Sistem Informasi Pengelolaan Keuangan Daerah, or the Information System for Regional Financial Management) since mid-2010 with an adjustment phase marking the shift from the previous system applied by the City Government, namely the SIMDA (Sistem Informasi Managemen Daerah or the Regional Management Information System). To create parity sequence in regional financial management, SIMDA was replaced with SIPKD. The implementation of SIPKD was started in the early January 2011 by 34 Regional...
Government Apparatuses, or known as Organisasi Perangkat Daerah Pemerintah Kota Denpasar, abbreviated as OPD of Denpasar City.

Financial data processing implemented by the Government of Denpasar City is expected to be effective when considered from important elements in the application of regional financial management systems such as data security, speed and timeliness, accuracy, variation of reports / outputs and relevance to achieve transparency and accountability of financial reports quality in regional financial management of Denpasar City Government. Based on the BPK's opinion on May 25, 2012, the Government of Denpasar City Financial Report in 2011 received a Fair Opinion in Exception (WDP) opinion according to the Audit Result Report (LHP) Number 06.A/BPK.DPS/05/2012. Furthermore, the BPK's opinion on May 30, 2013 for the 2012 Denpasar City Government Financial Report experienced an increase of positive opinion, from a Fair With Exception (WDP) opinion to a Fair Without Exception (WTP) in accordance with LHP Number 04.A/LHP/XIX.DPS/05/2013. This is an improvement in the performance of agencies in the Government of Denpasar city because it shows that the presentation of Financial Statements in line to Government Accounting Standards and applicable laws which presented reliably and timely [2].

However, due to mandated reshuffles in the placements of the human resources across OPDs in Denpasar City and beyond, there have been issues among the employees because employees who are already fluent in operating and managing information systems and replaced with employees who are not fluent in operating or managing the information systems, so they have to readjust when to the new operating and managing information systems that they are assigned to. Since this reshuffle, no evaluation of information system governance has been conducted to determine the current condition of information system governance, and information system governance conditions that are expected to improve SIPKD performance. The absence of a reference to the best practice of information systems governance, which makes it easier for users to overcome problems that exist in the information system. Thus, the present study aimed at evaluating the SIPKD governance using the COBIT 5 framework, which were then modified according to the location of the study [9]. The assessment of SIPKD governance capability levels, value of the current capability level of SIPKD governance (Current capability level), and the capability level of information technology governance is expected (expected capability level) to produce recommendations in improving SIPKD governance.

More specifically, the objectives of the current study are (1) to identify how the current capability level is related to the SIPKD governance evaluation process with the COBIT 5 framework in Denpasar City Government; (2) to identify the expected capability level indicator related to the SIPKD governance evaluation process with the COBIT 5 framework at the Denpasar City Government; (3) to identify the gaps in capability levels between current and expected conditions related to the SIPKD governance evaluation process with the COBIT 5 framework for the Denpasar City Government; (4) to propose recommendations for improving information technology governance related to the SIPKD governance evaluation process with the COBIT 5 framework in the Denpasar City Government.

2. Subject Of The Study
The subject of this study is the governance of the Regional Financial Management Information System (SIPKD) in the Government of Denpasar City using the Control Objective for Information and Related Technology (COBIT 5) framework.

3. Research Method
COBIT 5 the Maturity Model assigns more importance to the processes. The task of the new Process Capability Model is the same as the Maturity Model, but the structure of the framework is modified. As seen in Figure 1, the number of levels for assessing a process is the same (six) compared to the Maturity Model. However, the name, the meaning, and especially the attributes for assessing a process are different[10].
Cascading COBIT 5 is a mechanism to translate needs, interests into specific company targets, can be followed up and adjusted, goals related to IT and possible goals. According to [1], cascading plot can be described as follows:

The company's business goals are the main things that must be implemented by the company. Denpasar City Government in terms of managing financial management has business objectives that have been mapped with the balance scorecard perspective, namely financial, customer, internal and learn and growth to determine the direction of the company's business goals in the City Government of Denapasar. The following is a table mapping the business objectives of the Denpasar City Government in financial management using SIPKD as a support in financial management.

| Bsc Dimension | Enterprise Goal                      |
|---------------|--------------------------------------|
| Financial     | Eg 4 Compliance with external laws and regulations |
|               | Eg 5 Financial Transparency          |
The results relating to the business objectives of the City Government of Denpasar are numbers Eg 4, EG 5, Eg 7, Eg 15. There are 3 dimensions related to the business objectives of the Denpasar City Government, namely Financial, Customer, and Internal Dimensions (see Table 1).

| Table 2. Mapping of Company’s Goals (IT-Related Goal). |
|-----------------|---------------------------------------------------|
| Bsc Dimension   | IT Related Goal                                   |
| Financial       | ITRG 2 IT compliance and support for business compliance with external laws and regulations |
|                 | ITRG 9 IT Agility                                 |
| Internal        | ITRG 10 Security of information, processing infrastructure and applications |
|                 | ITRG 12 Enablement and support of business processes by integrating applications and technology into business processes |
|                 | ITRG 14 Availability of reliable and useful information for decision making |

The results related to the company’s goals of the City Government of Denpasar are numbers ITRG 2, ITRG 9, ITRG 10, ITRG 12, ITRG 14. There are 2 dimensions related to the business objectives of the Denpasar City Government namely Financial and Internal dimensions (see Table 2).

| Table 3. The Process of Relevant COBIT 5. |
|------------------------------------------|
| Process Reference Model | Satisfy the business requirement by having stable, cost-effective, integrated and standard application systems, resources and capabilities that meet current and future business requirements. |
| EDM 03 Ensure Risk Optimization         | Satisfy the business requirement by supplying accurate and timely control over current and future IT services, associated risks and responsibilities. |
| APO 01 Manage the IT Management Framework | Satisfy the business requirement by implementing new or changed systems that function without major problems after installation. |
| APO 12 Manage Risk                      | Satisfy the business requirement by protecting the achievement of IT objectives while complying with internal controls. |
| DSS 04 Manage Continuity                | Satisfy the business requirement by integrating IT governance with enterprise governance and complying with laws, regulations and contracts. |
| MEA 03 Monitor, Evaluate and Assess Compliance with External Requirements | |


The results of the mapping between ITRG and COBIT 5 Process are EDM 03 Ensure Risk Optimization, APO 01 Manage the IT Management Framework, APO 12 Manage Risk, DSS 04 Manage Continuity, MEA 03 Monitor, Evaluate and Assess Compliance with External Requirements, COBIT 5 process found as an instrument in this study (see Table 3) The scale used is in the form of a percentage of the implementation of the processes carried out, in accordance with Table 4 of the capability level scale.

**Table 4. Capability Level Scale [5].**

| Percentage Information | N (Not Achieved) | P (Partially Achieved) | L (Largely Achieved) | F (Fully Achieved) |
|------------------------|------------------|------------------------|----------------------|--------------------|
| <15%                   |                  |                        |                      |                    |
| 15%-50%                |                  |                        |                      |                    |
| 50%-85%                |                  |                        |                      |                    |
| 85%-100%               |                  |                        |                      |                    |

A process is sufficient when it achieves the category of largely achieved L with a range of values ranging from 50-85% or fully achieved, F with a range of values ranging from 85% -100% to be stated that the process has reached a certain capability level, but the process must reach the category of fully achieved (F) to continue the next level of assessment [5]. This is because the assessment begins by looking at whether the process has been carried out and is on a certain scale [3]. In accordance with Table 5 mapping the attributes of the capability level.

**Table 5. Mapping Attributes to Capability Level [5].**

| Level Capability | Attribute | 1 | 2 | 3 | 4 | 5 |
|------------------|-----------|---|---|---|---|---|
| Proses Assesment Model |           |   |   |   |   |   |
| Level 5 Optimizing | PA 5.2 Optimization | L/F |   |   |   |   |
|                   | PA 5.1 Innovation |   |   |   |   |   |
| level 4 Predictable | PA 4.2 Control |   | L/F | F |   |   |
|                   | PA 4.1 Measurement |   |   |   |   |   |
| Level 3 Established | PA 3.2 Deployment |   |   | L/F | F | F |
|                   | PA 3.1 Definition |   |   |   |   |   |
|                   | PA 2.2 Management of Work Product |   |   | L/F | F | F | F |
| Level 2 Managed | PA 2.1 Management Performance | L/F | F | F | F | F |
| Level 1 Performed | PA 1.1 Performance Processes | L/F | F | F | F | F |
| Level 0 Incomplete |           |   |   |   |   |   |
4. Result and Discussion

In the evaluation of governance, SIPKD calculation results are presented in graphic form as follows:

![Graph showing the capability level of SIPKD governance in Denpasar City Government](image)

**Figure 3.** Calculation of Capability Level with COBIT 5.

Current capability level or current capability level is symbolized in blue which is at level 3 established process in APO, DSS, MEA, and EDM domains with APO 01, APO 12, DSS 04, MEA 03, and EDM 03 domains. Expected capability level or the expected capability level is at level 4 predictable process, which is shown in orange on the above block chart. Based on the results of interviews with BPKAD leaders in Denpasar who agreed and supported the SIPKD governance evaluation thesis at the Denpasar City Government, it was at level 4. The resulting gap analysis is a gap of 1 level between the current capability level and the expected level, showing that the City Government Denpasar has established a good management of SIPKD. The results of the assessment of each process domain are explained as follows:

a. Domain Evaluate, Direct, and Monitor (EDM) Calculation Results The EDM 03 process is the level of capability of applying the COBIT 5 framework in evaluating SIPKD governance in Denpasar City Government, which can be seen in Figure 3, obtaining level 3 capability (Established Process) with an average of 78 % (Lagely Achieved), which means the Denpasar City Government has implemented good quality IT governance as indicated by the addition of new modules in SIPKD in accordance with central government regulations, administrators and leaders coordinating with USADI to be updated according to information system requirements because SIPKD is used in the current fiscal year.

b. The results of the calculation of the Domain Align, Plan, and Organize (APO) APO 01 process is the level of capability of implementing the COBIT 5 framework in the evaluation of SIPKD governance in Denpasar City Government, which can be seen in Figure 3, obtaining a level 3 capability (Established Process) with an average of 77 % (Lagely Achieved), where the source of data and information needed in inputting data in SIPKD is accurately obtained from the functional SPJ from the expenditure treasurer and the treasurer of revenue inputted by the SIPKD operator, but some problems are caused by SIPKD operators in inputting financial data and editing them return does not match the given validation manual document.

c. The results of the calculation of the Domain Align, Plan, and Organize (APO) APO 12 process are the level of capability of applying the COBIT 5 framework in the evaluation of SIPKD governance in Denpasar City Government, which can be seen in Figure 3, obtaining a level 3 capability (Established Process) with an average of 78 % (Lagely Achieved), where in
the management of SIPKD all stakeholders have the responsibility of each input data error by the SIPKD operator, which will have an imbalance between the manual number and the SIPKD number causing the administrator to correct without backing up the database on the Sql Server because it requires considerable time in correcting these validated journals, which in turn will have an impact on the slow delivery of financial statements.

d. Results of Calculation of Deliver, Service and Support Domain (DSS) DSS 04 process is the level of capability of applying COBIT 5 framework in the evaluation of SIPKD governance in Denpasar City Government, which can be seen in figure 3, obtaining level 3 capability (Established Process) with an average of 77% (Lagely Achieved), where Administrators and SIPKD operators receive financial reporting technical guidance training and training to maintain financial data on SIPKD so that the data will not be misused for personal gain.

e. Domain Monitoring, Evaluate, and Assess (MEA) Calculation Results MEA 03 process is the level of capability of applying COBIT 5 framework in the evaluation of SIPKD governance in Denpasar City Government, which can be seen in Figure 3, obtaining level 3 capability (Established Process) with an average of 77% (Lagely Achieved), where the integration process in SIPKD is only done in the BLUD realization journal owned by Rs. Wangaya Denpasar because Financial Data Management in BLUD is managed by the SIMRS application, so it influences the LG report.

5. Conclusion
The Government of Denpasar City has SIPKD as an integrated application in financial management, it is very important that SIPKD governance is implemented properly. The current capability level of the Denpasar City Government in each COBIT 5 process is at the level 3, established process in the APO 01 process 77% has been achieved, APO 12 78% has been achieved, DSS 04 77% has been achieved, EDM03 78% has achieved, and MEA03 has been 77% largely achieved, which means that in the management of SIPKD the Denpasar City Government has been well established, as conducted by all SIPKD administrators and operators along with the leadership of the Denpasar City BPKAD. Based on the results of interviews with BPKAD top management, the expected capability level of SIPKD management in Denpasar City is at level 4 predictable process, which means IT COBIT 5 governance processes are carried out to determine the results of SIPKD governance measurement and can predict existing problems in SIPKD so that the core business or enterprise goals of BPKAD can be met properly.

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