

VOL. 17 NO. 3 SEPTEMBER 2016

ISSN : 1411-3201

Jurnal Ilmiah

DASI

DATA MANAJEMEN DAN TEKNOLOGI INFORMASI



STMIK AMIKOM
YOGYAKARTA

VOL. 17 NO. 3 SEPTEMBER 2016

ISSN:1411-3201

JURNAL
ILMIAH
DASI

**DATA MANAJEMEN DAN
TEKNOLOGI INFORMASI**



**STMIK AMIKOM
YOGYAKARTA**

VOL. 17 NO. 3 SEPTEMBER 2016
JURNAL ILMIAH
Data Manajemen Dan Teknologi Informasi

Terbit empat kali setahun pada bulan Maret, Juni, September dan Desember berisi artikel hasil penelitian dan kajian analitis kritis di dalam bidang manajemen informatika dan teknologi informatika. ISSN 1411-3201, diterbitkan pertama kali pada tahun 2000.

KETUA PENYUNTING

Abidarin Rosidi

WAKIL KETUA PENYUNTING

Heri Sismoro

PENYUNTING PELAKSANA

Emha Taufiq Luthfi

Hanif Al Fatta

Hartatik

Hastari Utama

STAF AHLI (MITRA BESTARI)

Jazi Eko Istiyanto (FMIPA UGM)

H. Wasito (PAU-UGM)

Supriyoko (Universitas Sarjana Wiyata)

Ema Utami (AMIKOM)

Kusrini (AMIKOM)

Amir Fatah Sofyan (AMIKOM)

Ferry Wahyu Wibowo (AMIKOM)

Rum Andri KR (AMIKOM)

Arief Setyanto (AMIKOM)

Krisnawati (AMIKOM)

ARTISTIK

Robert Marco

TATA USAHA

Nila Feby Puspitasari

PENANGGUNG JAWAB :

Ketua STMIK AMIKOM Yogyakarta, Prof. Dr. M. Suyanto, M.M.

ALAMAT PENYUNTING & TATA USAHA

STMIK AMIKOM Yogyakarta, Jl. Ring Road Utara Condong Catur Yogyakarta, Telp. (0274) 884201 Fax. (0274) 884208, Email : jurnal@amikom.ac.id

BERLANGGANAN

Langganan dapat dilakukan dengan pemesanan untuk minimal 4 edisi (1 tahun)

pulau jawa Rp. 50.000 x 4 = Rp. 200.000,00 untuk luar jawa ditambah ongkos kirim.

JURNAL ILMIAH

DASI

DATA MANAJEMEN DAN TEKNOLOGI INFORMASI

**SEKOLAH TINGGI MANAJEMEN INFORMATIKA DAN KOMPUTER
AMIKOM
YOGYAKARTA**

JURNAL ILMIAH

DASI

KATA PENGANTAR

Puji syukur kehadirat Tuhan Yang Maha Kuasa atas anugerahnya sehingga jurnal edisi kali ini berhasil disusun dan terbit. Beberapa tulisan yang telah melalui koreksi materi dari mitra bestari dan revisi redaksional dari penulis, pada edisi ini diterbitkan. Adapun jenis tulisan pada jurnal ini adalah hasil dari penelitian dan pemikiran konseptual. Redaksi mencoba selalu mengadakan pembenahan kualitas dari jurnal dalam beberapa aspek.

Beberapa pakar di bidangnya juga telah diajak untuk berkolaborasi mengawal penerbitan jurnal ini. Materi tulisan pada jurnal berasal dari dosen tetap dan tidak tetap STMIK AMIKOM Yogyakarta serta dari luar STMIK AMIKOM Yogyakarta.

Tak ada gading yang tak retak begitu pula kata pepatah yang selalu di kutip redaksi, kritik dan saran mohon di alamatkan ke kami baik melalui email, faksimile maupun disampaikan langsung ke redaksi. Atas kritik dan saran membangun yang pembaca berikan kami menghaturkan banyak terimakasih.

Redaksi

DAFTAR ISI

HALAMAN JUDUL.....	i
KATA PENGANTAR	ii
DAFTAR ISI.....	iii
Analisis Perbandingan Penerima Bantuan Kemiskinan Dengan Metode Weighted Product (WP) dan TOPSIS	1-6
Ni Kadek Sukerti (Sistem Informasi STMIK STIKOM Bali)	
Implementasi Promethee Sebagai Usulan Pemilihan Jasa Kontraktor	7-14
Harliana (Teknik Informatika STIKOM Poltek Cirebon)	
Sistem Informasi Pemetaan Wisata Fauna di Bali	15-20
Ni Luh Gede Pivin Suwirmayanti (Sistem Komputer STMIK STIKOM Bali)	
Performance Measurement It Of Process Capability Model Based On Cobit: A Study Case.....	21-26
Johanes Fernandes Andry (Information Systems, Bunda Mulia Univeristy)	
Perancangan Dan Pembuatan 3D Modelling Dengan Teknik Cel Shading.....	27-32
Mei Parwanto Kurniawan ¹⁾ , Eva Wahyu Fitriana ²⁾ (¹⁾ Magister Teknik Informatika STMIK AMIKOM Yogyakarta, ²⁾ Sistem Informasi STMIK AMIKOM Yogyakarta)	
Pemanfaatan Tracking Pergerakan Manusia Dalam Pembuatan Animasi Karakter 2D	33-38
Agus Purwanto ¹⁾ (¹⁾ Teknik Informatika STMIK AMIKOM Yogyakarta)	
Game Edukasi Mengenal Peristiwa Bersejarah Dan Tokoh Pahlawan di Indonesia.....	39-44
Tonny Hidayat ¹⁾ , Nofi Rahma Sari ²⁾ (¹⁾ Manajemen Informatika STMIK AMIKOM Yogyakarta, ²⁾ Teknik Informatika STMIK AMIKOM Yogyakarta)	
Penilaian Kualitas Layanan Website Pemerintah Kota Yogyakarta Menggunakan Metode E-Govqual.....	45-52
Prita Haryani (Teknik Informatika Institut Sains & Teknologi AKPRIND Yogyakarta)	
Perancangan Pesan Rahasia Aplikasi Sms Menggunakan Algoritma Rc6 Berbasis Android (Studi Kasus: PT. Time Excelindo).....	53-58
Jefrul Hanafi ¹⁾ , Hartatik ²⁾ (¹⁾ Teknik Informatika STMIK AMIKOM Yogyakarta, ²⁾ Manajemen Informatika STMIK AMIKOM Yogyakarta)	
Evaluasi Sistem Informasi Perpustakaan STMIK AMIKOM Yogyakarta	59-61
Selamat ¹⁾ , Abidarin Rosidi ²⁾ , M. Rudyanto Arief ³⁾ (¹⁾ ²⁾ ³⁾ Teknik Informatika STMIK AMIKOM Yogyakarta)	

Teknologi Web Service Sebagai Pengganti Penggunaan IP Publik Pada Alat Pengendali Lampu Jarak Jauh	62-68
Donni Prabowo (Sistem Informasi STMIK AMIKOM Yogyakarta)	
Penerapan Fuzzy MADM Model Yager Pada Sistem Pendukung Keputusan Seleksi Penerimaan Siswa Baru SMP N 4 Paku	69-75
Bety Wulan Sari (Sistem Informasi STMIK AMIKOM Yogyakarta)	

PERFORMANCE MEASUREMENT IT OF PROCESS CAPABILITY MODEL BASED ON COBIT: A STUDY CASE

Johanes Fernandes Andry

Information Systems, Bunda Mulia Univeristy
email : jandry@bundamulia.ac.id

Abstract

Training Center in Jakarta offers a certification program for the individuals and companies who wish to search for or complement international scale IT certifications. The certification program consists of training certification exam preparation and certification exams. The purpose of this research is to get an overview of the performance measurement of information technology governance in order to determine the extent of the capabilities of information technology governance in the Training Center which is currently running, with a few aspects to consider such as effectiveness, efficiency, functional unit of information technology within an organization, data integrity, safeguarding assets, reliability, confidentiality, availability, and security. The analytical tool used is the standard procedure COBIT 5 issued by ISACA. The conclusion that can be drawn from the research that has been done is IT governance at the TC has been done, although still not run optimally because they have not reached a level of maturity that is expected later process capability model within each IT process contained in the domain MEA on average was at 2(managed process).

Keywords :

Performance Mesurement, Process Capability Model, COBIT 5

Introduction

Training Center in Jakarta offers a certification program for the individuals and companies who wish to search for or complement international scale IT certifications. The certification program consists of training certification exam preparation and certification exams. Nowadays many emerging same type of business, it is certainly tighten the competition, both in terms of quality training materials to the quality of service to consumers. To ensure the quality and the services provided by the Training Center can be focused and aligned with the business objectives of the company, for the provision of training materials have instructors from professionals, practitioners and academics who have industry certifications and who have real experience in developing information technology projects based on core competence each. Nowadays there is such a tendency is increasing (growing trend) on the implementation of training and also there is an increased need for (growing demand) of the company's customers training center. Information technologies (IT) have more and more impact on companies' revenue, making differences on their evolution function. Information Systems (IS) become a serious investment in front of world market agility and exponential changing; it's also an asset on witch companies rely to achieve business goals [9].

Organizations should adhere to IT governance practices. The purpose of these practices is to ensure IT sustain and extends the organizations strategy and objectives [8]. IT governance arrangements encompass mechanisms that enable business and IT executives to formulate policies and procedures,

implement them in specific applications, and monitor outcomes. Thus, governance arrangements include structural, process, and outcome metric dimensions [2]. Control Objectives for Information and Related Technology (COBIT) is a framework created by Information Systems Audit and Control Association (ISACA) for IT management and IT governance and is now extensively used by business. ISACA is a recognized worldwide leader in IT governance, control, security and assurance [10].

The purpose of this research is to get an overview of the performance of information technology governance in order to determine the extent of the capabilities of information technology governance in the Training Center which is currently running, with a few aspects to consider such as: effectiveness, efficiency, functional unit of information technology within an organization, the data integrity, safeguarding assets, reliability, confidentiality, availability, and security. The benefits of this research was to determine the level of process capability model of information technology governance in the Training Center using COBIT 5, only focus domain MEA (Monitor Evaluate Assess).

Theory Background

Performance Measurement

Before defining the performance measurement concept, it is worth discussing its components. First, the literature defines the term "performance" as the ability of an entity, such as a person, group or organization, to make results in relation to specific and determined objectives [11]. In addition, performance is an actual work or output produced by

a specific unit or entity. To put it another way, the performance concept refers to the measurable achievements produced. Second, the term “measurement” indicates the ability and processes used to quantify and control specific activities and events [12].

IT Governance

Gartner defines IT governance as the set of processes that ensure the effective and efficient use of IT enabling an organization to achieve its goals. IT is an integral part of enterprise governance and consists of the leadership and organizational structures and processes that ensure the organization’s IT sustains and extends the organization’s strategies and objectives [7]. Information Technology Governance Institute (ITGI) defined IT Governance as "it is the responsibility of the board of directors and executive management. It is an integral part of enterprise governance and consists of the leadership and organizational structures and processes that ensure the organization's IT sustains and extends the organization's strategies and objectives" [1]. IT governance is high on the agenda of many organizations and receives a lot of attention in both academic and professional literature such as ITGI [4].

COBIT 5

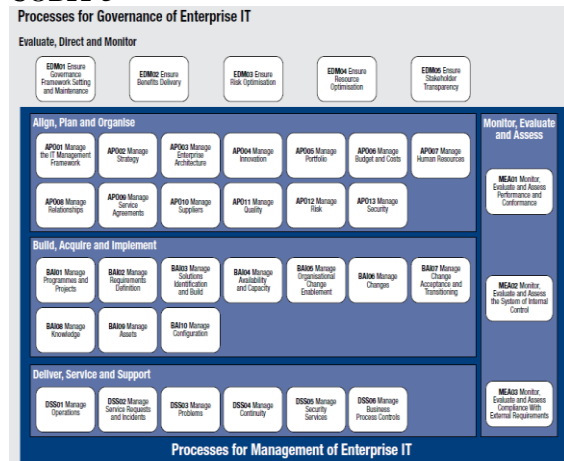


Fig. 1. COBIT 5 Process Reference Model

In 2005 ISACA introduced a new, fourth version of COBIT with a clear focus on IT governance [5]. A further version of this framework is COBIT 4.1, released in 2007, accepting the generally used frameworks such as “IT Infrastructure Library (ITIL)”, “ISO 27000 series” and “Capability Maturity Model® Integration (CMMI)” [7]. The current version of the framework, COBIT 5, was released in 2012. The COBIT 5 process reference model is the successor of the COBIT 4.1 process model, with the Risk IT and Val IT process models integrated as well. Figure 1. COBIT 5 Process Reference Model, shows the complete set of 37

governance and management processes within COBIT 5. According to [7], the six levels of the COBIT 5 Process Capability Model are:

Table 1. COBIT 5 Process Capability Model

Level	Description
Level 0: Incomplete process.	The process is not placed or it cannot reach its objective. At this level the process has no objective to achieve. For this reason this level has no attribute.
Level 1: Performed process.	The process is in place and achieves its own purpose. This level has only “Process Performance” as process attribute.
Level 2: Managed process.	The process is implemented following a series of activities such as planning, monitoring and adjusting activities. The outcomes are established, controlled and maintained. This level has “Performance Management” and “Work Product Management” as process attributes.
Level 3: Established process.	The previous level is now implemented following a defined process that allows the achievement of the process outcomes. This level has “Process Definition” and “Process Deployment” as process attributes.
Level 4: Predictable process.	This level implements processes within a defined boundary that allows the achievement of the processes outcomes. This level has “Process Management” and “Process Control” as process attributes.
Level 5: Optimising process.	This level implements processes in the way that makes it possible to achieve relevant, current and projected business goals. This level has “Process Innovation” and “Process Optimisation” as process attributes.

Research Method

Planning to study literature related to the Training Center with the vision and mission, goals and objectives as well as the company's strategic plan to analyze the vision, mission and objectives of the training center as well as the strategies, policies related to the management of IT investments.

Field observations, this research is a survey approach. The analytical tool used in this study is the standard procedure COBIT issued by ISACA (Information systems Audit And Control Association), the data can be obtained by various methods, namely:

The questionnaire, which is by distributing questionnaires to every part belonging to

management, The number of scattered management is 5. In addition, a questionnaire distributed to the user a number of 35 respondents, so the overall total respondents obtained is 40.

Reporting, after questionnaires were distributed, it will get the data to be processed to be calculated based on the maturity level calculation. For further made several steps in reporting that the results of the audit contains the findings of the present (current maturity level) and hope in the future (expected maturity level), performed gap analysis to analyze the interpretation of the current maturity level and expected and recommendation lists corrective actions to overcome gap undertaken to achieve the improvements made to the institution.

The research methodology conducted and the stages of the writer in taking or obtaining the data from the source, from the initial survey, interviews and questionnaires aimed at Research Flow Chart Figure 2, Figure 3 Flowchart of Interview and Questionnaire Flow Chart Figure 4. Focus measurement IT, only domain MEA in COBIT 5.



Fig. 2. Research Flow Chart

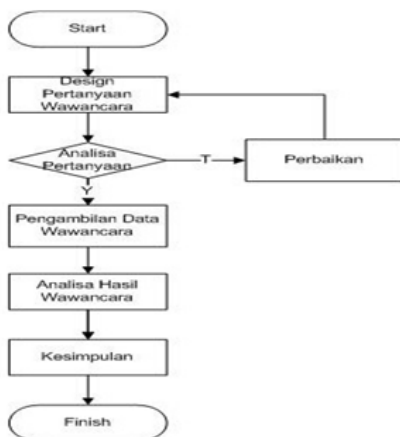


Fig. 3. Flowchart of Interview

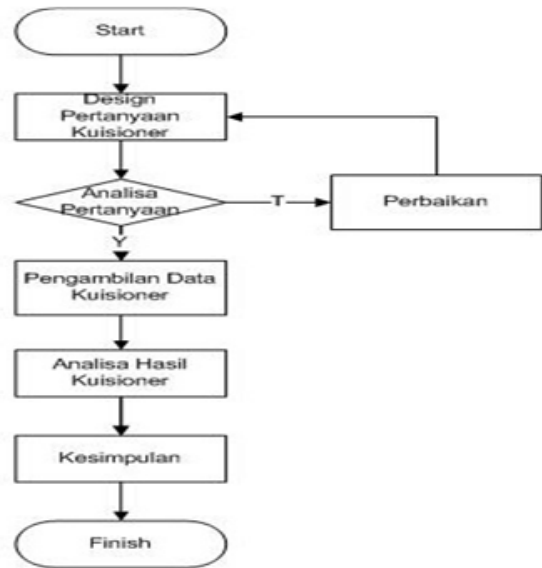


Fig. 4. Questionnaire Flow Chart

Result and Analysis

Training Center (here in after call as TC) is a business company has been running since 2012 has had experience delivering information technology solutions and professional services for many companies in Indonesia, from small medium business until enterprises. The ability and success of the company in providing training not only supported by a solid team which consists of professional trainers who are advanced in their field but also of factors of cooperation from a client that was maintained well up to now, both for training public and in-house training. This chapter, the author will analyze general control with the COBIT 5 framework approach. Authors will analyze more to the environment that occur within the IT department TC, from employees, equipment, physical security, regulations, etc.

MEA01 Monitor, evaluate and assess performance and conformance.

In this stage the author will analyze:

1. Goals and metrics are approved by the stakeholders,
2. Processes are measured against agreed-on goals and metrics,
3. The enterprise monitoring, assessing and informing approach is effective and operational,
4. Goals and metrics are integrated within enterprise monitoring systems, and
5. Process reporting on performance and conformance is useful and timely.

Process descriptions are collect, validate and evaluate business, IT and process goals and metrics. Monitor that processes are performing against agreed-on performance and Conformance goals and metrics and provide reporting that is systematic and timely. Expected process capabilities model of

MEA01 Monitor, evaluate and assess performance and conformance is Level 4, predictable process. [3].

Concluded the average MEA01 Monitor, evaluate and assess performance and conformance being at the level 2.6, managed process. Can be seen from Table II. Process Capability Model MEA01 Monitor, evaluate and assess performance and conformance, results that the average level of maturity TC at this stage to get the value of 2.6 which means that the company is still on track to grow in the future. Here it can be seen that the highest stage is MEA01 which means TC very concerned regulatory system that occurs between them with the client and government. The results can also be shown in Figure 5 Process Capability Model MEA01.

Table 2. Process Capability Domain MEA01 Monitor, Evaluate And Assess Performance And Conformance.

No.	PROCESS CAPABILITY DOMAIN MEA01 MONITOR, EVALUATE AND ASSESS PERFORMANCE AND CONFORMANCE.		
	Sub Domain	Current	Expected
MEA 01.01	Establish a monitoring approach.	3	4
MEA 01.02	Set performance and conformance targets.	2	4
MEA 01.03	Collect and process performance and conformance data.	2	4
MEA 01.04	Analyse and report performance.	3	4
MEA 01.05	Ensure the implementation of corrective actions.	3	4

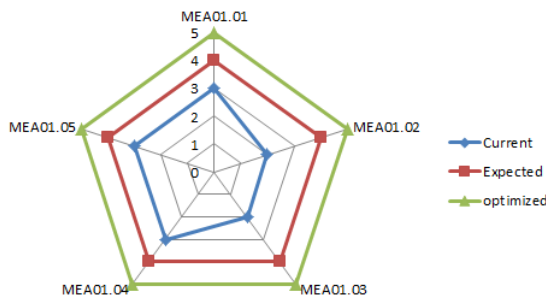


Fig. 5. Process Capability Domain MEA01 MEA02 Monitor, evaluate and assess the system of internal control.

In this stage the author will analyze:

1. Processes, resources and information meet enterprise internal control system requirements,
2. All assurance initiatives are planned and executed effectively,
3. Independent assurance that the system of internal control is operational and effective is provided and
4. Internal control is established and deficiencies are identified and reported.

Process descriptions are continuously monitor and evaluate the control environment, including self-assessments and independent assurance reviews. Enable management to identify control deficiencies and inefficiencies and to initiate improvement actions. Plan, organize and maintain standards for internal control assessment and assurance activities. Expected process capabilities model of MEA02 Monitor, evaluate and assess the system of internal control is Level 4, predictable process. [3].

Concluded the average MEA02 Monitor, evaluate and assess the system of internal control being at the level 2.375, managed process. Can be seen from Table III. Process Capability Model MEA02 Monitor, evaluate and assess the system of internal control, results that the average level of maturity TC at this stage to get the value of 2.375 which means that the company is still on track to grow in the future. Here it can be seen that the highest stage is MEA01 which means TC very concerned regulatory system that occurs between them with the client and government. The results can also be shown in Figure 6 Process Capability Model MEA02.

Table 3. Process Capability Domain Mea02 Monitor, Evaluate And Assess The System Of Internal Control.

No.	PROCESS CAPABILITY DOMAIN MEA02 Monitor, evaluate and assess the system of internal control..		
	Sub Domain	Current	Expected
MEA 02.01	Monitor internal controls.	3	4
MEA 02.02	Review business process controls effectiveness.	3	4
MEA 02.03	Perform control self-assessments.	2	4
MEA 02.04	Identify and report control deficiencies.	2	4
MEA 02.05	Ensure that assurance providers are independent and qualified.	2	4
MEA 02.06	Plan assurance initiatives.	3	4
MEA 02.07	Scope assurance initiatives.	2	4

No.	PROCESS CAPABILITY DOMAIN MEA02 Monitor, evaluate and assess the system of internal control..		
	Sub Domain	Current	Expected
MEA 02.08	Execute assurance initiatives.	2	4

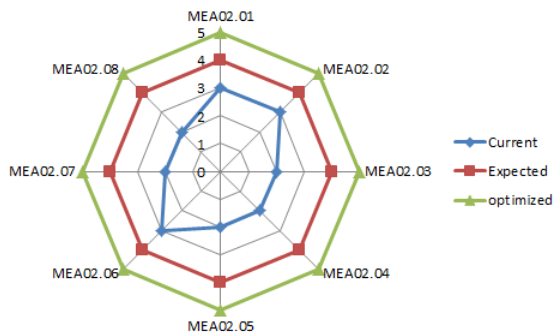


Fig. 6. Process Capability Domain Mea02

MEA03 Monitor, evaluate and assess compliance with external requirements.

In this stage the author will analyze:

1. All external compliance requirements are identified.
2. External compliance requirements are adequately addressed.

Process descriptions are Evaluate that IT processes and IT-supported business processes are compliant with laws, regulations and contractual requirements. Obtain assurance that the requirements have been identified and complied with, and integrate IT compliance with overall enterprise compliance. Expected process capabilities model of MEA03 Monitor, evaluate and assess compliance with external requirements is Level 4, predictable process [3].

Concluded the average MEA03 Monitor, evaluate and assess compliance with external requirements being at the level 2.25, managed process. Can be seen from Table IV. Process Capability Model MEA03 Monitor, evaluate and assess compliance with external requirements, results that the average level of maturity TC at this stage to get the value of 2.25 which means that the company is still on track to grow in the future. Here it can be seen that the highest stage is MEA03 which means TC very concerned regulatory system that occurs between them with the client and government. The results can also be shown in Figure 7 Process Capability Model MEA03.

Table 4. Process Capability Domain Mea03 Monitor, Evaluate And Assess Compliance With External Requirements.

No.	PROCESS CAPABILITY DOMAIN MEA03 Monitor, evaluate and assess compliance with external requirements.		
-----	--	--	--

	Sub Domain	Current	Expected
MEA 03.01	Identify external compliance requirements.	3	4
MEA 03.02	Optimise response to external requirements.	2	4
MEA 03.03	Confirm external compliance.	2	4
MEA 03.04	Obtain assurance of external compliance.	2	4

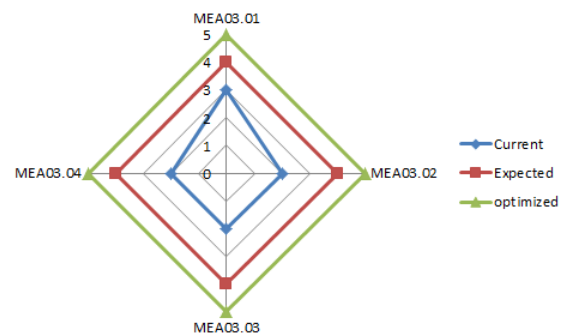


Fig. 7. Process Capability Domain Mea03

CONCLUSION

The conclusion that can be drawn from the research that has been done is IT governance at the TC has been done, although still not run optimally because they have not reached a process capability model (maturity level) within each IT process contained in the domain Monitor Evaluate Assess (MEA) on average was at 2.0 (manage process), with average sub domain MEA01 Monitor, evaluate and assess performance and conformance at level 2.6, MEA02 Monitor, evaluate and assess the system of internal control at level 2.4 and MEA03 Monitor, evaluate and assess compliance with external requirements at level 2.3. In conducting activities related to the management of information technology governance, but its existence has not been well defined and formal so it is still happening inconsistency.

Daftar Pustaka

[1] Al-Zwyalif, I. M., 2013, IT Governance and its Impact on the Usefulness of Accounting Information Reported in Financial Statements, *International Journal of Business and Social Science*, Vol. 4, no. 2, pp. 83-94.
 [2] Bowen, P.L., Cheung, M. Y. D., Rohde, F. H., 2007, Enhancing IT governance practices: A model and case study of an organization's efforts, *International Journal of Accounting Information Systems* 8, pp. 191-221.

- [3] COBIT 5, 2012, *Enabling Processes an ISACA framework*, ISBN 978-1-60420-241-0.
- [4] Haes, S. D., Grembergen, W. V., *Information Technology Governance Best Practices in Belgian Organisations*, Available: www.uams.be/itag.
- [5] ITGI, 2007, *COBIT 4.1 Excerpt*, p. 9.
- [6] Jacobson, D. D., 2009, Revisiting IT Governance in the Light of Institutional Theory, In *System Sciences, 42nd Hawaii International Conference on IEEE*, pp. 1-9.
- [7] Khanyile, S., Abdullah, H., *COBIT 5: an evolutionary framework and only framework to address the governance and management of enterprise IT*, UNISA.
- [8] Marewick, C., Labuschagne, L., 2011, An Investigation Into The Governance of Information Technology Projects in South Africa,” *International Journal of Project Management*, Vol. 29, no. 6, pp. 661-670.
- [9] Meriyem, C., Adil, S., Hicham, M., 2015, IT Governance Ontology Building Process : Example of developing Audit Ontology, *International Journal of Computer Techniques*, Vol. 2, Issue 1, pp. 134-141.
- [10] Pasquini, A., 2013, COBIT 5 and the Process Capability Model. Improvements Provided for IT Governance Process, *Proceedings of FIKUSZ '13 Symposium for Young Researchers*, pp. 67-76.
- [11] Wraikat, M. M., 2010, Information Technology Governance Role in Enhancing Performance: A Case Study on Jordan Public Sector, *Proceedings of the World Congress on Engineering and Computer Science*, Vol. 1.
- [12] Zeglat D., AlRawabdeh, W., F., Almadi and Shrafat, F., 2012, Performance Measurements Systems: Stages of Development Leading to Success, *Interdisciplinary Journal of Contemporary Research in Business*, Vol. 4, no. 7, pp. 440-448.