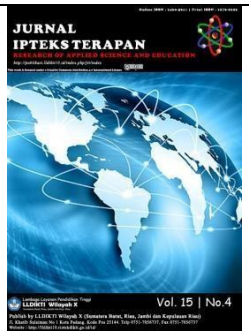

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COBIT 4.1: AUDIT INFORMATION SYSTEM FINGERPRINT

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Abstract

The development of Information Technology (IT) is currently growing so rapidly. So that the information system has penetrated almost every field of everyday life. There are several types of technology that are usually used by companies, especially to support the human resource management section in managing information in companies and one of them is by implementing technology from an information system regarding attendance. The role of IT in organizational operational processes, the Cooperative Industry and Trade office uses a fingerprint record system for taking attendance. The attendance-taking tool has a sophisticated electronic system that only reads the fingerprint patterns of each employee. With this fingerprint attendance, employees can be motivated to arrive early because fingerprint attendance cannot manipulate employee attendance in the office. This study uses the COBIT 4.1 method which focuses on the DS (Delivery and Support), and ME (Monitor and Evaluate) domains. By calculating the maturity level, the DS value of 4.58 is obtained at level 5, namely Optimized Level, which means that agencies have implemented information technology very well and agencies need to maintain system stability so that it continues to develop, while the ME calculated on a scale of 3.99 is at the level 4, namely managed level, which means that security in the system is quite good and only needs to be evaluated so that the vision and mission of the agency are achieved.

Keywords: Audits, System Information, COBIT 4.1, Fingerprint, Service.

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INTRODUCTION

The development of Information Technology (IT) is currently growing so fast. So that the Information System (IS) has penetrated almost every area of everyday life. Almost all companies, institutions, and organizations today have used technology to carry out their business processes [1]. In general, business actors use information technology to support every work operational activity within the company so that it can run optimally. In addition, this is done so that each job can be done quickly and efficiently. In the end, it will also impact improvements related to the productivity and performance of employees working at the company. There are several types of technology that are usually used by companies, especially to support the human resource management section in managing information at the company and one of them is by implementing technology from an information system regarding attendance [2]. Absence is an important part of the company, as information related to employee attendance, and the use of time according to company operational standard rules can be known from the time of attendance. So, in principle, the attendance system can help management to monitor the condition of employees in carrying out their work so that the company can maximize employee performance to achieve the goals that are the company's goals [3]. One of the functions of human resource management is discipline. Discipline is the most important function in human resource management because the better the employee discipline, the higher the work performance that can be achieved. Without good work discipline, it is difficult for corporate organizations to achieve optimal results [4].

The rapid development of IT in assisting companies or institutions must be balanced with an evaluation or audit of information systems on the use of IT, to minimize risks and losses to the company/organization, use of IT as a support in achieving the vision and mission of the organization/company. Thus, an effective and efficient monitoring and evaluation system is needed[5]. An information system audit is needed to maintain the security of information systems as an organizational asset, and to maintain the integrity of information stored and managed to increase the effectiveness of IT use and support efficiency within the organization/company [6].

The information system audit functions to ensure that the company's information systems security information assets, use the system effectively and efficiently, and maintain integrity [7]. In a previous study conducted by Tukino on attendance information system audits at PT Multi Engineering Perkasa, the Attendance Information System was audited under COBIT 4.1, focusing on all sub-sectors of the ME domain. Research is needed because it has attendance problems, and the company has never audited an attendance information system. Based on the information analysis results on the information system's maturity level, using the processes contained in the ME1 sub-sector which has a rounded value of up to 3, and the ME2 sub-sector which has a rounded value. 3, the ME3 subsystem has rounded values of 3, and the ME4

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subsystem has 3 rounded values. IT maturity level 3 [8]. The Solok City Office of Cooperatives, Industry, Trade, Markets, and Industry is an element of implementing government affairs in the field of industry and trade which is the authority of the region, meaning that they have the task of assisting the regent or regional head in carrying out regional affairs. The KOPERINDAG service has used the role of IT in organizational operational processes, and the KOPERINDAG service in Solok city has used a fingerprint information system. The fingerprint device has a sophisticated electronic system only fingerprinting the thumbs of each employee, also with fingerprint attendance employees can be motivated to come not late and be more diligent in coming to the office because fingerprint attendance cannot manipulate employee presence in the office [9].

The use of supporting information systems in supporting services at the Solok City KOPERINDAG Service requires good system management to support the user service process. Therefore, an evaluation or assessment of the application of technology in the company is carried out, and an information system audit is carried out with the aim of knowing the extent to which the performance of IS/IT, the company's human resources is carried out, and to determine the maturity level of the use of IT in the company so that the use of information technology in the company can play a significant role. maximum [10].

This study uses Control Objective for Information and related Technology (COBIT) 4.1 instead of COBIT 5 because the application of the maturity level still uses the Capability Maturity Level instead of the Process Maturity Level in COBIT 5 so the use of COBIT 4.1 is more optimal than COBIT 5 and is a representative framework and covers all issues of planning, implementing, operating and monitoring the process of running all of the company's business processes[11] [12]. COBIT version 4.1 was released in 2007. COBIT was developed by the IT Governance Institute (ITGI) in collaboration with experts from various fields of industry, academia, government, and IT security and control. The research is carried out in-depth by studying from various sources to work together to produce the best ideas to create technical and professional standards. The COBIT 4.1 framework divides information technology processes into 4 domains, namely Plan and Organize (PO), Acquire and Implement (AI), Deliver and Support (DS), and Monitor and Evaluate (ME) with a total of 34 processes in it [8]. The reason for choosing this framework is because COBIT 4.1 completely covers all aspects of the enterprise. The processing industry discusses strategies and controls so that the use of IT management is in line with business goals. Information System (IT)/IT Audit is the stage of gathering evidence to assess whether an information system can protect the assets of an existing information technology company that has maintained data integrity so that both can effectively achieve business goals [3].

Currently, service in improving the discipline of official employees has used a fingerprint information system (fingerprint). A fingerprint is an attendance machine that uses fingerprints, but everyone's fingerprints are not the

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same, so they cannot be manipulated with this automatic machine. The process used to generate reports can be done quickly and accurately. The purpose of this study was to determine the quality of the application of fingerprint information systems to employee discipline.

RESEARCH METHODS

The stages of this research explain the steps in conducting system analysis in the form of recording data and collecting several reports that need to be used as guidelines in conducting research. The stages of this research explain the steps in conducting system analysis in the form of recording data and collecting several reports that need to be used as guidelines in conducting research. From the calculations that have been carried out, it will be implemented using the PHP programming language and MySQL database as an aid in conducting an audit of the implementation of the fingerprint information system.

RESULTS AND DISCUSSION

This stage describes the results and discussion of all the stages that have been carried out on the application that has been tested. This is done in order to produce conclusions. The use of this system analysis is as a tool to measure and determine the maturity level of information technology that has been running in accordance with the performance of the system which is analyzed using the COBIT 4.1 domain, namely Delivery and Support (DS) and Monitoring and Evaluate (ME).

The results of the index calculation used aim to determine the maturity level value in the DS domain. The calculation results can be seen in Table 1:

P	TP	JR	TP * JR	JNJ	Index
DS1	1	37	37	161	4.35
DS2	1	37	37	174	4.70
DS3	1	37	37	173	4.67
DS4	1	37	37	174	4.70
DS5	1	37	37	169	4.56
DS7	1	37	37	171	4.62
DS8	1	37	37	168	4.54
DS10	1	37	37	170	4.59
DS11	1	37	37	170	4.59
DS13	1	37	37	165	4.45

Table 1. DS Calculations

To evaluate the level of maturity, the authors designed a calculation system that can assist in decision-making. In designing this model, the Unified Modeling Language (UML) will be used to design an information system audit model. Use Case Diagram. Implementation in this study is the stage of using the system so that it can be operated. The implementation aims to confirm the test on this questionnaire calculation system so that the results of this calculation can provide information about the information system audit being studied so that if there are deficiencies, further development can be carried out by the auditor.

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JURNAL IPTEKS TERAPAN
Research of Applied Science and Education V16.i4 (640-645)

E-ISSN : 2460-5611

Domain	Keterangan	Rata-rata	Skala	Target	Gap	Rekomendasi
DS7	Mendidik dan melatih pengguna	4.62	5.00	5.00	0.38	Kebutuhan akan adanya pelatihan mulai diidentifikasi dalam rencana kinerja individu karyawan akan tetapi belum memiliki proses pelatihan .
DS10	Mengelola permasalahan	4.59	5.00	5.00	0.41	Menggambarkan bahwa pada setiap masalah yang muncul saat penerapan Sistem Informasi telah dapat terkelola dengan baik.
DS13	Mengelola oprasi	4.46	4.00	5.00	0.54	Menggambarkan bahwa pada setiap masalah yang muncul saat penerapan Sistem Informasi telah dapat terkelola dengan baik.
DS3	Mengelola kinerja dan kapasitas	4.68	5.00	5.00	0.32	kinerja sistem informasi sudah baik, terus melakukan perkembangan sesuai dengan perkembangan TI.
DS5	Memastikan keamanan sistem	4.57	5.00	5.00	0.43	Tanggung jawab dan akuntabilitas keamanan TI ditugaskan kepada pengelola keamanan TI dengan otoritas terbatas.
DS8	Mengelola service dan insiden	4.54	5.00	5.00	0.46	Dalam memenuhi permintaan pengguna dan pengelolaan insiden belum menggunakan suatu standar system yang didukung oleh kualitas alat dan personilnya.
DS1	Mengidentifikasi dan mengelola tingkat layanan	4.35	4.00	5.00	0.65	Dalam memenuhi permintaan pengguna dan pengelolaan insiden belum menggunakan suatu standar system yang didukung oleh kualitas alat dan personilnya.
DS11	Mengelola data	4.59	5.00	5.00	0.41	Menggambarkan bahwa manajemen telah menyadari bahwa sangat dibutuhkan sebuah pengelolaan data yang sistematis.
DS2	Mengelola layanan pihak ketiga	4.70	5.00	5.00	0.30	Telah melakukan perbaikan layanan terhadap sistem yang sedang berjalan.
DS4	Memastikan layanan yang berkelanjutan	4.70	5.00	5.00	0.30	Sebagai organisasi yang bergerak dalam bidang layanan, harus dapat memastikan layanan yang tersedia berjalan dengan baik sehingga kebutuhan pengguna terpenuhi.
Total		45.81	48.00	50.00	4.19	
RATA-RATA		4.58	4.80	5.00	0.42	

Domain	Keterangan	Rata-rata	Skala	Target	Gap	Rekomendasi
ME3	Mengawasi dan mengevaluasi kontrol internal	4.00	4.00	5.00	1.00	Sebagai organisasi yang bergerak dalam bidang layanan, harus dapat memastikan layanan yang tersedia berjalan dengan baik sehingga kebutuhan pengguna terpenuhi.
ME1	Mengawasi dan mengevaluasi kinerja TI	3.97	4.00	5.00	1.03	Sebagai organisasi yang bergerak dalam bidang layanan, harus dapat memastikan layanan yang tersedia berjalan dengan baik sehingga kebutuhan pengguna terpenuhi.
Total		7.97	8.00	10.00	2.03	
RATA-RATA		3.99	4.00	5.00	1.01	

MATURITY LEVEL			
DOMAIN	TOTAL INDEX	LEVEL	KESIMPULAN
DS	4.58	5 (OPTIMIZED LEVEL)	instansi sudah mencapai level tertinggi atau level yang sangat baik dibanding level sebelumnya dalam penggunaan TI. Bahkan instansi sudah mampu dalam memanfaatkan teknologi menjadi sebuah strategi.
ME	3.99	4 (MANAGED LEVEL)	instansi telah mengawasi dalam pemenuhan solusi TI dan sudah berjalan seimbang dengan prosedur. Solusi yang sudah ada berjalan dengan baik dan dapat dikembangkan lagi untuk kedepannya.

Figure 2. Calculation Report

This view will display a report on the calculation results from the GAP calculation process and the recommendation.

CONCLUSION

From the results of research conducted regarding the maturity level of the fingerprint information system technology used, it can be concluded that using the implemented COBIT 4.1 method can assist users in rationally auditing fingerprint information systems. Then focusing on the initial domains that have been defined, namely the DS and ME domains, where these two domains have a different focus on each process, the DS domain parts used are DS1, DS2, DS3, DS4, DS5, DS7, DS8, DS10, The DS11, DS13 and ME domains used are ME1 and ME3. 3. In the calculation process that has been carried out, the value of each specified index is obtained, the researcher gets a maturity level value in the DS domain on a scale of 4.58, this value is in the range of level 5, namely Optimized Level, which means that agencies have implemented information technology with very good and agencies need to maintain system stability so that it continues to grow, whereas with the ME calculation results on a scale of 3.99 this value is in the range of level 4, namely the managed level, which means that the security of the system is good enough and only needs to be evaluated so that the vision and mission of the agency are achieved.

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