



Employee Attendance at Getasan District Head Office Information System Governance Design Using the COBIT 2019 Framework

Purcristhian Echy Candra¹, Melkior N. N. Sitokdana²

^{1,2}Information System Department, Satya Wacana Christian University
Dr. O. Notohamidjojo Street No. 1 – 10, Blotongan, Salatiga – 50715
Email: 682017054@student.uksw.edu, melkior.sitokdana@uksw.edu

Abstract

The Getasan sub-district office is a community service office, especially in the Getasan area, which still uses a manual attendance system starting from employee attendance, employee home attendance and employee attendance reports. So, during the recording process, errors may occur, or reports may be less accurate and there may be delays in finding the required data. The research method used is the prototype method. This employee attendance information system is a web-based system. By using this system, the attendance information system will run better than the manual system so that it can run more effectively and efficiently and the system will also be more conducive and improved when compared to the previous system. Apart from that, the best solution is to use a computerized system that can solve the problems that exist in this office, to achieve activities that support office activities.

Keywords: COBIT 2019, employee, government, information system, information technology governance.

1. INTRODUCTION

Information Technology has been widely applied in various companies to help company performance in order to achieve business goals. Good companies know that IT can provide practical value to the company in its primary and supporting activities. Information technology can help if it is implemented following the company's vision and mission. On the other hand, IT is not utilized and managed well by a company. In this case, it can cause problems that threaten the company, such as compromised data security, data leaks, errors in decision making due to incorrect calculations, etc. With the development of information systems that are integrated with other information systems, it is hoped that it can produce similar data between systems with the result of improving the performance of information systems and services to the public as well as the availability of accurate data/information that will become the basis for decision making/management policies of a company.[1] Attendance is a data collection activity to determine the number of participants present at an activity. Any activity that requires information about participants will certainly take attendance. Absence can be interpreted as the absence and presence of an object, in this case a person, where the person is involved in an organization which requires notification to the leadership or superior in a company or organization.[2][3]



This also occurs in the activity process at the Getasan District Head Office. One of the uses of this attendance at the Getasan sub-district sub-district office is calculating the number of employees present and collecting data on employee salaries. The increasingly rapid development of technology today, especially information technology, will have a major influence on human life. The human need for technology is very necessary because it helps in providing accurate and fast information services. To support the presentation of information technology services. To support the presentation of information technology services, media or computers are needed as data processing tools and can speed up the work of employees at the Getasan District Head Office. In this era of globalization, computers are very important in the need for accurate, precise and fast information. Presenting very complete data is one of the important goals. For this reason, computers play an active role in all fields and will make someone's work easier. The author wants to design an information system so that all administration is carried out using a computerized system. The system designed functions to assist the process of the Getasan District Head's Office Employee Attendance information system in managing its data using a computerized system. Human abilities are very limited in completing increasingly numerous and complex jobs. The Getasan District Head's Office is one of the government agencies that is responsible for community services in the field of social services. The larger the government agency, the greater the impact on the Human Resources (HR) required. Based on this, government agencies are required to carry out good, fast and efficient management of attendance data processing. Because basically the attendance information system is used as a benchmark for employee development methods, if employee absenteeism after following development decreases, then the development method applied is working well, on the other hand, if employee absence remains, it means the development method applied is not good (Hasibuan 2008).

The attendance procedures at the Getasan Sub-District Head's Office currently implemented can be said to be less efficient and effective, where everything is still done manually starting from data collection and calculating attendance hours, out hours, to notifications of absence, this has an impact on a relatively long time in the process of calculating recapitulation of employee absences, as well as the form of attendance reports which are made in hardcopy which can cause errors in recording data, make it difficult to search for data and there can be concerns about losing employee attendance data. Based on the problems above, an attendance information system will be designed so that employees can access attendance more easily. Based on the background explained above, the problem formulation was created to find out the data that we can get from the Getasan District Head's Office, including how the attendance process is currently running for employees of the Getasan District Head's Office and what is the current attendance system running? have been able to make reports quickly and accurately. The aim and objective of making the application is to provide good monitoring and recording in an integrated system and simplify the calculation of employee absences to simplify payroll. So the advantage of the attendance information system from Fingerprint is that you can take attendance anywhere and can monitor the employee's position whether they are

within 1 sub-district or outside the region. This can anticipate employees who travel for personal events during working hours and can be monitored through designing this attendance information system.[4]

2. RESEARCH METHODOLOGY

The method used in this research is the prototype method. Prototyping is a software development method that is widely used. With this method, developers and customers can interact with each other during the system creation process. It often happens that a customer only defines in general terms what is desired without stating in detail what output is required. Processing the required data transfer. On the other hand, on the developer's side, there is a lack of efficiency in paying attention to algorithms, operating system capabilities and interfaces that connect humans with computers.

To overcome incompatibility between customers and developers, good cooperation between the two is needed so that developers can know correctly and clearly what customers want without ignoring technical aspects and customers can know the processes in completing the desired system.[5]

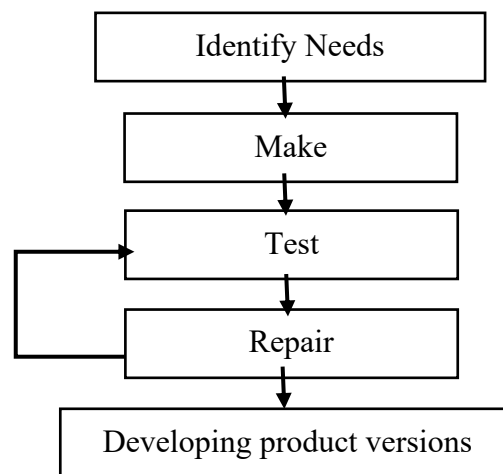


Figure 1. Research Stages

The research methodology used to support this research consists of three main components, including:[6]

a. Interview

This activity will be carried out by interviewing people who know more about the Internet of Things and the general public so that they can find out about the problems they are facing, so that later solutions can be found.

b. Observation

Data collection was carried out through direct observation of research objects to carry out the necessary development processes related to this research.

c. Literature review



This library search is carried out to collect information in the form of literature, namely by understanding and collecting information from articles, books, magazines and research titles from the internet.

BlackBox Testing

1. Stakeholder needs, conditions, and options are evaluated to determine balanced and agreed-upon company goals.
2. Direction is set through priorities and decision making.
3. Performance and compliance are monitored against agreed directions and goals.

Data Analysis Technique

There are 2 data analysis techniques used:

1. Ability Level Analysis

The analysis of capability levels in this research is based on the informants' answers regarding the evaluations given to informants during interviews for all selected COBIT 2019 functions. This assessment will consider the scale used to determine whether the COBIT 2019 process stops or continues to the next level.[15]

The following is the scale used:

1) N: Not achieved (0 to 15%)

We found little or no evidence generation scale associated with the calculated process attributes.

2) P: Partially achieved (> 15% to 50%)

There is some evidence of the estimated scale of process attribute gains. Some attribute improvements may be unpredictable.

3) L: Mostly achieved (> 50% to 85%)

There is evidence of a systematic approach to scale and significant achievement of the calculated process attributes. Some of the drawbacks associated with this attribute is that it is contained in the calculation process.

4) F: Fully Achieved (>85% to 100%)

Find complete evidence of the scale of the systematic approach and full achievement of the calculated process attributes.

2. Gap Analysis

In this case, a gap analysis is carried out by comparing the ability level scores expected by the office based on the ability calculations that have been carried out. Based on the results of this gap analysis, it is recommended that the office can make improvements to reach the desired level or levels. Apart from that, the office hopes that the system owned by the office can always maintain the security of its information and reduce the risks that may be borne by the office that will arise in the future.[16]



3. RESULTS AND DISCUSSION

The manuscript can be presented with the support of tables, diagrams or pictures, which are necessary to clarify the results of the presentation verbally. Results and discussions are presented clearly and concisely.

Governance Assessment

Getasan District Head's Office Currently there has never been an assessment of the governance of managing IT resources used in the office. With the growth in development and development of information systems that always contain innovation, the District Head's Office realizes the importance of assessing the governance of available IT resources. in the office to assess office IT governance so that it is in line with the Vision and Mission.

Mapping Company Goals for IT Related

Through the results of interviews and document identification, office goals and objectives are obtained. From these goals, the mapping table for the District Head Office became COBIT 2019 Enterprise Goals.

Table 1. Mapping Vision and problems to office Goals.

Vision and Problems Experienced	COIN Office Goals	Alignment Goals	Connection
Providing IT service solutions with high-quality talents	EG10: Staff skills, motivation and productivity	AG12: Competent and motivated staff with a mutual understanding of technology and business	Main
Become a leading provider of technology-based outsourcing services.	EG01: Competitive product and service portfolio	AG13: Knowledge, skills and initiative for business innovation	Main

In Table 1, the results of mapping alignment objectives are based on the leadership objectives, namely AG12 and AG13. From COBIT 2019 and Enterprise Goals-Alignment Goals, only those marked with the P (Primary key) symbol were taken, while the S (Secondary key) symbol was not dominant, so it was not selected.

Table 2. Mapping Office Goals and Goal Alignment

Office Goals and Alignment Goals
EG10 Staff Skills, Motivation and Productivity



AG12 Competent and motivated staff with a mutual understanding of technology and business	The leadership's goal is to provide IT service solutions with high-quality talent. To achieve office goals, goal alignment is needed, namely, to obtain and train each employee so that each employee himself has high quality. Apart from that, offices also need quality employees so that more clients will trust them.
EG01 Competitive product and service portfolio	
AG13 Knowledge, expertise and initiative for business innovation	The leader has the office's goal to become a leading provider of technology-based outsourcing services and to achieve this goal. This is related to AG13 alignment, namely, having insight, expertise and initiative for business innovation so that the office has a competitive advantage to become a leading outsourcing service provider.

Table 2 explains the leadership objectives used, namely EG01 and the alignment objectives used, namely AG13, regarding knowledge, skills and initiatives for business innovation. The selection of enterprise goals and alignment is based on the company's goals as a service provider company to improve the quality of their services using the set goals.

Determination of the 2019 COBIT Process

In Table 3, the choice of IT processes was made because of the problems experienced by the office regarding Human Resources, including a lack of human resource training and an attendance system that often had problems recording employee absences. This problem can be solved using the COBIT 2019 framework with the APO07 domain regarding Managed Human Resources. The level of capability will be measured using the APO07 domain so that the system can be used more effectively, and problems can be resolved.

Table 3. Determination of the 2019 COBIT Process

APO07: Align, Plan, and Organize

Management Objectives: Managed Human Resources

Description: Provide a structured approach to ensure optimal recruitment/acquisition, planning, evaluation and development of human resources (both internal and external).

Objective: Optimizing human resource capabilities to meet company goals

1 APO07.01 Maintain adequate and appropriate staffing

2 APO07.02 Identify key IT personnel



- | | |
|---|--|
| 3 | APO07.03 Maintain the skills and competence of personnel |
| 4 | APO07.04 Evaluate employee work performance |
| 5 | APO07.05 Plan and track IT and business human resource utilization |

Level of Measurement Capability

After distributing questionnaires to determine the level of capabilities possessed by PT. Quadrant Lima Indonesia, the following results were obtained, explained in the following table. Table 4 describes the condition of the level of capability that the office currently has, namely in the APO07 domain, namely managed human resources.

Table 4. Determination of the 2019 COBIT Process

Summary of Results			Level of Capability Achieved				
Process ID	Process Description	Process Goals	1	2	3	4	5
APO07	Managed Human Resources	Meet business requirements to identify automated solutions that translate business functional and control requirements into effective and efficient solutions.			F	L	

In Table 5, the gap in capability levels produced by PT. Quadrant Five Indonesia. has a target at level 3. At the same time, currently the company is at level 2 with an average score of 77.2%, so the company is at level 2. The assessment that must be passed to move up to the next level is average > 80% for each level, so it can be concluded that the Getasan District Head Office has level 2 capabilities and an average score of 77.2% at level 3, with the description (L) achieved especially so that it cannot continue to the next level and stops at level 2.

Table 5. Determination of the 2019 COBIT Process

Process	Current Level	Target Level	Gap Analysis
APO07 Managed Human Resources	2	3	1

3.1. Calculating Gap Analysis

Figure 2 shows a graph of the achievement of IT governance capability levels obtained with the targets set by PT. Quadrant Five Indonesia. The APO07 process achieved level 2 capability level with an average score of 77.2%. From the results presented, it can be concluded that the results of the APO07 process have not reached the target capability level, so it can be proven that there is a gap between the current capability level and the desired or targeted capability target level.

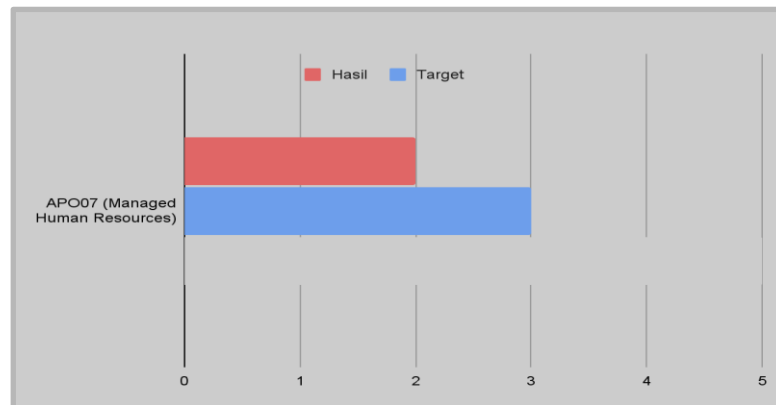


Figure 2. Research Stages

Recommendation

The results of the distribution of audit documents are carried out and given to the office in the form of a questionnaire. Audit documents are divided into various subtypes, each with questionnaires for each ability level. From the results of the questionnaire, several problems that occur in the company can be analyzed as follows.

1. Training is not carried out regularly so that the quality of employee skills is not balanced between one another.
2. Over-reliance on a few IT staff who have more significant experience and skills.
3. System creation documentation is often not carried out and ignored by IT Developers.
4. Knowledge management is not implemented within the company, so new employees sometimes need help to adapt.

From the findings and their impact on PT. Kwadran Lima Indonesia, then several recommendations for improvement can be given to help the Getasan District Head Office fix the problems they have, in table 6, the recommendations given are as follows:

Table 6. Determination of the 2019 COBIT Process		
No	Poblem	Recommendation
1	Over-reliance on IT staff who have more significant experience and skills.	Scheduling for conducting training for employees so that training can be arranged according to the



		schedule created and can be carried out periodically.
2	Training for employees is rarely carried out	Provide opportunities for new IT staff to develop to the same level as experienced ones.
3	IT developers often need to pay more attention to documentation for system creation.	Carrying out documentation of each stage carried out when creating the system.
4	There needs to be knowledge management implemented for new employees.	Implement knowledge management for every new employee who has just been hired to work in the company.

Based on the results of the level of capability achieved by PT. Kwadran Lima, in order to help the Getasan District Head Office reach level 3 in the APO07 domain. In Table 7 the recommendations given are as follows:

Table7 COBIT 2019 Process Determination

No	APO07 recommended domain
1	Test staff backup plans regularly
2	Periodically review training materials and programs
3	Provide access to knowledge repositories to support skills and competency development
4	Develop and deliver training programs based on company requirements and processes
5	Compile the results of a 360 degree performance evaluation
6	Implement a recognition process that rewards commitment, competency development and achievement of performance goals
7	Implement and communicate the disciplinary process
8	Identify gaps and provide input into corporate and IT sourcing plans and recruiting processes.
9	Defines all work performed by external parties in a formal contract

CONCLUSION

Based on mapping IT Governance in the office based on IT-related goals, which were obtained from stakeholder needs based on interviews and obtained related desires and goals related to the vision of "providing IT service solutions with high-quality



talent and becoming a leading technology-based outsourcing service provider", so that the related goals COBIT 2019 IT that suits the situation and objectives related to office IT are staff skills, motivation, productivity, competitive product and service portfolio. It was found that the APO07 domain discusses Managed Human Resources, which has a capability level at level 2 (Partially Achieved), namely primarily achieved. In other words, to increase the level from level 2, meeting the process capability indicators requires improvement, careful planning and management to make the APO07 domain rise to the next level. Recommendations to improve the APO07 domain, companies can review training materials and programs periodically, develop and provide training programs based on requirements and administrative processes, identify deficiencies and provide input into company and IT sourcing plans and recruitment processes and create SOPs according to COBIT guidelines - 19 and increasing the process level from level 2 to level 3, as well as creating documentation reports about all system activities and organizational structure following the RACI Chart, so they can identify and quickly fix if problems occur in the long term.

REFERENCE

- [1] D. Sanjaya and MI Fianty, "Measuring Capability Levels Using COBIT 5 Framework (Case Study: PT Andalan Bunda Bijak),"Ultima Infosys: Journal of Information Systems Science, Vol. 13, no. 2, 2022.
- [2] M. Indah Fianty, A. Angelina, G. Claudia, and D. Sertivia, "Analysis of Factors that Influence Information System Security Behavior among Employees in IT Companies,"Ultima Infosys: Journal of Information Systems Science, Vol. 13, no. 1, 2022.
- [3] F. Salehi, B. Abdollahbeigi, and S. Sajjady, "The Impact of Effective IT Governance on Organizational Performance and Economic Growth in Canada," vol. 3, p. 14–19, February 2021.
- [4] I. Scalabrin Bianchi, R. Sousa, and R. Pereira, "Information Technology Governance for Higher Education Institutions: A Multi-Country Study,"Informatics, vol. 8, p. 26, April 2021, doi: 10.3390/informatics8020026.
- [5] R. Frogeri, D. Pardini, A. Cardoso, L. Prado, F. Pelloso Piurcosky, and P. Portugal Júnior, "IT Governance in SMEs: State of the Art,"International Journal of IT / Business Alignment and Governance, vol. 10, p. 55–73, January 2019, doi: 10.4018/IJITBAG.2019010104.
- [6] A. Amorim, M. Mira da Silva, R. Pereira, and M. Gonçalves, "Using agile methodology to adopt COBIT,"Inf System, vol. 101, p. 101496, February 2020, doi: 10.1016/j.is.2020.101496.
- [7] S. Haes, W. Grembergen, A. Joshi, and T. Huygh, "IT Enterprise Governance, Alignment, and Value," 2020, p. 1–13. DOI: 10.1007/978-3-030-25918-1_1.
- [8] D. Smits and J. Hillegersberg, "The ongoing mismatch between IT governance maturity theory and practice: a new approach,"Procedia Comput Sci, vol. 138, p. 549–560, January 2018, doi: 10.1016/j.procs.2018.10.075.



- [9] L. Jaime and J. Barata, "How FLOSS can Support COBIT 2019? scoping analysis and conceptual framework," *Procedia Comput Sci*, vol. 219, p. 680–687, 2023, doi: 10.1016/j.procs.2023.01.339.
- [10] Information Systems Audit and Control Association, COBIT® 2019 Framework : introduction and methodology.
- [11] T. Papadopoulos, KN Baltas, and M.E. Balta, "Use of digital technologies by small and medium-sized businesses during COVID-19: Implications for theory and practice," *Int J Inf Manage*, vol. 55, p. 102192, 2020, doi: <https://doi.org/10.1016/j.ijinfomgt.2020.102192>.
- [12] AA Louis and MI Fianty, "Evaluation of Human Resources Information Systems Using the COBIT 5 Framework in a Technology Insurance Company," *G-Tech: Journal of Applied Technology*, vol. 7, no. 2, p. 674–682, March 2023, doi: 10.33379/gtech.v7i2.2393.
- [13] A. Asmah and M. Kyobe, Toward an Integrative Theoretical Model for Examining IT Governance Audits. 2018. DOI: 10.1145/3209415.3209423.
- [14] L. Englbrecht, S. Meier, and G. Pernul, "Toward a capability maturity model for digital forensic readiness," *Wireless Network*, vol. 26, p. 4895–4907, October 2020, doi: 10.1007/s11276-018-01920-5.
- [15] Information Systems Audit and Control Association., COBIT 2019 design guide designs information and technology governance solutions.
- [16] A. Levstek, T. Hovelja, and A. Pucihar, "IT Governance Mechanisms and Contingency Factors: Toward an Adaptive IT Governance Model," *Organizacija*, vol. 51, p. 286–310, December 2018, doi: 10.2478/orga-2018-0024.