

COBIT 5 for Improving Production Performance using DSS Domain



IfanPrihandi, Anita Ratnasari, Indra Ranggadara

Abstract: An information system audit is a way to check and assess needs and assess the extent to which information systems can answer a need in the production process. Production is the core activity of a company. In the production system occurs an input of raw materials, raw materials processing, and output of the process of making these raw materials. In this research object selected is PT. Tunas Alfin Tbk. PT. Tunas Alfin Tbk is a manufacturer of printing and packing for food and no food products that stood since 1977. Dives more than 25 years old and supported by technology and capabilities with attention to and improve product quality, hygienist, and food safety the production process at PT. TUNAS ALFIN TBK utilizes information technology to run its business, and the company realizes that using IT in business operations will assist in their production management process to produce maximum output. Therefore, the need for Information System evaluation to be a benchmark. Whether the application of IT in production has been applied correctly or not. The information audit method to be used is COBIT 5 with the DSS domain (Deliver, Service, and Support). where the COBIT 5 model of management standards has received full recognition, developed by the Information Technology Governance Institute (ITGI) and the Information System Audit Control Association (ISACA).

Keywords: Domain DSS (Deliver, Service and Support), COBIT 5, Evaluation, Production Division.

I. INTRODUCTION

A. Problem Background

In the era of modernization[1], technological progress is very important. The more sophisticated the technology, the more influential the world globalization so that unwittingly also affects the world business. Nowadays many new companies are emerging which cause competition to become tighter, therefore high efficiency and effectiveness [2]is needed so that each company can survive in facing this competition. In running their businesses, companies need facilities (systems) that can support the smooth operation. But the problem now is whether the systems used by companies have been properly controlled and evaluated[3].

Maybe the company should pay more attention to the system that is running so that the operating system can run smoothly without any complaints from users. The object under study is at PT. Tunas Alfin Tbk. PT. Tunas Alfin Tbk is a manufacturer of printing and packing for food and non-food products supported by technology and ability to pay attention to and improve product quality, hygiene and food safety. The production process at PT. TUNAS ALFIN TBK utilizes information technology to run its business, the company realizes that using IT in business operations will help in the process of managing their production to produce maximum output. Therefore, the need for an Information Systems Audit to be a benchmark whether the application of IT in the production department has been implemented properly or not, as the guidance and direction of IS/IT Operation in each organization [4]. The objectives of this research to evaluate the process and stages of production at PT. Tunas Alfin Tbk and can produce recommendations to improve the processes and stages of production at PT. Tunas Alfin Tbk using COBIT 5. Then the benefits that can obtain from this research are good in terms of internal and external companies. The benefits internally are to provide suggestions and improvements to the results of research for information systems that run on the company and maintenance of the system needed for the future and provide recommendations for improvement efforts in terms of managing information systems that are running for a period of time long. While the benefits are external, this research can be a benchmark and guide in evaluating the management of information systems in various fields.

II. LITERATURE STUDY

A. Audit Information Systems

Information system audit as a process of gathering and evaluating evidence to determine whether a computerized information system has established and implemented an adequate internal control system, all organizational activations are well protected or not misused and guaranteed data integrity, reliability, and effectiveness and efficiency of information system providers computer-based[5].

B. IT Governance

IT Governance is a term that describes how an organization controls and manages IT resources by considering IT in the supervision, monitoring, control and direction of IT resources and how IT implemented in entities that will have a significant impact on achieving the vision, mission, and goals strategic of an organization[6].

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C. COBIT 5

The COBIT 5 Framework is the latest version of the IT Governance framework released by ISACA[7]. COBIT 5 provides a comprehensive framework that helps companies achieve their goals in terms of corporate information technology governance and management[8]. In other words, COBIT 5 helps companies create optimal value from IT by maintaining a balance between realizing benefits and optimizing the level of risk and the use of resources.

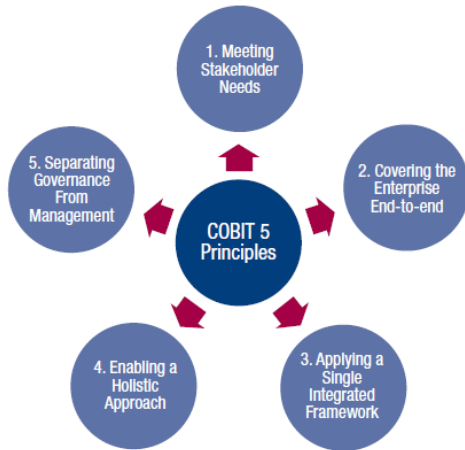


Fig 1. Principles COBIT 5

The domain used in this study is the DSS domain (Deliver, Service, and Support). Domain DSS Is one of the domains in the COBIT 5 framework and is an extension of the Deliver Support (DS) domain in the previous COBIT version, namely COBIT 4.1[9]. Focus on the DSS domain in COBIT 5, this DSS domain consists of 6 control objectives, as follows:

1. DSS01 - Manage Operations.
2. DSS02 - Manage Service Requests and Incidents.
3. DSS03 - Managing Problems.
4. DSS04 - Managing Sustainability.
5. DSS05 - Manage Service Security.
6. DSS06 - Managing Business Process Control

III. METHOD

A. Data Collection

The techniques used for data collection in research are as follows:

1. Literature: By using this type of literature method to get an overall picture of how to find and collect data, sources of information, and materials obtained from books and related literature about COBIT and other research methods used.
2. Observation: With the method of observation, researchers conducted direct observations made in the company to obtain data. Observe the production process, the IT Governance process that applied in production, and see all aspects that will assess.
3. Interview: The interview method conducted a question and answered with related parties to obtain information and data needed in this study, and interviews conducted face to face.
4. Questionnaire: With this questionnaire method, the questions related to the topics discussed to get a

measurement of work in the company

B. Research Design

This section discusses the stages and results of performance measurements carried out at PT. Tunas Alfin Tbk.

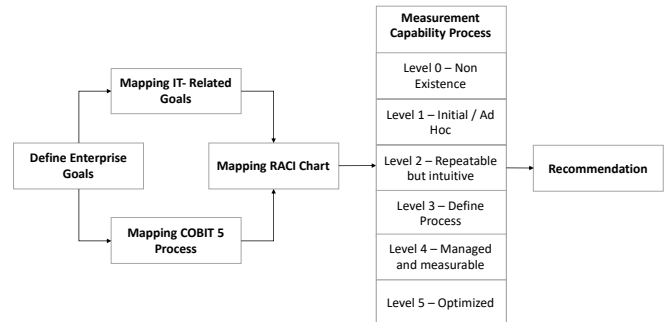


Fig 1. Research Design Process

Figure 1 describes the design stages of the research carried out, starting from define enterprise goals and then mapping IT-related goals and COBIT 5 processes. Furthermore, after mapping following the goals, then mapping the RACI (Responsible, Accountable, Consulted, and Informed)[10] according to its level and then, measure capability from level 0 to level 5 [11]and after it determined it can make recommendations based on the level of measurement [5]that has done before.

IV. RESULT AND DISCUSSION

A. Mapping Enterprise Goals

In determining the scope of the assessment process, it is necessary to study the things that are the goals of the organization in the company and through Enterprise Goals in COBIT 5. The mapping of Enterprise Goals can see in table 1.

Table1. Mapping Enterprise Goals PT. Tunas Alfin Tbk

BSC Dimension	Enterprise Goal	Relation to Governance Objectives		
		Benefits Realisation	Risk Optimisation	Resource Optimisation
Financial	1. Stakeholder value of business investments	P		S
	2. Portfolio of competitive products and services	P	P	S
	3. Managed business risk (safeguarding of assets)		P	S
	4. Compliance with external laws and regulations		P	
	5. Financial transparency	P	S	S
Customer	6. Customer-oriented service culture	P		S
	7. Business service continuity and availability		P	
	8. Agile responses to a changing business environment	P		S
	9. Information-based strategic decision making	P	P	P
	10. Optimisation of service delivery costs	P	P	P
Internal	11. Optimisation of business process functionality	P		P
	12. Optimisation of business process costs	P		P
	13. Managed business change programmes	P	P	S
	14. Operational and staff productivity	P		P
	15. Compliance with internal policies		P	
Learning and Growth	16. Skilled and motivated people	S	P	P
	17. Product and business innovation culture	P		

Table 1 explain the strategic plan of PT. Tunas Alfin Tbk and associated with Enterprise Goals:

1. With creativity, cooperation, and honesty that can account for can improve the best business partners for quality products produced in service requests[12].
2. Increasing the demand for services in ensuring that service needs are following the demand that can encourage the management of production completed on time.

B. Identification of IT-Related Goals to the COBIT 5 process 5

Determine the COBIT process that is the point of COBIT 5 evaluation is to use Domain DSS (Deliver, Service, and Support). The results of the previous IT-Related Goals mapping will mapped to the COBIT 5 process in the table 2.

Table 2. IT-Related Goals To COBIT 5 Process

COBIT 5 Process	DSS01	DSS02	DSS03	DSS04	DSS05	DSS06	IT-Related Goal																
							Alignment of IT and business strategy	IT capabilities and support to business operations	Management of IT service in line with business requirements	Management of IT service in line with business requirements	Management of IT service in line with business requirements	Management of IT service in line with business requirements	Management of IT service in line with business requirements	Management of IT service in line with business requirements	Management of IT service in line with business requirements	Management of IT service in line with business requirements	Management of IT service in line with business requirements	Management of IT service in line with business requirements	Management of IT service in line with business requirements	Management of IT service in line with business requirements	Management of IT service in line with business requirements	Management of IT service in line with business requirements	Management of IT service in line with business requirements
COBIT 5 Process																							
DSS01																							
DSS02																							
DSS03																							
DSS04																							
DSS05																							
DSS06																							

Table 2 explain the results of the mapping of IT-Related Goals to the COBIT 5 process use the scale "P" which means premiere in supporting the achievement of values against IT-Related Goals, as for the mapping results in the table 3.

Table3. Mapping IT Related in COBIT 5 process

Enterprise Goals	IT-Related Goals	Process
Portfolio of competitive products and service	Alignment of IT and business strategy	DSS01, DSS02, DSS03, DSS04, DSS06
	Delivery of IT service in line with business requirements	
	Enableness and support of business processes by integrating applications and technology into business process	
Customer-oriented service culture	Alignment of IT and business strategy	DSS01, DSS02, DSS03, DSS04, DSS06
Operational and staff productivity	Competent and motivated business and IT personnel	
Product and business innovation culture	IT agility	

Table3 explains the enterprise goals and IT-related goals that tailored to the process in the DSS domain. In the Enterprise goals, there are four objectives, namely a portfolio of competitive products and services, customer-oriented service culture, operational and staff productivity, and product and business innovation culture. Whereas IT-related adjusted to the purpose of IT development in the company. These objectives are for the adjustment and alignment of the processes carried out for evaluation. DSS used include DSS01, DSS02, DSS03, DSS04, and DSS06.

C. RACI Chart DSS03 - Managing Problems

Table 4

Key Management Practice	Commissioner	Director	Chief Operating Officer	Chief Marketing Officer	Chief Financial	HRD	Technical Advisor	Purchasing	Audit	Planning & Logistic	Production	Printing Dept	Dry Lam Dept	Siting/Laminating Dept	Bag Making Dept	Document Control	General Tape Dept	Forklift Dept	Product Unit	Management Representative	IT Apps Support	IT	Security	Customer Service
DSS03-01 Mengidentifikasi dan mengklasifikasi masalah			A				I			R	A	R	R	R	R	R	R	R	R	R	R	R	R	R
DSS03-02 Menginvestigasi dan mendiagnosis masalah			A				I			R	A	R	R	R	R	R	R	R	R	R	R	R	R	R
DSS03-03 Mencatat masalah yang tidak diketahui										R	A	R	R	R	R	R	R	R	R	R	R	R	R	R
DSS03-04 Menyederakan dan menutup masalah			A				I			R	A	R	R	R	R	R	R	R	R	R	R	R	R	R
DSS03-05 Melakukan manajemen masalah secara proaktif			A				R			R	A	R	R	R	R	R	R	R	R	R	R	R	R	R

D. Recommendations

After obtaining the overall Capability Level in each process in the DSS domain (Deliver, Service, and Support), then several recommendations are written based on each process, so the recommendations compiled are as follows:

1. DSS01 operational management, infrastructure management properly in order to improve quality following existing business procedures and processes.
2. The DSS02 and DSS03 processes further developed in the service request and incident process by keeping a record of which service requests should prioritized in solving problems according to the level of the incident, especially for significant incidents[13].
3. DSS04 has the lowest Capability Level among the four other sub-domains, Increasing the objectives of the business process by developing and maintaining the sustainability of the business process itself.
4. Tightening the process on DDS05 in managing the ongoing security of services to maintain services that are already running quite well.
5. In managing business process controls in DDS06 in order to maintain the existing business control activities in the company by innovating business processes for the sake of the ongoing business processes within the company.

V. CONCLUSION

Based on the results of data analysis at PT. Tunas Alfin Tbk can conclude that:

1. Production evaluation results using COBIT 5 domain DSS (Deliver, Service, and Support) has six sub-domains, out of 6 sub-domains, four sub-domains have a Capability Level value at position level 3 (Established Process) namely sub-domain DSS01, DSS02, DSS03, and DSS04. Whereas two other sub-domains have a Capability Level value at the level 4 (Predictable Process) position, namely the sub-domain DSS04 and DSS05
2. Capability Level want to achieve is 5 (Optimizing Process) to produce the following recommendations:
 - a. DSS01 operations management, infrastructure management properly to improve quality following existing business procedures and processes.
 - b. The DSS02 and DSS03 processes further developed in the service request and incident process by keeping a record of which service requests should prioritized in solving problems according to the level of the incident level, especially for significant incidents.
 - c. DSS04 has a 3.7 Capability Level among those urged to improve the objectives of the business process by developing and maintaining the sustainability of the business process itself.
 - d. Tightening the process on DDS05 in managing the ongoing security of services to maintain services that are already running quite well.
 - e. In managing business process controls in DDS06 in order to maintain the existing business control activities in the company by conducting business process innovations for the sake of the ongoing business processes within the company.

As well as suggestions that can be submitted to improve performance at PT. Tunas Alfin Tbk, including the following:

1. PT. Tunas Alfin Tbk is advised to make improvements in production, especially in terms of managing operations, requesting services, managing problems, and managing the sustainability of business processes. Where these four processes have the lowest Capability Level value, 3.
2. For processes that have Capability Level 4 values, namely the process of managing service security and controlling business processes, it is recommended to maintain performance on these two processes.



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REFERENCES

1. M. Alojail, A. C. Rouse, and B. J. Corbitt, "The impact of ITIL (information technology infrastructure library) recommended practices on the IT outsourcing relationship," in 23rd Australasian Conference on Information Systems, 2012, pp. 1–10.
2. I. S. Jalham and W. T. Abdelkader, "Improvement of organizational efficiency and effectiveness by developing a manufacturing strategy decision support system," Business Process Management Journal, vol. 12, no. 5, pp. 588–607, Sep. 2006.
3. D. Proenca and J. Borbinha, "Enterprise Architecture: A Maturity Model Based on TOGAF ADM," in 2017 IEEE 19th Conference on Business Informatics (CBI), 2017, pp. 257–266.
4. Harwikarya, M. Sadikin, D. Fitriana, M. M. Sarinanto, I. Nurhaida, and A. R. Dwiyanto, "IS Strategic Plan for Higher Education Based on COBIT Assessment: A Case Study," International Journal of Information and Education Technology, vol. 5, no. 8, pp. 629–633, 2015.
5. G. A. T. Krisanthi, I. M. Sukarsa, and I. P. A. Bayupati, "Governance Audit of Application Procurement Using Cobit Framework," Journal of Theoretical and Applied Information Technology, vol. 59, no. 2, pp. 342–351, 2014.
6. P. D. Weill and J. W. Ross, "IT Governance: How Top Performers Manage IT Decision Rights for Superior Results," International Journal of Electronic Government Research, vol. 1, no. 4, pp. 63–67, 2004.
7. IT Governance Institute (ITGI), COBIT 5 Enabling Processes. United States of America: ISACA, 2012.
8. A. Efe, "COBIT-5 FRAMEWORK as a MODEL FOR THE REGIONAL DEVELOPMENT AGENCIES IN TURKEY," International Journal of ebusiness and egovernment Studies, vol. 5, no. 1, pp. 33–42, 2013.
9. M. D. S. Asyari and Y. S. Triana, "Credit Analysis Tool System Application Using Cobit 4.1 Method Approach," International Journal of Computer Science and Mobile Computing, vol. 7, no. 4, pp. 153–165, 2018.
10. D. Cannon and D. Wheeldon, ITIL V3 - Service Operation. Buckinghamshire: Office Governance of Commerce, 2007.
11. S. Ahriz, A. EL Yamami, K. Mansouri, and M. Qbadou, "Cobit 5-Based Approach for IT Project Portfolio Management: Application to a Moroccan University," International Journal of Advanced Computer Science and Applications, vol. 9, no. 4, pp. 88–95, 2018.
12. M. I. Puspita, I. Ranggadara, and I. Prihandi, "Framework Zachman for Design Information System Logistics Management," International Journal of Recent Technology and Engineering, vol. 8, no. 3, pp. 4030–4034, Sep. 2019.
13. I. Ranggadara, "Fuzzy Tsukamoto and ITIL for Improvement Strategy on Incident Ticket Services," International Journal of Innovative Technology and Exploring Engineering, vol. 8, no. 10, pp. 897–903, Aug. 2019.

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