

IMPROVING BUSINESS DEVELOPMENT IN THE RELIABLE INFORMATION COMMUNICATION TECHNOLOGY MAINTENANCE SELECTION

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Abstract

The need for information communication technology maintenance develops in such a way. It cannot be denied that the use of information communication technology maintenance services will be more effective, faster, easier and relatively more economical than conventional treatment. The problem faced by users is how to determine the kind of reliable information communication technology maintenance services installed based on predefined criteria and sub-criteria. In this research, the problems faced by the users can be overcome by using the analytic hierarchy process and multi-criteria decision-making approach. This approach is chosen because it is able to choose the best alternative from several alternatives to solving the problem of choosing the reliable information technology communication maintenance based on the criteria and sub-criteria set. Results of data processing from respondent's experts choose CLEAN MASTER weight 50.7%; AVG CLEANER weight 32.5%; CCLEANER weight 16.7%. The data inconsistency rate is considered well because of 0.03, smaller than 0.1 as the maximum value of the inconsistency ratio.

Keywords: Analytical Hierarchy Process, Improving Business Development, Information Communication Technology Maintenance, Multi-criteria Decision Making

INTRODUCTION

The need for information communication technology maintenance develops in such a way. The information communication technology development impact is many services that provide convenience for its users, such as services used for the maintenance of information communication technology equipment. Information communication technology is used to process access, manage and utilize large volumes of information quickly and accurately. The information communication technology development has opened new insights and paradigms in the process of

decision making and information dissemination. Data representing real-world models can be stored and processed so they can be presented and implemented in a simpler form as needed.

Organizational development in Indonesia is also increasing, with the result that the need for information communication technology maintenance will also increase. So that the information communication technology maintenance that is now used can no longer meet the organization needs. The emergence of application services that are used for the information

communication technology maintenance continues to grow because of the information communication technology development that is widely used by users in Indonesia. It cannot be denied that the use of information communication technology maintenance services will be more effective, faster, easier and relatively more economical than conventional treatment.

Therefore, the application of information communication technology maintenance offers various advantages, which make information communication technology users become dizzy and confused in choosing a maintenance application to be used. The problem faced by users is how to determine the type of reliable information communication technology maintenance installed on information communication technology devices based on predetermined criteria and sub-criteria.

The research purpose is expected to know the type of information communication technology maintenance that can be relied on based on the criteria and sub-criteria, to improve business development. In this research, the problems faced by the users can be overcome by using the analytic hierarchy process and multi-criteria

decision-making approach. This approach is chosen because it is able to choose the best alternative from several alternatives to solving the problem of choosing the reliable information technology communication maintenance type based on the criteria and sub-criteria set.

According to Faisal (2010) reviews the selection of facilities back up service. Faisal (2013) checks computer selection with expert choice software. Jocom (2013) examines the role of smartphones in supporting the performance of Bank Prisma Dana employees. Rosida (2013) examines student communication patterns in smartphone use. Faisal (2015) checks the selection of image processing software. Faisal (2015) checks the selection of data processing devices. Faisal (2015) checks vocational high school selection. Faisal (2015) reviews the selection of electronic voting software. Timbowo (2016) examines the benefits of using a smartphone as a communication medium. Novina (2016) examines the relationship between the smartphone use levels. Thalib (2016) tested smartphone as a lifestyle among students. Ramadhani (2016) examines communication technology and social

interaction. Oktario (2017) examines the relationship between the intensity of smartphone use and student achievement motivation. M. Damiri (2017) checks Dam'z's cleaning and computer services.

The model that can be used as a decision-making process is by using the analytic hierarchy process. Analytical hierarchy process was developed by Dr. Thomas L. Saaty of the Wharton School of Business in 1970 for organizing information and judgment in selecting the most preferred alternative (Saaty, 1983; Marimin, 2005; Faisal, 2018).

Table 1. Comparison Scale Saaty

Value	Facts
1	Criteria/Alternative A, both important criteria/alternatives B
3	A little more important than B
5	A is clearly more important than B
7	A very obviously more important than B
9	A is absolutely more important than B
2,4,6,8	When hesitating between two adjacent values

Source: Marimin (2005); Faisal (2018)
Processed

The framework of research thinking can be seen in table 2.

Table 2. Research Framework

Description
Observation on the use of maintenance services for information communication technology; Feedback: Do surveys, interviews and discuss with expert respondents; Purpose: Get research framework; Methods: With observations, interviews, and discussions with expert respondents using focus group discussion approach; Output: Selection of reliable information communication technology maintenance.
Determine the research focus; Feedback: Data from discussions with expert respondents using focus group discussion approach; Objective: Determine the research focus; Methods: Through interviews and discussions with expert respondents using focus group discussion approach; Output: The information communication technology maintenance.
Determining the research criteria; Feedback: Data from discussions with expert respondents using focus group discussions approach; Objective: Define the study criteria feature; Methods: Through interviews and discussions with expert respondents using focus group discussions approach; Output: Availability; Reliable performance; Multi-platform; Registry cleaner; Backup software; and Antivirus.
Determining the alternatives; Feedback: Data from discussions with expert respondents using focus group discussions; Objective: Determine alternative features; Methods: Through interviews and discussions with expert respondents using focus group discussions; Output: AVG cleaner; Ccleaner; and Clean master;

Source: Self-proceed

METHODS

The research began with the observation of the use of reliable information communication technology maintenance, which aimed to design a selection of reliable information communication technology maintenance. This research uses descriptive-analytic method and survey results in the form of a questionnaire. This method will explain the conditions for choosing reliable information communication technology maintenance.

Furthermore, the search for secondary data is carried out in the field through the internet, literature books and journals and articles to obtain accurate information. This is also done by considering the identification of supporting variables by conducting interviews and providing questionnaires to the experts. This is an important step because the model must be accurate and accountable. Then the data processed by using analytic hierarchy process approach to get the results of steps that must be done.

To prioritize the selection of reliable information communication technology maintenance, the research treatment focus proposes six (6) criteria; three (3) strategic alternatives that

support the selection of reliable information communication technology maintenance.

Table 3. Research Criteria

Focus	Reliable information communication technology maintenance
Criteria	Availability
	Reliable Performance
	Multi-platform
	Clean Registry
	Backup software
Alternate	Antivirus
	AVG cleaner; Ccleaner; and Clean master

Source: Self-proceed

Calculation consistency index, the measurement is intended to determine the consistency of the answers that would affect the validity of the results, (Marimin, 2005; Faisal, 2018).

$$CI = \frac{\lambda_{\max} - n}{n - 1} \dots\dots\dots(1)$$

To determine whether the consistency index with a specific amount is good enough or not, please note that the ratio is considered good, if:

$$CR \leq 0.1 \dots\dots\dots(2)$$

The formula consistency ratio is:

$$CR = \frac{CI}{RI} \dots\dots\dots(3)$$

Consistency ratio is a parameter used to check whether pairwise comparisons are done consequently or

not. The random index value released by the Oakridge Laboratory can be seen in table 4.

Table 4. The Oarkridge Laboratory Index

N	1	2	3	4	5	6	7
RI	0	0	0.6	0.9	1.1	1.2	1.3
N	8	9	10	11	12	13	
RI	1.4	1.5	1.5	1.5	1.5	1.6	

Source: Marimin, 2005; Faisal, 2018, processed

RESULTS AND DISCUSSION

Research Focus

The result of weighted processing, analysis, and interpretation of data affecting the reliable information communication technology maintenance.

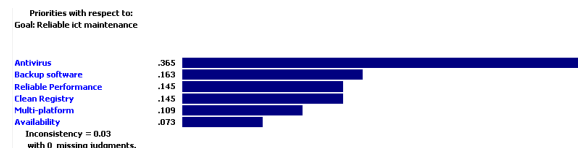


Figure 1. Selection of The Reliable Information Communication Technology Maintenance Weight

Source: Self-proceed

Antivirus weight 36.5%; backup software weight 16.3%; reliable performance and clean registry weight 14.5% each; multi-platform weight 10.9%; availability weight 7.3%.

Availability Criteria



Figure 2. Availability Weight

Source: Self-proceed

Clean master weight 54%; AVG cleaner weight 29.7%; Ccleaner weight 16.3%.

Reliable Performance Criteria



Figure 3. Reliable Performance Weight

Source: Self-proceed

Clean master weight 60%; Ccleaner and AVG cleaner weight 20% each.

Multi-Platform Criteria



Figure 4. Multi-Platform Weight

Source: Self-proceed

Clean master weight 60%; Ccleaner and AVG cleaner weight 20% each.

Cleaning Registry Criteria



Figure 5. Cleaning Registry Weight

Source: Self-proceed

Clean master weight 44.3%; AVG cleaner weight 38.7%; Ccleaner weight 16.9%.

Backup Software Criteria



Figure 6. Backup software weight

Source: Self-proceed

Clean master weight 50%; Ccleaner and AVG cleaner weight 25% each.

Antivirus Criteria



Figure 7. Antivirus Weight

Source: Self-proceed

Clean master weight 48.1%; AVG cleaner weight 40.5%; Ccleaner weight 11.4%.

Research Alternate



Figure 8. Synthesize Weight

Source: Self-proceed

Clean master weight 50.7%; AVG cleaner weight 32.5%; Ccleaner weight 16.7%.

Performance Sensitivity

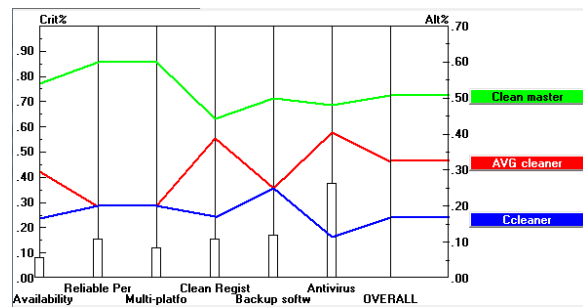


Figure 9. Performance Sensitivity Weight

Source: Self-proceed

Based on the performance of the sensitivity graph can be concluded that from three alternative strategies if sorted then the order is Clean master; AVG cleaner; and Ccleaner. The value of the inconsistency ratio data collected from the expert respondents can be seen in the table below.

Inconsistency Ratio

Table 5. Inconsistency Ratio

Comparison Matrix Elements	Value
ICT maintenance weight	0.03
Availability weight	0.01
Reliable performance weight	0.00
Multi-platform weight	0.00
Clean registry weight	0.02
Backup software weight	0.00
Antivirus weight	0.03
Synthesize weight	0.03

Source: Self-proceed

It can be concluded that pairwise comparisons provided by expert respondents have an inconsistency ratio of 0.03, smaller than 0.1 as the

maximum inconsistency ratio. The calculations combined data of expert respondents is quite consistent.

CONCLUSION AND POLICY RECOMMENDATION

Results of data processing from expert respondents can be concluded the order of selection of reliable information communication technology maintenance: Clean master weight 50.7%; AVG cleaner weight 32.5%; Ccleaner weight 16.7%.

The data inconsistency rate is considered well because of 0.03, smaller than 0.1 as the maximum value of the inconsistency ratio. The selections of reliable information communication technology maintenance choose Clean master. This research is a review of current research, for other periods can conduct research related research.

ACKNOWLEDGMENT

Alhamdulillah and thanks to my wife and my children. Thanks also to those who have helped this research. This research was presented at Seminar Nasional Energi and Technology (SINERGI) 2018.

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