# User Satisfaction Analysis of Content Management System Application

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*Abstract— Content Management System (CMS) is a system for manage advertisements displayed through electronic media such as TVs or monitors. PT Telkomsel uses CMS as a system to distribute advertising content to several customer service offices or GraPARI Telkomsel. This study aims to determine the level of satisfaction of CMS users at PT Telkomsel. The method used is PIECES which consists of Performance, Information and Data, Economics, Control and Security, Efficiency, and Service. The results showed that PT Telkomsel users were satisfied with the CMS application, but there were also some shortcomings of the CMS application so that the CMS application still needed to be improved.*

*Keywords— Analysis, Content Management System, PIECES Framework.*

## I. INTRODUCTION

Submission of information is a means for companies to deliver their products and services to the public. In shops or shopping centers, electronic media such as televisions or monitors are often used to convey information or advertise a product. The input source used is generally derived from a DVD player or flashdisk. The use of electronic media as advertising media will be more effective if the advertised content can be organized and controlled centrally, so that the function of the electronic media can be further maximized as a product advertiser media.

In 2017, PT Indocode Technology released the Content Management System (CMS) application. The application provides flexibility in managing advertisements such as supporting image or video material, scheduling content, supporting multiple layers and getting a list of reports of content that has been played. Management is done online so that users can monitor, update and control the content displayed to all players that have been prepared anytime and anywhere.

The use of the CMS application has been implemented by the Digital Content Management division of PT Telekomunikasi Selular (Telkomsel) to manage advertisements or information on TV media in several customer service offices or GraPARI Telkomsel. The use of the CMS application replaces the previous method of delivering advertisements, which previously used flash media as an input source on TV now uses an android tv box device that contains the Smart Display application as a medium for receiving and playing content from CMS. The management of the CMS application is carried out by PT Telkomsel employees of the Digital Content Management division, from uploading content to scheduling content to be displayed to each GraPARI.

### A. Research Purposes

The purpose of this study is to determine the level of user satisfaction with the CMS application and evaluate whether the CMS application has met the needs of users using the PIECES method.

## II. LITERATURE REVIEW

### A. Content Management System

Content Management System (CMS) is a software system that specializes in handling content, such as text, graphics, video, etc. (Zhu, Bacalzo, Edeen, Jun, Ouimet, Schmitt, Wang, Wersin, Werts, and Willingham, 2010). CMS stores, schedules and sends content to places that have been integrated with the Smart Display application as a client or media that plays content from CMS.

### B. PIECES Framework

PIECES Framework is a framework used to classify a problem. This framework consists of six variables, namely Performance, Information (and Data), Economics, Control (and Security), Efficiency and Service. The following is an explanation of each variable.

1. Performance.

Performance assesses whether the performance of a system is running well or not. Performance is measured by throughput, namely the amount of work done in a given time and response times, namely how fast the system is able to complete a job.

2. Information (and Data).

Information (and Data) assesses whether input, stored data and output in a system are accurate, well presented, organized, complete and relevant.

3. Economics.

Economics assesses in terms of the cost of a system that is whether it is too high and the profit / profit of a system that is whether it can still be improved.

4. Control (and Security).

Control (and Security) assesses whether the control and security of a system needs to be improved so that the system gets better.

5. Efficiency.

Efficiency assesses whether a system is running efficiently in terms of the time a procedure is carried out, the effort needed to learn and operate a program and the resources or labor that is used.

6. Service.

Service assesses whether a system performs work processes with results that are accurate, consistent, trustworthy, easy to use and easily accessed by users.

## III. RESEARCH METHODS

### A. Research Subject

The subjects in this study were the users of the Content Management System application at PT Telkomsel. The total subjects is 20 (twenty) people.

### B. Place and Time of Research

This research was conducted at PT Telkomsel by distributing questionnaires to users of the Content Management System application. The study began in February 2018 until December 2018.

### C. Data Analysis Method

Data analysis is a simplification of data in a form that is easier to interpret. Data analysis aims to answer the questions listed in the identification of problems. Data analysis method used in this research is descriptive analysis. According to Sugiyono (2017), descriptive analysis is a statistic used to analyze data by describing or describing data that has been collected as it is without intending to make conclusions that apply to the public or generalizations

This study uses a questionnaire for data collection. From the returned and answered questionnaires, the data is then analyzed to find out the average value of each variable presented in the PIECES framework.

In this study variable measurements were carried out using a Likert scale. According to Sugiyono (2012), the Likert scale is used to measure the attitudes, opinions and perceptions of a person or group of people about social phenomena. Likert scale used is a scale of 1 (one) to 5 (five).

TABLE I. Table styles.

| Answer Choice | Score |
|---|---|
| Very Disagree | 1 |
| Disagree | 2 |
| Neutral | 3 |
| Agree | 4 |
| Very agree | 5 |

After data from the questionnaire has been collected, researchers calculate the average (mean) of each variable. The average value is obtained by summing the questionnaire scores then divided by the number of statements.

The average formula used is as follows:

$$Me = \frac{JS}{JP}$$

Explanation:
$Me$ = Average (mean)
$JS$ = Total Score
$JP$ = Total Statement

After obtaining the average value of each variable, the researcher determines the level of satisfaction based on the lowest value and the highest value of the scale used in the questionnaire. The scale used is a scale of 1 (one) to 5 (five), then the lowest value is 1 (one) and the highest value is 5

(five).

Researchers use 5 (five) levels to measure satisfaction. Then to calculate the range of intervals between levels of satisfaction is the way the highest value minus the lowest value, then divided by the number of satisfaction levels.

Highest score = 5
The lowest value = 1
Interval range = ((5-1) / 5) = 0.8

So researchers determine the level of satisfaction as follows:

TABLE II. Satisfaction Level.

| Score | Satisfaction Level |
|---|---|
| 1 - 1.8 | Very Dissatisfied |
| 1.9 - 2.6 | Not satisfied |
| 2.7 - 3.4 | Quite satisfied |
| 3.5 - 4.2 | Satisfied |
| 4.3 - 5 | Very satisfied |

## IV. RESEARCH RESULTS

### 1. Performance

TABLE III. Tabulation of Performance Questionnaire.

| No | VD | D | N | A | VA | Score |
|---|---|---|---|---|---|---|
| 1 | 0 | 0 | 0 | 12 | 8 | 88 |
| 2 | 0 | 0 | 0 | 4 | 6 | 92 |
| 3 | 0 | 0 | 0 | 10 | 2 | 82 |
| 4 | 0 | 0 | 2 | 14 | 4 | 82 |
| Total Score | | | | | | 344 |

$$Me = \frac{344}{80} = 4.3$$

Based on the calculation of the average number of Performance variables obtained value of 4.3. By measuring using the level of satisfaction that researchers have determined, the level of satisfaction of users of the Content Management System application on the Performance variable is included in the Very Satisfied category.

### 2. Information (and Data)

TABLE IV. Tabulation of Information (and Data) Questionnaire.

| No | VD | D | N | A | VA | Score |
|---|---|---|---|---|---|---|
| 1 | 0 | 0 | 0 | 18 | 2 | 82 |
| 2 | 0 | 0 | 0 | 16 | 4 | 84 |
| 3 | 0 | 0 | 6 | 14 | 0 | 72 |
| 4 | 0 | 0 | 4 | 16 | 0 | 76 |
| Total Score | | | | | | 314 |

$$Me = \frac{314}{80} = 3.925$$

Based on the calculation of the average number of variables Information (and Data) obtained value of 3,925. By measuring using the level of satisfaction that researchers have determined, the level of satisfaction of users of Content Management System applications on the Information (and Data) variable is included in the Satisfied category.

### 3. Economics

TABLE V. Tabulation of Economics Questionnaire.

| No | VD | D | N | A | VA | Score |
|---|---|---|---|---|---|---|
| 1 | 0 | 0 | 10 | 10 | 0 | 70 |
| 2 | 0 | 0 | 0 | 16 | 4 | 84 |
| 3 | 0 | 0 | 0 | 20 | 0 | 80 |
| 4 | 0 | 0 | 0 | 10 | 10 | 90 |
| Total Score | | | | | | 324 |

$$Me = \frac{324}{80} = 4.05$$

Based on the calculation of the average number of Economics variables obtained value of 4.05. By measuring using the level of satisfaction that researchers have determined, the level of satisfaction of users of the Content Management System application in the Economics variable is included in the Satisfied category

*4. Control (and Security)*

TABLE VI. Tabulation of Control (and Security) Questionnaire.

| No | VD | D | N | A | VA | Score |
|----|----|---|---|---|----|-------|
| 1 | 0 | 0 | 0 | 20 | 0 | 80 |
| 2 | 0 | 0 | 6 | 14 | 0 | 74 |
| 3 | 0 | 0 | 0 | 20 | 0 | 80 |
| 4 | 0 | 0 | 0 | 20 | 0 | 80 |
| Total Score | | | | | | 314 |

$$Me = \frac{314}{80} = 3.925$$

Based on the calculation of the average number of Control (and Security) variables, a value of 3,925 is obtained. By measuring using the level of satisfaction that researchers have determined, the level of satisfaction of users of the Content Management System application on the Control (and Security) variable is included in the Satisfied category.

*5. Efficiency*

TABLE VII. Tabulation of Efficiency Questionnaire.

| No | VD | D | N | A | VA | Score |
|----|----|---|---|---|----|-------|
| 1 | 0 | 0 | 6 | 14 | 0 | 74 |
| 2 | 0 | 0 | 0 | 20 | 0 | 80 |
| 3 | 0 | 8 | 6 | 8 | 0 | 64 |
| 4 | 0 | 0 | 0 | 14 | 6 | 86 |
| Total Score | | | | | | 304 |

$$Me = \frac{304}{80} = 3.8$$

Based on the calculation of the average number of Efficiency variables, a value of 3.8 is obtained. By measuring using the level of satisfaction that researchers have determined, the level of user satisfaction with the Content Management System application on the Efficiency variable is included in the Satisfied category.

*6. Service*

TABLE VIII. Tabulation of Service Questionnaire.

| No | VD | D | N | A | VA | Score |
|----|----|---|---|---|----|-------|
| 1 | 0 | 0 | 0 | 18 | 2 | 82 |
| 2 | 0 | 4 | 10 | 6 | 0 | 62 |
| 3 | 0 | 0 | 6 | 14 | 0 | 74 |
| 4 | 0 | 0 | 0 | 18 | 2 | 82 |
| Total Score | | | | | | 300 |

$$Me = \frac{300}{80} = 3.75$$

Based on the calculation of the average number of Service variables obtained a value of 3.75. By measuring using the level of satisfaction that researchers have determined, the level of satisfaction of users of the Content Management System application on the Service variable is included in the Satisfied category

## V. CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the calculation of data and analysis of user satisfaction questionnaire Content Management System application at PT Telkomsel using the PIECES framework, 1 (one) of 6 (six) variables get the Very Satisfied category that is on the Performance variable and (5) the other variables get the Satisfied category namely on the variables Information (and Data), Economics, Security (and Control), Efficiency, Service. Then it can be concluded that the users of PT Telkomsel are SATISFIED towards the Content Management System application developed by PT Indocode Technology. But there are some users who claim that using a Content Management System application is not easy. This can be seen from the results of the questionnaire where there are some users who disagree with the researcher's statement in the Efficiency and Service variables.

For PT Indocode Technology, it is recommended to improve the operating flow of the Content Management System application and provide or complete application usage guidance documents so that users can more easily understand and operate the Content Management System application.

For similar studies it is recommended to conduct research with a larger sample size and use a different analysis method.

## REFERENCES

[1] Agustina, N. Evaluasi Penggunaan Sistem Informasi ERP Dengan Metode PIECES Framework. Jurnal Informatika, 5(2). 2018.
[2] Bentley, Lonnie D dan Whitten, Jeffrey L. Systems Analysis and Design for the Global Enterprise. (7th edition). New York: McGrawHill. 2007.
[3] Sugiyono. Metode Penelitian Kuantitatif, Kualitatif dan R&D. Bandung: CV. Alfabeta. 2012.
[4] Sugiyono. Metode Penelitian Kuantitatif, Kualitatif dan R&D. Bandung: CV. Alfabeta. 2017.
[5] Supriyatna, A. Analisis Dan Evaluasi Kepuasan Pengguna Sistem Informasi Perpustakaan Dengan Menggunakan Pieces Framework. Jurnal Pilar, 11(1). 2015.
[6] Supriyatna, A. and Maria, V. Analisis Tingkat Kepuasan Pengguna dan Tingkat Kepentingan Penerapan Sistem Informasi DJP Online dengan Kerangka PIECES. Jurnal Khazanah Informatika, 3(2). 2017.
[7] Verawati, I. and Rachmawati, A. Analisis Implementasi Sistem Pengolahan Data Nilai Siswa SD Negeri 2 Katekan. Jurnal Semnasteknomedia Universitas Amikom Yogyakarta, 3(1). 2015.
[8] Wijaya, H. O. L. Implementasi Metode PIECES Pada Analisis Website Kantor Penanaman Modal Kota Lubuklinggau. Jurnal Sistem Informasi Musirawas, 3(1). 2018.
[9] Zhu, W., Bacalzo, R., Edeen, E., Jun, Ouimet, D., Schmitt, J. D., Wang, B., Wersin, D., Werts, D. B., and Willingham, M. Federated Content Management: Accessing Content from Disparate Repositories with IBM Content Federation Services and IBM Content Integrator. Amerika: IBM Redbooks. 2010.