

# LEVEL OF STUDENT SATISFACTION WITH NEW BINUSMAYA: MEASURING AND ANALYZING USING THE END USER COMPUTING SATISFACTION (EUCS) FRAMEWORK

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## ABSTRACT

Binus University has used Binusmaya as a learning tool since 2001. According to the official Binus website on December 25 2019, the switch from Binusmaya to New Binusmaya was made to make this platform better and more useful. Development is carried out by adding the latest features and improving the appearance design. This is done in order to make students feel comfortable in finding, exploring, giving, and exchanging important information about knowledge and lecture activities. Basically new binusmaya is a refinement of binusmaya. Some of the differences between binusmaya and new binusmaya are the additional features in the new binusmaya, which are features that function to display information about student progress for all courses taken in a particular semester or period. This article discusses the level of student satisfaction with the website version of the new Binusmaya and the factors that influence student satisfaction with the website version of the new Binusmaya. The framework used is End User Computing Satisfaction (EUCS) which functions to determine the level of satisfaction of application users by comparing expectations and reality from information systems. The population to be used in this study were active students at Binus University with a sample of undergraduate students consisting of 8 faculties with a total of 420 students as respondents. Questionnaire distribution starts from 26 September 2022 – 8 November 2022. The results show that the content variables (X1) and accuracy (X2) have no significant effect on user satisfaction (Y) while the format variables (X3), ease of use (X4) and timeliness (X5) has a significant effect on user satisfaction (Y).

**Keywords:** *New Binusmaya, Learning Management system, EUCS, E-learning, User Satisfaction*

## 1. INTRODUCTION

The level of user satisfaction is the key word in learning activities in several countries, especially during the Covid-19 pandemic that hit the world. In general, previous studies show that users need a complete platform in terms of content, accuracy, format, ease of use and timeliness. The results of various previous studies show that there is a statistically positive relationship between content, accuracy, format, ease of use, timeliness, and user satisfaction (1), (2), (3).

The study conducted by Mais Al-Nasa'h, Luae' Al-Tarawneh, Ferial M. Abu Awwad and Ikhlas Ahmad revealed the emergence of three online learning satisfactions from the level of individual

confidence in their abilities, the presence of general anxiety, and fear of COVID-19. This study theoretically explains the importance of achieving online learning outcomes for online learning satisfaction. A high level of online learning satisfaction is influenced by the achievement of high online learning goals, a moderate level of general anxiety, and a low level of fear of COVID-19 (4).

Studies conducted by Piriya Kornpitack and Sudaporn Sawmong confirm that the suitability assessment of subsequent goodness-of-fit (GOF) and confirmatory factor analysis (CFE) on user satisfaction has a causal relationship between variables and presents a significant direct and indirect impact on subsequent online. promote better student academic performance and knowledge acquisition(5).

This study aims to find out how the level of This study discusses the level of student satisfaction with the website version of New Binusmaya and what factors influence student satisfaction with the website version of New Binusmaya. This study contains novelty in 2 ways. The first examines the level of satisfaction of e-learning users in Indonesia, especially at Bina Nusantara University. Second, theoretically this study will test the level of student satisfaction with the website version of the new Binusmaya using the end user computing satisfaction framework.

Binus University has used Binusmaya as a learning tool since 2001(6). Research on Binusmaya has been carried out by Dipinti Fecira and Tengku Mohd. Khairal Abdullah, in 2020. Dipinti found that research results showed Perceived Ease of Use (PEOU) had a positive influence on Perceived Usefulness (PU). Perceived Usefulness (PU) and Attitude Towards Using (ATU) also show a positive influence on Intention to Use (ITU). Perceived Usefulness (PU) positively influences Attitude Towards Using (ATU). Perceived Ease of Use (PEOU) has no effect on Attitude Towards Using (ATU). Perceived Enjoyment (PE) also does not affect Intention to Use (ITU). Perceived Enjoyment (PE) positively influences Attitude Towards Using (ATU) (7).

In 2021 binusmaya will be developed into new binusmaya. According to the official Binus University website on December 25 2019, the reason for the change from binusmaya to new binusmaya is to make it better and more useful. This is done by adding the latest features and improving the appearance design of the application. This aims to make binusians feel comfortable in finding, exploring, giving, and exchanging important information about knowledge and lecture activities (8). The new binusmaya platform is a vehicle that connects discussions between students and students and lecturers in supporting the lecture process (9). New binusmaya also has a feature to view schedules and download lecture materials. Basically new binusmaya is a refinement of binusmaya. Some of the differences between binusmaya and new binusmaya are the additional features that exist in new binusmaya, namely features that function to display information about student progress for all courses taken in a semester or a certain period (10).

Several binusmaya features that are not available in the new binusmaya, such as financial summaries to view financial summaries and a download center which functions to download various lecture-related information such as academic calendars and student

guides, however students who use new binusmaya can still access binusmaya through the academic service feature.

This study uses the End User Computing Satisfaction (EUCS) Framework. This framework was chosen because the research objective was to measure the level of student satisfaction with new Binusmaya with reference to comparisons between expectations and reality from an information system.

Knowledge management theory is used as a way of developing the potential of human resources in organizations, increasing learning outcomes in an educational institution and increasing knowledge (11).

The background of this research problem is due to two things. First, as a private university with a large number of students, as many as 45,925 students, the level of satisfaction with the new Binusmaya platform is important to know(12). With this large number of users, measuring user satisfaction is very important. Second, new binusmaya was created to assist student activities in attending lectures, so the level of satisfaction with this platform is important to be able to find out how satisfied students are with using new binusmaya.

These two problems have not been studied in depth, so this study aims to measure satisfaction with the website version of the new Binusmaya. The results of this research are expected to be useful for developers to continue to improve and develop the new Binusmaya website version in the future. The limitation of this study is that it only took samples of undergraduate program students and did not research for master's and doctoral programs so that the results of this study are limited in its application to the undergraduate program at Binus University

## 2. LITERATURE REVIEW

### 2.1 Learning Management System

LMS is an information technology system created to manage and support the learning process, and is useful in distributing lecture material. LMS enables collaboration between lecturers and students. Students can access lecture material provided, conduct discussion boards with lecturers through discussion forums, chat, and access assignments given by lecturers. This system encourages lecturers to make learning materials more creative through videos. Lecture materials can be uploaded and become learning materials that students learn more fun and easy to understand. This system allows

students who do not understand lecture material to repeat and study the video again until the material is understood. The flexibility of LMS allows lecturers and students to access anytime, anywhere through various devices, using PCs, tablets or smartphones. (13).

## 2.2 Binusmaya

Binusmaya is an online learning platform that is useful as a means of connecting students, lecturers, and other parts of campus such as the Student Service Center and Lecturer Service Center. Binusmaya is in the form of an LMS which was specifically built and developed by Binus University which aims to provide support for technology-based learning processes through Multi Channel Learning (MCL). Apart from being accessible via a browser, binusmaya can also be downloaded via the Play Store and App Store.

Binusmaya has various functions, including viewing lecture schedules, downloading important documents, viewing the latest news, checking tuition payment status, viewing BUEPT Score results and making requests for letters or documents (14).

## 2.3 New Binusmaya

New binusmaya is a development of binusmaya. Development will be carried out in 2021. There are several new features in the new binusmaya which function to display student progress for courses taken, a feature to display a list of the five latest discussions from all classes, an upcoming card feature to display the nearest class schedule and activities that must be completed in the next session as well as features that function to display a list of learning activities in the semester or active period, the list of learning activities is divided into two, namely upcoming and outdated. Upcoming is an activity that has not been completed but has not yet reached its due date. This list of activities is sorted based on the activities that are closest, while outdated are activities that have not been completed and have passed the deadline (15).

## 2.4 Knowledge Management

Knowledge Management (KM) theory is a method used to organize and distribute important information and expertise within an organization so that productivity and achievement can develop so as to increase the value of the organization(11).

Knowledge management which is the process of forming a knowledge identity. The function of knowledge management besides being able to organize, disseminate and send important information can also be a form of expertise including part of the organizational memory that is uniquely located to become an organized and systematic organization (16).

## 2.5 Framework EUCS

End User Computing Satisfaction (EUCS) is a framework that functions to determine the level of user satisfaction of a system by using a comparison between the expectations and reality of an information system. EUCS was first introduced by Doll & Torkzadeh's. Torkzadeh & Doll explained that in measuring the level of user satisfaction there are five factors that can be represented: content, accuracy, format, ease of use and timeliness (17).

The researcher chose the EUCS framework in this study with the consideration that the EUCS framework can answer the research questions of this study. The EUCS framework has variables: content, accuracy, format, ease of use, timeliness and user satisfaction. Torkzadeh & Doll explained that the EUCS framework can be used to measure user satisfaction levels (17).

## 3. MATERIALS AND METHOD

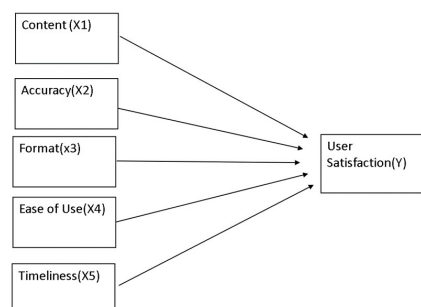


Figure 1: Research Model

This figure shows the research objective to determine the factors that influence the level of student satisfaction with new Binusmaya.

### 3.1 Research Instruments

This study has 23 statements that are measured using a Likert scale, number 1 indicates strongly disagree while number 5 strongly agrees. The questionnaire was divided into 6 sections, namely content (4 statements), accuracy (4 statements), format (4 statements), ease of use (4 statements),

timeliness (4 statements) and user satisfaction (3 questions). There are also 3 statements that aim to identify the identity of the respondent.

### 3.2 Data Collections Procedures

Questionnaires were distributed via google forms online. The population that will be used in this study are active students at Binus University while the sample is undergraduate program students. Sampling is based on faculties at Binus University, namely Binus Business School, Faculty of Digital Communication and Hotel & Tourism, Faculty of Engineering, Faculty of Humanities, School of Accounting, School of Computer Science, School of Design and School of Information Systems . Based on the Slovin formula, the sample drawn in this study must obtain a minimum of 396 respondents. The distribution of the questionnaires started from 26 September 2022 – 8 November 2022. The data collected totaled 420 respondents.

### 3.3 Respondents Data

Characteristics for 420 respondent data can be seen in Table 1.

*Table 1: Respondents Data*

| Description                                        | Total Answers | %     |
|----------------------------------------------------|---------------|-------|
| N Total                                            | 420           | 100%  |
| Gender                                             |               |       |
| Male                                               | 268           | 63,8% |
| Female                                             | 152           | 36,2% |
| Respondents who use new binusmaya                  |               |       |
| Ya                                                 | 420           | 95,2% |
| Tidak                                              | 20            | 4,8%  |
| Valid Respondent (400 respondents)                 |               |       |
| Faculty                                            |               |       |
| Descriptions                                       | Total Answers | %     |
| School of information system                       | 54            | 13,5% |
| School of design                                   | 55            | 13,7% |
| School of computer science                         | 62            | 15,5% |
| School of accounting                               | 46            | 11,5% |
| Faculty of humanities                              | 52            | 13,0% |
| Faculty of engineering                             | 43            | 10,8% |
| Faculty of digital communication and hotel tourism | 45            | 11,3% |
| Binus business school                              | 43            | 10,8% |

## 4. RESULT AND DISCUSSION

This study aims to determine the effect of independent variable content (X1), accuracy (X2), format (X3), ease of use (X4) and timeliness (X5) on the dependent variable User Satisfaction (Y). Researchers conducted 2 stages of testing, namely testing the measurement model (Outer model) and testing the structural model (Inner Model). The data processing technique used in this study is the Partial Least Square (PLS) based SEM method. Data is processed using the SmartPLS 4.0 program. PLS is used to find the optimal predictive linear relationship from the processed data.

### 4.1 Measurement Model Test(Outer Model)

Evaluation of the outer model serves to test the feasibility of the measurement model used both in terms of validity and reliability (18). The outer model analysis defines how each indicator relates to its latent variable, the tests carried out include:

1. Convergent Validity. The convergent validity value is the factor loading value on the latent variable with its indicators. Expected value  $>0.7$ .
2. Discriminant Validity. This value is the value of the cross-loading factor, which helps to know whether a construct has an adequate discriminant, namely by comparing the loading value on the intended construct must be greater than the loading value with other constructs.
3. Average Variance Extracted (AVE). The expected AVE value is  $>0.5$ .
4. Cronbach's Alpha. The reliability test is strengthened by Cronbach's Alpha. Expected value  $>0.6$  for all constructs.
5. Composite Reliability. Data that has composite reliability  $> 0.7$  has high reliability.

#### 4.1.1 Convergent Validity

Research requires an assessment of each construct, an assessment can be made by looking at convergent validity. Convergent Validity is measured through the outer loading and AVE (Average Variance Extracted) parameters. If the construct value is more than 0.7 then the reflexive measure is said to be correlated. It is important to note that research is in the early stages of development, the measurement scale is sufficient with a loading factor value of 0.5 to 0.6 (19).

The following is the result of the outer model which shows the outer loading value using the

SmartPLS 4.0 analysis tool. Convergent validity aims to determine the validity of each relationship between indicators and constructs or latent variables. To see the convergent validity of the reflexive measurement model, the indicators are assessed on

the basis of the correlation of item scores or component scores with latent variable scores or construct scores. This measurement corresponds to the value estimated by the SmartPLS 4.0 program(20).

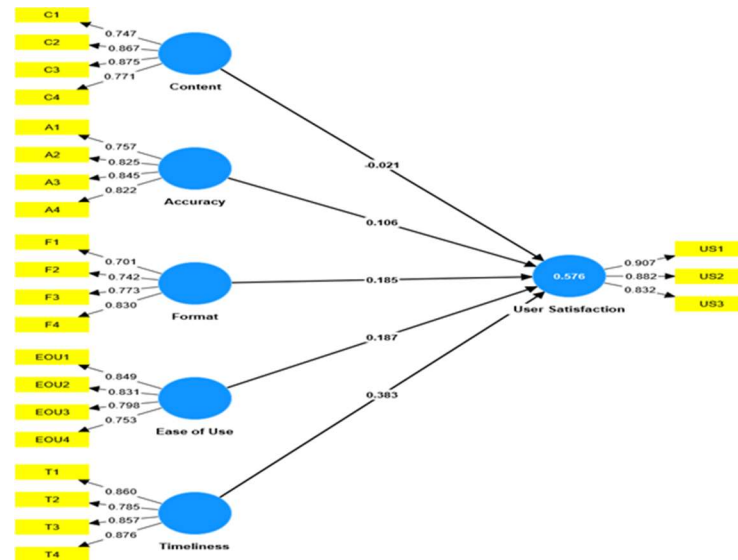


Figure 2: Research Model

Based on the table above, it can be seen that all indicators for each variable have a value greater than 0.7 so that it has a high level of validity and meets convergent validity.

As for the results of data processing with Smart PLS 4.0 on the content variable which has the highest value of 0.875 on indicator C3 while on indicator C1 it has the lowest value with a result of 0.747.

The accuracy variable with the highest result is on the A3 indicator of 0.845, while the lowest value is 0.757 on the A1 indicator.

Furthermore, in the variable format with the highest result on the F4 indicator of 0.830, and the lowest result on the F1 indicator with a result of 0.701.

In the variable of ease of use on the EOU1 indicator the highest result is 0.849, while on the EOU4 indicator the lowest result is 0.753.

While on the timeliness variable, the highest result is on T4 of 0.876, and the lowest value is on the T2 indicator of 0.785.

In the variable user satisfaction on the US1 indicator with the highest result of 0.907, while on the US3 indicator with the lowest result of 0.832.

This proves that all loading factor indicators are more than 0.70, and are declared valid. With several indicators that have met convergent validity with a value of  $> 0.7$ , the analysis is continued with discriminant validity and Average Variance Extracted (AVE) tests.

#### 4.1.2 Discriminant Validity

To test the validity of a model by looking at the cross loading value which shows the magnitude of the correlation between constructs and their indicators and indicators from other constructs, this research uses discriminant validity. The standard value used for cross loading must be greater than 0.7 or by comparing the square root Average Variance Extracted (AVE) value. A value greater than 0.7 must be shown for each construct with a correlation between the construct and other constructs according to the model built. If the AVE root value of each construct is greater than the correlation value between the construct and the other constructs in the model, then it can be said to have good discriminant validity. In Ghozali's opinion, an indicator is

declared valid or declared to fulfill discriminant validity if the indicator's cross loading value on the variable shows the greatest value compared to other variables.(19). The results of cross loading from this study can be seen in the following table:

Table 2: discriminant validity test result(Cross loadings)

|      | Accuracy     | Content      | Ease of Use  | Format       | Timeliness   | User Satisfaction |
|------|--------------|--------------|--------------|--------------|--------------|-------------------|
| A1   | <b>0.757</b> | 0.755        | 0.485        | 0.560        | 0.498        | 0.417             |
| A2   | <b>0.825</b> | 0.598        | 0.449        | 0.651        | 0.501        | 0.467             |
| A3   | <b>0.845</b> | 0.608        | 0.558        | 0.685        | 0.527        | 0.495             |
| A4   | <b>0.822</b> | 0.643        | 0.434        | 0.622        | 0.508        | 0.509             |
| C1   | 0.601        | <b>0.747</b> | 0.377        | 0.504        | <b>0.390</b> | <b>0.310</b>      |
| C2   | 0.667        | <b>0.867</b> | 0.499        | 0.599        | 0.550        | 0.522             |
| C3   | 0.694        | <b>0.875</b> | 0.557        | 0.651        | 0.649        | 0.528             |
| C4   | 0.640        | <b>0.771</b> | 0.496        | 0.511        | 0.501        | 0.399             |
| EOU1 | 0.505        | 0.540        | <b>0.849</b> | 0.743        | 0.604        | 0.568             |
| EOU2 | 0.525        | 0.526        | <b>0.831</b> | 0.713        | 0.611        | 0.584             |
| EOU3 | 0.442        | 0.431        | <b>0.798</b> | 0.616        | 0.617        | 0.534             |
| EOU4 | 0.435        | 0.428        | <b>0.753</b> | 0.546        | 0.712        | 0.534             |
| F1   | 0.692        | 0.604        | 0.472        | <b>0.701</b> | 0.448        | 0.479             |
| F2   | 0.552        | 0.383        | 0.515        | <b>0.742</b> | 0.472        | 0.443             |
| F3   | 0.618        | 0.573        | 0.761        | <b>0.773</b> | 0.589        | 0.552             |
| F4   | 0.520        | 0.558        | 0.697        | <b>0.830</b> | 0.623        | 0.569             |
| T1   | 0.606        | 0.627        | 0.682        | 0.628        | <b>0.860</b> | 0.650             |
| T2   | <b>0.394</b> | 0.392        | 0.651        | 0.481        | <b>0.785</b> | 0.472             |
| T3   | 0.573        | 0.580        | 0.647        | 0.638        | <b>0.857</b> | 0.595             |
| T4   | 0.517        | 0.578        | 0.678        | 0.618        | <b>0.876</b> | 0.663             |
| US1  | 0.498        | 0.516        | 0.598        | 0.591        | 0.632        | <b>0.907</b>      |
| US2  | 0.559        | 0.510        | 0.638        | 0.648        | 0.649        | 0.882             |
| US3  | 0.466        | 0.423        | 0.563        | 0.522        | 0.584        | 0.832             |

Based on the table above, it can be seen that the correlation between the construct accuracy and the indicator (A3, the highest value is 0.845) is higher than the correlation of other construct indicators. The lowest value is in the T2 construct with a result of 0.394.

Then the content correlation with the indicator (the highest value at C3 is 0.875,) is higher when compared to the correlation of other construct indicators. The lowest value is in the F2 construct with a result of 0.383.

Furthermore, the correlation of ease of use with its indicators (EOU1 with the highest value of 0.849) is higher when compared to the correlations of other construct indicators. The lowest value is in the F1 construct with a result of 0.472.

Then the correlation of the format with the indicator (F4 has the highest value of 0.830,) is higher when compared to the correlation of other construct indicators. The lowest value is in the T2 construct with a result of 0.481.

The timeliness correlation with the indicator (T4 has the highest value of 0.876) is higher than the

correlation of other construct indicators. The lowest value is in the C1 construct with a result of 0.390.

Meanwhile, the correlation of user satisfaction with its indicators (US1 has the highest value of 0.907) is higher when compared to the correlations of other construct indicators. The lowest value is in the C1 construct with a result of 0.310.

Based on the elaboration above, it can be concluded that all constructs or latent variables already have good discriminant validity, where the indicators on the defined construct variables are higher than the indicators on other variables.

The discriminant validity test can also be carried out by looking at the AVE roots for each construct which must be greater than the correlation with other constructs, which will be seen from the Fornell-Lacker Criterion Table (21).

Table 3: Fornell-Lacker

|                   | Accuracy     | Content      | Ease of Use  | Format       | Timeliness   | User Satisfaction |
|-------------------|--------------|--------------|--------------|--------------|--------------|-------------------|
| Accuracy          | <b>0,813</b> |              |              |              |              |                   |
| Content           | 0,795        | <b>0,817</b> |              |              |              |                   |
| Ease of Use       | 0,591        | 0,598        | 0,809        |              |              |                   |
| Format            | 0,776        | 0,699        | <b>0,813</b> | <b>0,763</b> |              |                   |
| Timeliness        | 0,625        | 0,654        | 0,785        | 0,706        | <b>0,845</b> |                   |
| User Satisfaction | 0,583        | 0,555        | 0,688        | 0,674        | 0,712        | <b>0,874</b>      |

Based on table 3 the highest value of the construct variable accuracy is 0.813 then for the variable content the highest value is 0.817 for the variable ease of use the highest value is 0.813 with a correlation to the format variable then the highest value is the variable timeliness of 0.845 and the variable user satisfaction has a value of 0.874.

#### 4.1.3 Average Variance Extracted Test (AVE)

Average Variance Extracted is another method to see discriminant validity. AVE can be used as a convergent and divergent validity test. AVE reflects the average communality for each latent factor in the reflective model. In an adequate model, the AVE must be greater than 0.5 and greater than the cross-

loading, which means the factor must explain at least half the variance of each indicator (22). AVE below 0.50 means the error variance exceeds the variance described (23).

Table 4: Average Variance Extracted

| Variabel          | Average Variance Extracted (AVE) | Condition | Information |
|-------------------|----------------------------------|-----------|-------------|
| Accuracy          | 0,661                            | > 0,5     | Fulfilled   |
| Content           | 0,668                            | > 0,5     | Fulfilled   |
| Ease of Use       | 0,654                            | > 0,5     | Fulfilled   |
| Format            | 0,582                            | > 0,5     | Fulfilled   |
| Timeliness        | 0,714                            | > 0,5     | Fulfilled   |
| User Satisfaction | 0,764                            | > 0,5     | Fulfilled   |

The table above shows the AVE value of each construct is above 0.5, this means that there are no problems with convergent validity in the model being tested. It can be said that the constructs in this research model have good discriminant validity. The highest score is 0.764 on the variable user satisfaction and the lowest score is 0.582 on the format variable.

#### 4.1.4 Cronbach's Alpha dan Composite Reliability

Furthermore, the Cronbach's Alpha test aims to test the reliability of the instrument in a research model or measure internal consistency and the value must be  $\geq 0.60$ . If all latent variable values have Cronbach alpha  $\geq 0.60$  and composite reliability  $\geq 0.70$ . This shows that the construct has good reliability or the questionnaire used as a tool in this study has been reliable and consistent (19).

TABLE 5: CONSTRUCT VALIDITY AND RELIABILITY TESTING RESULTS

| Variable | Cronbach's Alpha | Composite Reliability | Information |
|----------|------------------|-----------------------|-------------|
| Accuracy | 0,828            | 0,834                 | Reliable    |
| Content  | 0,835            | 0,867                 | Reliable    |

|                   |       |       |          |
|-------------------|-------|-------|----------|
| Ease of Use       | 0,823 | 0,825 | Reliable |
| Format            | 0,760 | 0,768 | Reliable |
| Timeliness        | 0,867 | 0,880 | Reliable |
| User Satisfaction | 0,845 | 0,850 | Reliable |

Based on the Cronbach's Alpha and Composite Reliability values from SmartPLS processing, it can be seen that all variables are declared reliable so that they can proceed to the inner model testing stage.

The highest Cronbach's Alpha value is 0.867 on the Timeliness variable, and the lowest value is 0.760 on the format variable. Meanwhile, the highest Composite Reliability score was 0.880 for the Timeliness variable, and the lowest score was 0.768 for the format variable.

#### 4.2 Inner Model Test Result

After the researcher tested the outer model, the next test was carried out to test the inner model, namely the testing carried out on the structural model that links between latent variables. The purpose of testing the liner model is to find out that the structural model that the researcher has made is accurate (24). In this test, the steps are carried out by evaluating several values as follows:

##### 4.2.1 Coefficient of Determination R-Square (R<sup>2</sup>)

The coefficient of determination R-Square (R<sup>2</sup>) shows how much the independent variable explains the dependent variable. The R-Square value is zero to one. If the R-Square value gets closer to one, then the independent variables provide all the information needed to predict the variation of the dependent variable.

Conversely, the smaller the R-Square value, the more limited the ability of the independent variables to explain the variation in the dependent variable.

Results above the 0.67, 0.33 and 0.19 thresholds become “substantial”, “moderate” and “weak” respectively. The R-Square value has a weakness, namely the R-Square value will increase every time there is an addition of one independent variable. In this case the independent variables may not have a significant effect on the dependent variable (25).

From the description above, the results of the R-Square test can be classified into 3 parts, namely:

1. Substantial if above the limit of 0,34 – 0,67,
  2. Moderate if 0,20 – 0,33 and
  3. Weak if a test result is above a limit 0 – 0,19.
- Based on the data processing that has been done, the R-Square value is obtained as follows:

Table 6: R-square Test Results

| Variable              | R Square | Information |
|-----------------------|----------|-------------|
| User Satisfaction – Y | 0,576    | Substantial |

Based on the R-Square table above, it explains that the substantial category in the variable user satisfaction, is the response and feedback raised by users after using the information system 0.576 or 57.6% explains the subjective construct regarding how satisfied users are with the system used, and the remaining 42, 4% is explained by other constructs outside the research.

##### 4.2.2 Coefficient of Determination f-square (f<sup>2</sup>) / Effect Size

F-Square (Effect Size) is a measure used to assess the relative impact of an influencing variable (exogenous) on the affected variable (endogenous). The f-Square value of the model is used to determine the size of the effect size of endogenous latent variables on exogenous latent variables.

If the f-Square value is equal to 0.35, it can be interpreted that the latent variable predictor has a strong influence, if the value is equal to 0.15 then it has a medium effect and if the value is equal to 0.02 then it has a weak effect (26).

From the description above the Coefficient of Determination, f-square can be classified into 3 parts, namely Influence:

1. Strong if the f-square value = 0.35,
2. Medium if the value of f-square = 0.15, and
3. Weak if the value of f-square = 0.02.

Table 7: F-square Test Result

| No. | Hypothesis                            | F-Square Value | Information |
|-----|---------------------------------------|----------------|-------------|
| 1   | Content (X1) => User Satisfaction(Y)  | 0,000          | Weak        |
| 2   | Accuracy (X2) => User Satisfaction(Y) | 0,007          | Weak        |



|   |                                          |       |        |
|---|------------------------------------------|-------|--------|
| 3 | Format (X3) => User Satisfaction(Y)      | 0,017 | Medium |
| 4 | Ease of Use (X4) => User Satisfaction(Y) | 0,010 | Medium |
| 5 | Timeliness (X5) => User Satisfaction(Y)  | 0,113 | Strong |

In the results of the f-square test it is known that the weak value is in the variables: content (X1) => User Satisfaction (Y) with a result of 0.000; Accuracy (X2) => User Satisfaction (Y) with a result of 0.007; intermediate value in format (X3) => User Satisfaction (Y) with a result of 0.017; and ease of use (X4) => User Satisfaction (Y) with a result of 0.010 Then it is known that the strong value is in the variable: Timeliness (X5) => User Satisfaction (Y) with a result of 0.113.

**4.2.3 VIF Inner Model Value Test**

In testing the inner VIF value of the model, the researcher conducted a collinearity test. This is done to see whether or not the correlation between constructs is strong. If the correlation shows a strong value, it means that the model has problems. This condition is called collinearity (collinearity). The value used as the basis for the analysis is by looking at the Variance Inflation Factor (VIF) value(27).

Based on Hair et al., (28) Possible collinearity problems (critical) when  $VIF > 5$ , possible collinearity problems when  $3 \leq VIF \leq 5$ , Ideally indicates that  $VIF < 3$ . In Sun, Ji, and Ye (29) it is stated that " The Deep VIF value in the fit model cannot be higher than 4.0 (some use a lower criterion of 5.0).

Several indicators in one block that have a formative function towards a certain latent variable can have a very high correlation. If this happens, the indicators experience what is called multicollinearity. When does multicollinearity occur between indicators? Multicollinearity occurs between indicators if the VIF value  $> 10$ .

Table 8: VIF Inner Model Value Test

| No. | Hypothesis                            | VIF   | Information |
|-----|---------------------------------------|-------|-------------|
| 1   | Content (X1) => User Satisfaction(Y)  | 3,075 | Normal      |
| 2   | Accuracy (X2) => User Satisfaction(Y) | 3,826 | Normal      |

|   |                                          |       |        |
|---|------------------------------------------|-------|--------|
| 3 | Format (X3) => User Satisfaction(Y)      | 4,888 | Normal |
| 4 | Ease of Use (X4) => User Satisfaction(Y) | 4,222 | Normal |
| 5 | Timeliness (X5) => User Satisfaction(Y)  | 3,058 | Normal |

The table above shows that all values that appear do not have collinearity problems in the model, so this can be said to be an ideal/good vif inner model test. The result of the VIF Inner Model test is that the highest is 4.888 in the Format variable (X3) => User Satisfaction (Y) while the lowest value is 3.058 in the Timeliness variable (X5) => User Satisfaction (Y).

**4.2.4 Hypothesis/Path Coefficient Testing Results**

Based on data processing with the Smart PLS application from bootstrapping, it contains the results of testing the hypothesis/Path coefficient which can explain the coefficient of influence between related variables:

Table 9. Hypothesis/Path Coefficient Testing

|                                         | Original Sample (O) | Sample Mean (M) | Standard Deviation (STD EV) | T ( O/STD EV) | P Values | Result                        |
|-----------------------------------------|---------------------|-----------------|-----------------------------|---------------|----------|-------------------------------|
| X1 -> Y Content-> User Satisfaction     | -0,021              | -0,017          | 0,077                       | 0,268         | 0,788    | No effect and not significant |
| X2 -> Y Accuracy-> User Satisfaction    | 0,106               | 0,105           | 0,079                       | 1,355         | 0,182    | No effect and not significant |
| X3 -> Y Format -> User Satisfaction     | 0,185               | 0,188           | 0,086                       | 2,163         | 0,031    | Influe ntial and significant  |
| X4 -> Y Ease of Use-> User Satisfaction | 0,187               | 0,186           | 0,073                       | 2,569         | 0,010    | Influe ntial and significant  |
| X5 -> Y                                 | 0,383               | 0,379           | 0,082                       | 4,651         | 0,000    | Influe ntial and              |

|                                 |  |  |  |  |  |             |
|---------------------------------|--|--|--|--|--|-------------|
| Timeliness -> User Satisfaction |  |  |  |  |  | significant |
|---------------------------------|--|--|--|--|--|-------------|

Based on the first hypothesis test, namely whether the content variable does not affect the user satisfaction variable, the original sample value is -0.021, the sample mean is -0.017, the standard deviation is 0.077, the T-statistic is 0.268 and the P value is 0.788. The T-statistic value is smaller than the T table value of 1.96 and the P value indicates greater than 0.05. These results indicate that the content variable has no effect and is not significant on the user satisfaction variable if the T statistic is smaller than the T table, it has no effect (30).

Furthermore, based on the second hypothesis test, namely whether the accuracy variable does not affect the user satisfaction variable. In this study, the original sample value was 0.106, the sample mean was 0.105, the standard deviation was 0.079, the T statistic was 1.335 and the P value was 0.182. The T statistic value is smaller than the T-table value of 1.96 and the P value shows greater than 0.05. These results indicate that the accuracy variable has no effect and is not significant on the user satisfaction variable.

Based on the third hypothesis test, namely whether the format variable affects user satisfaction. In this study, the original sample value was 0.185, the sample mean was 0.188, the standard deviation was 0.086, the T statistic was 2.163 and the P value was 0.031. The T statistic value is greater than the T table value of 1.96 and the P value shows less than 0.05. The results showed that the format variable had a positive or significant effect on user satisfaction.

Based on the fourth hypothesis test, namely whether the variable ease of use affects user satisfaction, the original sample value is 0.187, the sample mean is 0.186, the standard deviation is 0.073, the T statistic is 2.569 and the P value is 0.001. The T statistic value is greater than the T table value of 1.96 and the P value shows less than 0.05. These results indicate that the variable ease of use has a positive or significant effect on user satisfaction.

Based on the fifth hypothesis test, namely whether the timeliness variable affects user satisfaction, the original sample value is 0.383, the sample mean is 0.379, the standard deviation is 0.082, the T statistic is 4,651 and the P value is 0.000. The T statistic value is greater than the T table value of 1.96 and the P value shows less than 0.05. These results indicate

that the timeliness variable has a significant effect on user satisfaction.

The results of this study are the same as those of Arif Saputra and Denny Kurniadi which show a statistically positive relationship between content, accuracy, format, ease of use and timeliness although they differ in content and accuracy which in Arif's research is positive while this research is negative (1).

The results of this study also show similarities with Dhamayanti and Yulianti's research that users of the Indo Global Mandiri University E-Learning application can satisfy users from the variable content, accuracy, format, ease of use and timeliness but in this study the variable content and accuracy have different results (2).

The results of this study are different from the research of Devi Angelina Simaremare and Agus Juniadi which shows the influence of the variable content, accuracy, format and ease of use on user satisfaction while timeliness has no effect on user satisfaction. In this study, content and accuracy have no significant effect on user satisfaction, while the variables of ease of use, format and timeliness have a significant and significant effect on user satisfaction (3).

This study has limitations in terms of the characteristics of new binusmaya user respondents. Respondents did not cover more optimally, namely Binus University students in the Masters and Doctoral programs. So that the applicability of this research is limited to Binus undergraduate students in the Binus Business School faculty, Faculty of Digital Communication and Hotel & Tourism, Faculty of Engineering, Faculty of Humanities, School of Accounting, School of Computer Science, School of Design and School of Information Systems.

This research is still open for further research using different theories and methods. User satisfaction on a platform continues to grow along with the dynamics of demands for increasingly complex needs, the study in this study is still a challenge so that developers can continue to answer user needs.

## 5. CONCLUSION

This study found that the variable content has no effect and is not significant on the variable user satisfaction. The accuracy variable has no positive or significant effect on the user satisfaction variable. It

was found that the format variable has a significant and significant effect on the user satisfaction variable. The variable of ease of use has a significant and significant effect on the variable user satisfaction. Furthermore, this study found that the timeliness variable has a significant and significant effect on user satisfaction variables. Three significant variables in this study are format, ease of use and timeliness.

This study shows that content has no effect on user satisfaction variables so that developers need to increase user satisfaction from content in a system. The contents of a system have functions and modules that can be used that contain all the information needed.

This study shows that accuracy has no effect on user satisfaction variables so that developers need to increase user satisfaction in terms of data accuracy when the system receives input and then processes it into information.

The new binusmaya format has succeeded in satisfying users. This can be seen in the format variables that measure user satisfaction in terms of appearance and the aesthetics of the system's appearance.

In terms of ease of use, new binusmaya has succeeded in satisfying users. this can be seen in the ease of use variable which measures user satisfaction in terms of ease of use this needs to be maintained by the developer.

In terms of timeliness, new Binusmaya has succeeded in satisfying users. This can be seen in the timeliness variable which measures user satisfaction in terms of the timeliness of the system in presenting the required data and information.

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