

CEISA Acceptance Analysis Using The Technology Acceptance Model (TAM) Method at The Main Service Office of The Directorate General of Customs and Excise Type B Batam

Fuad Arif Rahman^{1)✉}, Suci Rahmadhan Harianto²⁾

Management and Business Department, Politeknik Negeri Batam

Article Information	Abstract
<p>Article History Received August 2023 Accepted September 2023 Published September 2023</p> <hr/> <p><i>Keywords :</i></p> <p>Technology Acceptance Model (TAM), Customs-Excise Information System and Automation (CEISA)</p>	<p>This study aims to analyze the acceptance of the CEISA system implemented at the Main Service Office of the Directorate General of Customs and Excise Type B Batam City. Based on the Decree of the Director General of Customs and Excise No.351/BC/2017 regarding the application for submission of customs declaration documents with the CEISA Application System. Respondents of this research are import and export companies that perform customs services with a sample of 60 users, using a questionnaire as a data collection tool. Based on the conclusions obtained from the research results and by using Path Analysis assisted by IBM SPSS Statistics V22, it proves that the perceived ease of use of CEISA directly affects the perceived usefulness of CEISA significantly. Perceived usefulness directly affects attitudes towards CEISA is significant. The perceived usefulness of CEISA which indirectly affects the acceptance of CEISA is significant and the attitude towards CEISA towards the acceptance of CEISA is significant.</p>

✉ Correspondence Address :
Tower A Management and Business Department
Politeknik Negeri Batam
E-mail: fuadar@polibatam.ac.id

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Introduction

Import and export activities are the reason why international business activities can survive and thrive to this day. Import and export activities are also not forgotten with the country's resources being limited and forced to import into the country to continue to meet needs. The opposite is true for resource-rich countries as well. Then the resources can be exported to other countries in need where the available resources must be effective.

Quoted from information at the Ministry of Trade of the Republic of Indonesia, starting from 2020 to 2021, the number of additional export and import industries is increasingly getting a drastic increase both in terms of commodities and oil and gas. This is due to the development of new import and export user, this has an impact on the administrative system rules at the customs and excise agency. The Directorate General of Customs and Excise (DJBC) is a government agency that has an important task for the economy and the export and import industry in the Republic of Indonesia. Customs administration is obliged to carry out supervision of goods as accurately as possible, on the other hand, to facilitate the circulation of goods, the DJBC is equipped with the latest information technology, namely the CEISA (Customs-Excise Information System Automation) system. To support the performance of the DJBC, CEISA is a customs information system that is an exclusive program of the DJBC which takes place from a variety of sub-applications in processing administration, supervision, and service as well as responsibilities related to the main functions of the DJBC. With the CEISA, it will make it easier for administrative and supervisory submissions to be monitored, open, and available in real-time to support services that are detected nationally.

The implementation of the CEISA system at the Directorate General of Customs and Excise (DJBC) has an impact on all agencies, especially because of the human resource (HR) factor for users. very large when determining the implementation of the CEISA system by applying

the Technology Acceptance Model (TAM) method. Increasing user confidence in technology is believed to be able to develop their performance, acceptance of the CEISA system has an impact on behavior because the system can help them complete their work.

Following the Decree of the Director-General of Customs and Excise No.351/BC/2017 regarding the Implementation of Customs Declaration Documents Expression through the CEISA Centralized Application System in Full (Mandatory). This study connects one variable to another related to the CEISA system by using the Technology Acceptance Model (TAM) method which measures CEISA acceptance with four related variables, namely Perception of Ease of Use, Perceived Usefulness, Attitude towards CEISA, and Acceptance of CEISA. Based on the application of the CEISA system at the Customs Commission Type B Batam. So that the authors wish to investigate further the acceptance of companies as users of services to CEISA.

Theoretical Review

Customs-Excise Information System and Automation (CEISA)

CEISA is a customs and excise information system that is an exclusive system owned by the Directorate General of Customs and Excise in which there are variations of sub-applications that are useful for processing, service, administration, supervision, and responsibilities related to main tasks of DJBC.

Export

In general, the management of customs implementation related to exports is simpler than the management of customs implementation related to imports because in principle the implementation of exports is relatively easier to support local entrepreneurs in economic activities that can increase the country's foreign exchange. Export is an activity of releasing goods or sending goods from within the customs territory outside the territory of a country (May, 2018). Export activities that play an important role in the economy, the stages of

export implementation begin with the Declaration of Export of Goods (PEB) document inspection until the issuance of permits to load goods for export.

Import

Import activity is trading with the effort to enter goods into the customs area using the applicable laws and regulations. The legal basis for import management is regulated in the Decree of the Director-General of Customs and Excise No. P-42/8c/2008 regarding guidelines for customs implementation on the import side. the import implementation stage begins with the Goods Import Notification (PIB) will be carried out selectively by determining the goods exhibition route.

Technology Acceptance Model (TAM)

TAM is a model for analyzing technology acceptance to find out the causes that affect the acceptance of technology use. Basically, the purpose of using the TAM method is to describe and evaluate user acceptance of information systems, as according to Davis (1989) in Muslimin (2013).

a. Perceived Ease of Use

As according to Muslim (2013), Defined as a user's belief in operating an information system without requiring excessive effort, both in energy and time. How often is the use by users the use a system to make users feel the ease of use.

b. Perceived Usefulness

As according to Muslim (2013), Can be interpreted to measure the level of user confidence in the use of a technology that will increase their productivity at work. it turns out that the perceived benefit is a belief in the decision-making process. So that someone finds an information system that is useful for himself and will continue to use it.

c. Attitude Toward CEISA

As according to Davis (1989) in Permana (2016), Defining attitude as a feeling to measure the level of behavior assessment of the use (users) of the use of the system there is a user's

decision whether or not to use the system. and the ease of use of the CEISA system builds the user's attitude towards the acceptance system, so that it affects the user's desire to operate the CEISA system, then has a direct influence on the CEISA acceptance system by the user.

d. Acceptance of CEISA

As according to Davis (1989) in Permana (2016), Defines the conditions of user behavior (users) receiving to keep operating the acceptance system which is measured according to the amount of time spent using technology and how often the technology will be used. Users will accept this system and believe that this system can increase their productivity at work and can be much easier to operate.

Research Method

Approach The research method in this study is correlational (relationship) through an approach or type of quantitative data by applying the TAM method because it was adopted from previous research where the research proves that this method is able and can prove the acceptance of an application for users and improve The belief of technology users is expected to be able to maximize the performance of a user, so in this study, the researchers linked it with the CEISA application owned by the DJBC with a population of 60 samples. The author uses a questionnaire as a research instrument because it can obtain data or information from CEISA users in export and efficient activities. The preparation of the questionnaire in this study uses a Likert Scale with 21 questions related to variable.

Research Sites

The research site will be carried out at the Directorate General of Customs and Excise Type B Batam City, which is located on Kuda Laut Street, Sungai mate, Batu Ampar District, Batam City, Riau Islands, 29432, as well as several companies in Batam City that use Custom Excise Information System services (CEISA).

Research Informant

For research informants in the field of supervision and information services at the Office of the Directorate General of Customs and Excise type B Batam City, namely the Head of the Supervision KPT Section and the Head of the Information Services Section, as well as for informants from 60 export and import companies in Batam.

Data Collection Methods

a. Observation

This research is directly from the field or the research location. Researchers observe problems that occur directly in the Main Service Office of the Directorate General of Customs and Excise Type B Batam City by carrying out field observations as material for analysis.

b. Interview

This study conducted interviews with the Main Service Office of the Directorate General of Customs and Excise Type B City for researchers to obtain data in order to provide a list of questions and statements to be answered.

c. Questionnaire

Researchers distributed questionnaires or picked up online using Google Forms to CEISA users, namely business actors in Export and Import activities scattered in the Batam City area and registered with the Batam City Type B Customs & Excise Main Service Office for measuring tools to collect data. The characteristics of respondents in this study include business actors, gender, age and education.

d. Literature Study

This study uses a literature study to obtain theoretical data whose data is obtained from a literature review, in the form of books, scientific journals and files from Customs & Excise as well as internet sites that are related to this problem and can support the variables investigated in the title of this study.

Discussion & Results

The characteristics of the sample in this study consisted of gender, business actor, age, and education. Before testing the hypothesis, first test the data instrument. The scale of the data in the current study is included in ordinal data where the data does not have a concrete parameter level so testing of data sets is very mandatory to do. The stage of testing the data device can be done in the following stages.

Validity Test

This study aims to test the accuracy of the questionnaire using a validity test to measure the accuracy of each question item used to measure each variable to be surveyed as shown in table 1. Respondents who will be tested in this study are $n = 60$, so the r -table with a significant level of 5% is 0.254. To make the calculation of the validity more precise, the accuracy of this research was assisted by using the IBM SPSS Statistics V22 software.

Table 1: Validity Test

Variable	Indicator	R-Count	R-table 5% (60)	Description
Perceived of use (X1)	X1.1	0.914	0.254	Valid
	X1.2	0.935	0.254	Valid
	X1.3	0.898	0.254	Valid
	X1.4	0.911	0.254	Valid
	X1.5	0.945	0.254	Valid
	X1.6	0.949	0.254	Valid
Perceived Usefulness (X2)	X2.1	0.940	0.254	Valid
	X2.2	0.962	0.254	Valid
	X2.3	0.955	0.254	Valid
	X2.4	0.947	0.254	Valid
	X2.5	0.972	0.254	Valid
	X2.6	0.932	0.254	Valid
Attitude Toward CEISA (Z)	Z1.1	0.907	0.254	Valid
	Z1.2	0.927	0.254	Valid
	Z1.3	0.900	0.254	Valid
	Z1.4	0.928	0.254	Valid
	Z1.5	0.932	0.254	Valid
	Z1.6	0.937	0.254	Valid
Acceptance of CIESA (Y)	Y1.1	0.920	0.254	Valid
	Y1.2	0.938	0.254	Valid
	Y1.3	0.923	0.254	Valid

Source: Data Processing, 2022

The total correlation value of the corrected items for all tested variables is greater than 0.254 with a significant level of 5% with $n = 60$ so it is said to be valid. Therefore, all questionnaire question items in the variables are said to be valid to be.

Reliability Test

Reliability test to see the strength of each variable item whose validity has been tested by the question item so that the Cronbach Alpha (α) calculation is carried out first. If the Cronbach Alpha value produces more than or equal to 0.60, then the variable can be said to be reliable. So that the results of the data processing reliability test in this study obtained a summary of the results shown in the table 2 as follows:

Table 2: Reliability Test

Description	Cronbach's Alpha.	Cut off.	Results
Perceived Ease of Use (X1)	0,951	0,60	Reliable
Perceived Usefulness (X2)	0,956	0,60	Reliable
Attitude Toward CEISA (Z)	0,944	0,60	Reliable
Acceptance Of CEISA (Y)	0,871	0,60	Reliable

Source: Data Processing, 2022

Classic Assumption Test

Table 3: Kolmogorov-Smirnov Test

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		60
Normal Parameters ^{a,b}	Mean	,0000000
	Std. Deviation	1,03164697
Most Extreme Differences	Absolute	,131
	Positive	,131
	Negative	-,102
Test Statistic		,131
Asymp. Sig. (2-tailed)		,013 ^c

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

Source: Data Processing, 2022

It can be seen in the table above that the Kolmogorov-Smirnov Test value = 0.131 with a significant value of Asymp. Sig. = 0.13 greater than 0.05, it can be concluded that the results of the data tested using the normality test are normally distributed.

Multicollinearity Test

In order to fulfill the multicollinearity test, it is known from the Variance Inflation Factor (VIF). If the estimated VIF is below 10, it proves that there is no multicollinearity. If the

estimated tolerance is above 0.10 so there is multicollinearity. multiple correlation in this study:

Table 4. Output Multicollinearity Test

Model	Coefficients ^a		Description
	Collinearity Statistics		
	Tolerance	VIF	
1 Variabel			
Perceived Ease of Use (X1)	,173	5,784	Not Occur Multikolinearitas.
Perceived Usefulness (X2)	,219	4,560	Not Occur Multikolinearitas.
Attitude Toward CEISA (Z)	,164	6,114	Not Occur Multikolinearitas.

a. Dependent Variable: Acceptance of CEISA (Y)

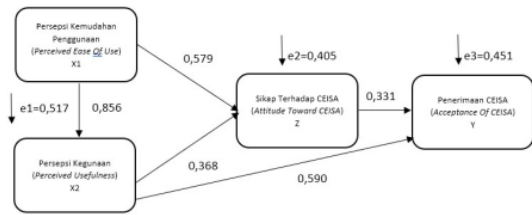
Source: Data Processing, 2022

The estimated VIF figures for all independent variables are below the number 10, with the tolerance for all independent variables above 0.1 or 10%, meaning that there is no reciprocal relationship between the independent variables with a value of more than 90%. Therefore, it is concluded that each variable in this study did not produce multicollinearity and all multicollinearity tests were realized.

Path Analysis

In general, path analysis is to find out the possibility of a direct effect given by an independent variable on the dependent variable or an indirect effect given on an independent variable through intervening on the dependent variable. Patterned equations to show the relationship between each independent and dependent variable. Coefficient Path analysis is a standardized Coefficient Regression, data collection has been determined by calculating standard numbers (Z-score). This analysis was accommodated using IBM SPSS V22, with the test rule FAlpha = 0.05 or p 0.05 as the significance parameter F (sig.F) but the T-test for the significance parameter Alpha = 0.05 or p 0.05 in the code (sig.T).

Figure 1. Regression Theoretical Framework X1, X2, Z and Y



Source: Data Processing, 2022

**Path Analysis First Model
Table 5. Output Coefficient Regression X1 and X2**

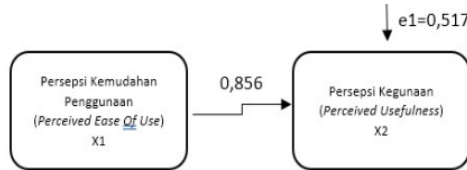
Model	Coefficients ^a		t	Sig.
	Unstandardized Coefficients	Standardized Coefficients		
	B	Beta		
(Constant)	,679		,340	,735
1 Perceived Ease of Use (X1)	,960	,856	12,587	,000

a. Dependent Variable: Perceived Usefulness (X2)

Source: Processed Data (2022)

The perceived ease of use (X1) variable significantly affects the perceived usefulness (X2). Then it is proven that the value of a significant variable, namely Perception of Ease of Use (0.000) is below the significance parameter of 0.05. It can be seen that there is a direct positive influence between the variables of perception of ease of use (X1) on perception of usefulness (X2).

Figure 2. Path Diagram X1 and X2



Source: Processed Data (2022)

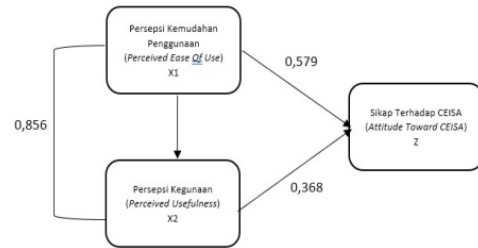
Based on the picture above, there is an effect of the magnitude of the relationship on Perception of Ease of Use (X1) affecting Perception of Usefulness (X2) can be seen by the formula (Coefficient path Xi)² squared, namely (0.856)² = 0.732 or 73.2%.

**Path Analysis Second Model
Table 6. Output Coefficient Regression Test X1 and X2**

Model	Coefficients ^a		t	Sig.
	Unstandardized Coefficients	Standardized Coefficients		
	B	Beta		
(Constant)	2,318		1,659	,103
Perceived Ease of Use (X1)	,577	,579	5,599	,000
Perceived Usefulness (X2)	,327	,368	3,559	,001

a. Dependent Variable: Attitude Toward CEISA (Z)

The variable of perceived ease of use (X1) with perceived usefulness (X2) has a significant positive direct influence on attitude toward CEISA (Z). Then it is proven that the significance value of the perceived ease of use variable (0.000), with the perception of usefulness (0.001) is below the significance parameter, namely 0.05. The occurrence of a direct positive influence between the variables of perceived ease of use (X1) and perceived usefulness (X2) affects attitudes at CEISA (Z).



Based on the figure above, the effect of the magnitude of the competency relationship from perceived ease of use (X1) on attitudes towards CEISA (Z) is known that the formula (Xi)² path coefficient is squared (0.579)² = 0.3352 or 33.52%. Meanwhile, the influence of perceived usefulness (X2) on attitudes towards CEISA (Z) is (0.368)² = 0.1354 or 13.54%.

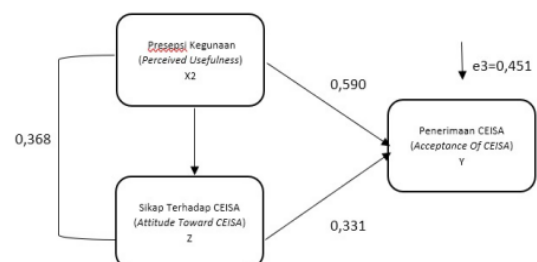
**Path Analysis Third Model
Table 7: Output Coefficient Regression X2, Z and Y**

Model	Coefficients ^a		t	Sig.
	Unstandardized Coefficients	Standardized Coefficients		
	B	Beta		
(Constant)	1,153		1,353	,181
Perceived Usefulness (X2)	,288	,590	4,967	,000
Attitude Toward CEISA (Z)	,182	,331	2,786	,007

a. Dependent Variable: Acceptance of CEISA (Y)

Source: Processed Data (2022)

The variables perceived usefulness (X2) and attitude toward CEISA (Z) significantly positively affect the acceptance of CEISA (Y). Then it is proven that the significance value of the perceived usefulness variable (0.000), with attitude towards CEISA (0.007) is below the number 0.05. Therefore, there is a positive influence of competence on the variable of perception of usefulness (X2) with attitude towards CEISA (Z) affecting acceptance of CEISA (Y).



Based on the figure above, it is obtained that the magnitude of the relationship that affects the perceived usefulness variable (X2) on CEISA acceptance (Y) is known to be the formula (path coefficient X2)² in the square of (0.5900)² = 0.3481 or 34.81%. So that the magnitude of the influence of Attitude towards CEISA (Z) on CEISA(Y) Acceptance is (0.331)² = 0.1095 or 10.95%.

Table 8: Path Analysis Calculation Results

Variable	Sig.	Path Coefficient	Influence		
			Direct	Indirect	Total
X1 to X2	0.000	0.856	0.732	-	0.732
X1 to Z	0.000	0.579	0.335	0.213	0.548
X2 to Z	0.001	0.368	0.135	0.213	0.348
X2 to Y	0.000	0.590	0.348	0.195	0.543
Z to Y	0.007	0.331	0.110	0.195	0.305

Source: Processed Data (2022)

Based on the overall calculation results from the path analysis consisting of the first model path, the second model path, and the third model path, it can be concluded that the objectives can be seen in the table above.

Discussion

H1 Perceived Ease of Use (X1) directly affect Perceived Usefulness (X2)

That Perceived Ease of Use (X1) has a direct effect on the significance of Perceived Usefulness (X2), that is, there is an estimated significance number (sig) smaller than 0.05, which is 0.00. After calculating the path analysis coefficient as a whole, the total amount directly affects the Perception of Ease of Use (X1) and Perception of Usefulness (X2) by 73.2% with the remaining 26.8% influenced by other factors outside of this study.

H2 Perceived Ease of Use (X1) directly affect Attitude toward CEISA (Z)

The perceived ease of use (X1) has a direct significant effect on the perceived usefulness (X2), that is, the significance value (sig) is smaller than 0.05, which is 0.00. After calculating the path analysis coefficient as a whole, the total amount has a direct effect, namely Perception of Ease of Use (X1) and Perception of Usefulness (X2) on Attitudes towards CEISA (Z) of 54.62% so that indirectly the influence received is outside of the variable

in the study that is equal to 45.38%.

H3 Perceived Usefulness (X2) directly affect Attitude toward CEISA (Z)

The perception of usefulness (X2) has a significant effect that directly affects attitudes towards CEISA, namely, there is a small significance value (sig) of 0.05, which is 0.001. After calculating the path analysis coefficient as a whole, the total magnitude has a direct effect, namely Perception of Ease of Use (X1) and Perception of Usefulness (X2) affecting Attitudes towards CEISA (Z) by 34.84%. so that indirectly the influence received is outside of the variables in the study is equal to 65.16%.

H4 Perceived Usefulness (X2) indirectly affect the Acceptance of CEISA (Y)

The perception of usefulness (X2) has a significant effect on CEISA acceptance, namely the existence of a significance value (sig) < 0.05, which is 0.000. After calculating the path analysis coefficient as a whole, the total direct influence of Usefulness Perception (X2) and Attitude towards CEISA (Z) on CEISA Acceptance (Y) is 54.31% so that indirectly the influence received is outside of the variables in the study, namely by 45.69%.

H5 Attitude toward CEISA (Z) directly affect the Acceptance of CEISA (Y)

The perception of usefulness (X2) has a significant influence that directly affects attitudes towards CEISA, namely, there is a significant value (sig) which is below 0.05, which is 0.001. After calculating the path analysis coefficient as a whole, the total magnitude has a direct effect, namely Perception of Ease of Use (X1) and Perception of Usefulness (X2) affecting Attitudes towards CEISA (Z) by 34.84%. so that indirectly the influence received is outside of the variables in the study is equal to 65.16%.

Conclusion

Based on the results of hypothesis testing and analysis that has been carried out, the conclusions from this study are as follows:

1. There is a significant and positive correlation between Perceived Ease of Use and Perceived Usefulness
2. There is relevance between Perceptions of Ease of Use and Attitudes towards CEISA
3. There is relevance between Perception of Usefulness and Attitude towards CEISA

4. There is relevance between Perceived Usefulness and Acceptance of CEISA
5. There is relevance between Attitude towards CEISA and Acceptance of CEISA

Recommendation

The following are theoretical and practical suggestions from this research.

1. The front office of the Directorate General of Customs and Excise Type B Batam City which is the object of this research is the need to innovate the development of the CEISA system. Should pay more attention in case of an error in the CEISA system has prepared a more effective backup. With the availability of the effective reserve, although it is not as good and practical as CEISA, it can provide benefits or facilitate every service user rather than the absence of effective reserve at all and must carry out customs activities offline.
2. Practical advice in this research is that future researchers who have an interest in this research, should be able to expand the survey coverage area again so that they can find out more about how much acceptance the CEISA system is throughout Indonesia. And it is also recommended that you add other variables or look for other independent and dependent variables that are not included in this study.

References

- Adryani, D. (2016). Analisis Penerimaan Sistem Informasi Pengisian KRS Dari Sudut Pandang Mahasiswa Menggunakan Metode TAM. *Jurnal Ilmiah Informatika Komputer*. 21(1).
- Adi, R. P., Kertahadi, & Musadieg. M. A. (2016) Pengaruh Persepsi Kemudahan Penggunaan CEISA Terhadap Persepsi Kegunaan CEISA Sikap Terhadap CEISA dan Penerimaan CEISA Dengan Pendekatan TAM. *Jurnal Administrasi Bisnis*, 143.
- Awaludin, M, & Yolanda, N. E. (2018). Analysis of CEISA Services User Satisfaction Using The EUCS Method in The Directorate General of Customs and Excise, Senatik.
- Davis, F, D dan Venkatesh (1996). A Critical Assessment of Potential Measurement Biases In The Technology Acceptance Model Three Experiments. *International Journal of Human-Komputer Studies Bandung*, Bumi Aksara.
- Ghozali, I. (2012). *Aplikasi Analisis Multivariate Dengan Program IBM SPSS 20*. Semarang, Badan Penerbit Universitas Diponegoro.
- Huswatun Hasanah, A. A, (2019). Analisis Pembayaran Bea Masuk Secara Elektronik Atas Kegiatan Impor Pada Kantor Bea Dan Cukai Cirebon, *Jurnal Manajemen Sekolah Tinggi Ilmu Ekonomi*. 14(2). 379-390.
- Mintasrihardi, M, Rienelda, B, & Elisyah E (2019). Mekanisme Pengawasan terhadap Lalu Lintas Barang Masuk (Impor) dan Barang Keluar (Ekspor) pada Kantor Pengawasan dan Pelayanan Bea dan Cukai Type Madya Pabean C Mataram. *Jurnal Ilmu Administrasi Publik Muslimin*, M. (2013). Analisis Penerimaan Sistem Electronic Data Interchange Pada Kantor Pengawasan Dan Pelayanan Bea Dan Cukai Tipe Madya Pabean Soekarno-Hatta. Makassar: *Universitas Hasanuddin*.
- Marolop, T. (2011). Aspek dan Prosedur Ekspor-Impor. Jakarta, Salemba Empat.
- Pratama, A. W. (2021). Journal Of Appied Business Administration Satisfaction In Export And Import Activities At Main Service. March, 1-5.
- Sidabutar, L. L. (2018). Analisis Penerimaan Customs-Excise Information System and Automation (Ceisa) Pada Kantor Pengawasan Dan Pelayanan, *Fakultas Bisnis President University*.
- Setiawan, E, Antoni, D, & Mirza, A. H. (2019). Analisis Penerimaan Sistem Ujian Online Berbayar Dengan Menggunakan Metode Technology Acceptance Model (Tam) Dan Webqual. *Jurnal Bina Komputer*, 1(1).61-72,
- Wulandari, E. W, & Aziz, A. K. Q. (2018). Analisis evaluasi sistem informasi akademik dari perspektif mahasiswa menggunakan pendekatan TAM. 1, 167-175.