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Ferry Wahyu Wibowo

Edy Prayitno

Muhammad Agung Nugroho

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# CONRIST 2019

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# FOREWORD

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These days, the computer systems have placed in supporting decision making. It can happen because all software programs involve the automating decision steps as the people takes the decision making steps. Decision making is a process that involves many activities and programs that handle information. The computer-based tools and computer science approaches can handle this problem and work through its solution. The computer systems could not be avoided by involving infrastructure management. Infrastructure management consists of distributed hardware and software, telecommunication technology, and information resources. This infrastructure management is an essential technology in information system management. Some computer technologies that support decision making can be included in some fields e.g. executive information systems (EISs), decision support systems (DSSs), agent-based modeling, data mining, expert systems (ESs), etc. Hence the decision support technologies require some foundations in its structure like software engineering, artificial intelligence, database research, statistical inference, simulation methods, human-computer interaction, multimedia, etc. Although the result in the decision making could consider several possible conditions such as competitive analysis, data mining analysis, economic conditions, political conditions, regulations. etc. The essential technologies should also develop a system and deliver their information related to the procedural systems and support systems. The result of the procedural systems is procedure-based information whereas the result of support systems is knowledge-based information.

The decision making is contributing to using information technologies (IT) to assist humans to make more informed decisions. This technology is a role as supporting systems and not to replace the managers in their decision-making activities. So, some definitions have been proposed to figure out what are the decision systems. These definitions could be formed as the computer-based systems, the tools in which direct interaction, the tools helping decision-makers, the tools with data and analysis models, etc. Whatever they are defining of the decision systems, it should be in line with the emphasis of the executive information systems (EIS) which is on graphical displays and user-friendly in the user interfaces. So it can be viewed as representing the data in visualization and providing summary performance data. Sometimes, the models provide the analysis capabilities of DSSs can be represented using a mathematical representation of the problem, algorithmic processes, generated information to support decision making, and so on. The International Conferences on Information System and Technology (CONRIST 2019) is a conference to take the summaries in some models or methods in decision making whether practical or modeling. The aims of these activities are providing both internal and external information that is relevant to the strategic goals of the organization and further, it is known as business intelligence.

Editors of CONRIST 2019

Edy Prayitno  
Muhammad Agung Nugroho  
Ferry Wahyu Wibowo



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# Technology Acceptance Model for Digital Marketing Analysis

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**Keywords:** Analysis, Digital Marketing, Home Industry, TAM, Bantul.

**Abstract:** Business people in society consist of many components, one of which is a small industry or a home industry. This home industry really needs the support of many parties to be able to play a role in increasing the level of the economy and people's welfare. Home industries that are classified as small and medium-sized businesses in the Bantul Region of Yogyakarta can experience an increase of 8 Technology Acceptance Model (TAM) is an acceptable model for predicting acceptance of a new technology. This model will illustrate that there are a number of factors that influence the user's decision to use digital marketing. The results obtained from this study are that the perception of the home industry community in Bantul on digital marketing that is PEU has a positive effect on ATU, PU has a positive effect on ATU, PEU has a positive effect on AU, PU has a positive effect on AU, ATU has a positive effect on AU. In general, it can be concluded that the perception of ease and usefulness of digital marketing will influence the belief in the use of digital marketing and will affect the attitude and actual use.

## 1 INTRODUCTION

The development of technology which is rapidly increasing now and reaching all fields of life indirectly has changed the pattern of human life. The conventional method used has shifted to digital activities. One area of life that is inseparable from that is the field of economics or rather in the field of business. Economic activities in the business sector that were previously carried out conventionally have shifted to use digital systems. Part of business activities include the marketing process or marketing which includes promotional activities. This era of inevitable digitalization requires business people to keep abreast of developments in order to win the market. Promotional activities that use digital systems are known as digital marketing which includes promotional activities including SEO (Search Engine Optimization), on-line advertising (FB ads, Adwords, etc.), television & radio advertisements, electronic billboards (video tron), email marketing Mobile marketing and others. The emergence of digital marketing in the small and medium industry sector today has given a change in the habits of its activities. One of the habitual shifts in promotional activities that were previously carried out conventionally today is not a few who use digital marketing. The development of technology is realized

for some people who have provided a lot of positive support for their business.

The use of information technology in the form of digital marketing has been widely used by the home industry community in Bantul district which is felt to be quite helpful and contributing positively. However, not all of them use the technology support, so it needs to be analyzed using TAM (Technology Acceptance Model) to determine the acceptance of the industrial community in Bantul district for digital marketing as a promotional strategy. From the results of the analysis will provide information about the acceptance of the creative industry community in the home industry about the use of digital marketing so that it can provide the support needed to be able to use technology better and get optimal results.

## 2 RELATED WORKS

Some previous studies used as references in the field of Technology Acceptance Model (TAM) analysis for Digital Marketing include (Darpito, 2015) (Pradi-ani, 2017) (Pertawijaya and Sharif, 2015) (Surendran, 2012) analyzed the effect of the Technology Acceptance Model on the purchase of furniture and handicraft products of SMEs through Online Media in Yo-

gyakarta. The results showed that the variables in TAM were able to influence consumer satisfaction but did not affect consumer purchase intentions to shop online. Consumer spending intentions are more influenced by social factors, namely friends, family and the environment. The use of the TAM method has also been carried out by (Hanggono, 2015). The research carried out is to analyze the practice of TAM in supporting online businesses by utilizing Instagram social networks. The results show the perceived ease of use variable has a significant positive effect on perceived usefulness and attitude of use. the variable attitude of use has a positive influence on behavior to use, the variable behavior of using has a significant effect on the real condition of the use of the system with a calculated value of 14,829 at sig.t of 0,000. (Pradiani, 2017) analyzes the effect of digital marketing marketing systems on increasing sales volume of home industry products. The results showed that digital marketing was seen as the best medium as the most effective and efficient means of promotion and was able to significantly increase sales volume from net income per month from 1 - 1.5 million rupiah to 3 - 3.5 million rupiah. The Comparative Analysis of Mobile TAM was also carried out on the T-Money and Mandiri E-Cashtelecommunications applications by (Pertawijaya and Sharif, 2015). The purpose of this study is to determine and compare user acceptance of the variables in TAM. The results showed that all TAM variables were in the good and very good categories. There are differences in user acceptance of the construct variables of the mobile technology acceptance model. In addition to Pertawijaya, research on the TAM model has been conducted by (Surendran, 2012). The study discusses how the technology Acceptance Model works and the different factors that exist in the TAM model. The results also reveal various changes that have been made by several other researchers to the TAM model.

### 3 LITERATURE REVIEW

#### 3.1 Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) introduced by Davis in 1989 is one of the evaluation models of technological success seen from the use of technology. This model will give an illustration that there are a number of factors that influence the user's decision to use new technology, namely benefits and convenience. Usability shows the user's confidence in

the contribution of technology to the performance of technology users. While convenience shows the level where the user believes that the use of new technology is easy and does not require a lot of effort. This concept includes the clarity of the purpose of using technology and the ease of use of the system for purposes in accordance with the wishes of the user so that if the system is easy to use, then the user will tend to use the technology. The model of the relationship of factors that influence acceptance in TAM can be seen in Figure 1.

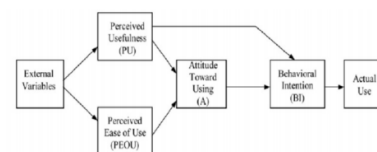


Figure 1: Technology Acceptance Model Dimensions(Davis, 1984)

Reactions and perceptions of users of Information technology (IT) will affect their attitude in acceptance of the technology. One of the factors that can influence it is the user's perception of the usefulness and ease of use of IT as a reasonable action in the context of technology users, so that the reason someone sees the benefits and ease of use of IT makes the person's actions / behavior as a benchmark in the acceptance of a technology. The TAM model, developed from psychological theories, explains the behavior of computer users that is based on beliefs, attitudes, desires, and user behavior relationships. The purpose of this model is to explain the main factors of user behavior towards user acceptance of technology. In more detail, it explains about the acceptance of IT with certain dimensions which can affect the acceptance of IT by users. This model places the attitude factor of each user's behavior with two variables, namely: 1. Ease of use , 2. Usefulness.

Both of these variables can explain aspects of user behavior, the conclusion is the TAM model can explain that the user's perception will determine his attitude in the use of IT. This model more clearly illustrates that the acceptance of IT use is influenced by usefulness and ease of use. The construct has been modified from the previous TAM research model, namely: Perceived Ease of Use, Perceived Usefulness, Attitude Toward Using, Behavioral Intention To Use, and Behavioral Intention To Use real conditions of system usage (Actual System Usage).

### 3.2 Steps to the TAM Method

#### 3.2.1 Exogenous Constructs

This construct is known as sources variables or independent variables that are not predicted by other variables in the model. Exogenous constructs include Perceived Ease of Use (PEOU), which is a level where someone believes that a technology can be easily used.

#### 3.2.2 Endogenous Constructions

the factors predicted by one or several constructs. Endogenous constructs can predict one or several other endogenous constructs, but endogenous constructs can only be causally related to endogenous constructs. Endogenous constructs include Perceived Usefulness (PU), Attitude Toward Using (ATU), Behavioral Intention To Use (ITU) and Actual System Usage (ASU).

#### 3.2.3 Structural Equations

From the existing constructs we will get structural equations that will form the model, examples like the following:

$$PU = \gamma_{11}PEOU + c_1 \quad (1)$$

$$ATU = \gamma_{21}PEOU + \beta_{21}PU + c_2 \quad (2)$$

$$ITU = \beta_{32}ATU + \beta_{31}PU + c_3 \quad (3)$$

$$ASU = \beta_{43}ITU + c_4 \quad (4)$$

### 3.3 Digital Marketing

Digital Marketing has changed the way humans communicate, act and make decisions. Marketing activities are also not free from the influence of digital technology. The term digital-based marketing (digital marketing) has evolved from initially marketing activities of goods and services using digital channels to a broader understanding of the process of gaining consumers, building consumer preferences, promoting brands, maintaining consumers, and increasing sales. The concept of digital marketing comes from the internet and search engines (search engines) on the site. When the use of the internet exploded in 2001, the market was dominated by Google and Yahoo as search engine optimization (SEO). The use of internet search grew in 2006 and in 2007 the use of mobile devices increased dramatically which also

increased the use of the internet and people from all over the world began to relate to each other through social media (Khan and Siddiqui, 2013). The definition of digital marketing according to the American Marketing Association (AMA) is an activity, institution, and process facilitated by digital technology in creating, communicating, and conveying values to consumers and other interested parties (Kannan et al., 2017). Digital marketing is also defined as marketing activities that use internet-based media (Wardhana, 2015).

### 3.4 Home Industry

Home industry or home industry is a business opportunity that is starting to emerge in the current era because of the increasingly limited available employment. This kind of industry can be managed inside the house so that it can be monitored at any time. This kind of small business is managed by people who are related. The capital needed for this business is small and the tools used are manual.

## 4 RESEARCH METHODOLOGY

The stages that will be carried out in this study are:

### 4.1 Literature Study

Study reference books or sources relating to the analysis of the use of digital marketing in the home industry community in the Bantul region of Yogyakarta using the TAM method

### 4.2 Data Analysis

Analyzing the theories and methodologies and techniques used to analyze the use of digital marketing in the home industry community in the Bantul region of Yogyakarta using the TAM method.

### 4.3 Implementation of Theory and Methodology

Implement theories and methodologies for analyzing the use of digital marketing in home industry communities in the Bantul region of Yogyakarta.

### 4.4 Location of Research Population

The location of this research was conducted in Bantul Regency, Yogyakarta. Respondents who partic-

ipated in this study were home industry communities in the Bantul region. Bantul is part of the Yogyakarta Special Region with the southern border of DIY as a district. With demographic conditions that support the tourism sector, it will grow the economy of the people in Bantul through small and medium industries. Based on information from the Bantul district statistics agency that economic growth in 2017 of 4.52% was supported by the creative industry sector including small and medium industries. Bantul has great potential in the creative industry sector including fashion, design, crafts, culinary, computer and software services, music and performing arts. Based on data available in Bantul for the medium industry as a whole, 1,723,634 industries are scattered in 16 sub-districts and consist of various types of industries such as the food industry, the clothing and leather industry, the chemical and building materials industry, the metal and electronics industry, the handicraft industry. The population in this study is the home industry community for the creative industries in Bantul district with random locations. The sample will be determined by purposive sampling technique, which is the technique of determining the sample based on certain considerations. Samples taken were 100 respondents.

#### 4.5 Variables Studied and Operational Variables

In this study, the TAM model was chosen as a theoretical basis that has a strong ability to explain the use of technology by users (Davis, 1989). This study uses 4 (four) variables which are modified from the previous TAM research model, namely: Perceived of use, Perceived Usefulness, Attitude toward Usage, Actual Usage. Where according to the theory of TAM significantly ease and usefulness variables affect user acceptance in using digital marketing. The instrument used to measure the variables of this study is an instrument that has been used in previous studies, making it possible to increase the validity and reliability of measurements. The measurement of each variable uses a Likert scale of 1 to 5, each of which has the following meanings: 1 = strongly disagree (STS), 2 = disagree (TS), 3 = neutral (N), 4 = agree (S), 5 = strongly agree (SS).

#### 4.6 Data Collection Methods

In this study using hypothesis testing research, namely building hypotheses on the basis of relevant theory and research. Data obtained by distributing questionnaires to selected respondents. The main pur-

pose of a study is to answer the questions and hypothesis.

#### 4.7 Data Analysis Techniques

**Data Analysis Techniques** The data collected was analyzed by means of the correlation analysis and regression assistance of the SPSS program. The results of the analysis will be in the form of descriptive statistics, data quality tests, classic assumption tests, regression analysis and hypothesis testing. The research data were analyzed with the following statistical tools:

1. Descriptive statistics
2. Data Quality Test
3. Classic assumption test
4. Normality test
5. Heteroskedasticity Test
6. Autocorrelation Test

#### 4.8 Analysis Techniques for Hypothesis Testing

The analysis technique used is the Absolute Difference Test. This test is carried out because according to Furcot and Shearon (in Ghozali 2006) this kind of interaction is preferred because previous expectations relate to the combination of X1 and X2 and affect Y. The Regression Equation used is shown in equation 1:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_1 - X_2 + e \quad (5)$$

Information :

a: Constants  
Y: Individual performance  
X1: Usefulness of Technology  
X2: Ease of Use  
b1-2-3: Regression coefficient  
e: error

H1 and H2 were tested by comparing the level of significance of t with 0.05 ( $\alpha = 5\%$ ). If the significance level  $t = 0.05$ , the hypothesis is accepted. This means that the ease and usefulness of digital marketing has a significant effect on acceptance and H2, namely the ease of use as a moderating variable has a significant effect on the relationship between digital marketing utilization with the attitude and sincerity to use it.



## 5 RESULT AND DISCUSSION

Characteristics of respondents used are seen from gender, age, last education, type of industry, location of industry, know digital marketing, digital marketing media used.

No	Characteristic	Information
1	Gender a. Man b. Woman	43% 57%
2	Ages a. <= 20 years b. 21 – 30 years c. 31 – 40 years d. 41 – 50 years e. > 50 years	5 % 27,5 % 30 % 22,5 % 15 %
3	Last education a. Middle school equivalent b. High school equivalent c. Bachelor	5% 60% 35%
4	Types of Industry a. Food Industry b. The clothing and leather industry c. Chemical industry and building materials d. Metal and electronics industry e. Craft industry	33,83 % 15,31% 13,30% 10,74% 26,82%

Source: Data processed 2019

Figure 2: Characteristics of Respondents.

Based on information obtained for Figure 2 regarding respondent respondents for home industry business is as follows: from gender, it is estimated that women for home business is 57%, this is because there are more women than women in Bantul based on statistical data available in in 2018. Based on age the largest percentage of industrial houses is obtained at the age of 31-40 years which is 30%, this is the productive age. Then based on educational background the largest percentage in high school education is equal, and the type of industry that has the largest percentage of food industry is 33.83the next handicraft industry is 26.82%. From this information technology is needed in business activities in the home industry such as digital marketing that will help improve industrial business progress.

Data quality resulting from the use of research instruments can be evaluated through reliability and validity tests. Each test is to determine the consistency and accuracy of data collected from the use of the instrument. To measure reliability with Cronbach Alpha statistical tests. A construct or variable is said to be reliable if it gives a Cronbach alpha value > 0.60.

Following are the results of the reliability test shown in Figure 3.

No	Variable	Cronbach Alpha	Information
1	Digital Marketing Ease	0,727	Reliability
2	Digital Marketing Uses	0,897	Reliability
3	Attitudes to use of Digital Marketing	0,761	Reliability
4	The Actual use of Digital Marketing	0,817	Reliability

Figure 3: Reliability Test.

Validity test is used to measure the validity or validity of a questionnaire. A questionnaire is said to be valid if the questions on the questionnaire are able to reveal something that will be measured by the questionnaire. According to Ghazali (2006) to measure validity can be done by correlating the score of questions with the total construct score or variable. Significance test is done by comparing the value of  $r$  arithmetic with  $r$  table for degree of freedom ( $df$ ) =  $n - 2$ , in this case  $n$  is the number of samples. In this study the number of samples ( $n$ ) = 100 and the magnitude of  $df$  can be calculated  $100 - 2 = 98$ , with  $df = 98$  and  $\alpha = 0.05$ , obtained  $r$  table = 0.1966. To test whether each indicator is valid or not can be seen in the Cronbach Alpha output display in the Correlated Item - Total Correlation column both in the construct of ease, utilization, attitude of use, actual use of digital marketing. Then the value of Correlated Item - Total Correlation compared with the results of the calculation of  $r$  table = 0.1966, if  $r$  arithmetic >  $r$  table and is positive then the item or question is declared valid.

Indicator Construct	Corrected Item-Total Correlation
Ease 1	0,333
Ease 2	0,557
Ease 3	0,440
Ease 4	0,553
usefulness 1	0,641
usefulness 2	0,617
usefulness 3	0,643
usefulness 4	0,763
usefulness 5	0,474
Attitude of Use 1	0,410
Attitude of Use 2	0,401
Attitude of Use 3	0,311
Attitude of Use 4	0,601
Actual Use 1	0,498
Actual Use 2	0,454
Actual Use 3	0,643

Figure 4: Correlation.

From Figure 4 it can be seen that the value of  $r$  calculated Corrected Item-Total Correlation for construct indicators of digital marketing ease, usefulness,

attitude of use and actual use of digital marketing > from r table 0.1966. So it can be concluded that all construct indicators are valid.

Independent Variable	Collinearity Statistics		Decision
	Tolerance	VIF	
Ease	0,609	1,64	No Multicollinearity
Usefulness	0,711	1,40	No Multicollinearity

Figure 5: Multicollinearity Test.

Based on Figure 5, the results of the calculation of the tolerance value shows that there are no independent variables that have a tolerance of less than 0.10, which means there is no correlation between the independent variables whose value is more than 95%. The results of the calculation of the Variance Inflation Factor (VIF) value also showed the same thing: there was not one independent variable that had a VIF value of more than 10. So it can be concluded that there was no multicollinearity between the independent variables in the regression model.

## 5.1 Hypothesis Testing Results

Based on multiple linear regression analysis the following results are obtained:

1. Hypothesis 1 PEU (Ease / Perceived of Use) against ATU (Attitude toward Usage / Attitude in the Use of IT), obtained the results of the two sided t test significance level of 0.01 less than 0.05 of this positive regression coefficient of 0.39 indicates hypothesis 1 is accepted, meaning that PEU has a positive effect on ATU or if the user's perception of the ease of digital marketing will form the more confident the user is to use digital marketing in the home industry in Bantul region.
2. Hypothesis 2 PU (Benefit / Perceived Usefulness) against ATU (Attitude toward Usage / Attitude in the Use of IT), the results obtained by the t-level significance of two-sided test by 0.01 less than 0.05 positive regression coefficient 0.492 shows hypothesis 1 accepted, it means PU has a positive effect on ATU or if the user's perception of the ease of digital marketing will be more confident the user will be formed to use digital marketing in the home industry in Bantul region.
3. Hypothesis 3: PEU (Ease / Perceived of Use) against AU (Actual Usage / actual use of IT), the significance of the two-tailed t-test level of 0.01 is less than 0.05, the positive regression coefficient of 0.24 shows the hypothesis 1 is accepted, meaning that PEU has a positive effect on the AU or if the user's perception of the ease of digital marketing will be more confident the user will be formed to use digital marketing in the home industry in Bantul region.
4. Hypothesis 4, PU (Perceived Usefulness) against AU (Actual Usage / IT use actually), the results obtained by the t-level significance of two-sided test of 0.01 is smaller than 0.05 positive regression coefficient of 0.17 shows the hypothesis 1 is accepted, meaning PU has a positive effect on the AU or if the user's perception of the ease of digital marketing will be more confident the user will be formed to use digital marketing in the home industry in Bantul region.
5. Hypothesis 5, ATU (Attitude toward Usage / Actions in the Use of IT) against AU (Actual Usage / actual use of IT) obtained the results of the t-test two-sided significance level of 0.01 smaller than 0.05 positive regression coefficient of 0.11 this shows that hypothesis 1 is accepted, meaning that ATU has a positive effect on the AU or if the user's perception of the ease of digital marketing will create more confidence for users to use digital marketing in the home industry in Bantul region.

## 6 CONCLUSIONS

The conclusion obtained from this study is that the perception of the home industry community in Bantul on digital marketing that is PEU has a positive effect on ATU, PU has a positive effect on ATU, PEU has a positive effect on AU, PU has a positive effect on AU, ATU has a positive effect on AU. In general, it can be concluded that the perception of ease and usefulness of digital marketing will affect the belief in the use of digital marketing and will affect the attitude and actual use.

For the next research, another method for analysis can be used as a comparison in the process of acceptance analysis of technology, and can be developed to analyze the results of the achievement of the use of digital marketing, tools can be made as an analysis of acceptance of new technologies.

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