



IMPLEMENTATION MODEL INTERNET OF THINGS ON MICRO MEDIUM ENTERPRISE IN BEKASI REGIONAL

by

Hamzah Muhammad Mardi Putra¹, Arief Teguh Nugroho²

^{1,2}Program Studi Manajemen, Fakultas Ekonomi dan Bisnis, Universitas Pelita Bangsa

Email: hamzah@pelitabangsa.ac.id, ariefteguh Nugroho@gmail.com

Article Info

Article history:

Received Juni 01, 2022

Revised Juni 24, 2022

Accepted Juli 27, 2022

Keywords:

Model Internet Of Things,
Micro Medium, Bekasi
Regional

ABSTRACT

The purpose of this study is to identify the use of technology and analyze the influence of technology and the internet on the use of social media on Micro, Small and Medium Enterprises in the District Bekasi. The target to be achieved is to identify the use of technology and the internet on MSME actors and analyze the influence of technology use on the use of social media on MSME actors. The Framework of Thought in this study proposes the development of the Technology Readiness Index (TRI) model consisting of Optimism, Innovativeness, Discomfort, as well as the Insecurity and Technology Acceptance Model (TAM) consisting of the proposed Perceived Ease of Use and Perceived Usefulness by Davis (1989) then combined by Putra (2017) and Rahman (2017) which influenced the use of Social Media by Micro, Small and Medium Enterprises (MSMEs) in Bekasi Regency. The respondents in this study consisted of micro, small and medium enterprises in Bekasi Regency who used Social Media in their businesses. The results of this study indicate that the respondent's monthly expenditure in the Jababeka Industrial Estate is more than 5 million with 40.3%. Respondents were grouped into expenditures under 1 million, 1-3 million, 3-5 million and more than 5 million.

This is an open access article under the [CC BY-SA](https://creativecommons.org/licenses/by-sa/4.0/) license.



Corresponding Author:

Arief Teguh Nugroho,

Program Studi Manajemen, Fakultas Ekonomi dan Bisnis,

Universitas Pelita Bangsa

Email: ariefteguh Nugroho@gmail.com

1. INTRODUCTION

The development of Internet Technology in the business world and the industrial world took place very quickly in the modern and post-millennial era, namely after the 2000s. Technology has generally made our lives simpler and more practical with the term world in the palm of your hand just by mastering Technology and the Internet. Several experts who have conducted previous research in the field of technology and socioeconomics have shown that the application of the right technology can alleviate poverty. Several technological model innovations such as the *Technology Acceptance Model* (TAM) and *technology readiness index* (TRI), especially the development of social media technology for MSME players, can help business development.

The purpose of this study is to identify the use of technology and analyze the influence of technology and the internet on the use of social media on Micro, Small and Medium Enterprises in the District Bekasi. The target to be achieved is to identify the use of technology and the internet on MSME actors and analyze the influence of technology use on the use of social media on MSME actors

The output of this research is the implementation of IoT-based technology on Micro, Small and Medium Enterprises in Bekasi Regency. The application of technology and the Internet to Micro, Small and Medium Enterprises can provide convenience and usefulness when running a business in the era of globalization and modernization. In order to be a sustainable solution, this IoT-based technology model will be patented to make it easier for MSME actors to adopt technology so that socio-economic improvements occur.

1. Research Objectives

The purpose of this study is to analyze the influence of technology on the use of social media on Micro, Small and Medium Enterprises in Bekasi Regency. The targets to be achieved are:

- a. Identifying the use of technology in MSME players
- b. Analyzing the effect of technology use on the use of social media on MSME players

2. Beneficiaries

The beneficiaries of this research are the benefits obtained by micro, small and medium enterprises in using technology in their businesses. The results of this study are expected to provide benefits for MSME actors

2. LITERATURE REVIEW

This research was conducted by applying the IoT-based Technology model to MSME players in Bekasi Regency

1. TAM Technology Theory Framework

A number of studies that have been carried out have shown that the use of mobile phones has a positive effect on subjective well-being (Chan, 2013). Until now, the influence of technological services on mobile phones has not been paid much attention to. Previous studies related to the integration of technology readiness models or Technology Acceptance Model or popularly known as TAM have been carried out in several studies (Chen and Li, 2010). However, the impact of the TAM model as the application of the technology model has versatile and significant results on technology-based enterprises. Experts also believe that there is research that needs to be continued, especially in the field of social innovation (Phillip et al, 2015).

The application of technology, especially in the micro, small and medium enterprises group, has not been widely measured so that technological innovations in marginalized groups have not been proven. The efforts that have been made are important to know the application of technology to micro, small and medium enterprises (MSMEs). This study aims to identify the application of the TAM and TRI Technology model to MSME players and analyze the influence of technology on the use of Social Media on MSME players.

2. TAM and TRI Concept Framework

The Technology Readiness Index or known as TRI was developed by Parasuraman (2000) to measure technological readiness in individuals. TRI is defined as a person's tendency to embrace and use a new technology to achieve goals in the workplace (Parasuraman, 2000). Technological Readiness has 36 scale items and consists of two dimensions. The index includes positive ones, namely optimism and innovation, then negative ones, namely discomfort and insecurity (Chen, 2014).

Optimism refers to a positive view of technology and the belief that optimism offers increased control, efficiency to the flexibility of people. Innovation is the tendency to be early in adopting new technologies and leaders on existing opinions. Discomfort (discomfort) is the suspicion of technology and doubts on the technology about its ability to work (Kuo et al, 2013).

More recently, TRI was modified by Parasuraman and Colby (2015) and named TRI 2.0. The reason for the modification of TRI to TRI 2.0 is the acceleration and technological changes in the form of high-speed internet access, mobile commerce, social media and cloud computing. TRI 2.0 has a four-dimensional 16-item scale. Optimism and innovation are motivations that contribute to technological readiness, while discomfort and insecurity are obstacles to technological readiness (Parasuraman and Colby, 2015). People who have optimism and innovation and have little discomfort and insecurity, are more likely to receive the benefits of new technologies. But collective experience, feedback from researchers and personal communication motivated to modify it to TRI 2.0. There is a need to:

- a) Reassessing scale statements that refer to context is no longer innovative
- b) Examining and incorporating the relevant implications of the new technology environment
- c) Creating more efficient instruments

The Technology Acceptance Model (TAM) proposed by Davis (1989) consists of perceived usefulness of technology (*Perceived Usefulness*) and perceived *ease of use* is two important beliefs that determine the attitude of people to the environment that accepts technology. Perceived usability has a strong relationship with the user's acceptance of a technology compared to perceived ease of use (Davis, 1989).

In different contexts, TAM has been applied and has received empirical support from many studies (Kuo et al, 2013), the TAM theory has had several modifications, each theory has contributes a lot to knowledge related to the use of technology. Mardiputra (2017) integrated TAM with IDT in research to analyze the effect of mobile phone use on ecommerce. In a study by Walczuch (2007) TRI and TAM combined to measure technologic acceptance among employees of financial service providers in Belgium. The combination of TRI and TAM was used by Kuo et al (2013) to investigate nurses' admission of electronic medical record system mobile phones.



In other studies, there have not been many studies that examine the influence of TRI and TAM on well-being when associated with the use of technology. The idea of well-being is usually taken from the philosophy of implying what is good for a person. Well-being can be understood as the fulfillment of pleasure and the avoidance of pain. In the domain of technology-influenced well-being studies, many studies concentrate on subjective well-being, especially in measuring the quality of life. Subjective well-being measures happiness by asking how individuals feel about their lives. Subjective well-being has been defined as cognitive and affective assessment by the individual (Diener et al, 2002). This study was conducted to identify the application of IoT-based technology models, namely TAM and TRI, to MSME players and analyze the influence of social media technology on MSME players.

Figure 1 TAM model

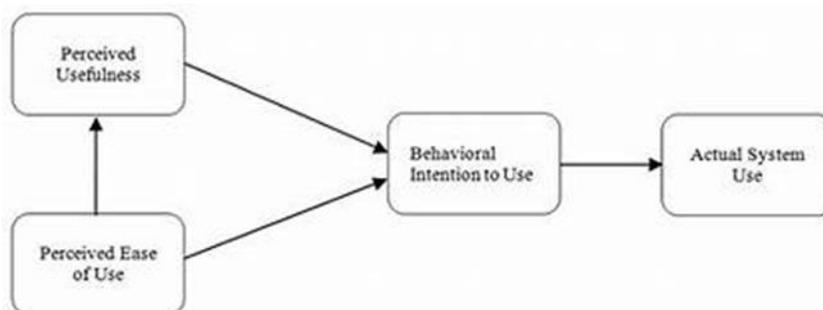
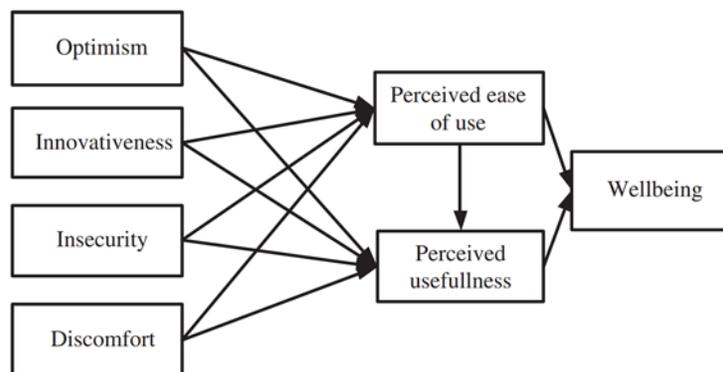


Figure 2 Combinations of TAM and TRI

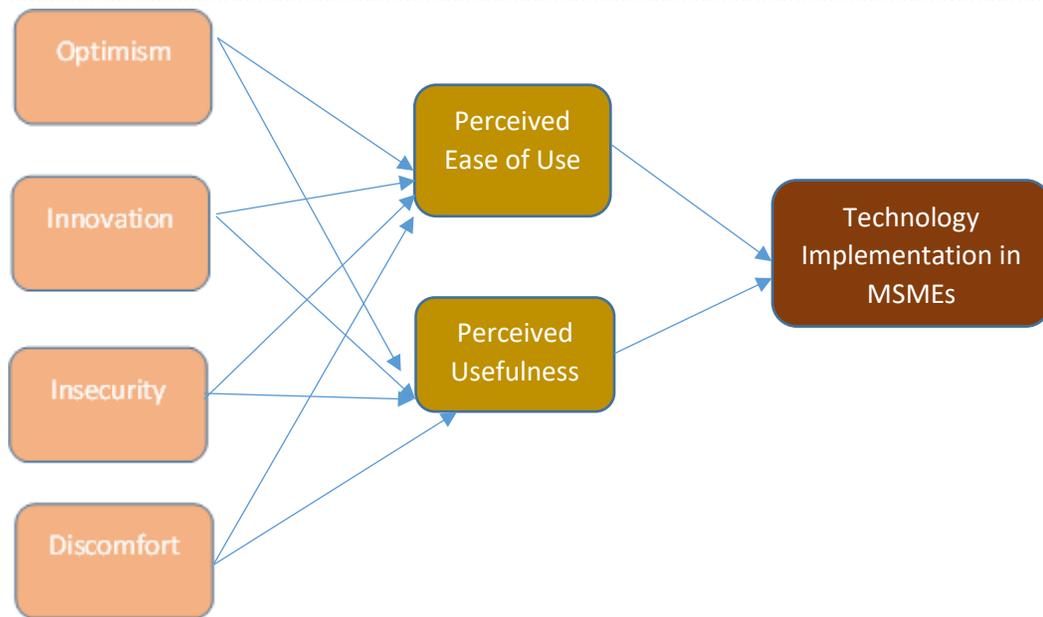


3. RESEARCH METHOD

The Framework of Thought in this study proposes the development of the Technology Readiness Index (TRI) model consisting of Optimism, Innovativeness, Discomfort, as well as the Insecurity and Technology Acceptance Model (TAM) consisting of the proposed Perceived Ease of Use and Perceived Usefulness by Davis (1989) then combined by Putra (2017) and Rahman (2017) which influenced the use of Social Media by Micro, Small and Medium Enterprises (MSMEs) in Bekasi Regency.

1. Research Design

The type of research used is quantitative research with path analysis (Path Analysis). Research model as follows:



2. Data Collection Methods

This research consists of three parts, namely the first part with the selection of MSME objects in Bekasi Regency who are willing to be research respondents. In the theme section, there is a screening of MSMEs that use Social Media technology in their business. The second part is data retrieval which consists of primary and secondary data retrieval. Primary data is obtained by distributing questionnaires on google forms to save paper and then secondary data in the form of data and profiles of micro, small and medium enterprises such as demographic data (gender, age, type of business, size of business). The third part of data collection is in the form of questions related to research that are variable Technology Readiness Index (TRI) consisting of Optimism, Inovativeness, Discomfort, Insecurity and Technology Acceptance Model (TAM) which consists of from Perceived Ease of Use and Perceived of Usefulness which affect the use of Social Media in Micro, Small and Medium Enterprises.

3. Sampling Methods

The respondents in this study consisted of micro, small and medium enterprises in Bekasi Regency who used Social Media in their businesses. Business types are grouped into education, trade, culinary, manufacturing, etc. clusters, especially those located in Bekasi Regency. The determination of this cluster is to determine the distribution of respondents in various business fields. The profiles of business actors are grouped based on demographics such as gender, age, type of work, length of business, business size.

The study population is all Micro, Small and Medium Enterprises in Bekasi Regency in accordance with 2020 BPS Bekasi Regency data. The sample collection uses the selection of selected Micro, Small and Medium Enterprises in Bekasi Regency, which amounts to about 5% of the population of Bekasi Regency.

Schedule

No	Activity Name	Moon											
		1	2	3	4	5	6	7	8	9	10	11	12
1	PRELIMINARY STAGE												
	Observation	■	■	■									
	Literature Studies	■	■	■									
2	IMPLEMENTATION STAGE												
	Survey of MSME data in Bekasi Regency		■	■	■								
	Field Studies and Data Collection			■	■	■							
	Technology Implementation in MSMEs				■	■	■	■					
	Data processing and editing					■	■	■					
	Preparation of Research Results							■	■				



3	FINAL STAGE																			
	Seminar on Results and Journal Publications																			
	Creation and Registration of IPR																			

4. RESULTS AND ANALYSIS

The results of the research conducted by researchers took place from March 2022 to May 2022 in several places that have Micro, Small and Medium Enterprises in Bekasi Regency. Researchers collect data starting from making a questionnaire whose contents are:

1. Screening questions to select respondents who fit the inclusion criteria, namely respondents who use the LinkedIn social media application to find work.
2. Questions about research variables consisting of six tables, using a Likert scale consisting of 4 levels, namely STS (Strongly Disagree), TS (Disagree), S (Agree), and SS (Strongly Agree).
3. The questions are in the form of respondent's demographic data.

Tabel 1

The data collection process begins with

1. The word test on the questionnaire was conducted to test whether the sentences on the questionnaire were neatly arranged according to EYD (Enhanced Spelling).
2. Pretest questionnaire, conducted to test whether the questionnaire is ready to be distributed.
3. The distribution of questionnaires, and then a questionnaire test was conducted using the validity and reliability test of the research questionnaire.

In determining respondents from the industrial sector, especially those in the Jababeka Industrial Area, they are grouped into manufacturing, trade, education and health clusters. This is done to find out the differences in respondents from various industrial sectors/clusters.

Tabel 2
 Kluster Sampling

1) Cluster	2) Number of Respondents	3) Percentage
4) Manufacturing	5) 100	6) 25.00
7) Trading	8) 100	9) 25.00
10) Education	11) 100	12) 25.00
13) Sosial service	14) 100	15) 25.00
16) Total	17) 400	18) 100.00

The test results on research variables, namely Personal Profile, Group Profile, and Organizational Profile use the descriptive analysis method as follows.

The study resulted in the findings of research respondents, namely workers in industrial areas conducted from January to April as follows:

1. All respondents are 377 people who are divided into jobs in manufacturing, health services, education, and trade. This research is located in the Jababeka Industrial Estate, West Java, Indonesia from January 2021 to June 2021. Researchers collect data using the Google Form application for all respondents who work in the Jababek Industrial Estate.
2. This study shows that there are gender differences between men and women with a significance level of 61.5% male and 38.5% female.
3. The results showed that most of the respondents came from the age of under 25 years by 36.9% (139 people) followed by the age of 36-45 years 27.6% (104 people). Meanwhile, other respondents are aged 26-35 years (25.5%), 45-55 years (7.4%) and above 55 years (2.7%)
4. The education of most research respondents is graduate with 36.9% (139 people) followed by S2/S3 students as much as 35% (132 people) and the least is Postgraduate by 28.1% (106 people). However, there is the most significant difference between the age groups of respondents in the company.
5. Research respondents came from manufacturing, trading, education, and service companies with the highest percentage owned by the manufacturing company group (38.2%) dominated by female respondents

(21.1%); but there is a significant difference between the age groups of respondents in the group of companies studied at a significance level of 1 percent.

6. This study shows that there is a significant difference between the lengths of service in the respondent's organization in the group of companies studied at a significance level of 1 percent. Respondents were grouped into under 1 year, 1-5 years, 6-10 years and above 10 years in the organization. Group I is the most respondents

5. CONCLUSION

The results of this study indicate that the respondent's monthly expenditure in the Jababeka Industrial Estate is more than 5 million with 40.3%. Respondents were grouped into expenditures under 1 million, 1-3 million, 3-5 million and more than 5 million.

REFERENCES

- [1] Baruch, Y., 1999. Response rate in academic studies-A comparative analysis. *Hum. Relat.* 52 (4), 421–438.
- [2] Bock, B.B., 2015. Rural marginalisation and the role of social innovation; a turn towards nexogenous development and rural reconnection. *Sociologia Ruralis*
- [3] Chen, J.L., 2011. The effects of education compatibility and technological expectancy on elearning acceptance. *Comput. Educ.* 57 (2), 1501–1511. Chen, S.C., Li, S.H., 2010. Consumer adoption of e-service: integrating technology readiness with the theory of planned behavior. *African J. Bus. Manag.* 4 (16), 3556.
- [4] Chen, S.-C., Jong, D., Lai, M.-T., 2014. Assessing the relationship between technology readiness and continuance intention in an E-appointment system: relationship quality as a mediator. *J. Med. Syst.* 38 (9), 1–12.
- [5] Chen, G., Rasmussen, S., 2014. bKash Bangladesh: A Fast Start for Mobile Financial Services. Retrieved from. www.cgap.org.
- [6] Darrag, Mohamed, & Aziz. (2010). *Investigating Recruitmen Practices and Problem of Multinational Companies (MNCs) Operating in Egypt*. Education, Business and Society: Contemporary Middle Eastern Issues vol. 3 Iss 2. p.99-116
- [7] Davis, F.D., 1989a. Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Q.* 13 (3), 319–340.
- [8] Diener, E., 2000. Subjective well-being: The science of happiness and a proposal for a national index. *Am. Psychol.* 55 (1), 34–4
- [9] Kuo, K.-M., Liu, C.-F., Ma, C.-C., 2013. An investigation of the effect of nurses' technology readiness on the acceptance of mobile electronic medical record systems. *BMC Med. Inform. Decis. Mak.* 13 (1), 88–102.
- [10] Technology acceptance among micro-entrepreneurs in a marginalized social strata: The case of social innovation in Bangladesh Syed Abidur Rahman a, *, Seyedeh Khadijeh Taghizadeh b , T. Ramayah c , Mirza Mohammad Didarul Alam