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TECHNOLOGY READINESS FOR ARTIFICIAL INTELLIGENCE INFLUENCES INDIVIDUAL'S PURCHASING INTENTION ON SOCIAL MEDIA THROUGH TECHNOLOGY ACCEPTANCE MODEL

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Abstract

Artificial intelligence role the most essential and influential for digital marketing. For social media, AI is one of the most powerful tools to gain buying intention. This research aims to study the effect of the technology readiness index model to be mediated through the technology acceptance model on purchasing intention. The results showed optimism, innovativeness, and insecurity influence the purchasing intention through perceived usefulness and perceived ease of use.

Keywords: Technology Readiness Index, Technology Acceptance, Purchasing Intention

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Introduction

Nowadays, artificial intelligence (AI) is a new powerful technology that plays a huge role in terms of daily life, work, and the business sector. In particular, AI is used to present products or services and drive consumer purchasing decisions on Thailand's social media. AI is still very new to consumers in Thailand's market. To understand and develop AI for future market readiness. This research will study models which affect customer intention to buy that are influenced by AI. The technological readiness model and Technology Acceptance model will help to understand Thai consumers and embrace the capabilities of AI which is a factor to help marketers understand the context of AI on social media. Social Media is a very popular channel for presenting products and services in the Thai Market. Understanding the factor which leads the customer to purchase product and service that be presented by AI are helping future marketers. To study the impact of the technology readiness model of AI through the technology acceptance model on customer purchasing decisions on Thai social media.

Literature Review

This study uses two theories that have studied customer purchasing intention by AI phenomenon.

Technology Readiness Index (TRI) is an important indicator to desire and understand human behavior when new technology is launched. (Parasuraman, 2000). The theory has 4 factors, with the 2 factors being desirable a positive attitude that is Optimism, and Innovativeness. On the other hand, 2 factors are desirable for a negative attitude which are Discomfort and Insecurity.

Optimism is the positive view and belief that technology can be controlled, being flexible and efficient to use. (Rojas-Méndez et al., 2017)

Innovativeness is a reflection that represents a leadership that will respond when new technologies are introduced. (Chiu & Cho, 2021)

Discomfort is recognizing the problems from the lack or delays of technology, and sometimes are more than necessary. (Parasuraman & Colby, 2015)

Insecurity is distrust of technology, especially in the aspect when new technologies are being introduced. (Godoe & Johansen, 2012)

Technology Acceptance Model (TAM model) is a theory that explains the phenomenon of leading to the use or accept new technology by people, including perceived usefulness and perceived ease of use. (Davis, 1989) Based on that theory, many studies have found these 2 factors lead people to accept new technology, for example, the research of Liu et al. (2010) or AlSoufi & Ali (2014) In addition, it was found when the TAM model was used as a mediator from TRI. Many research has called model are TRAM model. (Lin et al. (2007) and Godoe & Johansen (2012)

TRI and TAM are concepts that spotlight the consumer side because technology will be used and developed if it's a friendly user. Therefore 2 theory factors must be studied in this research.

Purchasing Intention (PI) is a dependent variable that has always been used to study in the marketing dimension because it is a factor that leads the customer to purchase which is the objective of a business.

Research Methodology

This research is quantitative. The study uses computer software packages to analyze impact by using a structural equation model (SEM) to show the weight and direction of the Exogenous variables. The study will test the direct and indirect effects of exogenous variables through the mediator to the purchasing intention. Exploratory Factor Analysis (EFA) was performed by Factor Loading of all questions that were greater than 0.6. Confirmatory Factor Analysis (CFA) was performed to show the suitability of the model.

This research used online questionnaires to collect data, divided into 2 parts, consisting of 1) general information 10 questions and 2) a 5-level scale (Linkert Scale contains 21 questions. The questionnaire has inspected the index of item by 3 experts. (Index of Item-Objective Congruence: IOC)

Sample Size and Sampling

The sample size was determined by referring to the Rule of Thumb (Hair et al., 2010) for use with SEM. The samples must not be less than 100 samples, the proportion was 20 samples per 1 parameter. In this study, 21 questions were used. As a result, 420 samples would be collected. Purposive sampling was used from a population of 59 million of Thailand's social media users in 2022. (ACU Pay, 2022) By choosing only those who have experience in buying products and services on social media or social media influence to buy.

Exogenous variables consist of TRO means Optimism, TRIN means Innovativeness, TRD means Discomfort and TRS means Insecurity.

Mediator variables consist of PU as perceived usefulness and PEOU as perceived ease of use.

Endogenous variables are PI as Purchasing Intention.

Conceptual Framework

Model 1 Model 2

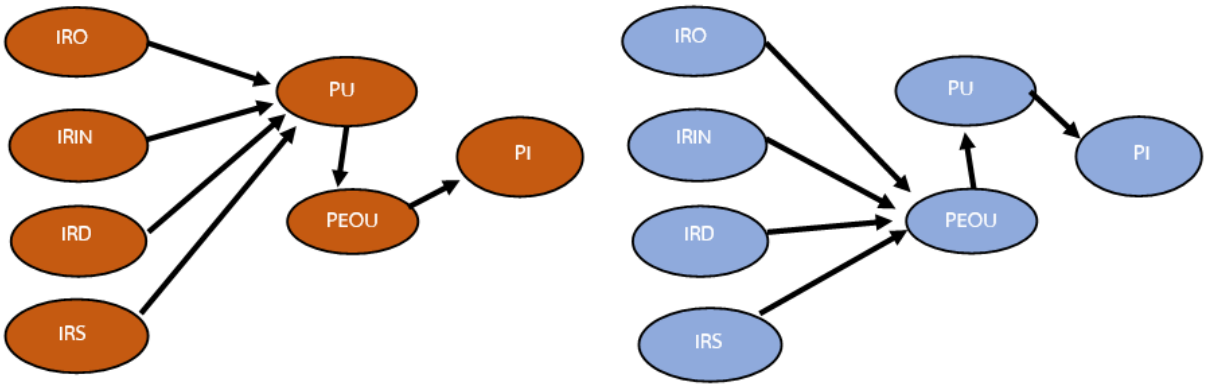

Figure 1 Conceptual Framework

Research Results

Table 1 Descriptive Statistics of the sample. (%)

Data			**%**		
Gender	**Male**	**Female**	**Other but still male status**	**Other but still female status**	
	23.1	72.2	3.8	0.9	
Age	**≤ 24**	**25-32**	**33-40**	**41-57**	**57-75**
	10.7	44.2	24.0	20.2	0.9
Income	**≤ 15,000**	**15,001-25,000**	**25,001-35,000**	**35,001-45,000**	**45,001-80,000**
	11.8	33.8	19.4	11.8	14.5
	80,001-150,000	**> 150,000**			
	5.8	2.9			
Education	**≤ high school or Diploma**	**Bachelor's degree**	**Master's degree**	**Doctor's degree**	
	0.9	40.5	57.5	1.1	
Career	**Student**	**Office worker**	**state enterprise officer**	**Government officer**	**Business owner**
	9.8	46.2	4.9	23.7	8.1
	Influencer	**Agriculturist**	**Unemployed**	**Other**	
	0.3	0.6	0.6	5.8	
Frequency of online buying	**1/week**	**2-4/week**	**Over 5/week**		
	66.8	27.2	6.0		
Main Social Media using	**Facebook (Meta)**	**IG**	**Line/Line My shop**	**Twitter**	**Tiktok**
	49.1	19.9	4.0	1.4	11.6
	Youtube	**Blogger**	**Pinterest**	**Linkined**	**Other**
	1.4	1.2	0.4	0.4	10.6
Type of Product to buy	**Education Product**	**Stationary**	**Automotive**	**Spare Part**	**Kid Product**
	1.4	0.6	0.9	0.6	2.3
	Financial Product	**Cosmetic**	**Skincare**	**Technology Product**	**Pet Product**
	0.4	7.2	12.4	6.9	2.9

Data			%		
	Travel and Hotel	**Game**	**Food and Beverage**	**Sport Product**	**Fashion Product**
	0.6	2.0	9.5	2.3	42.5
	Medicine and Supplements	**Other**			
	2.3	5.2			
Spending per time	**≤ 300**	**301-600**	**601-1,000**	**> 1,000**	
	13.9	43.6	25.7	16.8	

From Table 1, most of the respondents were female, 72.2%, and up to 68.2% were Generation Y. Divided into 44.2 percent as younger Generation Y and 24 percent as Older Generation Y. Most of the Sample have income 15,001-25,000 baht, 40.5% were bachelor's degree, 46.2% are employees of private companies, with 66.8% buying at least once a week and use Facebook as the main social media to make purchasing decisions. In Addition, they purchased fashion products 42.5%. Cost per time is 301-600 baht 43.6%.

Structural Equation Model Result

Reliability test results of 21 questions had Cronbach's Alpha value of 0.902 and a model fit test from 420 samples were used composition test. The results are shown in Table 2.

Table 2 Reliability test and model fit test result

Statistics	Condition	Result	Reference
Cronbach's alpha	> 0.7	0.902	Hair et al. (2010)
Factor loading	> 0.6	> 0.6 all questions	Hair et al. (2010)
Chi-square/Degrees Freedom	< 5.0	2.057	Loo & Thorpe (2000)
Goodness of Fit Index (GFI)	> 0.9	0.913	Hu & Bentler (1999)
Normalised Fit Index (NFI)	≥ 0.9	0.913	Hair et al. (2010)
Relative Fit Index (RFI)	≥ 0.9	0.902	Hair et al. (2010)
Incremental Fit Index (IFI)	≥ 0.9	0.953	Hair et al. (2010)
Tucker Lewis Index (TLI)	≥ 0.9	0.942	Hair et al. (2010)
Comparative fit Index (CFI)	≥ 0.9	0.953	Hair et al. (2010)
Root Mean Square Error of Approximation (RMSEA)	< 0.08	0.055	Hair et al. (2010)

SEM result of 2 models comparatively from the Tram Model which separated the mediating effect into 2 models, the first model is PEOU as a mediator, which transfers the effect of PU to PI, and the second model, PU as a mediator, which transfers the effect of PEOU to PI. Comparative tests are shown in Tables 3 and 4 as follows.

Table 3 SEM result which is PEOU as a mediator to transfer the effect of PU to PI

Variables	Estimate	Standard Error	Critical Ratio	Sig.
IRO → PU	-2.221	0.698	-3.183	0.001**
IRIN → PU	3.165	0.753	4.201	0.000***
IRD → PU	0.071	0.086	0.829	0.407
IRS → PU	-0.278	0.125	-2.218	0.027**
PU → PEOU	1.088	.096	11.332	0.000***
PEOU → PI	0.965	.076	12.657	0.000***

***p < 0.01, **p < 0.05, *p < 0.10

Table 3 shows the effect of Optimism on Perceived Usefulness of -2.221 was a statistically significant level. Innovativeness effect on Perceived Usefulness at 3.165. Insecurity showed an effect on Perceived Usefulness at -0.278. In addition, there was a statistically significant effect of Perceived usefulness on Perceived ease of use at 1.088 and Perceived ease of use on Purchase Intention at 0.965. Thus, the result shows the indirect effect of variables on the dependent variable. Optimism has an indirect effect on purchase intention at -2.331. Innovativeness has an indirect effect on purchase intention at 3.323. Insecurity has an indirect effect on purchase intention at -0.292. The model has a predictive ability of 56.2% ($R^2 = 0.562$).

Table 4 SEM result which is PU as a mediator to transfer the effect of PEOU to PI

Variables	Estimate	Standard Error	Critical Ratio	Sig.
IRO → PEOU	-2.416	0.757	-3.193	0.001**
IRIN → PEOU	3.442	0.815	4.223	0.000***
IRD → PEOU	0.078	0.094	0.829	.407
IRS → PEOU	-0.302	0.136	-2.221	.026**
PEOU → PU	0.919	0.081	11.332	0.000***
PU → PI	1.050	0.087	12.100	0.000***

***p < 0.01, **p < 0.05, *p < 0.10

Table 4 shows the SEM result is consistent with table 3. The Result found the effect of Optimism on Perceived ease of use at -2.416 was a statistically significant level. Innovativeness effect on Perceived ease of use at 3.442 and Insecurity affected Perceived ease of use at -0.302. Perceived ease of use had a direct effect on Perceived usefulness at 0.919 as well Perceived usefulness had a direct effect on Purchasing Intention 1.050 at a significant level. The model expresses the indirect effect as Optimism has an indirect effect on Purchase intention at -2.331. Innovativeness has an indirect effect on purchase intention at 3.321. Insecurity has an indirect effect on purchase intention at -0.291. The model has a predictive ability of 56.2% ($R^2 = 0.562$). Both Model shows result which is similar to each other.

Conclusion, Discussion and Recommendation

The study "Technology Readiness for Artificial Intelligence (AI) Influences Individual's Purchasing Intention On Social Media through Technology Acceptance Model" is a separate comparative study of 2 Models using SEM. The conclusion can explain as follows.

Optimism influences Purchasing intention in the opposite direction. In which both models, it can be concluded that social media come with new artificial intelligence technology. If users

have many levels of optimism, they may even see the benefits less and feel that the technology is not easy. Due to the complexity of the system and unfamiliarity with new artificial intelligence technologies. However, in terms of purchase intent, it still affects buying intention as social media are the most intimate and familiar channel.

Innovativeness is a determinant of the respondents when new artificial intelligence technologies are introduced on social media. In which the effects of both models showed the effect in the same direction. It can be explained when the new AI system or function is presented on social media. The user who has a more innovative, there has perception of ease of use and usefulness, leading to a purchase decision.

Insecurity is another important factor that will influence the sample to make a purchase decision or not. As a result, there was an opposite direction effect on the two models. On social media, AI must be accompanied by the security of user data in all dimensions. The more security, the user will perceive the ease of use and usefulness of AI, which leads to purchase intention. Insecurity will reverse with purchase intention. The safer personal data is more benefits lead to use or purchase in the end.

Perceived usefulness and Perceived ease of use of AI technology on social media, it was found that the affect purchasing intention was found. Both models show the transmission effect of each other. If AI on social media is a friendly user and has more advantages, it will be easy for a business to get more users to make the decision to buy the product.

Discomfort was not found the effect in both models. It's might happen because the sample is already familiar with various AI systems on social media. In addition, Discomfort is the variable in which the question direction conflicts with Perceived usefulness and Perceived ease of use by meaning. The SEM result did not find any effect to purchase intention.

From the results of the study, it can be concluded that AI on social media drive purchases. Marketers will need to make users realize AI in a positive and tell customers how easy and convenient to use it. In addition, the development of AI on social media, the safety of user data, and the safety of use must be considered mainly because the study clearly shows that users take this matter very seriously. Optimism, innovativeness, and security will lead users to perceive both the benefits and ease of AI technology. Moreover, with the new AI technology launch it will be easier for users to understand if it is beneficial and simplifying. They are important factors to have a greater impact on utilization leading to purchase.

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