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A Relationship Marketing Model towards the Environment of Online Customers in Digital 4.0 Timing

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Abstract

This research aimed to study a relationship marketing model towards the environment of online customers in the time of Digital 4.0. The research findings indicated that the developed marketing model towards the environment of online customers in the time of Digital 4.0 was consistent and duly, with empirical data, and the validity and ability to predict showed a suitable level and equitably at 80.1%, where its acceptance percentage was more than 40% at the statistical significance of 0.05. The results found that levels of relationship between buyers and providers, relationship management, and marketing value creation were casually correlated with the marketing toward the environment of online customers in the time of Digital 4.0. Furthermore, the relationship between buyers and providers and relationship management levels were casually correlated with the marketing value creation of online customers in the time of Digital 4.0.

Keywords Marketing Model towards the Environment, Digital 4.0, Value Marketing

1. Introduction

E-commerce business remains the channel of distribution with high value. In Thailand, the business value of e-commerce in 2019 estimated 4.02 trillion baht, or a growth percentage up to 6.91 from 2018 when its value estimated 3.76 trillion baht. Back in 2017, the business value estimated 2.76 trillion baht as 36.36 percent. Overall, the revenue mainly came from products exchanged through online channels within the country as 91.29 percentage. As an estimation that the revenue will grow, jumping up in 2020 from the new normal lifestyle of buying and selling online resulted from the coronavirus 2019 pandemic [1]. Many e-commerce businesses, developed through technological usage, linked buyers and providers with delivery through electronic systems of inventory checks, transportation, payments, and customer satisfaction and loyalty follow-ups [2],[3]. Therefore, business entrepreneurs primarily focused their profit opportunities through business processes instead of buying and selling through web pages and applications of technology for business purposes only. They are capable of digital business operations systems in total capacity [4]. However, the impact factors on business development transforming to digital businesses depended on scarce human resources knowledge in a digital and technological capacity. This phenomenon created demand in hiring to be outsourced, especially foreign experts [5], which caused a higher cost of operations, including transforming on an e-commerce construction basis.

As always, Thailand faces systematic administration and problem thinking, as there is no linkage and collaboration between actual business entrepreneurs' performance of every step of operations taken by themselves, a start-up with a website design, search for intermediary markets, inventory, management, or management even for delivery jobs.   These advancements of technology create new innovative electronic businesses through intermediaries for merchandise distribution on online penetrated on: (1) the role relationship between providers and the buyers concerning strategic goals, management support, communication, and promises including trust [6], which is very important for customer responded capability and higher competitive advantage for both providers and buyers; (2) the model of marketing relationship between providers and buyers from a general level, participation, collaboration and partnership [7],[8]; (3) building marketing value with creation in emotion, social, price, and quality [9],[10]; and   (4) marketing relating to the environment should start from the beginning level, trust level and partnership level [11]. The case of e-commerce brings technology and the Digital 4.0 system that can automatically take order messages for integration with organization structures to provide quality service, a focus on attentive service satisfaction, and impressive cognition [12].

With the assumptions mentioned above, the researchers were aware of the crucial variable factor of the relationships between buyers and providers, the pattern of marketing relationships, and causal marketing relationships towards environmental relation with customers through online Digital 4.0 on business e-commerce with a continuing high growth rate. The expectation of the results was on beliefs of beneficial reciprocity for business entering operations through e-commerce systems, for improving marketing relationship development and its processes, and buying and providing resources on purchase operating systems, effectively including related causal factor effects on environmental marketing relationship processes responded to the digital economy under the governmental policy [13]. Moreover, the proposed model indicated a development search for a conceptual framework derived from related variables where each component of each dimension was entirely different from Thailand's cultural domination and territory segregation. The advanced statistical analysis technique through structured equation modeling: SEM will benefit academicians and practitioners in this research penetration study.

2. Literature Review

Relationship marketing management studied buyers' and providers' relationships influenced by long-term work togetherness [14]. It required relationship management of direct and indirect relationship development activities between buyers and providers, as buyers intend to participate in providers' operations by helping hands and consultations in purchasing systems, delivering, and inventory management [15],[16]. The research work [7] concluded the vital factors dealing with buyers and providers' levels of relationship by extended results as (1) strategic goal of mutual intention in capability development of value delivery, inventory management through the mutual decision for system conscript [17]; (2) managerial support, along with vision and policy, of both buyer and provider organizations for joint operations capability and setup competitive advantage targets for customers' response [18]; (3) the development of communicative media between organizations with the connected system between buyers and providers for efficient joint inventory

control management [19]; (4) create agreeable long-term commitment to system development and operations [3]; (5) trust between involved parties in joint business operations under relationships, meaning sharing business information for planning and future business development. Accordingly [7], relationship marketing management: RMM can be classified into four types: (1) the relation characteristics 'There is no cooperation and business secrets that are undeclared' [20]; (2) participative marketing management jointly as buyers and distributors operations and problem solutions for only specific cases, limitations due to repurchase intention and recommendations linked to relationship quality [21]; (3) the relationship under the joint cooperative marketing management for strategic problems and solutions in long term relations efficiently [22]; (4) partnership marketing management related to sharing information in every level of management [23] and business opportunity, collaborative work design, strategic planning, problem-solving, investment, cost reduction, and distribution efficiently [21].

Marketing value creation: MVC the value creation initiates new methods of products and services for customers' satisfaction, except for profits and organizational growth [24], referred to new dimensions of marketing value for consumers into dour categories of linkage and role importance [25]: (1) customers suitable for using product benefits [26]; (2) product and service capabilities to influences customers' social impact [2]; (3) monetary benefits, both short and long term value [27]; (4) the benefits derived from quality and product performance as expected [21].

Relationship marketing towards the environment is used worldwide in various business and customer segmentation and in government and non-government [28]. The relationship marketing strategy towards the environment for consumers as a motivator or beneficial reward intends to create products as organizational loyalty [17].

Environmentalist relationship marketing requires a tremendous amount of budget or less depending on the level of relationship [11] identified five levels: (1) general marketing; (2) reactive marketing; (3) accountable marketing; (4) proactive marketing; and (5) partnership marketing. All levels begin from buying and selling transactions only to question requests, go on up to have satisfaction evaluation, followed with product recommendations, and end up at the standard form of working as a team for searching and creating the development of new product benefits.

Digital 4.0 is an era where technological development has created intelligent electronic devices, able to communicate and be commanded with work automatically with speech, turn on-off, or order through applications without pressing a button on the device or a smartphone. To take pictures or write messages automatically in this era, digital technologies, such as mobile platforms, AI or Artificial Intelligence, 3D Printing, the Internet of Things, Fintech will become part of daily life.

Digital 4.0 online marketing platforms shifted as machine-to-machine technology automatically communicate and order or command through applications such as mobile platforms, AI, 3D Printing, Internet of Things, Fintech, and more. Hence, intelligent devices are becoming a part of Thai consumers' standards of living. Business organizations in Thailand must adopt new customer values in a digitally transformed future with no exception [29]. The current digitally transformed 4.0 technology and the Internet spread through economic growth with e-commerce. This concurrent online business is prevalent and continues to grow as primary internal and external sources reach customers 24-hours a day, buying and selling transactions with online payments. Online e-commerce has continuously improved security and trust, including product management systems and transportation delivering systems [29].

In conclusion, today's online market is driving accelerated technological innovation (Thailand 4.0 vision). E-commerce innovation is propelled by the Internet, a global platform for customer engagement. Marketing capabilities are rapidly changing customers' value and how relationship marketing engages customers in the digital ecosystems. Figure 1 shows the literature reviews on relationship marketing, marketing value, environmentalist relationship marketing, and governmental and digital transformed 4.0 integration for online buying implications.
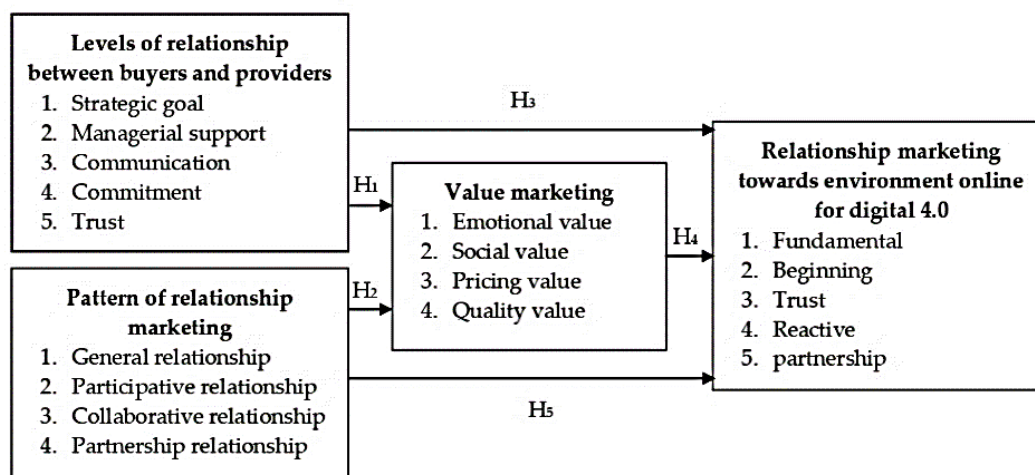
Levels of relationship between buyers and providers
1. Strategic goal
2. Managerial support
3. Communication
4. Commitment
5. Trust

Pattern of relationship marketing
1. General relationship
2. Participative relationship
3. Collaborative relationship
4. Partnership relationship

H₃ H₁ H₂

Value marketing
1. Emotional value
2. Social value
3. Pricing value
4. Quality value

H₄ H₅

Relationship marketing towards environment online for digital 4.0
1. Fundamental
2. Beginning
3. Trust
4. Reactive
5. partnership

Figure 1. Conceptual framework adopted [30],[7],[11].

3. Methodology

This research developed a survey using a questionnaire for data collection and analysis to create a structural equation modeling analysis.

The research population was Thailanders by nationality and live in the Bangkok metropolitan areas as registered December 21, 2020, where the total population listed 5,588,222 persons [31]. Samples used in the research process were calculated for the sampling size [32] at the 0.05 level of significance, and the total number of the population was known as the formula $n=N/(1+Ne2)$; $N=5,588,222$; $n=0.05$; $e=0.05$; Therefore, the sample size was rounded, $(n)=400$. For the case of the sample selections' steadiness used multi-stage sampling [33]; 1) probability sampling utilized the process of proportional stratified random sampling, divided into three groups of area administration district [34]: 2) the non-probability sampling employed purposive sampling of Thai nationals who live in the proximity of Bangkok, and their online buying experiences through an interview, more specifically, Facebook, Kaidee, Line shop, Shoppy, Lazada, Aliexpress, eBays, in order to complete the sampling size estimation as in Table 1.

Table 1. Population and sample size used, categorized according to the area location.

District of the area Bangkok	Population size (person)	Sampling size (person)
Within area	1,852,151	133
Medium area	2,129,450	152
Outside area	1,606,621	115

Total	5,588,222	400

Source: [31].

The results of primary data collection from customers who would consume products through online systems, living places, and local communities around the Bangkok metropolis represent the national characteristics of Thailanders.

The data collection survey was from January through May 2021 and was proportional stratified random. Within the proportion, customers were selected based on purposive sampling by choosing members of units in the sample propositional. According to the location sizes, interviewed customers for the survey ranged from 115, 133, and 152; 940 sample units over 480 units of 2.35 were used for the data analysis. Therefore, the sample size used in this study.

4. Measures

The study adopted measures used in the operation size for the constructs in conceptual models from relevant preview studies. The wording for various items had to be modified and added new items to suit the online customers in the Thailand context and understanding.

The research tool was a questionnaire to measure factors on levels of relationship marketing between buyers and delivery providers, the pattern of relationship management, relationship marketing value, and customer relationship marketing for Digital 4.0. The characteristics of the questionnaire were graphic rating scale estimation that ranged from 1 strongly disagree to 5 strongly agree. Far assurance of proper measurement of the concepts and a quality instrument, a pre-test was administered by face-to-face interviews, and a questionnaire of 5 with 30 randomly selected expert online customers. The research tool tested: (1) The content validity, to find suitability between content in each question with objectives IOC (Item Objective Congruency Index: IOC) between 0.60-1.00, which passed the rule of 0.50 or above on each question [35]; and (2) The reliability test used alpha coefficient by [36] reliability between 0.73 to 0.89 and overall equal to 0.90, which passed the reliability scale the causal model of relationship marketing towards 0.70 [36] of online customers in Digital 4.0 used the structural equation modeling: SEM and hypothesis test. The components of factors related to other variables were in line with the conceptual framework and empirical research in literature reviews that data suited with a theoretical basis. The values of the goodness of fit utilized chi-square and degree of freedom (χ^2/df) [37], the goodness of fit index: GFI [38], adjusted goodness of fit index: AGFI, comparative fit index: CFI [39], root mean square error of approximation: RMSEA [40] and root mean square residual: RMR [41] using social software package AMOS Version 17.0.

5. Data analysis and results

The data distribution characteristics for the sample, including means, standard deviations, skewness, and kurtosis, were examined because most estimation methods for SEM receive particular assumptions about the distributional characteristics of the data. Because the absolute values of the awareness and kurtosis scores of the items were below 1.0, and the deviation from

normality was defined as being slight members them. A maximum likelihood estimation was conducted for confirmatory factor analysis and is widely used to confirm measurement models with four latent variables [42].

The data accepted for evaluation results were as follows: (1) the nominal distribution indicated that the relationship level between buyer and providers (RBS1-RBS5), the model of relationship marketing management (RM1-RM4), the marketing value (MVC1-MVC4), and relationship marketing towards customers environment on online digital 4.0 time (MRE1-MRE5) were appropriated in the use of structural equation model analysis. The values of skewness were not more than 0.75, and kurtosis was not more than 1.50 if any variables did not follow the need of normal distribution became not normality (underestimated) than the empirical data were not in line with the model [43]; (2) the relationship between variables in the analysis process indicated that various buyers and providers relationship (RBS1-RBS5), relationship marketing management (RM1-RM4), and relationship marketing towards online digital 4.0 time (ERM1-ERM5) were significant at 0.05. The value of the relationship was not more than 0.80, which caused multicollinearity. Hence, variables were suited for structural equation model analysis. Positive variables relationships were affected on correlation value estimation (lost its exactness). On the other hand, negative variables relationships would affect correlation value estimation (have higher exactness). The necessary solution was to cut any high relation variables out from the analysis process [44], as in Table 2.

Table 2. The examination of data distribution estimation.

Variables	Skewness	Kurtosis	Correlation
RBS1-RBS5	-0.321 to 0.452	0.168 to 0.952	0.345* to 0.592*
RM1-RM4	-0.378 to 0.696	0.256 to 0.975	0.371* to 0.623*
MVC1-MVC4	-0.217 to 0.536	0.108 to 0.786	0.468* to 0.710*
MRE1-MRE5	-0.310 to 0.582	0.132 to 1.068	0.393* to 0.758*

6. Conclusion and Discussion

The model of relationship marketing towards customers' environment on online digital 4.0 time that was developed in parallel with empirical data overall fitly with the model which value of chi-square (χ^2/df) equals to 2.853 passed the scores of not more than 3 [37]. However, when consider index set as equal to 0.90 indicated that every index values as GFI=0.935, AGFI=0.92 [38], CFI =0.965 [39], TLI=0.981. In the case of measuring less than 0.05, significance indicated that index value RMR=0.044 [41] and RMSEA=0.049 [40]. Hence, we can conclude that the relationship marketing mode towards customers' environment on online 4.0 time that developed had in line with the empirical data related to important components in Figure 2 respectively.
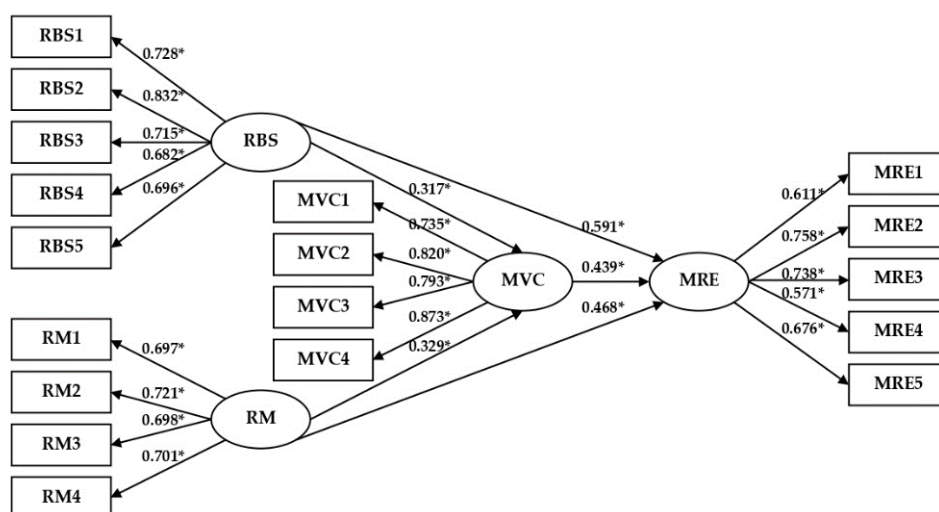
$\chi^2 = 1{,}309.53$, df = 459, GFI = 0.935, RMR = 0.044, RMSEA = 0.049

*P<0.05

Figure 2. The results of relationship marketing model analysis for customers' environment online 4.0 Timing.

When considering in part of measurement model indicated that each component of buyer and providers relationship (RBS1-RBS5), the relationship marketing management (RM1-RM4), marketing value (MVC1-MVC4), and relationship marketing towards customers' environment online 4.0 time (MRE1-MRE5) had validity more than 0.30 (absolute), factor loading and statistical significance [45] as in Table 3.

Table 3. The results of validity analysis.

Latent Variables	Observable Variables	Composite Weight (λ)			t	R^2
		b	SE.	Beta		
RBS	RBS1	1.000		0.728		0.530
	RBS2	1.239	0.146	0.832	8.510*	0.692
	RBS3	0.544	0.082	0.715	6.666*	0.511
	RBS4	0.658	0.139	0.682	4.734*	0.465
	RBS5	0.609	0.151	0.696	4.033*	0.484
RM	RM1	1.000		0.697		0.486
	RM2	0.832	0.192	0.721	4.333*	0.520
	RM3	0.682	0.191	0.698	3.571	0.487
	RM4	0.636	0.120	0.701	5.300*	0.491
MVC	MVC1	1.000		0.735		0.540
	MVC2	0.925	0.279	0.820	3.317*	0.672
	MVC3	0.679	0.105	0.793	6.467*	0.629
	MVC4	0.619	0.079	0.873	7.835*	0.762

MRE	MRE1	1.000		0.611		0.373
	MRE2	0.704	0.136	0.758	5.176*	0.575
	MRE3	0.683	0.126	0.738	5.421*	0.545
	MRE4	0.533	0.072	0.571	7.403*	0.326
	MRE5	0.622	0.093	0.676	6.688*	0.457

Notice: Setup parameter = 1, in position RBS1, RM1, MVC1, MRE1. There are no SE and t values.
*P<0.05

If considered in part of the structural model, it indicated that the causal relationship was at 0.05 level of significance: 1) level of buyers and providers relationship, relationship marketing toward customers' marketing value on online 4.0 digital time (p<0.05) (DE=0.317* and 0.329*) respectively; 2) the relation level between buyers and providers, relationship marketing had causal related both direct and indirect towards customers' relationship marketing on online digital 4.0 timing (p<0.05) (TE=0.730*, 0.612*) respectively; and 3) relationship marketing creation had causal related toward direct customers' environment relationship on online digital 4.0 timing (p<0.05) (DE=0.439*) as depicted as hypothesis conclusion from the research results shown in Table 4.

Table 4. Conclusion based on research hypothesis.

Research Hypothesis	Hypothesis Test Results	
	Influence	Accept/Reject
Hypothesis 1. The level of relationship between the buyer and the supplier has a causal relationship to the value creation of online customers in the time of Digital 4.0.	DE=0.317*	Accept
Hypothesis 2. The relationship management model has a causal relationship to the value creation of online customers in the time of Digital 4.0.	DE=0.329*	Accept
Hypothesis 3. The level of relationship between the buyer and the supplier has a causal relationship to the online customer relationship marketing environment in the time of Digital 4.0.	DE=0.591* IE=0.139*	Accept
Hypothesis 4. Creating marketing value has a causal relationship to marketing, the relationship with the online customer environment in the time of Digital 4.0.	DE=0.439*	Accept
Hypothesis 5. The relationship management model has a causal relationship to the environmental marketing of online customers in the time of Digital 4.0.	DE=0.468* IE=0.144*	Accept

*P<0.05

Furthermore, the forecasted efficacy indicated that the relationship marketing model towards customers' environment on online digital 4.0 timing had developed with validity [46]. Causal of squared correlation 0.801 x 100, which had a value of more than 40 percent, indicated that the developed model had the forecasting capability on relationship marketing towards customers' environment on online digital 4.0 timing as a good fit and acceptable statistical significance [47].
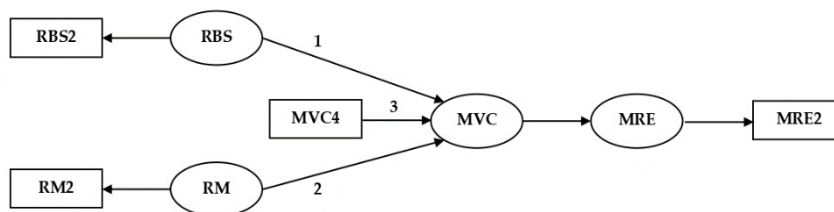
7. Recommendations

This research takes the crucial and prudent advice for practical purposes and also further research as follows:

E-commerce businesses should properly apply digital systems between buyers and providers, so there is not much change for personal contacts. Therefore, to create trust and credit that will enhance relationships, buyers and providers must follow such conditions or mutually commit and arrange accordingly. The joint meeting for operations report and continuous operations strategy formulation included setting up a complete software package website and extending it to a self-owned website in Thai and English for the international market. As the research results indicated, buyers' and providers' relationship and relationship marketing of both factors had direct and indirect impact forward customers' environment on online digital 4.0 timing (p<0.05) (TE=0.730*).

The online entrepreneurs and government and private sectors showed mutual participation in the providers and buyers relationship—businesses relationship for relationship marketing development for fairness and suitable conditions of beneficial delivery and operational cost. The effects will impact upon a variety of products to customers responses and covering their needs. Competent skills development for organization personnel, both technical and skill capability, including behavioral reactions toward digital working performance, buyers' communication, any necessary digital training needs, and business partnership enhancement needed for customer standard services effectively in operations systematically. In this action, ERP may be used for selective software mutually for buyers and providers agreements. This process will help for data linkage of the customer information base, customer behavior, or inventory level due to the research result indicating that relationship marketing modeling had direct and indirect effects on relationship marketing towards customers' environment on online digital 4.0 timing (p<0.05) (TE=0.612*).

E-commerce businesses should pay attention to business planning on taking marketing strategy, highlighting customer values for quality, price, emotion, and social benefits for customer responses, satisfaction, and loyalty. The surreal benefit for customer value in Digital 4.0 started for social marketing as a forming point in a business transaction hybrid for business and economic development, social community, and environment for business organization growth and sustainability where the results indicated that the creation of relationship marketing value had directly related that customers' environment on online digital 4.0 timing (p<0.05) (DE=0.439*). The model developed for online digital 4.0 within The Kingdom of Thailand proximity could be generalized for relationship marketing for customers' online was applicable for only the causal research model studies in Figure 3.

$$\chi^2 = 1,309.53, df = 459, GFI = 0.935, RMR = 0.044, RMSEA = 0.049$$

*P<0.05

Figure 3. The relationship marketing model analysis results for customers' environment online 4.0 Timing as causal relation on substantial impact.

The research recommendations for the relationship marketing towards customers environment digital 4.0 timing can be generalized for Thailand's environmentalist consumer online behavior aligned to (1) quality research through in-depth interviews on focus group experiment in order to find out insight customers' information for online-based information and also for systematic development and buyer-provider online application for customers' problem solution needs and wants in Digital 4.0; (2) The emphasis should be on customers' online purchasing behavior through platform marketing, internet-linked devices, time use span, day interval, and time spent; (3) There is a need to study on the problem of reflecting society on online customers' perspective matters between buyer and provider transaction; (4) A further study should pay attention to entrepreneurs in comparison with business-industry customers in practically significant online market data impacts on customers; (5) The relationship marketing on quality orientation should be studied and analyzed in the short and long term at each time interval for sustainable continuous relationships.

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