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Development of Supply Chain Performance of Thailand Juice Manufacturers: The Mediating Role of Customer Loyalty

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Abstract

This research aims to 1) survey the levels of customer relationship management (CRM), customer loyalty (LOY), and supply chain performance (SCP), 2) to examine the direct effect of CRM and LOY on SCP, and 3) to examine the indirect effect of CRM on SCP by the mediation effect of LOY of the Juice manufacturers in Thailand. The study used quantitative research method. The sample was 290 Juice manufacturers listed in the database of the Department of Industrial Works, Ministry of Industry of Thailand, arisen from 10 times of the parameters in the research model and stratified random sampling by area. The research instrument was a questionnaire. The statistics used for data analysis were frequency, percentage, mean, standard deviation, confirmatory factor Analysis, and structural equation modelling. The results showed that the CRM, LOY, and SCP were at a high level. In addition, CRM and LOY had a positive direct effect on SCP and CRM had a positive indirect effect on SCP by the mediation effect of LOY. These findings can be guidelines for entrepreneurs to improve the company's supply chain performance. Government agencies, besides, can use the research results to formulate a policy for helping entrepreneurs. Moreover, academicians and interested people can bring the findings to study and conduct additional research in the future.

Keywords: Customer Relationship Management, Customer Loyalty, Supply Chain Performance

Type of Article: Research Article

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การพัฒนาสมรรถนะชั้พพลายเชนของธุรกิจการผลิตน้ำผลไม้ในประเทศไทย: บทบาทในการส่งผ่านความภักดีของลูกค้า

ปรีชา วรารัตน์ไชย¹, วิภาวดี อุนยรวงษ์^{2*} และ ทิพวรรณ จันทมนีโขต³

บทคัดย่อ

งานวิจัยมีวัตถุประสงค์เพื่อ 1) สำรวจระดับการบริหารลูกค้าสัมพันธ์ ระดับความภักดีของลูกค้า และระดับสมรรถนะชั้พพลายเชน 2) เพื่อตรวจสอบอิทธิพลทางตรงของการบริหารลูกค้าสัมพันธ์และความภักดีของลูกค้า ต่อสมรรถนะชั้พพลายเชน และ 3) เพื่อตรวจสอบอิทธิพลทางอ้อมของการบริหารลูกค้าสัมพันธ์ต่อสมรรถนะชั้พพลายเชน โดยมีอิทธิพลส่งผ่านความภักดีของลูกค้าของธุรกิจการผลิตน้ำผลไม้ในประเทศไทย การศึกษาใช้วิธีการวิจัยเชิงปริมาณ กลุ่มตัวอย่างในการวิจัยครั้งนี้ คือ ธุรกิจอุตสาหกรรมการผลิตน้ำผลไม้ที่มีรายชื่อยื่นฐานข้อมูลของกรมโรงงานอุตสาหกรรม กระทรวงอุตสาหกรรมแห่งประเทศไทย จำนวน 290 บริษัท ที่ได้จากการคำนวณขนาดกลุ่มตัวอย่างจาก 10 เท่าของเส้นพารามิเตอร์ในโมเดลการวิจัย และสุ่มตัวอย่างแบบแบ่งชั้นภูมิตามพื้นที่ เครื่องมือที่ใช้ในการวิจัย ได้แก่ แบบสอบถาม สถิติที่ใช้ในการวิเคราะห์ข้อมูล ได้แก่ ความถี่ ร้อยละ ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน การวิเคราะห์องค์ประกอบเชิงนัย และโมเดลสมการโครงสร้าง ผลการวิจัย พบว่า ระดับการบริหารลูกค้าสัมพันธ์ ระดับความภักดีของลูกค้า และระดับสมรรถนะชั้พพลายเชนอยู่ในระดับสูง นอกจากนั้น การบริหารลูกค้าสัมพันธ์และความภักดีของลูกค้ามีอิทธิพลทางตรงเชิงบวกต่อสมรรถนะชั้พพลายเชน รวมทั้ง การบริหารลูกค้าสัมพันธ์มีอิทธิพลทางอ้อมเชิงบวกต่อสมรรถนะชั้พพลายเชน โดยมีอิทธิพลส่งผ่านความภักดีของลูกค้า ข้อค้นพบดังกล่าว สามารถเป็นแนวทางให้ผู้ประกอบการในการปรับปรุงสมรรถนะชัพพลายเชนของบริษัท และหน่วยงานของรัฐสามารถนำผลการวิจัยที่ได้ไปกำหนดเป็นนโยบายสำหรับช่วยเหลือผู้ประกอบการ รวมถึงนักวิชาการและผู้สนใจสามารถนำผลการวิจัยไปศึกษาและทำการวิจัยเพิ่มเติมในอนาคต

คำสำคัญ: การบริหารลูกค้าสัมพันธ์ ความภักดีของลูกค้า สมรรถนะชัพพลายเชน

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1. Introduction

The Juice manufacturing business is one of the businesses that are very important to the economy of Thailand. At present, the private sector has invested in both small and large Juice businesses. Currently, Juice consumption in Thailand tends to grow slightly in line with the economic conditions since the major Juice market, including soft drinks, energy drinks, beer, and spirits, begin to saturate. The government, besides, has various measures to reduce the rate of alcohol and high sugar Juice consumption. In addition, the purchasing power of the basic consumer group is still low. This is a deterrent to market growth. In terms of foreign market, there is an opportunity to grow gradually following the market expansion of Thai Juice manufacturers to important target markets such as Vietnam and Myanmar, causing Thai manufacturers to progressively recognize more revenue from production bases abroad, but exports from production bases in Thailand may deteriorate steadily (Krung Research, 2020).

The enhancement of supply chain performance is the key success of manufacturers in Thailand, as a result, studying on its antecedents is essential (Aunyawong et al., 2020). Customer Relationship Management (CRM) is an important guideline in the field of marketing operations because by making customer lifetime value, the company can reduce the cost of investing in public relations budget to start finding new customers all the time and use the remaining costs from this

to maintain a better customer base. This is a measure of the value of customers who are likely to become customers in the future suppliers since it will allow the organization to have a higher business growth rate and create business opportunities (Phrapratanporn & Wangkananon, 2015), affecting profits and creating a competitive advantage (Auka, 2012). In addition, CRM can also help to develop executive decision making with precision, analyze short-term and long-term problems, and plan a better marketing. This will lead to increased customer satisfaction (Tohidi & Jabbari, 2012). Past studies have shown that CRM activities can improve business performance, such as sharing information (Song and Liao, 2019), long-term partnerships with customers (Shin et al., 2019), customer involvement (Li et al., 2019), customer-company collaboration (Pinho, 2016), and the use of various technologies to support any activities (Román & Rodríguez, 2015).

Furthermore, past studies has shown that taking action on customer relationship is one of the fundamental ways to build customer loyalty, in addition to commitment, trust and satisfaction with the company (Evanschitzky et al., 2006; Delgado-Ballester & Munuera-Aleman, 2001). This is consistent with Lovelock, & Wirtz, (2007)'s Wheel of Loyalty approach to building loyalty to customers by dividing the strategy into 3 parts: building the basis of loyalty, creating a strong loyalty, and reducing what causes change of mind. So if entrepreneurs in the Juice manufacturing business in Thailand

continue to build relationships with customers, it should help them improve supply chain performance to adapt to the slowdown economy because CRM activities focus on integration between customers and manufacturers as well as suppliers. This creates a commitment between supply chain members which can enhance the supply chain performance of the business (Aunyawong et al., 2018).

As aforementioned above, the researchers are therefore interested in studying the CRM model that influences Thailand Juice manufactures supply chain performance by using quantitative research method. The results of this research are expected to be a guideline to improve supply chain performance of the Juice manufacturers in Thailand to survive in the economic slowdown. It is also a guideline for the government to direct policies to help Thailand's Juice manufacturing industry to be sustainable in the future. When the Juice manufacturing industry in Thailand is competitive, it will contribute to the economic development of the manufacturing sector of the country and lead to Thailand 4.0.

2. Research's Objective

This research aims to 1) survey the levels of customer relationship management (CRM), customer loyalty (LOY), and supply chain performance (SCP), 2) to examine the direct effect of CRM and LOY on SCP, and 3) to examine the indirect effect of CRM on SCP by the mediation effect of LOY of the Juice manufacturers in Thailand.

3. Hypothesis

The study proposes 3 hypotheses as follows:

Hypothesis 1: Customer Relationship Management has a positive effect on customer loyalty.

Hypothesis 2: Customer Relationship Management has a positive effect on customer loyalty.

Hypothesis 3: Customer loyalty mediates the effect of Customer Relationship Management on supply chain performance.

4. Conceptual framework

As shown in Figure 1, the conceptual framework portrayed causal variable - customer relationship management, mediation variable – customer loyalty, and effect variable – supply chain performance, comprising 3 latent variables and 13 observed variables.

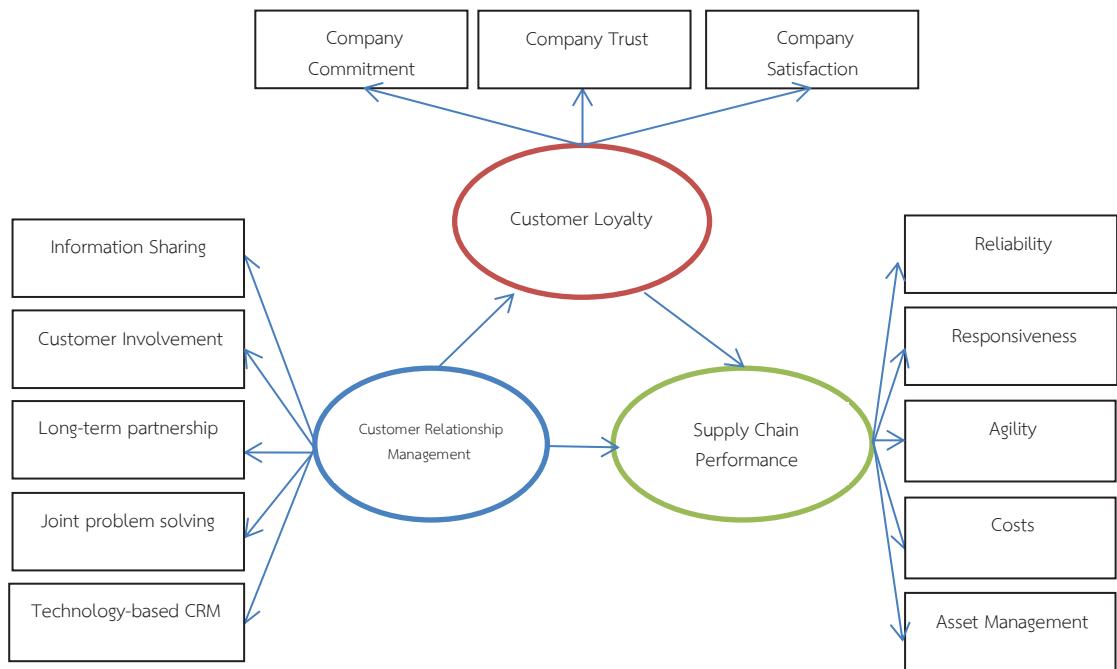


Figure 1 Conceptual Framework

5. Literature review

5.1 Supply Chain Performance

Supply chain performance (SCP) refers to the evaluation of every process of supply chain management from the import of raw materials into the production process, the process of ordering, until delivery to the customer (Gagalyuk et al., 2013; Yul & Kyu, 2015). Supply chain performance measurement and development play an important role in helping organizations to enhance their capabilities in management, such as reducing inventory, increasing productivity or reducing waste in work processes (Odongo, 2017). It is necessary to develop various activities with partners to enhance supply chain performance (Singhry, 2018).

In the design of supply chain performance index (SCPI), various performance aspects related to the supply chain were taken into account. It has been analyzed into 5 important competencies: Reliability Responsiveness, Agility, Cost, and Asset Management Efficiency, as suggested by Supply Chain Council (2017).

For measuring supply chain performance in the above dimensions, assessors can know the strengths, weaknesses, and risks, that exist within the organization's supply chain. This will lead to the improvement and development of an appropriate supply chain system to compete sustainably (Supply Chain Council, 2017).

5.2 Customer Relationship Management

Lawson-Body and Limayem (2004) identify that CRM is the management of a

sequence of important events in order to build a good relationship with customers. Moutot and Bascoul (2008) portray that the contemporary economy characterized by globalization, increasing competition, and advancements in communications and information technology are forcing companies to move away from traditional marketing principles and take a customer-centric approach by focusing on CRM. Tohidi and Jabbari (2012) explain that CRM is one of the most useful rules related to managers and clients.

Rodriguez et al. (2015), Sirbel (2012), Grégoire et al. (2006). Saleem et al. (2017), Charband and Navimipour (2016), Nam et al. (2018), Cao and Gruca (2005), Sin et al. (2005), and McEvily and Marcus (2005) represent that CRM components are related to customer orientation. Consistently, Lin et al. (2010) summarized the five components of CRM that received the most attention as follows: 1) Information sharing - the way companies and customers share information to make various work processes effective, 2) Customer involvement - the company's activities in relation to customer relationship management to build relationships with customers, 3) Long-term partnership - the cooperation between company and customers to maintain a relationship with each other in the long run, 4) Joint problem solving - the company allows customers to participate in the proposal or collaborate in solving the problem, and 5) Technology-based CRM - the introduction of various technologies used for better CRM.

5.3 Customer Loyalty

Aaker (1991) reveals that customer loyalty (LOY) is a sign of consumer loyalty to a brand. Dick and Basu (1994) argue that consumer loyalty is reflected by repurchasing from a good attitude for the brand. Lau (1999) Jacoby and Chestnut (1978) identifies that customer loyalty is a measure of how successful an organization's goals are and it is essential to maintain this customer segment. Gamble et al. (1989) divided loyalty into emotional loyalty and rational loyalty, while Ramaswami and Arunachalam (2016) proposed attitudinal loyalty. Therefore, marketing planning should focus on building loyalty among consumers (Pearce, 1997; Evanschitzky et al., 2011) since customer loyalty is an important goal of marketing of any businesses (Wirtz, 2018).

Evanschitzky et al. (2012) states that customer loyalty consists of three elements: 1) Company commitment - a state that involves both emotional and rational referring to a company in a positive way and the desire to continue to purchase the company's products (Strellioff, 2003; Evanschitzky et al. 2006), 2) Company trust - a confidence and willingness to rely on the company as a partner (Ndubisi, (2007); Delgado-Ballester & Munuera-Aleman, 2001), and 3) Company satisfaction - the level of individual feeling as a result of purchasing quality goods and receiving good service from the company (Anderson & Sullivan, 1993; Cronin & Taylor, 1992; Kotler, 2003).

5.4 Related Research

Recent studies found that CRM has a positive effect on customer loyalty of companies operating on mobile services (Hassen & Abouaish, 2018), manufacturing industry, service industry, chemical industry, pharmaceutical industry (Pozza et al., 2018), and banking services (Santouridis & Tsachtani, 2015). In addition, it was found that CRM had a positive effect on the business performance (Soltani et al., 2018), in particular medium and large businesses (Kubina & Lendel, 2015). Furthermore, customer loyalty leads to improved supply chain performance of enterprises (Ghasemi et al., 2017; Ghazian et al., 2016).

6. Methodology

6.1 Research method

This study was based on explanatory quantitative research to study how CRM affect customer loyalty and supply chain performance, including the mediation effect of customer loyalty.

6.2 Population and sample

Business of Juice manufacturing industry (Business owner Purchasing Manager Marketing Manager production manager) listed in the database of the Department of Industrial Works Ministry of Industry of Thailand 324 companies (Department of Industrial Works, 2020). The researcher took stratified sampling by area using proportional allocation to select 290 respondents as the sample because the populations in the subgroups had the same

business characteristics (Wanichbancha, 2010). The sample size of this research was calculated by calculating the sample size accordingly. The condition for using statistical analysis of the Structural Equation Modeling (SEM) is that the sample size is not less than 10 times the parameter line in the model because it makes the variables have a more normal distribution (Kline, 2011). There were 29 parameter lines in this study, so no less than or equal to 290 samples were required.

6.3 Research Instrument

The questionnaire was used as research instrument. For the questionnaire, the CRM items were used from the scale originally developed by Sin et al. (2005), McEvily and Marcus (2005) and Lin et al. (2010). The customer loyalty items were used from the scale originally developed by Beatty et al. (1988), Evanschitzky et al. (2006) Berry, (1993) Delgado-Ballester & Munuera-Aleman (2001), Anderson and Sullivan (1993), Cronin & Taylor (1992) and Oliver (1999). The supply chain performance items were used from the scale originally developed by Aunyawong et al. (2020). After the questionnaire passed Index of Item-Objective Congruence or IOC, it was tried out with 30 non-sample managers to check reliability by considering internal consistency based on Cronbach's alpha coefficient. For the interview form, it was examined by specialists before gathering data.

6.4 Data Collection

The data was collected from the respondents in 6 regions of Thailand: Central

(141 cases), Northeastern (66 cases), Eastern (37 cases), Western (28 cases), Northern (12 cases) and Southern (6 cases).

6.5 Data analysis

Data analysis of all background information of the sample was analyzed by frequency and percentage. Since all variables in research conceptual framework were continuous variables, the study used Mean, S.D., Skewness, and Kurtosis to study the distribution characteristics of variables. The interpretation of mean in measuring customer relationship management, customer loyalty and supply chain performance was considered from 5 levels of estimation based on Best and Kahn (2009) approach.

The appropriateness of the meta-correlation was investigated by considering the Kaiser-Meyer-Olkin (KMO) value, > 0.5 , and the Bartlett Test of Sphericity. They must have significant statistical significance (Sig.) 0.000, indicating that this set of variables is suitable for confirmatory factor analysis (CFA). Multicollinearity by correlation coefficient (r) was used to find the liner relationship between the variables. The correlation value could be not greater than ± 0.80 . The correlation coefficients between variables in SEM not to exceed $+0.80$ were considered. CFA was used to test the relationship between observed variables of 13 observed variables and 3 latent variables, while path analysis was used to test causal relationship. The model fit measurement was based on the eight indices (chi-square: $P>0.05$, relative chi-square <2 , GFI, AGFI, TLI,

& CFI >0.95 , RMR & RMSEA <0.05) to test the consistency of the model based on hypothesis and empirical data. The researcher used these indices to validate the conformance of the model. If the calculated values do not meet the criteria or are unacceptable, as suggest by Diamantopoulos and Siguaw (2000) the model must be adjusted.

7. Results

For testing for measurement model, this study considered the normal distribution of values from the Skewness values of -3 to +3 and Kurtosis values of 3. It also found that all factor loadings of 1st order CFA were between 0.3-1.0 and Cronbach's Alfa coefficients were greater than 0.7 ($\alpha=0.83-0.89$). These values were acceptable as proposed by Wiratchai (1999). The goodness of fit by 2nd order CFA, besides, was passed in eight indices, as suggested by Diamantopoulos and Siguaw (2000). These indicated that the measurement models were acceptable.

For testing result of the causal relationship model, as shown in Table 1, the effects of CRM on LOY depicted R-Square of .762 or CRM explained the variance of LOY by 66%. The effect of CRM and LOY on SCP portrayed R-square of 0.757 or CRM and LOY explained the variance of SCP by 61%.

Path analysis by structural equation modeling was used to test the 3 hypotheses comprising the proposed model of the effect of CRM on LOY, the effect of CRM on SCP, including the mediating role of LOY on the

effect of CRM on SCP of Juice manufacturers in Thailand. The results found that hypotheses 1-3 were supported with the statistical significance at a level of $P\text{-value} < 0.001$. The t-values of all factors were meet the acceptable criterion of C.R. or $t\text{-value} > 1.96$ ($t\text{-values} = 13.521\text{-}20.301$), as suggested by

Henseler et al. (2009). The model fit analysis results were acceptable (Chi-square= 52.188; degree of freedom=43; $P=.167$; relative chi-square=1.226; GFI=.976; AGFI=.957; TLI=.996; CFI =0.998; RMR=.011; RMSEA=.025). The results are presented in Figure 2.

Table 1 Total effects, direct effects, and indirect effects

Dependent Variables	R^2	Independent Variables					
		Customer Relationship (CRM)			Customer Loyalty (LOY)		
		TE	DE	IE	TE	DE	IE
Customer Loyalty (LOY)	.762	.853***	.853***	-	-	-	-
Supply Chain Performance (SCP)	.757	881***	627***	254***	312***	312***	-

8. Discussion and conclusions

The findings found that CRM has a positive direct effect on customer loyalty of Juice manufacturers. This is in line with the hypothesis, consistent with Hassen and Abouaish (2018), which found that CRM with a focus on social-focused marketing affects the willingness of customers to switch service providers, the level of customer satisfaction with perceived emotional value, and confidence in the company. This will attract current customers to build loyalty to the company and attract potential customers as well. In addition, the findings are in line with Pozza et al. (2018) which portray that the adoption of CRM has a significant effect on customer acquisition, customer growth, and customer loyalty unequally because each company

has different objectives or goals, depending on geographic differences. The results, besides, are in agreement with Santouridis and Tsachtani (2015) suggesting that corporate resources for CRM is most important since it has a positive effect on every phase of the customer lifecycle process. Moreover, human resources have been proven to have a significant effect on early stage (initiation, customer acquisition, customer recall) and the middle (customer care and customer retention) of the customer lifecycle.

Moreover, the study found that CRM has a direct positive effect on the supply chain performance of Juice companies. This is in line with the hypothesis and Song and Liao (2019), which shows that CRM activities can enhance business performance, whether

it is sharing information such as marketing, production plans, and product information. In addition, Shin et al., (2019) consistently found that long-term customer partnerships, such as the company's commitment to improving management according to customer recommendations or providing products and services according to the needs of customers in a systematic way, can improve business operating performance. This is consistent with Li et al., (2019) which depict that engaging the company's key customers in various company activities, such as editing products, auditing company's operations, and collaboration between customers and the company can improve the operational performance of the organizations.

CRM, furthermore, has a positive indirect effect on the supply chain performance of Juice manufacturers, through the mediation effect of customer loyalty of Juice business entrepreneurs. This is consistent with hypothesis and Ghasemi et al. (2017) which found that CRM with customer-centric organizational systems allow companies to access customer data and overcome obstacles. This can build customer loyalty and satisfaction, reflecting supply chain performance efficiently. The findings, besides, are in line with Ghazian et al. (2016) which found that CRM in various dimensions, including internet services, customer support, and marketing support, have a positive effect on customer response in terms of price response, brand development, brand preference, and

customer purchase intention, which lead to higher profits in doing business.

9. Recommendation

9.1 Recommendations for implementing

As results mentioned above, the study recommends that Juice manufacturers should mostly focus on CRM in terms of Technology-based CRM, customer loyalty in terms of company trust, and supply chain performance in terms of agility, coupled with other dimensions such as information sharing, customer involvement, long-term partnership, joint problem solving, company commitment, company satisfaction, reliability, responsiveness, cost, and asset management efficiency. For policy recommendations, government organizations and the private sector should jointly support the development of Juice manufacturers to have quality in their business operations, whether it is to transfer knowledge to entrepreneurs in the form of training, seminars, distance learning, etc. The public agencies should provide advices on effective CRM, building customer loyalty, and improving supply chain performance. The government sector, moreover, should jointly invest with Juice manufacturers who need funding assistance and cooperation between various private sectors to help small and medium enterprises to promote the stable country's economy.

9.2 Future research direction

For further study, the research should be conducted using qualitative method and in order to draw expressive conclusion.

Moreover, in the next study, the data should be collected from both company and customer sides as the results may be different from self-evaluation by firms. Additionally,

future research should consider moderating effect and any antecedent factors to allow the momentous findings.

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