A MODEL OF A RUBBER FARMER INSTITUTE'S SUSTAINABILITY: RUBBER FARMER INSTITUTE AS A JURISTIC PERSON IN THAILAND

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ABSTRACT

This purpose of this research was to investigate the sustainability of rubber farmers in Thailand, from the individual perspectives and from the cooperatives perspectives. The study was geared towards developing a model for rubber farmers' institutes' sustainability, considering rubber farmers institute as a jurisdiction entity in Thailand. The study was vital considering the importance of rubber farming in Thailand, in terms of household income and general economic contribution. At the same time, most rubber farmers are still underprivileged, and the lack of knowledge of marketing, finance, technology, business, and economic opportunities. Furthermore, they are facing several problems such as loss from low product prices, high production costs, and natural disasters. This research therefore addressed these issues by developing a sustainability model. The research was guided by two major objectives; (i) relationships of the variables in the model of sustainability; and (ii) factors affecting the sustainability of the rubber farmer. The research was conducted using quantitative methodology, using primary data collected from sample respondents. The sample size comprised of 436 individual rubber farmers' respondents, and 434 cooperatives respondents. The data was analyzed using statistical techniques, including descriptive statistics, correlation analysis, reliability and validity analysis of the data, confirmatory factor analysis (CFA), and structural equation modeling (SEM).

The findings of the research revealed that for individual rubber farmers, brand image and loyalty had a positive and significant influence on the rubber farmer's sustainability in Thailand.

The sustainability was also found to be influenced significantly, positively but indirectly by trust, satisfaction and brand image, through loyalty as a mediator. Other results were positive effect of brand image on perceived value, significant positive effect of trust on satisfaction, significant positive effect of perceived value, and significant positive effect of trust

on loyalty. With regard to rubber farmers which are cooperatives, the sustainability of rubber farmers was influenced directly, positively and significantly by brand image, and loyalty. Additionally, the rubbers farmers' sustainability is influenced by indirectly, positively and significantly satisfaction, trust and brand image. It was also found that satisfaction and trust significantly and positively influenced loyalty, while satisfaction was negatively influenced by perceived value but positively influenced by trust.

The research recommended that in order to improve the rubber farmers sustainability in Thailand, the aspects that should be enhanced include brand image, loyalty, and satisfaction of the farmers. For the brand image, the specific factors to improve include brand identity, brand personality, and activity; for the loyalty, the specific factors to improve include behavior and attitude; while the specific factors to improve for satisfaction include economics, knowledge, stability, and participation.

For the brand image, the specific factors to improve include brand identity, brand personality, and activity; for the loyalty, the specific factors to improve include behavior and attitude; while the specific factors to improve for satisfaction include economics, knowledge, stability, and participation.

For the case of individual rubber farmers

Rubber farmers groups in Thailand can leverage on the results to understand the needs of their members by understanding the relevance of the brand image, perceived value and build trust which can lead to sustainability of the group. The study advocates that the loyalty of customers regarding the rubber farmers' institutes would increase the associated sustainability.

For the case of rubber farmers' cooperatives

Rubber farmers' cooperatives need urgent re-evaluation and improvement.

There is need to motivate and be a model of stability and sustainability to convince small rubber farmers to become the members and participate in the activities. To improve the rubber farmer cooperatives sustainability, brand image, loyalty, and satisfaction should be leveraged.

For The Rubber Authority of Thailand

Ministry of Agriculture and Cooperatives by the Rubber Authority of Thailand should apply "A Model of a Rubber Farmer Institute's Sustainability: Rubber Farmer Institute as a Juristic Person in Thailand" obtained from this research to be applied as the policy of Thailand's rubber organization and strategy. For maximum benefit to rubber farmers, rubber farmers' institutes, rubber entrepreneurs and the Rubber Authority of Thailand.

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CHAPTER 1
INTRODUCTION

1.1 Background and Significance of the Research

Thailand's rubber farmer institutes, a vital farmer institutes, play a crucial role in determining the sustainability guideline of rubber plantation occupation, especially for small groups of rubber plantation farmers in terms of production, processing, and marketing. The rubber farmer institutes have two groups. The first group is rubber farmer institutes that are a corporation such as associations and co-operatives, groups of farmers. The second group is rubber farmer institutes that are not a corporation such as groups of rubber plantation farmers and business groups.

According to Section 4 of the Rubber Authority of Thailand Act, B.E. 2558 (2015), rubber farmer institutes have to register with the Rubber Authority of Thailand for obtaining supports and assistance in organizing activities related to Para rubbers. Recently, 789 groups of the farmer have registered as rubber farmer institutions (Rubber Authority of Thailand, 2017). Nevertheless, the past activities organized by the rubber farmer institutes could not motivate and be a model of stability and sustainability to convince small rubber farmers to become the members and participate in the activities, due to many factors. The external factors are economic situations, societies, politics, cultures, and regions. There are two types of internal factors. The first type is the members; for example, they have different behaviors of members in various areas. They also set the various ultimate goals in the establishment of farmer institutions that affect the motivation to become a member of farmer institutes, the development of their participation in determining the development guidelines for farmer institutions that create stability and sustainability. The second type deal with the structure of the farmer institutes, such as rational criteria, establishment objectives, implementation process, budget, duration, target, and implementation guidelines.

As highlighted earlier, many problems have affected the livelihood of rubber farmers and the activities of the farmer institutions, and the government has been requiring resolving the issues of rubber prices every year as follows:

"More than 200 rubber farmers from Surat Thani Province gathered to submit the letter to the Prime Minister through the provincial governor. They demand that the rubber price should be at 80 Baht per kilogram. They also compel to gather again if there is no progress within seven days" (Manager, 2014).

"The leader of Trang Province's small rubber farmer network claimed that he would discuss with other leaders of rubber farmers in all 14 southern provinces on Jan 12 so that they

could conclude their demands proposing to the government if the policy is not effective." (Thairat Online, 2013).

"More than 1,500 members of the rubber network in Songkhla, Satun and Phatthalung provinces, led by Mr. Boonsong Nubthong, President of Thai Federation of Rubber Farmers, along with Mr. Chayan Sangkhapaitoon, Chairman of the Farmer Council, Songkhla Province, Mr. Preecha Sukkasem, Mr. Kajbandhit Rammak, and Mr. Phiphat Jueala-ong, gathered at Khuha Intersection, Rattaphum District, Songkhla Province" (Thealami, 2014).

From the past situations, the rubber farmer institutes called for the government to help them. It showed the lack of strength and ability to survive as if the farmer institutions were not able to be a center to solve problems for small farmers. Besides, the world rubber price situation has been volatile and uncertain, and the prices of natural rubbers depend on the price in the futures market with the speculation of market investors. Under the situation of the global rubber production in 2015, there were 28 rubber-producing countries with 77.60 million rai in total, and the total production was at 12.0 million tons (Office of Agricultural Economics, 2015). Thailand is on No. 2 country with the most rubber plantation area (the rubber plantation area in Thailand is 22,176,714 million rai, followed by Indonesia (Rubber Research Institute, The Rubber Authority of Thailand, 2017). Moreover, Thailand is the world's largest producers and exporters of natural rubbers, and its natural rubber production is 4,473,370 million tons per year, with an annual export of 3,749,456 tons (Rubber Research Institute, 2014). Under those circumstances, the rubber farmer institutes who are the owner of products do not have opportunities to participate in setting the trading prices of rubbers.

The farmers, a large group of people in the country, are still underprivileged, and the lack of knowledge of marketing, finance, technology, business, and economic opportunities. Furthermore, they are facing several problems such as loss from low product prices, high production costs, and natural disasters. All government agencies are seeking to find ways to help farmers to solve those problems. One of the methods that most agencies have implemented is the establishment of farmer institutions by grouping farmers to solve such problems. The farmer institutes can fulfill activities or run businesses to serve members. For example, they provide information on planting; maintain supplying of fertilizers, production of planting materials, member loans, money deposits, collecting products from members to sell, processing, and supplying products to sell to members, etc. (Rubber Authority of Thailand, 2017). The government agencies will support these activities by allocating budgets and projects to farmer institutions to enable farmers to earn income circulated within their households and can be self-reliant in a sustainable manner.

Although the institutes play an important role in promoting and assisting farmers, other factors cause the farmer institutions to lose their strength and are not sustainable. The main key

factor is the motivation of small farmers to become members of the rubber farmer institutes, the rubber prices that the farmer institutions purchased from members, dividend income paid by the farmer institutes, average refunds, and welfares. Other key factors are the convenient traveling to sell products, the honesty of the farmer institution committee, and the past participations that could not achieve the given policy or goal. All these factors make the farmer to be unaware of the importance of farmer institutions and lack their confidence in farmer institutes; also, the farmers assumed that the grouping could not help or solve their problems. Some groups of the farmers do not register as a corporation due to several difficulties. For instance, they not only have to prepare income and expense accounts but also have to encourage the members to register as a juristic person. With the status of non-cooperation, the framers cannot fully conform to legal acts. The management lacks transparency because some members can manipulate the advantages. For instance, they can take benefits from the rubber prices that the farmer institutions purchased from members, the dividends income paid by the farmer institutes, the average refunds, the welfares, and the convenience in traveling to sell products, and the integrity of the farmer institution committee and members, etc. Also, regarding the auction market of rubber products, there is a competition for launching the market, causing the separation of group members, and the government agencies promoting both policy and budget lack continuity, causing farmers not to see the benefits of farmer institutions. These reasons are the main factors of motivation that directly affect small farmers, leading to applying for membership of rubber farmer institutes. The uncontrollable external factors are other issues for the stability and sustainability of rubber farmer institutes, including economic conditions, societies, politics, cultures, and crude oil prices, exchange rates between Thai Baht and other currencies, stock market movements, gold prices, climate conditions, natural disasters and speculation in the rubber futures market. When the rubber farmer institutes are stable and sustainable under a successful model of establishment, it will result in gathering members, products, dividends, working capital, brainstorming, and the concept of activity.

If it initiates under the plan, it will not only create the stability and sustainability, stable and sustainable situation of natural rubber prices but also affects the livelihood of rubber farmers. It also strengthens the sustainability of rubber farmer institutes.

The research on “Factors Affecting the Sustainability of the Rubber Farmer Institutions that is a corporation” is under Section 8 (3) of the Rubber Authority of Thailand Act, B.E. 2558 (2015). The act aimed to assist rubber farmers, rubber farmer institutes, and rubber business operators in terms of finance, manufacturing, processing, industry, marketing, business operations, and other related operations. The act also aimed to improve their income and quality of life. Additionally, this research is under the Master Plan (2017-2021) of the Rubber Authority of Thailand Development, Strategy 2: the development of rubber throughout the entire supply chain and value chain. It is also related to Tactic 2: Establish a solid foundation to increase the

level of competitiveness, and Tactic 3: Increase the level of income and quality of life of all stakeholders. (Rubber Authority of Thailand, 2017).

Consequently, the research on "Factors Affecting the Sustainability of the Rubber Farmer Institutions that is a corporation" is research that its results will be applied to create a model of a stable and sustainable rubber farmer institute. This research can influence other farmer institutions both in current operations or new establishment. The farmer's institutions to apply the model of farmer institution created in this research for operating the rubber business and developing the rubber industry operations, including the development of the rubber industry and the participation in the pricing of rubbers in the market and further resulting in the stability and sustainability of the rubber farmer institutions.

The Rubber Fund Cooperative, one of the farmer institutions, was created by the impact of the economic downturn. The framers had precipitated into the monopoly structure of the market, so they do not have any power to negotiate with the unfairness of selling rubbers. The farmers, therefore, gathered to call for the government to solve the problems. Thus, the pilot project was initially established in 1993 to allow the project to increase the value of rubber products, increase the income and encourage self-reliance with strength and sustainability in the form of a co-operative with a status of the juristic person. (Rubber Authority of Thailand, 2017). The Office of the Rubber Replanting Aid Fund established the drying and smoking rubber plant in terms of cooperative gathering small farmers to run the business. The government, therefore, had a duty to subsidize the budget of the establishment of physical and academic support, production, technology, and funding sources. However, the performance after the establishment cannot meet demand, and the production of dry rubbers is wholly inadequate since the framers collect fresh latex and raw rubber sheets to resell to merchants and other businesses. Farmers lack knowledge and management skills, cooperation, and a correct understanding of the system of co-operative. For this reason, the government has to pay more contributions and provide more assistance, resulting on the contrary to the objective of its establishment.

In 2011, the rubber prices were a crisis, fluctuated, and continuously decreased. The government, therefore, implemented a project to develop the potentials of farmer institutes to maintain the rubber prices and manage rubber stocks. The objective of the project is to stabilize rubber prices by delaying the release of rubbers to the market. When the price has fluctuated, and the government provided the loan used to buy fresh latex / raw rubber sheets/cup lumps to be processed or sold to the Rubber Estate Organization (R.E.O) for processing. The farmer institutes and R.E.O could keep the rubbers and sell them when the prices were reasonable or at approximately 120 Baht/kg. From the report of random inspections on farmers' institutions participating in the project of the State Audit Office of the Kingdom of Thailand. (Rubber Authority of Thailand, 2017). It concluded that the performance did not meet the objectives set

forth as below details:

1) 52.63% of rubber products were not processed as specified since the farmer just collected raw rubber sheets and cup lumps to sell to the R.E.O. The 47.37% processed was not caused by the project, but the products had been continuously developing earlier. (Rubber Authority of Thailand, 2017).

2) The business operations did not develop. Among 19 participating farmer institutes, 10 of them did not have any activity since participating in the project, and the other 9 of them organized activities during the project period and stopped when the purchased program terminated in terms of the development of rubber gathering and trading as well as product quality management. A maximum of 15% of them developed. Besides, the storage of rubbers for selling at reasonable prices did not conduct, causing the oversupply of rubber in the market and resulting in a burden on government agencies. (Rubber Authority of Thailand, 2017).

3) The management of rubber inventories was ineffective throughout the cycle. (Rubber Authority of Thailand, 2017).

4) The subsequent change of rules that allow the non-juristic person farmer institutes to join the project caused the number of farmers and the number of rubbers to purchase beyond the estimate calculated during the beginning of the project. These show that residual rubber that could not store in the warehouse; the project needed to find additional warehouses to support a large volume of rubbers. Nonetheless, it was still insufficient to meet the demands. (Rubber Authority of Thailand, 2017).

5) The storage of rubbers failed to meet the established criteria and the standard since the storage premises were dusty and humid. Furthermore, the emplacement made the deformed products, and the method of releasing stocks was inexplicit. (Rubber Authority of Thailand, 2017).

6) Corruption gap - The result report, the government has to provide more expenditure, the budget must allocate to subsidize farmers who suffered from encounter lower rubber prices, and the institutions lacked credibility. (Rubber Authority of Thailand, 2017).

Therefore, the activities of farmer institutions begin with the members of the rubber farmers so that they could see the benefits of grouping and participation in the development of management. For example, farmer institutions must strengthen motivation and credibility to convince the farmers to become members of the institutions.

This study was conducted to find out the motivation of individual rubber farmers who applied to be a members of the Rubber Farmers Institute. And would like to know the causes of sustainability of the Rubber Farmer Institute and would like to contruc a model of sustainability of the Rubber Farmer Institute in Thailand and other countries.

Apart from the difficulties, the maintaining of strength and stability in the long-term is

the most important. The Conceptual model of the research covers the brand image, perceived value, corporate reputation, loyalty, satisfaction, and trust under useful corporate governance principles. Thus, this can lead to effective operational processes and the connection of operations. In each aspect, multiple organizations may jointly take responsibility because it is a mechanism for resolving uncertainty issues. It is also crucial to enhance the development process of the country's economy and society for sustainable growth.

1.2 Research Questions

1) What are the relationships of the variables in the model of sustainability in rubber farmer institutes that are a corporation?

2) Which factors have a direct and indirect effect on the sustainability in rubber farmer institutes that are a corporation?

1.3 Research Objectives

1) To study the factors of failure of the rubber farmer institutes those are corporation.

2) To study factors affecting the sustainability of the rubber farmer institutions those are corporation.

3) To study the factors that lead to the guidelines to create a model for strengthening the rubber farmer institutes and make them sustainable.

1.4 Research Scope

The scope of this study is as follow:

1.4.1 Population

The Rubber Authority of Thailand Rubber (RAOT) divide divided farmer groups in Thailand into seven zones and allocated into three groups.

1) The group of rubber farmers in the successful stage with 89 groups.
2) The group of rubber farmers in the developing stage with 495 groups.
3) The group of rubber farmers in the beginning stage with 146 groups.

Each group will complete the questionnaire for Policymaker 50% and member perspective 50%.

1.4.2 Variables

For the variables in this research, the researcher has studied, and reviewed literature and related research as follows:

1) Exogenous Latent Variable consists of the following:
   (1) Brand Image consists of 3 observed variables:
   (2) Brand Identity
   (3) Brand Personality
   (4) Activity
2) Mediator Latent Variables consist of the following:
   (1) Perceived value consists of 4 observed variables:
      a) Functional Value
      b) Social Value
      c) Emotional Value
      d) Epistemic Value
   (2) Satisfaction consists of 4 observed variables:
      a) Economics
      b) Knowledge
      c) Stability
      d) Participation
   (3) Trust consists of 4 observed variables:
      a) Brand Competence
      b) Brand Credibility
      c) Brand Benevolence
      d) Brand Reputation
   (4) Loyalty consists of 2 observed variables:
      a) Behavior
      b) Attitude
3) Endogenous Latent Variable consists of the following:

Sustainability consists of 3 observed variables:

   a) Technological
   b) Engagement
   c) Organizational
   d) Government Support

This procedure takes two steps.

Step 1: Primarily studied on secondary data.

Step 2: Collected the quantitative primary data with the questionnaire by mailing, emailing, and directly distributing to all 7-sample groups. After that, the researcher followed

up questionnaires, analyze, and summarize the results.

1.4.3 Statistics for Data Analysis

Statistics used in this research data analysis was the Structure Equation Modeling (SEM). The researcher used SEM in examining the relationship among variables in the research framework that have direct and indirect influence within one time; besides, The researcher used AMOS for the examination.

1.5 Expected Benefits

1) Recognize the causes and factors making the rubber farmer institutes unsuccessful.

2) Understand factors affecting the sustainability of rubber farmer institutions that are a corporation.

3) Construct a model for strengthening the current rubber planter institutions and future established rubber farmers' institutions and make them sustainable.

1.6 Definitions

The definitions in this research are described below.

Rubber Farmer Institutes: The Rubber Farmer Institutes referred to a group of rubber farmers who registered as juristic persons under the law, excluding limited companies, limited partnerships, and ordinary partnerships with rubber farmers as shareholders or partners, whether in whole or in part. The rubber farmer institutes also referred to an association of rubber registered under the Rubber Authority of Thailand under the rules, procedures, and conditions as specified by the Committee.

Sustainability: The sustainability of rubber farmer institutions means the process of managing the rubber farmer institutions that mainly focus on the organization's growth and profits, the target of economic connection, social and environmental issues, and other factors include the needs of all stakeholders. The implementation of activities must consider the equal distribution of benefits to farmers or relevant parties, directly and indirectly, promote living conditions, and enhance the quality of life of the institutional farmers. Moreover, it is vital to meet the needs of current generation farmers; meanwhile, it is necessary to concern about next-generation farmers.

Brand image: Brand image referred to the positive perception of the rubber farmer institutions that are cooperation so that the memberships, non-memberships, and other people can recognize the products and the organization. They can memorize Brand Image through the experience and gain from word of mouth. The brand image also referred through 1) brand

identity such as logo, tagline, or typeface 2) brand personality that identifies the perception of institutions/the group of farmers 3) Activity that can be related to the income, training, and the participation of the farmers.

Perceived Value: Perceived value is what the rubber farmer institutions that are cooperation recognize the worth of institutions; moreover, it comes from the achievement. Perceived value can be categorized into four aspects 1) Functional Value referred to the concrete and abstract benefits that the members of rubber farmer institutions can gain. 2) Social Value referred to the corporate environment that admires and threatens every member equally. 3) The emotional value referred to the way that the rubber farmer institutions can create an impact on emotion so that it could be significant variables of the experience of the members, and 4) Epistemic Value referred to the new experiences that lead to behavior change.

Trust: Trust is the belief of the entity. It is the vital factors that the members concern about when they have to make a decision that has a mental impact. The trust in the rubber farmer institutions that are cooperation is related to the creditability of the member that concern with quality and safety. Trust leads to the royalty of the members. The tendency of the trust depends on 1) Brand Competence 2) Brand Credibility 3) Brand Benevolence and 4) Brand Reputation.

Loyalty: Loyalty referred to the commitment and obligation between the rubber farmer groups/institutions that are cooperation and the members that willingly participate in the activities of the group. It leads to a positive relationship and encourages the members to maintain their commitment.

CHAPTER 2
LITERATURE REVIEW

2.1 Introduction

In the research on Creating a Sustainable Model of the Rubber Farmer Institute, the researcher reviewed and scrutinized the relevant Thai and English textbooks, documents, articles, research studies and various internet media to create research framework including forming questionnaire and making quantitative analysis. The literatures review was categorized into the following topics:

2.1 Introduction
2.2 General Information of the Rubber Authority of Thailand (RAOT)
2.3 Theories and Concept about Sustainability/Sustainable Development
2.4 Theories and Concepts about Brand Image
2.5 Theories and Concepts about Perceived Value
2.6 Theories and Concepts of Satisfaction
2.7 Theories and Concepts of Trust
2.8 Theories and Concepts about Brand Loyalty
2.9 Variables Relationship Analysis
2.10 Research Hypothesis

2.2 General Information of the Rubber Authority of Thailand (RAOT)

2.2.1 Background and History of the Rubber Authority of Thailand

Background

Under the Governor of the Rubber Authority of Thailand, the Rubber Authority of Thailand is run by the Committee of the Rubber Authority of Thailand. The Rubber Authority of Thailand (RAOT) was established under the cooperation of three associations: Office of the Rubber Replanting Aid Fund, Rubber Estate Organization, and Rubber Research Institute. Subsequently, the Rubber Authority of Thailand Act B.E. 2558 came into force on July 15, 2015. The objectives of the act were 1) to serve as the central rubber organization in order that the Rubber Authority of Thailand could not only manage and operate system of rubber in Thailand, but also launch the funds and promote Thailand to becoming the rubber manufacturing hub and 2) to develop quality of life and livelihood levels of rubber farmers by reinforcing business operating cycle such as academic, financial, processing, industrial, marketing aspect and other related operations. Similarly, the responsibility of Rubber Authority of Thailand is to conduct research studies and disseminates relevant information for rubber

framer; another responsibility is that the institute has to maintain the rubber price in stable price and advocate substitute and new plantations policy (The Rubber Authority of Thailand, 2018).

Vision

The Rubber Authority of Thailand is a leading global organization that manages the entire system of rubber on an integrated basis (The Rubber Authority of Thailand, 2020).

Targets

1) Farmers and Rubber Famer Institutes are expected to build up their strength and have higher level of competitiveness.

2) Rubber business operators are expected to have higher level of competitiveness and have more global market opportunity and create new rubber business.

3) The Institute of Farmers is expected to stabilize the price of rubber and promote Thailand to becoming the center of industrial rubber products.

4) Research and development are expected to meet the need of the production sector in upstream, midstream, and downstream aspects.

Corporate Indicators

1) Farmers' households have an average annual income above the poverty line and have sufficient income for spending on their basic needs.

2) Minimum 5 farmer institutions registered as juristic persons per year.

3) The volumes of domestic rubber usage at the end of 2021 shall be increased at least 15% of total production due to the promotion of rubber usage by the government. In 2015, the domestic rubber usage was 600,491 tons of total rubber production, which was 4,473,370 tons, representing 13.42%.

4) The change of rubber prices in a low volatile manner can be solved.

5) Thailand will be the hub of industrial rubber products within 20 years.

6) A large amount of practical research can increase the competitiveness of farmer institutes, rubber business and farmers.

Strategies RAOT

After analyzing and investigating several strategies, it was found that the rubber strategies related to the research were as follows:

1) Strategy 1: Create an income as a result of services and business operations, such as engaging in a business based on existing assets of farmers, increasing income from new business investment reducing expenses and restructuring debts.

2) Strategy 2: Enhance the entire supply chain and value chain of the para rubbers such as creating mechanism to stabilize the prices of rubber, establishing a solid

foundation to increase the level of competitiveness, and increasing the level of income and quality of life of all stakeholders throughout the entire supply chain system.

3) Strategy 3: Research and development for the future Conduct research for the future development, especially for contributing research findings and providing database for future study and development.

4) Strategy 4: Unite the different organizations together to become one for advancing human resources, developing the information technology system, increasing the efficiency in the organizational management.

Recently, the Rubber Authority of Thailand has created the RAOT Corporate Plan (2017-2021). Its aims are 1) to analyze the internal and external factors, opportunities and obstacles in various dimensions that affect the para rubber and stakeholders' expectations, 2) to be complied with the objectives of the Rubber Authority of Thailand Act B.E. 2558 (2015) and 3) to be applied as a guideline for further operations (The Rubber Authority of Thailand, 2016). Therefore, the results of strategies from the RAOT Master Plan were selected as a guideline of the development, improvement and extension of practices to become a sustainable organization. The details are as follows:

1) Strategy 3: Increase the effectiveness of marketing and logistics to manage the entire market system. The output on the rubber market management in an integrated manner is that the rubber business can sell products at a fair price, equip marketing staff with rubber standards and quality selection and provide knowledge of the market, the service of information.

2) Strategy 5: Develop rubber farmers, rubber farmer institutes to promote the cultivation of good quality rubber.

(1) The goal of the development of farmers and farmer institutions are: (1) to allow farmers and farmer institutions to gain a wide range of knowledge and improve skills in making rubber plantation. (2), to increase the values of rubbers product and encourage rubber farmers to form a group of plantation development so that the farmers could improve the quality of the products and meet the standards. (3), to control the price negotiation by maximizing the rubber farmers' income level.

(2) Technology transfer project for rubber farmers: from planting, harvesting, and processing to cutting rubber trees for obtaining new aids.

(3) Technology transfer project for rubber farmers institutes: from basic knowledge and skills in the production process of rubber products, factory management to increasing product values and developing the rubber industry.

(4) Learning center management project

3) Strategy 7: Receive government support policies

(1) The government runs the project to strengthen and reinforce

the production efficiency of rubber farmers; and to help the cost of living of rubber tappers for maximum 15 rai per household. The target is 808,614 households (1,500 Baht per rai: 900 Baht/rai for rubber plantation owners/tenants: 600 Baht/rai for rubber tappers).

(2) The government launch Income compensation program for rubber farmers

(3) The government sets up the production project to make an extra income in rubber plantations based on the sufficiency economy philosophy and to transfer technology the rubber farmers.

(4) The government transfers the technology to the rubber farmers through training courses. Its aim is to support the increase of production efficiency, the cost reduction and the increase of income.

(5) The government carries out the project to establish the Industrial Development Institute. The objectives are to conduct the research and development of raw rubbers and rubber products; and to cooperate with various agencies in preparing product standards to support the creation of standardized rubber products in accordance with the governmental promotion on rubber usage, such as making standards for para rubber pillows and mattresses, futsal courts and flooring rubber with the cooperation of the Thai Industrial Standards Institute (TISI).

(6) The government provides loan support project for small rubber farmers for earning a living by taking on a second job.

2.2.2 Management Structure of the Rubber Authority of Thailand

The figure below summarizes the management chart of the rubber authority of Thailand, effective from 30 march 2019.

Board of Director, Rubber Authority of Thailand

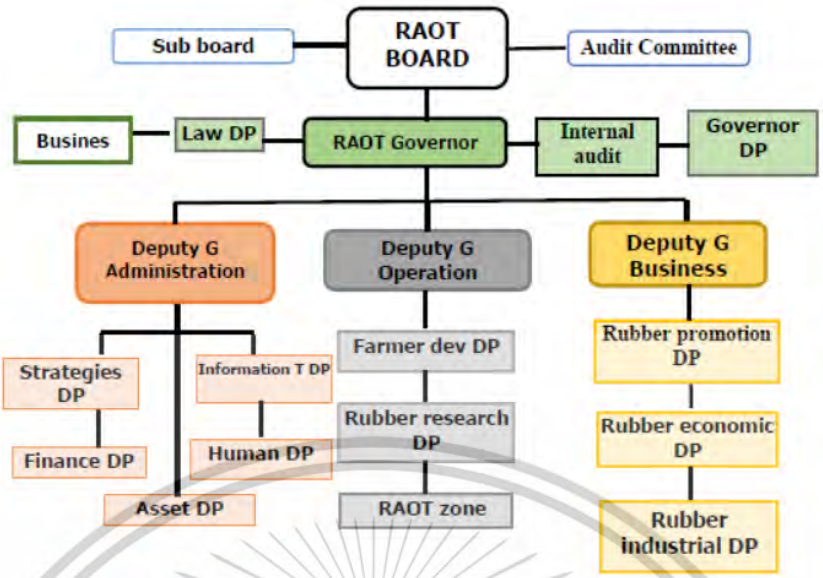


Figure 2.1 Organization Chart of the Rubber Authority of Thailand

Source: Rubber Authority of Thailand

Registration of Rubber Farmer Institutions

The Rubber Authority of Thailand Act, B.E. 2558 (2015) requires the establishment of the "Para Rubber Development Fund" with the objective to be expended for the promotion and support for the development of Para rubber. Those who will benefit from this fund shall be rubber farmers and rubber farmers' institutes, registered with the Rubber Authority of Thailand. In case of those who are registered in the category of rubber farmers' institutes must be an association, co-operatives, or a group of rubber farmers who are registered as legal juristic person, except a limited company, limited partnership and ordinary partnership with rubber farmers as shareholders or partners, either in a whole or in part. For the registration of the rubber farmers' institute, the representative of the group should submit related document to the Rubber Authority of Thailand. After the consideration of the qualifications is completed, the Rubber Authority of Thailand will approve and further notify them to receive the rubber farmers' identification cards.

Members of rubber farmer group who are juristic person

Based on the progress report on the improvement of rubber farmer institutes (2017), rubber farmer institutes can be divided according to regional area as shown in table 2.1

Table 2.1 Rubber Farmer Institutes, the Rubber Authority of Thailand

	RAOT Zone/RAOT Province	Number of Rubber Farmer Institutes that are a Juristic Person				Total	Status of Institute in the Phase of			Upgrade the Status of Institute	
		Co-operatives	Farmer Group	Association	Co-operative community		Beginning	Developing	Progress	Beginning to Developing	Developing to Progress
1.	RAOT Zone: Upper South	59	6	2	3	70	7	40	17	0	0
2.	RAOT Zone: Middle South	73	6	1	2	82	2	56	17	0	0
3.	RAOT Zone: Tower South	49	8	0	2	59	24	27	8	8	3
4.	RAOT Zone: Central and East	57	16	2	2	77	17	52	8	0	0
5.	RAOT Zone: Upper Northern East	161	106	1	3	271	58	192	20	34	21
6.	RAOT Zone: Lower Northern East	67	40	0	1	108	18	65	17	31	0
7.	RAOT Zone: North	33	51	2	0	86	20	63	2	5	0
	Grand total	**499**	**233**	**8**	**13**	**753**	**146**	**495**	**89**	**78**	**24**

From the table 2.1, it was found that total number of farmer institutes that registered as a juristic person was 753 groups. The majority of farmer institutes were in a developing status, accounting for 495 groups or 65.74 percent, followed by 146 groups that were in a beginning status, with 19.39 percent. 89 groups, the lowest proportion, were in a progress status considered as developed farmer groups, representing 11.82 percent, and 3.05 percent are non-identified groups.

2.2.3 The Situation of Para Rubbers in Thailand

Para rubber is an important economic crop of Thailand since 1991. From 1981, Thailand is the world's No. 1 producer and exporter of Para rubber, (Rubber Authority of Thailand 2017). Which makes hundreds of million Baht per year to Thailand. In 2012, about

2.7 million tons of rubber were exported, generating 4 billion Baht. In recent years, however, the price of rubbers that had been sold at the highest price of 183.64 Baht per kilogram in 2011 has been highly volatile and decreased, and its prices had been gradually decreased, causing the trouble of rubber farmers throughout the country because the selling price of rubber was not worth the production cost of the farmers. In 2012, the exported product is 2.7 million ton, and its value is 4 billion Baht. However, in the recent year the price of rubbers, which had been sold at the highest price of 183.64 Baht per kilogram in 2011, has been highly fluctuated and decreased. Moreover, the continuous decreasing price of rubbers cause a huge trouble for the throughout the country since the framers are not able sustain the production cost with low price of rubbers.

Thailand has been recognized for outstanding achievement of rubber production and export over two decades. In 2014, Thailand, the world's biggest producer of para rubber, made 4.20 million tons of rubber production, with exports accounting for up to 34.37 percent, followed by Indonesia and Malaysia that made rubber production of 3.17 and 0.84 million tons, equivalent to 25.94 percent and 6.87 percent of the global rubber production, respectively. Meanwhile, Thailand exported Para rubber for 3.80 million tons, accounting for 37.15 percent or more than 1/3 of total Para rubber export around the world. The major trading partners are China, Japan and the United States, followed by Indonesia and Malaysia. The export was 2.90 and 1.36 million tons of para rubbers, accounting for 28.35 percent and 13.29 percent of the global rubber export volume, respectively (Agricultural Information Center, 2015a). The tendency in domestic and global rubber demand as well as the increasing rubber exports of Thailand (Rubber Research Institute, 2015) was an important factor that drive the Ministry of Agriculture and Cooperatives to set up a rubber policy. Its aims were to expand the rubber plantation areas in the country and to control the rubber prices over the years at the level that motivates rubber farmers to grow more rubber plantations. At the same time, farmers who grow other types of economic crops had changed to grow a lot of rubber, resulting in the accumulated increase of rubber plantation areas all over regions in each year. In 2005, Thailand had 10.60 million rai of rubber tapping area and it was up to 17.22 million rai in 2014. The largest areas were in the southern region for 11.74 million rai, with 68.19 percent of total rubber tapping areas countrywide, followed by the Northeast, the Central and the North, with rubber tapping areas 2.81, 2.07 and 0.59 million rai, representing 16.33, 12.05 and 3.43 percent of total rubber tapping areas countrywide, respectively. (Agricultural Information Center, 2015b). At present, many countries in Asia region have begun to grow more rubbers, such as China, Indonesia, Vietnam, Myanmar, Laos, and Cambodia. These countries have an advantage in management costs, particularly the lower wage than Thailand has. At the same time, the statistical data was found that Thailand's productivity per area tends to decrease. In 2014, Thailand had an average yield of 257 kgs per rai, which reduced by 25 kgs per rai, compared to the average yield of 10

years ago (Agricultural Information Center, 2015b). The current rubber price was low and fluctuated, affecting the stability of the rubber farming occupation because most rubber farmers in Thailand were small farmers with small-sized rubber plantations (not more than 50 rai) and their rubber plantation management was not as good as it should be. Due to the limited production factors, the quality of the rubber was low with inconsistent volume, the farmers, then, sold rubber products at a very low price and was taken of advantages by the merchant middleman. They also did not have bargaining power so the income of farmers was lower than they should have.

In 2011, it was found rubber sheets grade 3 was up to 129 Baht per kilogram while the natural latex was at 120 Baht per kilogram. (Bureau of Agricultural Economic Research, 2015). However, after that, the price of Para rubber that farmers could sell had been falling until 4th February 2016. The prices of raw rubber sheets grade 3 and raw latex reached 38 Baht per kilogram and 37 Baht per kilogram, respectively (Rubber Research Institute, 2016). The total export volume and export value of para rubbers from January to August 2015 were 347,529 metric tons, with only 18,457.00 million baht while the export volume of Para rubber in 2014 totaled 3,770,649 metric tons, with a total export value of 193,749.21 million baht (Rubber Research Institute, n.d.).

It can be seen that Thailand's rubber business was in the critical situation caused by the oversupply of rubber products because Thailand has increased the rubber plantation areas from 17.73 million rai in 2014 up to 18 million rai in 2015 (Bureau of Agricultural Economic Research Bureau, 2015). It was known that the price mechanism depends on the demand and supply of the product. Additionally, there was volatility in the global economy during 2013 and 2014. The major rubber trading partners of Thailand, such as China, have a slowdown of economy, as well as the oil price in the world market was not accelerating. Furthermore, the tendency of global rubber production has been also increased, especially from manufacturing countries like CLMV (Cambodia, Lao PDR, Myanmar and Vietnam), particularly Vietnam that its main export market is also China. This caused the impact on the rubber price of Thailand. However, the quality of Thai rubber still has an advantage over competitors due to higher elasticity and it was more well-known to the market as well as suitable for the production of various types of rubber products, but in the future, if competitors, especially Vietnam can continuously expand production and improve their rubber quality, it will affect Thailand on the level of competition in the Chinese market (Kasikorn Research Center, 2015). From the cases, there are several causes that affect Thailand's rubber business, causing Thailand's rubber price and rubber demand to be continuously decreased.

2.2.4 The Situation of Rubber Price in 2018

The situation of global economy in 2018 has suffered a significant slowdown caused by the international trade war that affected not only the trade but also the manufacturing and investment sectors, a supply chain system of the world. This caused the International Monetary Fund (IMF) to cut global economic forecasts for this year and the next year to grow at 3.7 percent level from the previous estimate of 3.9 percent. Thailand's GDP in Quarter 2/2 018 was at the level of 4.6, falling from the previous quarter, which was 4.8. During a recovery, it was important to monitor the interest rates of major industrial countries that were starting to continuously move upward. GDP in Quarter 2/2018 of major trading collaborates including the US, China, Japan, and India were at 4.2, 6.7, 1.9 and 5.7, respectively. The world's rubber situation in Quarter 2/2018 showed the consumption of rubber at 3,531 thousand tons, increased by 4.2 percent compared to the previous quarter.

Table 2.2 The Demand of Ribbed Smoke Sheet, Block Rubber, Concentrated Latex, and Other in 2018

Year	Ribbed Smoked Sheet (RSS)	Block Rubber (TSR)	Concentrated Latex	Other	Total
2014	171,466	189,232	119,762	60,543	541,003
2015	154,948	223,924	179,540	42,079	600,491
2016	124,618	247,168	182,884	62,599	617,269
2017[1]	167,307	244,942	178,863	61,288	652,400
2018*	205,159	300,358	219,329	75,154	800,000
Growth rate (%)	4.45	10.67	12.82	8.42	9.04

Source: The Rubber Authority of Thailand

Note: [1] Approximately

Although Thailand ranks second in the world's largest rubber area, trailing Indonesia, Thailand is the world's biggest producer of natural rubber. Over the past five years, production cost of the rubber sheet has decreased from 16,017.84 baht per rail in 2014 to 13,674.09 baht per Rai in 2018 or around 4.17 percent per year. This results in reducing the production cost per unit from 63.82 baht per kilogram in 2014 to 56.39 baht per kilogram in 2018 or 3.35 percent per year. The demand for the use of rubber in the past five years has increased from 541,003 tons in 2014 to 800,000 tons in 2018, increasing 9.04 percent per year since the production base of the foreign industry including tire industry and rubber glove manufacturers has been

expanded. Moreover, the public sector fosters rubber processing products and upholds the use of rubber products in the public sector. With respect to each type of rubber, the demand of the rubber can be described in the following.

1) Ribbed smoked sheet: The domestics use has been increased from 171,466 tons in 2014 to 205,159 tons in 2018 or making up 4.45 percent per year.

2) Block rubber: The domestics use has been increased from 189,232 tons in 2014 to 200,358 tons in 2018 or making up 10.67 percent per year.

3) Concentrated latex: The domestics use has been increased from 119, 7622 tons in 2014 to 219,329 tons in 2018, or making up 12.82 percent per year.

4) Other: The domestics use has been increased from 60,543 tons in 2014 to 75,154 tons in 2018 or making up 8.42 percent per year.

Table 2.3 Rubber Price: Framer Price and Auction Price at Central Rubber Market Songkhla during 2014-2018

Year	Farmer Price			Auction Price at Central Rubber Market		
	Raw Rubber Sheet (Grade 3)	Cup Lump	Latex	Law Rubber Sheet (Grade 3)	Ribbed Smoked Rubber Sheet	Latex
2014	55.48	27.61	52.75	55.94	60.41	55.28
2015	44.17	21.62	40.50	45.76	51.39	45.05
2016	48.81	23.15	45.93	52.62	54.89	49.91
2017	55.81	25.65	50.98	60.95	64.01	56.31
2018* (Jan - Oct)	42.01	19.83	39.03	44.46	46.63	44.12
Growth rate (%)	-3.17	-4.79	-3.65	-1.71	-2.94	-2.25

Source: The Rubber Authority of Thailand

Note: Unit: Baht/Kilogram

Over the past five years, natural rubber prices in Thailand have been plummeting since 2014, and the lowest price took place in 2015 because of the recession in European and American economies. Furthermore, China, the world's biggest rubber consumer, has faced the financial crisis, and the world market price of oil has been falling. Even though in 2016-2017

the rubber price has increased, it fell again in 2018 since the investors were reluctant to take a risk during the economic and political crisis, especially for international trade policy between China and America. Thus, the rubber prices have fluctuated all the time. The rubber prices in each market are shown below.

1) Farmer price: the prices of raw rubber sheet (grade 3), cup lump and latex during 2014-2018 has dropped to 3.17 percent, 4.79, and 3.65 per year, respectively.

2) Auction price at central rubber market: the prices of raw rubber sheet (grade3) ribbed smoked rubber sheet (grade 3) and latex at central rubber market Songkhla province during 2014-2018 has dropped to 1.71 percent, 2.94 percent, and 2.25 percent per year, respectively.

3) Imported price F.O.B.: ribbed smoked rubber sheet (grade3), block rubber and concentrated latex during 2014-2018 has dropped to 1.85 percent, 1.96 percent, and 2.02 percent per year, respectively.

Factors affecting rubber prices in 2018 include:

1) There was more volume of rubbers released to the market comparing to quarter 2/2008 because farmers began to tap more rubbers and release to the market while there was heavy rain in some areas of rubber plantation, causing the volume of rubber production in this year to decrease comparing to the same period of previous year.

2) The overview of global economy continues to continuously grow, especially the US economy that is in a strong position in the labor market, household spending and business investment. The inflation was near 2% level; and the Purchasing Manager Index (PMI) of the trading partner countries remained above 50, indicating that the economy continues to expand, but a slowdown had been caused by barriers and trade countermeasures between US and trading partner countries, along with financial crisis in Argentina and Turkey.

3) The price of crude oil in quarter 3/2018 had increased because US crude oil stock was adjusted to the lowest level in 3-year cycle. Also, oil exporting countries (OPEC) showed their signals to be not ready to increase their production capacity, and the overall trading condition was still supported by the forecast on the tight oil conditions after USA decided to use sanctions against Iran.

4) The Baht currency depreciated against the US dollar according to the currencies in the regions and investors turned back to hold the US dollar after USA announced the new tax collection measures for Chinese imports and the Fed's policy on the increase of interest rate for 0.25% to be 2.00-2.25%. This caused markets like Indonesia, India and the Philippines to adjust the policy to increase the interest rate of USA in so that they could reduce the chance of capital outflows from the country and not give a negative effect on financial system stability. At the same time, Thailand still maintained interest rates due to its strong international financial status in both current account surpluses at a high level and large reserves

that can support volatility of the market from capital outflows.

5) The implementation of government projects to solve the problem of rubber prices in the whole system and the approval of budget approximately 250 million baht to be allocated in funds. This project paid rubber fee for the farmers in order to enhance liquidity for six central markets. The government also provided other supports such as the promotion of rubber use, compensation programs to support the creditability of rubber product manufacturers, 3% of interest for compensation programs to support working capital loans to farmer institutions and to collect rubbers, and the credit support for rubber business operators Moreover, the projects that ended in this quarter including the career development project for the sustainability of small rubber farmers and the production control project.

2.3 Theories and Concept about Sustainability/Sustainable Development

2.3.1 Meaning of Sustainability/Sustainable Development

Sustainable development is a key term for the development of the country; moreover, a number of scholars and researchers have recognized and interpreted this term differently. The World Commission on Environment and Development [WCED] (1990, p. 43), also known as the Brundtland Commission, stated that sustainable development is "development which meets the needs current generations without compromising the ability of future generations to meet their own needs." The sustainable development plays an important role in the quality of individuals' life because it can enable good governance. It also creates a stable economic development system without relying on assistances from outside and provide a good environmental quality that people know how to use natural resources with value realization, especially the use of natural resources as a production base for economic growth (Brundtland Commission, 1987).

In addition, the United Nations Educational, Scientific and Cultural Organization (UNESCO) proposed that the sustainable development should be based on a cultural foundation that holds the value of humanity (UNESCO, 2005).

Brown (1984, as cited in Noibai, 1991) noted that the sustainability is an ecological thinking with economic implication; the growth and well-being of human beings depend on the basis of natural resources which promotes the human living system and sustainable society. The sustainability determines the economic and social systems, which enable natural resources and life support systems to be maintained. Phra Dhammapitaka (P.A. Payutto, 2006) emphasized that the sustainable development is a balanced development of all three aspects consisting of human life, society and environment. The main principles of sustainable development are to meet the need of people, reduce the encroachment and encourage people to support each other.

Preecha Piemphongsam et al. (2006) pointed out that the concept of the sustainable development is a concept that compromises between a development-oriented group and an environmental-oriented group, in the rich zone and the poor zone. They are all satisfied with this concept because it is a concept that fosters both development and environment. It is a concept that does not deny the progress and sees that the economic growth is necessary and can develop without destroying the environment. The sustainable development also refers the development strategy that manages all resources whether it is nature, humans, finance and physical resources to create wealth, well-being and complete happiness. The sustainable development depends on correct and proper environmental management. In short, the development is under the ecological limits.

Chaiyot Imsuwan (2000) stated that the concept of sustainable development is a strategy of development that requires both natural and human resource managements including all financial and material resources so that it could create wealth and well-being of the individuals without destroying natural resources to be reserved for future generations. The achievement of sustainable development should not only create a balance of economic, social and environmental developments, but also have to equip the people with the knowledge and competence in managing the development.

Prapat Panyachartrak (2003) reasoned that the sustainable development is an integrated development as a whole. Its aim is to harmoniously gather and combine all variables in a balanced manner, even in a diverse context on economic differences; It can be taken into account of development according to the competitiveness based on their own resources, on society and environment which must emphasize to consistently respond to the needs of relevant persons with the social and cultural contexts. Therefore, the sustainable development is an effort to permanently make things better based on limited potential and resources, and it is important to concern all relevant factors related to economy, society, culture and environment in order to balance of all dimensions. The sustainable development also emphasize the development on the basis of their own resources, strengths and potentials, and the involvement from all relevant parties as well as the sustainable life.

Wasuthorn Tanwattanakul (2006) explained that the characteristic that represents the sustainable development is a combination of conservation and development. Moreover, it can meet the basic needs of humans; provide opportunities for all parties to equally and fairly participate with a combination of activities. It is aimed to create social bound and preserve cultural diversity, considering environmental protection and consistently applying modern technology to the community.

Nittaya Kamonwattananisa (2003) gave the concept of sustainable development that it is a development conducted by taking into account of the limits of natural resources, environment and responding to current needs without adversely affecting future needs. It is a

development that considers being “holistic”, which is any action must take into account of the impact that will occur on other things. The development based on this concept adheres to the prudence and gradation; it is a sustainable development that does not refuse the “technological system”, just considering that the technology to be applied is creative or destructive.

Thailand has adopted the concept of sustainable development as shown in the 8th Economics and Social Development Plan (1997-2001). The government focused on human development as a center of development that focuses on holistic development by using the economy as a tool to improve the quality of life. The 9th Economic and Social Development Plan (2002-2006 applied the “Philosophy of Sufficiency Economy” according to the royal speech of His Majesty King Bhumibol Adulyadej as a guiding philosophy in governing the country. Following this principle leads to the development with a balance among economic, social and environmental dimensions in a supportive manner to achieve the development with quality, security and sustainability. This is a holistic national development with the public involvement towards the same goal, which is the sustainable development and the permanent well-being of people.

From the above definitions, the sustainable development refers to different perspectives. It is a result of the limits of natural resources and environment. The sustainable development is the development that meets the current needs without adversely affecting future needs. It can be conducted based on a holistic development to harmonize economy, society and environment. It can refers to a sustainable development that does not refuse the “technological system”, but consider whether it produce creativity or destruction, provides opportunities for all relevant parties to participate in the development. It also takes into account the holistic integration by considering the various linkages that occur on economic differences, taking into account the development based on the competitiveness on the basis of their own resources, on society and environment emphasizing to consistently respond to the needs of relevant persons with the social and cultural contexts.

2.3.2 Elements of Sustainable Development

In the research on the concepts and elements of sustainable development, many scholars in various fields and institutions proposed three important dimensions of sustainable development.

1) The dimension of sustainable economic development: It is the economic development that aimed to strive for equality and to provide income to benefit most people in society, especially those with low incomes.

2) The dimension of sustainable social development: It is the human development that they have knowledge with higher performance and productivity, and they are encouraged to have quality society and a learning society.

3) The dimension of sustainable environmental development: It is the use of natural resources in the amount that the ecosystem can recover to its original state. With emissions to the environment at the level, the ecosystem can absorb and destroy those pollutions so that the nature can produce resources to replace exhaustible natural resources.

The concepts and elements of sustainable development as above mentioned correspond to the concept of Phra Phrom Kunapom (P.A. Payutto, 2009) explained that there are two trends of new development. The first trend is the sustainable development in accordance with the concept of the World Commission on Sustainable Development (CSD) that focuses on the development along with the emphasis on the environment due to the increase of populations. The second trend is UNESCO's concept on the development that emphasizes human and a cultural value which is the heart of development, for Buddhists, the sustainable development should be the development of sustainable society, together with responding their needs without the effect on animals and future generations. This means that human activities must comply with the rules of nature, must integrate both economy and nature to protect natural resources and get rid of poverty.

Phra Phrom Kunapom (P.A. Payutto, 2009) mentioned that the success of sustainable development requires human development to be ethical. It can be concluded that three types of lusts that obstruct the ethics derive the problem of unsuccessful sustainable development: desire, pride and conviction. We must develop people and economy equally with the development of ethics. Therefore, the sustainable development system depends on four factors.

1) Human: Humans must be developed to have quality, leading to the sustainable development by providing education and allocating supportive factors.

2) Society: The social system must be organized in terms of economy, politics, administration, and various businesses to be combined, harmonized and united based on knowledge and reality.

3) Nature: the development path must be based on the principle that humans are a part of nature and have in consistency and harmony with nature.

4) Technology: the technology must be developed and used in a supportive manner without destroying nature.

The above-mentioned concepts and elements of the sustainable development are associated with the concepts of the Office of the National Economic and Social Development Board (2004, pp. 2-7). It can be are summarized as follows:

1) The development continues by taking into account the limits of natural resources and environment and meet current needs without adversely affecting future needs.

2) The development concern with "holistic in order to see what actions must take into account the impacts on other things. Therefore, this development is based on prudence and gradation.

3) It is the development that does not reject “Technological system”, but it considers that technology is used for creativity or destruction.

In summary, the sustainable development consists of following elements:

1) Economy: it is a development to equally satisfy the needs of humans in present era and next eras without affecting the future needs. It can produce the production that is friendly to the resources and needs of consumers. The production shall not cause pollutions and it can motivate the economic development to grow with quality, higher standard of living and distribution of incomes to benefit most people in society, especially those with lower incomes.

2) Society: it is a sustainable for social development. Its aims are to: (1) equip humans with higher knowledge, performance and productivity. (2), to promote the quality society, the learning society, including organizing social systems as well as various businesses to be combined, harmonized, united on the basis of knowledge and reality. (3), to create the atmosphere of non-violence, the atmosphere of assistance, support, guarding and protecting humans in different status with different opportunities and abilities, good quality of life, well-being, a unique culture of each religion.

3) Nature and environment: it is the development of sustainable environment that based on limits of natural resources and environment, and it can meet current needs without adversely affecting future needs, maintain the environment and nature as much as possible. The nature should not be dramatically changed or if it is necessary to change, it must be compensated.

4) Humans: For the sustainable development, it is important to serve human development, both physical and mental aspects such as good health, diligence, patience, responsibility, skill and knowledge, expertise. Thus, human can develop the economic and social systems to create sustainable development. Moreover, providing education and supporting factors can create good habituation. Then, the good habituation can support the environment and society after it becomes culture and discipline.

5) Technology: it is a technological development with the use of supportive technology.

Moreover, several studies on sustainable business model had been reviewed. The details are as follow. Bocken, Short, Rana, and Evans (2014) examined the importance of practical suitability in long-term condition, especially for society and environment model. Sustainable business (SBM) encourages the use of innovation in sustainability in order to achieve the goal of organization. It is a key driver of competitive advantage. The model of Bocken et al. has identified a wide range of examples of mechanisms and solutions that can contribute to business model innovation for sustainability. The aim of these archetypes is to develop a common language that can be used to accelerate the development of sustainable

business models in research and practice. The archetypes are: Maximise material and energy efficiency; Create value from 'waste'; Substitute with renewables and natural processes; Deliver functionality rather than ownership; Adopt a stewardship role; Encourage sufficiency; Re-purpose the business for society/environment; and Develop scale-up solutions.

2.3.3 Indicators of Sustainability

In terms of sustainability indicators under the concept of sustainable development in the context of Thailand, each dimension of developments requires indicators that reflect the following issues:

Economic Dimension

It refers to the country's economic development to continuously grow with quality and stability. Furthermore, it is the growth that does not destroy the environment and can be sustained in the long-term condition, and thoroughly distributes wealth and benefits to majority of people.

1) The development with quality refers to the effective production is associated with the country's production potential and market demands with the use of effective production factors, proper production plans and consumptions that do not destroy the environment based on the conservation, restoration and preservation on resources and environment.

2) The development with stability refers stable economic system in the country and abroad with self- reliance and economic immunity that is sustainably ready for changes.

3) Distribution of wealth refers creating opportunities for access to economic activities, production factors and the comprehensive infrastructure of government that will lead to the reduction of income gap and thorough wealth distribution.

Social Dimension

It refers the development that aims to provide the better quality of people and society so that they are able to adapt themselves for the change, and do not destroy natural resources and environment. They can have security in life. They can apply social capital and natural resource capital for benefits; and participate in the decision-making process, which is under a good management system that aims to strengthen people and society to live happily and sustainably.

1) Potential development and self-adaptation on a knowledge-based society: it refers to the development of people in society at both individual and organizational levels to have the opportunity to develop knowledge, thinking, professional skills, management, by themselves. Moreover, they can live in a knowledge-based society that supports the sustainable development.

2) Development on the quality of life and security in living: it refers to development of people in Thai society to have a better quality of life, and have a friendly environment, security in life and property, strong health. In addition, they can equally access the social protection system.

3) Creation of Thai values, wisdom and culture to have the immunity of society: it refers to Thai society must have values and a lifestyle that is economical with the use of resources in a cost-effective manner, without reduction of the country's economic development and resource base in the long term. The people can apply local wisdoms to sustainably maintain the culture, way of life, customs, traditions and culture that are the country's identity.

4) Creation of equality and participation: it refers to Thai citizen must be equal in gender, education, occupation, welfare, environment, and right and freedom under the scope of law, humanity principle. They can have the opportunity to participate in social activities such as politics and government, with the right to obtain news and information. They can also participate in the decision-making process on any public policy that may affect society, by adhering to good governance principles.

Environmental Dimension

It refers to the effective management of natural resources and environment in order to create a balance between economic use and natural abundance. In addition, it can maintain good quality of natural resources and environment to meet the needs of the current generation and preserve for future generations. Additionally, the opportunities and participation in the management of natural resources and environment should be thoroughly and fairly distributed.

1) Preservation refers to the use of natural resources both in physical and biological aspect must be effective. It should be integrate both conservation and development processes to management limited natural resources for maximizing the benefits in various aspects, taking into account the needs of people in present time since its aim is to preserve natural capital for use of future generations. It also aims the maximum capability on the use of natural resources without effecting on the ecosystem and environment in order to allow the ecosystem to support and recover to its original state.

2) Good quality environment refers to the development of the country that must be maintained that good environmental quality for Thai people, good quality of life of Thai people. It is the development that takes actions to solve various pollution problems on water, soil and air, as well as prevent pollutions through production and consumption of people.

3) Participation and distribution of resources: it refers to all people from all parts of the country should be thoroughly and fairly allocated the natural resources and benefits from the development. They can participate in the decision making to formulate

policies, plans and implementation of environmental management projects in order to create good benefits and good quality of life to human beings in the world society.

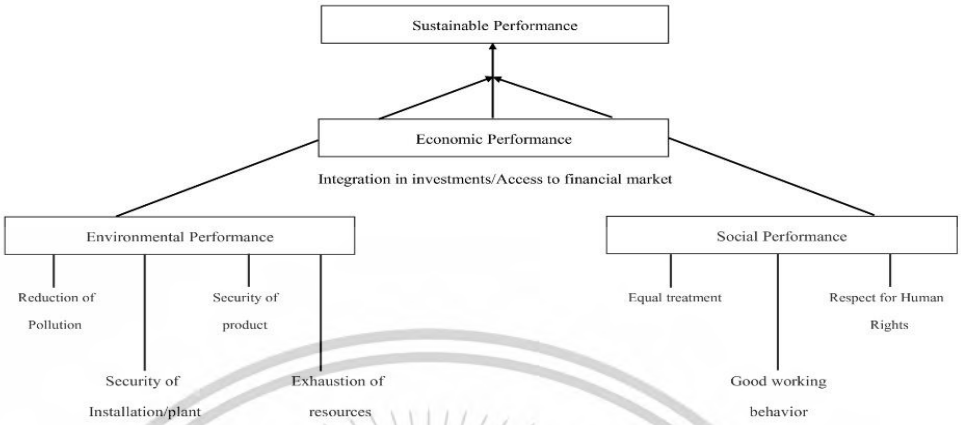


Figure 2.2 The Sustainable Performance

Source: Farooq, Farooq, and Reynaud (2019).

The framework of sustainable performance describes the economic dimension and the effective production in accordance with the country's production potential and market demands. It also concerns with the efficient use of production factors, proper production plan, and consumption plan that do not destroy the environment based on conservation, restoration and preservation of resources and environment.

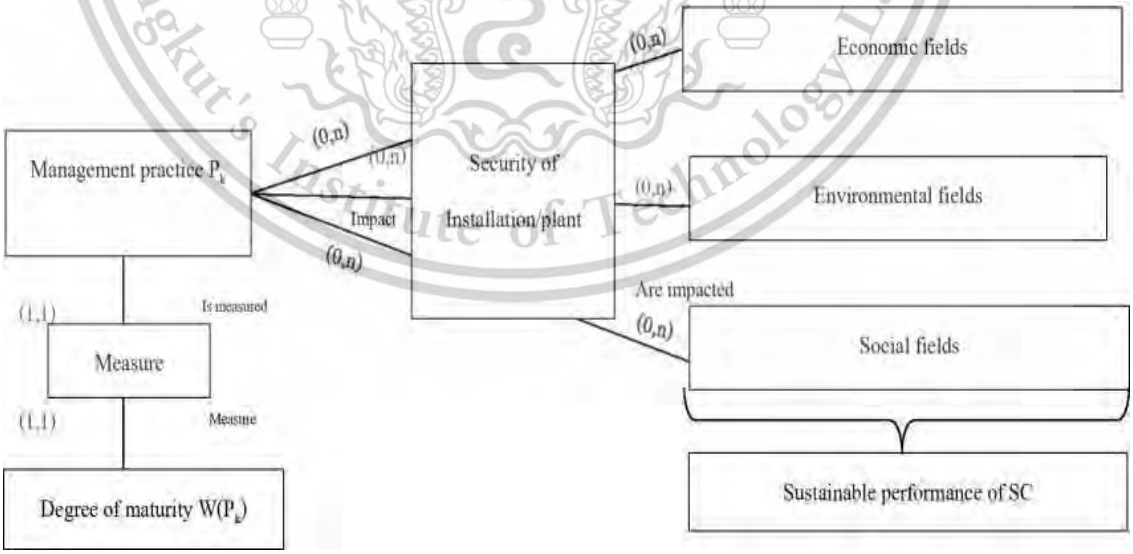


Figure 2.3 Framework of Model for Sustainable Performance Assessment

Source: Emilie and Valerie (2014).

The framework of sustainable performance describes the application of sustainable development concepts that supply chain management to improve efficiency that affects the competitiveness of companies and organizations. The framework of actions on economy, society and environment, which are mutual relationships, allows US to identify the efficiency from a sustainable development perspective, resulting in the stable development Moreover, this leads to a stable economy in the country and abroad with self-reliance, economic immunity; they are prepared for changes. It is the growth that does not destroy the environment; instead, it is sustainable in the long term.

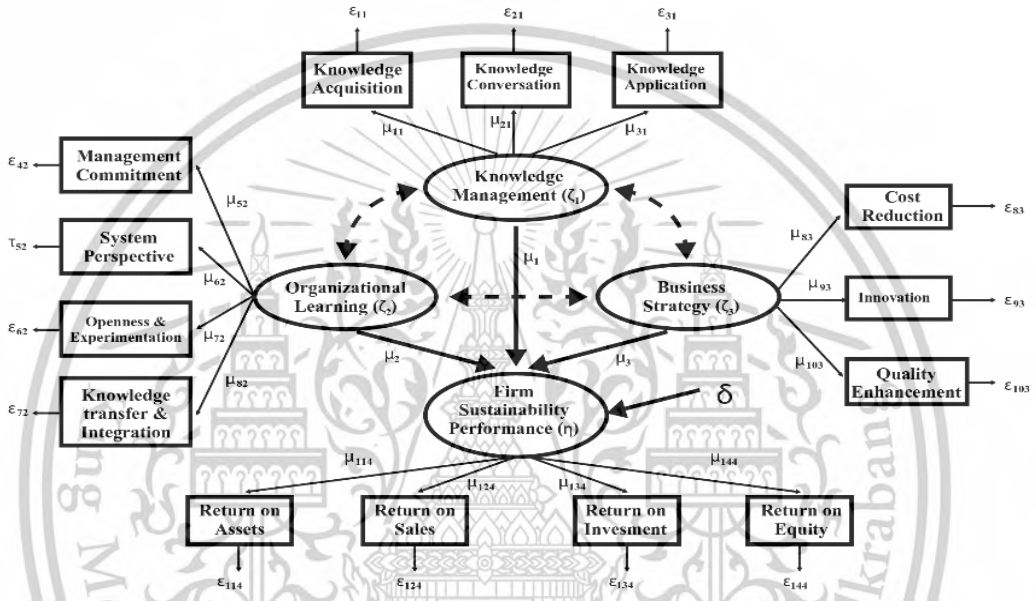


Figure 2.4 Research Framework

Source: Jasimah, Jenatabadi, and Hasbullah (2015).

From Figure 2.4, the conceptual framework in the research of Jasimah et al. (2015) describes the hypothesis of research related to latent variables and indicators applied to show the effects of corporate learning management, business strategies and corporate sustainability. The learning management factors affect the ownership indicators, communication and properties of knowledge. The corporate learning factors affect the indicators of learning management systems and the experiment of new things including the integration of knowledge; the business strategy factors affect the indicators on the reduction of production costs, innovation and quality enhancement. The corporate sustainability affects the indicators of the return on property, the return on sales, the return on investment, and the return of ownership.

Figure 2.5 Dynamic SEM Framework

Source: Jasimah et al. (2015).

The conceptual framework of Dynamic SEM describes the results from various factors that lead to business performance, but the business performance affects the corporate learning management factors, business strategies and corporate knowledge. This framework will lead to the corporate sustainability.

Bocken et al. (2014) classified the archetypes in higher order groupings, which describe the main type of business model innovation including Technological (Maximize material and energy efficiency, Create value from waste, and Substitute with renewables and natural processes). Also classified Social that the researcher use engagement instead since it compatible with the aim of the study (Deliver functionality rather than ownership, Adopt a stewardship role, and Encourage sufficiency and involvement), and Organizational (Repurpose for society/environment, Develop scale up solutions for society and environment development) oriented innovations as shown in figure 2.6.

Table 2.4 Classification of the Archetypes in Higher Order Groupings

Maximize Material and Energy Efficiency	**Create Value from Waste**	**Substitute with Renewables and Natural Processes**	**Deliver Functionality Rather than Ownership**	**Adopt a Stewardship Role**	**Encourage Sufficiency**	**Repurpose for Society/ Environment**	**Develop Scale up Solutions**
Low carbon manufacturing/ solutions	Circular economy, closed loop	Move from non-renewable to renewable energy sources	Product-oriented PSS- maintenance, extended warrantee	Biodiversity protection	Consumer Education (models); communication and awareness	Not for profit	Collaborative approaches (sourcing, production, lobbying)
Lean manufacturing	Cradle-2-Cradle	Solar and wind-power based energy innovations	Use oriented PSS- Rental, lease, shared	Consumer care - promote consumer health and well-being	Demand management (including cap & trade)	Hybrid businesses, Social enterprise (for profit)	Incubators and Entrepreneur support models
Additive manufacturing	Industrial symbiosis	Zero emissions initiative	Result-oriented PSS- Pay per use	Ethical trade (fair trade)	Slow fashion	Alternative ownership: cooperative, mutual, (farmers) collectives	Licensing, Franchising

Table 2.4 (Continue)

Maximize Material and Energy Efficiency	**Create Value from Waste**	**Substitute with Renewables and Natural Processes**	**Deliver Functionality Rather than Ownership**	**Adopt a Stewardship Role**	**Encourage Sufficiency**	**Repurpose for Society/ Environment**	**Develop Scale up Solutions**
Dematerialization (of products/ packaging)	Reuse, recycle, re-manufacture	Blue Economy	Private Finance Initiative (PFI)	Choice editing by retailers	Product longevity	Social and biodiversity regeneration initiatives ('net positive')	Open innovation (platforms)
Increased functionality (to reduce total number of products required)	Take back management	Biomimicry	Design, Build, (DBFO)	Radical transparency about societal impacts	Premium branding/ limited availability	Base of pyramid solutions	Crowd sourcing/ funding
	Use excess capacity	The Natural Step	Chemical Management Services (CMS)	Resource stewardship	Frugal business	Home based, flexible working	"Patient / slow capital* collaborations
	Sharing assets (shared ownership and collaborative consumption)	Slow manufacturing			Responsible product distribution/ promotion		

Table 2.4 (Continue)

Maximize Material and Energy Efficiency	Create Value from Waste	Substitute with Renewables and Natural Processes	Deliver Functionality Rather than Ownership	Adopt a Stewardship Role	Encourage Sufficiency	Repurpose for Society/ Environment	Develop Scale up Solutions
	Extended producer responsibility	Green chemistry					

The main point of the above-mentioned definition related to the sustainable development and it can be summarized in Table 2.5.

Table 2.5 Definition of Sustainable Development

Researchers/Scholars	Definition
Brown (1984)	The sustainability is an ecological thinking with economic impheation, that is, the growth and well-being of human beings depend based on natural resources, which promotes the human living system and sustainable society.
Piemphongsam et al. (2006)	The concept of the sustainable development makes the development and environment go along together; it is a concept that does not deny the progress and sees that economic growth is necessary and can occur without destroying the environment.
Imsuwan (2000)	The concept of sustainable development is a strategy of development that requires both natural and human resource managements including all financial and material resources in the direction that creates wealth and well-being.
Panyachartrak (2003)	The sustainable development is an integrated development as a whole to harmoniously gather and combine all variables in a balanced manner
Tanwattanakul (2006)	The characteristics showing the sustainable development is a combination of conservation and development that meet the basic needs of humans provide opportunities for all parties to equally and fairly participate.
Kamonwattananisa (2003)	The sustainable development is a development conducted by considering the limits of natural resources and environment and responding to current needs without adversely affecting future needs.
Payutto (2006)	The sustainable development should be the development to create a sustainable society together with meeting their needs without affecting animals and future generations in the future to be suffered.

Table 2.5 (Continue)

Researchers/Scholars	Definition
Office of the National Economic and Social Development Board (2004)	The sustainable development does not mention to refuse the "technological system", just considering that the technology to be applied is creative or destructive.
Emilie & Valerie (2014)	The application of sustainable development concepts to supply chain management is another way to improve efficiency that affects the competitiveness of companies and organizations. The framework of actions on economy, society and environment, which are mutual relationships, allows US to identify the efficiency from a sustainable development perspective.
Jasimah et al. (2015)	The corporate learning factors, business strategies and corporate knowledge affect the business performance, but the business performance affects the corporate learning factors, business strategies and corporate knowledge, this framework shall lead to the corporate sustainability.
Bocken et al. (2014)	It is important to apply SEM (Sustainable Business Model) in the sustainability development, especially in mission, vision and identify under group solving problems based.

The concepts and theories mentioned herein are concepts used to understand the sustainability and sustainable development for rubber farmer institute registered as a juristic person in Thailand. The researcher studied from the literature review, concepts, theories, and researches about factors related to the sustainability and sustainable development. Scholars and researchers have concluded observed variables, as shown in the table 2.6.

Table 2.6 Literature Review of Sustainability/Sustainable Development

Scholars/Researchers	Latent variables	Observed variables
Bocken, Short, Rana, & Evans (2014)	Sustainable Business Model (SBM)	Technological Social Organizational
Chang (2017)	Sustainable Consumption Behaviors	CSR preference dimension Recycling behavior dimension Traditional purchase dimension Environmental impact dimension
Tur-Porcar, Roig-Tierno, & Mestre (2017)	Entrepreneurship and Business Sustainability	Social Engagement
Nosratabadi et al. (2019)	Sustainable Business Models (SBMs)	Organization Social Environmental Technological Engaged Value
Ismail, Zainol, Yusoff, Owusu, & Ibrahim (2019)	Co-operative Sustainability Model (CSM)	Engagement/Participation Organization/ Management Knowledge/ Technology
Dey, Malesios, De, Chowdhury, & Abdelaziz (2020)	Sustainability Performance	Economic Performance Social Performance Environmental Performance

Wherewith this research is still important factors such as Government Support (GS) that drive the sustainability of the rubber farmers' institutions with the following components:

1) Policy or fund, which is, subsidized from the government to help farmers' rubber a bid boost farmers' income. The government would set floor prices for some rubber products, including unsmoked sheets, latex and cup lumps, and farmers would be paid the price difference (Bangkok Post, 2018).

2) To increase the potential of rubber farmers by training (Giroh, Taphee, & Moses, 2009). This is to make them have the good attitude and ability for the innovation. In addition, this is to enhance more the effectiveness of the public relations. (Office of the Rubber

Replanting Aid Fund, 2020). At the same time, the Education Attainment of the farmers does play a big role toward a decision-making of prospects in rubber farming business. The farmers with Lower Education tend to rely on and stick with the rubber cultivation both in short-run and long-run. Unlike the farmers with Higher Education that are more flexible, they are more likely to stay in the business just for a short period of time which lead to when their rubber tree will not reproduce anymore, they willingly to crop something else instead. In addition, the number one reason that make the rubber farmers choose to plant the rubber tree still is because it is a family business that they pass through generation-to-generation (Thanyarat Koomkanab, 2015).

3) Soft loan or providing low-interest loans therefore entrepreneurs can borrow money. Presently, Thailand provides soft loans from 2 sources: 150,000 million baht through Government Savings Bank (GSB) (Parpart, 2020) and another source is Bank of Thailand with the implementation of an Emergency Decree within the amount not exceeding 500,000 million baht for lending to small and medium enterprises /entrepreneurs who are former debtors with a credit limit of the group with each financial institution not exceeding 500 million baht (Bangkokbiznews, 2020).

From the review of literature, concepts, theories, and researches of the factors related to the Sustainability, the model comprised 3 variables, as shown in Figure 2.6.

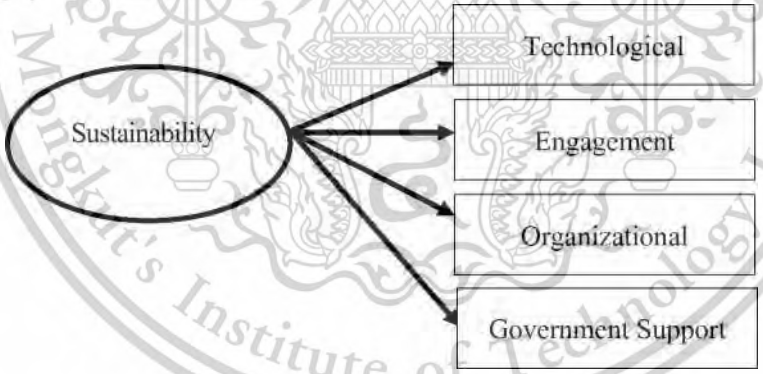


Figure 2.6 Model of Sustainability

2.4 Theories and Concepts about Brand Image

2.4.1 Definition of Brand Image

Robinson and Barlow (1959) defines brand image as self-image of the institute and organization that the people connect in their mind. They can perceive and gain from direct experience or word of mouth. Jefkins (1993) explained that brand image is the overall impression of the organization that the people can recognized as a positive image. Kotler

(1991), a well-known marketing specialist noted that brand image referred to four aspects: attributes, benefit, value and personality. He added if any organization concentrate on just the name of the product, the organization misunderstands about the key of brand image. Kotler (2000) stated that brand image is the concept, impression and belief that the people has towards the entity. The attitude and action play an important role in brand image and Kotler (2006) added brand image referred to name, term, symbol, design or all of them to distinguish one brand from other brands. Virat Lapirattanakul (1997) gave the extended definition of brand image or self-image of the company. It is not only the impression in consumers' mind towards the business, but also the image associated with the management, service and product. The definition of brand image covers all area of the company.

From the several definitions of brand image, it could be concluded that it can be defined as a positive impression of the consumers about a company, product, and service. The brand image is aimed to make the consumers remember the organization's character and product through their own experience or word of mouth. Correspondingly, the brand image of the farmer institute and rubber group should be positive so that the Para rubber framer could recognize them in the favorable way through their own experience or word of mouth.

2.4.2 The Elements of Brand Image

In this research, Element of Brand Image that proposed by Wijaya (2013) had been adopted as a one of the frameworks since it is relevant to the sustainable model of the rubber farmer institute registered as juristic person. The elements of Brand Image were demonstrated below.

1) Brand Identity refers to name, logo, color, slogan, tagline, and vision, the personality of executive or typeface of institute/group of rubber framer.

2) Brand personality refers to institute/group's character of rubber framer.

3) Activity refers to the income, profit, satisfaction, management and administration of institute/group in term of training and the participation of rubber framer and so forth.

The above elements shared the same significant with the study of Tur-Porcar, Roig-Tierno, and Mestre (2017) that the key factor that leads to the sustainability of organization is activity including profit, satisfaction, management and administration of institute/group. Another factor is human relation such as the reputation of the leader of institute/group. Apart from the above concepts regarding to brand image, researchers and scholar studied more literature review, concepts, theories, and researches about latent variables related to the brand image, concluding the observed variables, as shown in the Table 2.7.

Table 2.7 Literature Review of Brand Image

Scholars/Researchers	Latent Variables	Observed Variables
Beristain & Zorrilla (2011)	Image	Brand Activity/Social/Marketing Brand Identity Brand Personality/Strategic
Suhartanto, Clemes, & Dean (2013)	Brand Image	Brand Uniqueness Brand Activity
Ishaq, Hussain, Asim, & Cheema (2014)	Brand Image	Brand Identity Brand Personality
Campon-Cerr, Hernandez-Mogollon, & Alves (2016)	Image	Experience Activity Uniqueness Personality
Khazaei et al. (2016)	Corporate Image	Brand Activity Brand Identity Brand Personality
Latif, Islam, Mohamad, & Sikder (2016)	Brand Image	Modem Marketing/Activity Brand Identity
Tur-Porcar et al. (2017)	Brand Image	Human Relations/Personality
Shahsavar & Sudzina (2017)	Image	Brand Activity Brand Identity Reliability
Hafez & Akther (2017)	Corporate Image	Brand Identity Brand Personality
H. T. Nguyen et al. (2018)	Corporate Image	Brand Identity Social/ Marketing/ Innovative Activity Brand Personality
Jung et al. (2020)	Brand Image	Information/Brand Identity Good Image Personality

From table 2.7, it could be concluded that brand image consisted of three variables: 1) brand identity, 2) brand personality, and 3) activity.

After analyzing and investigating concepts, theories, and studies on the factors of the

brand image, the model of variable of brand image was demonstrated below in figure 2.7.

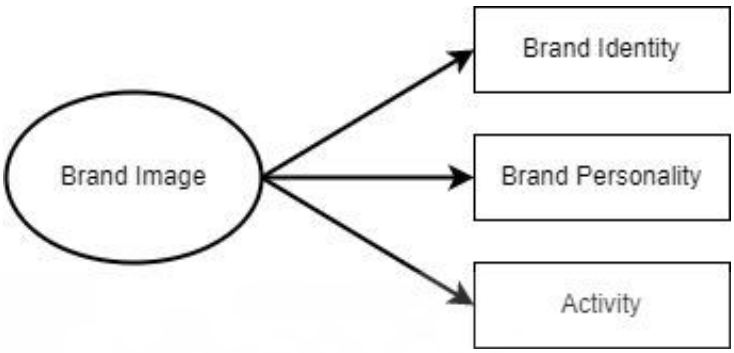


Figure 2.7 Model of Brand Image

2.5 Theories and Concepts about Perceived Value

2.5.1 The Definition of Brand Perceived Value

The definition of brand perceived value has been defined in various ways as follow. Anderson, Jain, and Chintagunta (1993) noted that consumers' perceived value is a result of when the consumers satisfied with the product or service. It is divided into two types: perceived value of prince and perceived value of quality. Newman and Gross (1991) categorized the perceived Value into five aspects. Each aspect was described below.

1) Functional Value can be defined as an advantage that one can get. It can be tangible or intangible benefits. For example, the member of the rubber framer institute/group can earn turnovers, dividends and the regular training.

2) Social Value is the value the consumers experience from the surrounding at that time. This value reflects whether the consumers is praised or accepted from the other people. Thus, the products and service should promote consumers' social status so that the consumers can create their identity and self-worth.

3) Emotional Value refer to the value that the consumers share the additional emotion in the products. This type of value occurs when the consumers get the efficient service. For instance, if the members of rubber framer institute/ group are well treated as one of the group, they will get pleasant experience and positive impression, which lead to the royalty. Thus, this is the significant variable of the costumers' experience.

4) Epistemic Value is the value that the consumers gain the new experience from the products and service because the consumers long for trying new products. The curiosities of the consumers result in the change of consumer behavior. To explain this, they tend to purchase the new product that they had never had the experience before.

5) Condition Value is the value of the product and service that the consumers are currently experiencing.

Petrick (2002) reasoned that the instrument that had been used to measure the perceived value can merely indicate that tangibles results. Thus, he develops the instrument that covers other dimensions. Zeithaml (1998) developed the model of how perceived value could be measured. This method called SERV-PERVAL scale. The results of the many studies revealed that SERV-PERVAL is reliable and accurate. The model consists of five related dimensions: Quality, Emotional response, monetary price and Behavioral price.

Zeithmal (1988) stated that behavior cost is not only the money that the consumers pay for, but also the time and the effort that they spend and put into searching for the service. The model of Zeithmal (1988) has been supported by the study of Dodds (1996). The results revealed that the perceived value is a result of many factors such as price and the name of the brand that the consumers use as an indicator to make a decision. The same goes to (Raiji & Zainal, 2016). The cost was not only the value of product and service, but also time and the attempt on searching for service. Thus, these are cost the consumers pay for.

With respect to above concepts and theories, many studies examined latent variables related to perceived value. The observed variables could be concluded in table 2.8.

Table 2.8 Literature Review of Perceived Value

Scholars/Researchers	Latent Variables	Observed Variables
Karajaluoto et al. (2012)	Perceived Value	Functional Social Emotional Monetary
Suhartanto et al. (2013)	Perceived Value	Functional Emotional
Pongcharnchavalit and Fongsuwan (2014)	Customer Perceived Value	Functional value Social value Emotional value
Koupai et al. (2015)	Perceived Value	Functional value Social value Emotional value Epistemic value Monetary value

Table 2.8 (Continue)

Scholars/Researchers	Latent Variables	Observed Variables
Khazaei et al. (2016)	Perceived Value	Functional value
		Social value
		Emotional value
		Monetary value
Marakanon et al. (2016)	Perceived Value	Functional
		Social
		Emotional
		Epistemic
Fazal & Kanwal (2017)	Perceived Value	Function
		Emotional
Lin, Lobo, & Leckie (2017)	Perceived Value	Function
		Social
Shahsavar & Sudzina (2017)	Perceived Value	Functional
		Social
		Emotional
		Epistemic
Chieochankitkan (2018)	Perceived Value	Functional value
		Social value
		Emotional value
		Epistemic value
		Conditional value
Chanaveerawon (2018)	Perceived Value	Quality
		Behavioral price
		Emotional value
		Monetary value
H. T. Nguyen et al. (2018)	Perceived Value	Functional value
		Monetary value
Strenitzerova & Gana (2018)	Perceived Value	Functional value
		Monetary value
Durongdumrongchai et al. (2019)	Perceived Value	Functional
		Social
		Emotional
		Epistemic

As demonstrated in table 2.8, the observed variables of perceived value could be classified into five types: 1) functional value, 2) social value, 3) emotional value, 4) epistemic value, and 5) monetary value. From the review of literature, concepts, theories, and studies of the factors related to the perceived value, the model of perceived covered five variables, as shown in figure 2.8.

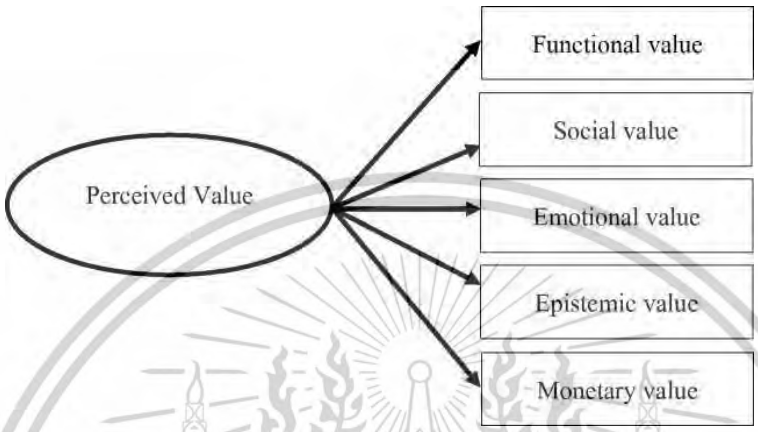


Figure 2.8 Model of Perceived Value

2.6 Theories and Concepts of Satisfaction

2.6.1 The Definition of Satisfaction

Morse (1958) stated that individuals have the desire in nature. After the desire has been fulfilled, their state of mind will be clear, and this is called "satisfaction". In contrast, if the need has not been fulfilled, it causes stress and dissatisfaction. Vroom (1964) noted that satisfaction refers to a result of participating in activity that leads to positive attitude towards that activity; negative attitude can indicate dissatisfaction. Maynard Shelly (1975) studied the notion of satisfaction, and it could be classified into two types: positive and negative feeling. The positive feeling produces the sense of pleasant, but this type of pleasant is different. To explain this, the feeling of pleasant can make other favorable feeling. The positive and negative feeling as well as the complicated feeling can create the concept of satisfaction.

Sirikarn Chanruang (2000) defines satisfaction as a feeling such as feeling of love, pleasant, contend, gladness, impression, agreement. These feeling can produce the satisfaction, sacrifice, and devotion to the job. Pisit Kaojan (2003) asserted that satisfaction is a positive feeling that the employees has towards their profession. This feeling can arouse the feeling of appreciation, enthusiasm, determination, and the morale of the employee to work. All this feeling has impacted on the effective work and the organization's success.

From the above literature review, it could be inferred that satisfaction include the need,

feeling and attitude that individuals have towards an entity. It also fulfilled the different need of each person, and it is the key factor to achieve the goal.

2.6.2 The Definition of Consumers Satisfaction

Parasuraman, Zenithami, and Berry (1985) explained that consumers' satisfaction could be measure by top-down approach. This approach examines the five main factors of the service that the consumers concern. (1) Tangibles refer to the quality of equipment, personnel as well as a determined attempt that show how the service is important. (2) Reliabilities refers to the creditability and accuracy in service. (3) Responsiveness refers to the willingness and enthusiasm to provide prompt service. (4) Assurance refers to the knowledge, proficiency, courtesy of the staff that promote the reliability and trust in the consumer. (5) (Empathy) refers to the ability to pay attention to the consumers and provide service upon the different needs of each consumers appropriately.

Millet (1954) noted that consumer satisfaction could be measure by several dimensions. Equitable service is whether the consumer is treating equally or not. Timely service refers to punctuality of the service that can meet the need of the consumers. Adequacy service refers to the providers papered the place, equipment and staff sufficiently. Finally, Continuous and progressive service refer to the development of the service in term of quality and quantity aspect to create the better service.

Siriwan Serirat et al. (1998) mentioned that service business shares the same marketing mix as the product that is product, price, place and promotion. Moreover, it includes other factors such as people, physical evidence and presentation as well as process. Prenee Koojaroenpaisan et al. (2002) claimed that the interaction between the staff and consumers dominate the consumers satisfaction in service business. For instance, the staff should be polite and friendly and respect the consumers. The staff should not only make the consumers warmly welcome, but also interact with the consumers in a good manner. The staff is the key factors that determine the consumer satisfaction and the consumer loyalty.

1) The satisfaction plays an important role in indicating the characteristics of services. The executive have to conduct a survey on consumer satisfaction towards the product and service because the results can reveal the attitude and comments of the consumers on the product and service. Thus, the providers can offer the service that meet the need in each aspect of the consumers.

2) Consumer satisfaction is the significant variable in evaluating the quality of service. If any providers can offer the service that meets the need and expectation of the consumers, the consumers continue to get the same service. The quality of service depends on place, equipment the personality of the staff, the creditability of the service, the willingness of the staff as well as the ability to provide service with the reliability and compassion.

3) Employee satisfaction is one of the indicators of the success of service business. Giving precedence to employee satisfaction is as crucial as consumer satisfaction. If the employees are fulfilling their desires of their career, they can perform their task effectively and that leads to consumer satisfaction and the success of the business.

To summarize, employee satisfaction refer to the positive perception that employees has at work by evaluating their experience and wage including wage rate, career progression and the advantage that employee expected. On the other hand, the job dissatisfaction refers to negative viewpoint because of unfulfilled desire of the wage. The two types of satisfactions correlate with service satisfaction, especially for employee and consumers that play a vital role in effective service. If the service business can offer the satisfactions beyond the need of employee and consumers, the service business will gain advantage as well. Accordingly, satisfaction can be defined as the positive perspective that meets the need of the employees and the consumer.

The satisfaction is crucial in-service business achievement. The executive should not only offer the satisfaction to the employee but also the consumers since the progress of the business is a number of consumers. Thus, the executive has to investigate the factors that are relevant to employee and consumer satisfaction and the measurement of the satisfaction. Whether the satisfaction is effective or not depends on the service of the business and the consumer attitude towards several dimensions. The satisfaction can be measure by different ways as follow.

1) Survey: Survey is widely used as an instrument by asking the target participant to response the question.

2) Interviewing: This method requires the professional interviewer to see whether the response is relevant or not.

3) Observation: This method needs to be performed with the effective procedure since the aim of observation is to notice before the consumers receive a service, while receiving a service and after receiving a service.

Hence, the measurement of the satisfaction can be performed in several ways depending on the objective and the appropriation of the measurement.

2.6.3 The Characteristics and Components of Consumer Satisfaction on Service Quality

In order to deliver a good service quality, it is vital to apply marketing strategies so that the providers can meet the need of the consumer by understanding the characteristics and components of consumer's satisfaction on service. The characteristics of satisfaction on service quality play an important role in operating effective service.

Satisfaction can be defined as the fulfilled expectation of individuals towards service.

Individuals experience deferent kids of service and circumstance since they have different background on how they interact and evaluate the quality of service. Satisfaction is a result of the difference of what the consumers expect and what the consumer's experience. The consumers have held their own expectations and experiences towards the service; moreover, they can come from other people's experience, advertisement and the commitment of the providers.

Satisfaction can be mutable all the time depending on several factors and circumstances. For example, consumer has different expectation in each setting. Timing is also important because the consumer only satisfies with some service in particular period, and their satisfaction can be changed from positive to negative or from negative to positive because of timing.

The components of satisfaction on service quality

1) Satisfaction on service quality can be measured by the perception and evaluation of service quality from the feedback that the providers gain from various situation and timing and the expectation that the consumer has on the service. Hence, the components of consumer satisfaction on service quality compose of two key elements.

2) The perceived quality: The consumers can identify whether they are offered the service that the providers have claimed or not. For instance, the guest can get the reserved room or the consumers get food that they order or the passenger can reach their destination or the consumers can get help with their financial problem. This means the providers should offer the service that is relevant to their business so that they can meet the need of the consumers.

3) The perceived qualify of how service is offered: the consumers can recognize how the service is offered and indicate whether it is appropriate or not. It includes the accessibility of the service, the manner of the staff under their responsibility. Moreover, how the staff communicates and interacts with the consumers is included. For example, the waitress interacts with the consumers politely or the banker pay attentions to the consumers explaining the regulations about loan agreement. It shows that service mind is crucial for consumer's satisfaction.

In conclusion, the satisfaction on service qualify is a result of the providers and consumers evaluation of service characteristics and how the service is delivered. If the need of the consumer has been fulfilled, they will be pleased. In contrast, if the service cannot meet the consumer expectation, they won't be satisfied.

2.6.4 Satisfaction Measurement

Boonreang Kajornsin (1985) stated that attitude is abstract and complicated. Thus, it is difficult to measure the attitude in a direct way, so it could be measured with an indirect way. To explain this, attitude can be evaluated through the comments, but the result can be

inconsistent because some consumers do not speak their mind. Nonetheless, the inconsistent of the result can be found in other methods.

Pamida Chaipunya (1998) pointed out that attitudes are measured through the following ways. 1) Questionnaire: The aim of questionnaire is to gather information horn respondents. The respondents are required to answer a series of question that is relevant to the several dimension of the satisfaction. 2) Interviewing: Structured interviews should be used for collecting reliable data. 3) Observation: This method can be performed by observing the language use, manner, and reaction of the target group. The procedure of the observation should be structural.

From the review of the literature, the satisfaction on service is defined as a personal fulfillment related to several factors that can meet need of the individuals. Satisfaction on service can be express through the action that the individual has towards the activity. Accordingly, the concept satisfaction on service had been selected as one of the instrument of this research. The satisfaction of rubber members has towards the rubber farmer institute can be referring to the following aspects.

1) Economic: The price of the rubber under the rubber farmer institute should be higher than market price. The members can have the power on negotiation; furthermore, the members can earn dividend and an extra-income as a member of the group.

2) Knowledge: A member can understand and use the strategic benefit and information technology effectively. They comprehend the information of demand and supply, risk and labor market.

3) Stability: The stability and the competitiveness in export should be prioritized. The career progression of the executive should be promoted, and the institute should provide the welfare and scholarship to a member and a member's family.

4) Participation: The member can take part in the regulations and amendment, decision making, voting, and making a plan. Moreover, they can engage in manufacturing process, developing product, shipment and producing invention with the use of technology.

Huntington and Nelson (1975) concluded that there are 2 characteristics of participation as follows.

1) Activity style: considering activities to participate, such as politics, considering the public participation in the election, referendum on the case that how much the government project affecting people can be implemented.

2) Management level: considering the structure of an organization will have a command line, which the participation includes (1) the horizontal participation is all parties will be equal in position, the horizontal participation is loosely proceeded without seriousness. This may be because of same status or position; (2) the vertical participation is the participation based on the line of command, for example, having subordinates and supervisors, having

departments in a hierarchy manner, the working will be, therefore, monitored in a hierarchy manner, the exploitation for oneself or others will be examined by supervisors and colleagues in other departments; (3) the horizontal and vertical participation: he/she sometimes has to work with supervisors and colleagues in other departments, therefore he/she must show his/her role according to the horizontal and vertical status.

Phaiboon Wattanasiritham and Phantip Phetmak (2008) summarized six ladders of public participation in the community development as follows:

1) Public Information: people are affected; therefore, government agencies must inform the public about the details of projects to be implemented including the potential impacts, such notification shall be done before making decision to implement the projects.

2) Public Consultation: It is a form of participation with meeting for discussions between project operators and relevant people in order to listen to opinions and examine additional information. Addition, it is also a channel for distributing news and information to the public and related agencies for understanding and providing suggestions for decision making options.

3) Public Meeting: It is an opportunity for people and relevant parties in the project or activity and those with power to make decisions to use the public platform to make understanding and organize the meeting to listen to opinions, such as community meeting, technical meeting.

4) Public Hearing: It is a meeting with a systematic operation procedure and more clearness; it is a platform for openly presenting information, without hiding to those who have gains and loss in the project. The congregation and the meeting committee must have the participant elements that are accepted with clear criteria and issues for consideration and clear notification to all parties.

5) Decision Making: It is the top target of public participation to allow the public to make decisions on those issues, which may be implemented by choosing representatives as committees to have the power on decision-making.

6) Use of legal mechanisms: it is the action based on laws that are preventive, corrective and enforceable for public benefits in claiming or protecting their rights due to being unfairly treated in order to obtain the benefits that they should obtain, the Constitution of the Kingdom of Thailand has provided many principles of public participation and people can exercise their rights based on the constitution in the form of individual or organizational group as prescribed by law.

After the researches about satisfaction had been reviewed, it found that numerous scholars and researchers proposed different concepts of observed variables of the satisfaction, as shown in table 2.9.

Table 2.9 Literature Review of Satisfaction

Scholars/Researchers	Latent Variables	Observed Variables
Suhartanto et al. (2013)	Customer Satisfaction	Satisfied Customers
Koupai, Alipourdarvish, & Sardar (2015)	Satisfaction	Satisfied Customers Customer perceived concepts used by different businesses Reflects customer's expectations and a comparison between these two elements will determine customer satisfaction.
Khazaei et al. (2016)	Customer Satisfaction	The satisfies customer's necessities. Positive experience
Campon-Cerro et al. (2016)	Satisfaction	Everything customer needed to have a satisfying experience. Good experience Customer's expectations were fulfilled at all times.
Hafez & Akther (2017)	Customer Satisfaction	Satisfaction as an overall evaluation dependent on the total purchase and consumption experience of the target product or service performance Compared with repurchase Expectations over time.
Fazal & Kanwal (2017)	Satisfaction	Fulfilled Perceptions Satisfied Customers
Shahsavar & Sudzina (2017)	Satisfaction	Perceived performance meets or exceeds the customer's expectations
Chieochankitkan (2018)	Satisfaction	Expectation Performance Disconfirmation Satisfaction
H. T. Nguyen et al. (2018)	Customer Satisfaction	Satisfied Customers

Table 2.9 (Continue)

Scholars/Researchers	Latent Variables	Observed Variables
Strenitzerova & Gana (2018)	Satisfaction	Fulfilling expectations about the services, the company provides to the customer. Overall satisfaction with the product
Jung et al. (2020)	Satisfaction	Satisfactory

From table 2.9, it could be summarized that satisfaction can be defined as fulfilled perception of the consumers. In other words, satisfaction reflects consumer's expectations and a comparison between; these two elements will determine customer satisfaction. For this research, the observed variables of the rubber farmer institute/ the group of rubber farmer registered as juristic person consisted of four variables: 1) economics, 2) knowledge, 3) stability and 4) participation.

From the review of literature, concepts, theories, and researches of the factors related to the satisfaction, the model of satisfaction which is comprised mainly of four variables was demonstrated in figure 2.9.

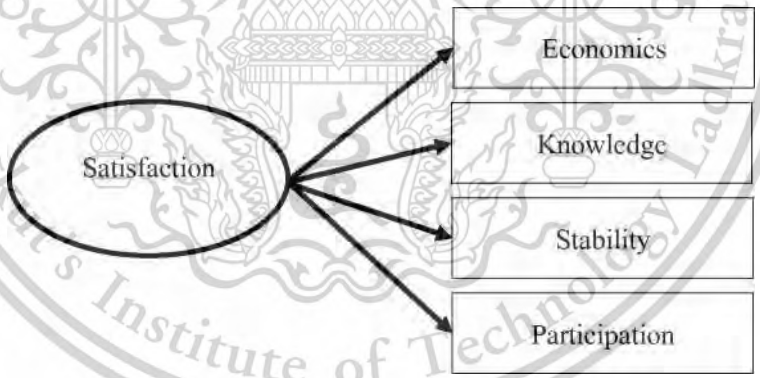


Figure 2.9 Model of Satisfaction

2.7 Theories and Concepts of Trust

Many scholars provide the various definitions of trust as follow.

Rotter (1971) gave the definition that trust is the belief that an individual has confidence in a person or an organization. Trust comes from words, actions, commitment of a person or institute. Golembiewski and McConkie (1975) explained that trust is the expectation that a person can rely on other persons. Trust can refer to the anticipation of positive result including

a risk and uncertain result.

In contrast, Cook and Wall (1980) mentioned that trust is a confidence in colleague, executive and their ability. This definition is in accordance with Morgan & Hunt (1994) that trust plays an important role in self-image of the executives since they represent the organization when dealing with the consumers. Thus, trust includes the involvement of those who exchange the reliability and integrity, and their rapport should be in marketing aspect related to behavior and phycology dimension.

Lewicski, McAllister and Bries (1998) noted that trust is anticipation on a positive action of the other people. Trust contains with five letters: T, R, U, S and T, and each letter stand for different terms giving meaning to trust. T = Truth, R = Reliability, U = Understanding, S = Service, and T = Take your time. Perry and Mankin (2007) mentioned that trust is one of the indicators of the relationship between the consumers and the service business since trust and service is abstract concepts.

Covey (2007) defines trust as "resuh". It is the result of brand loyalty that the consumer has towards the product and service and the result of a source of inspiration that the consumers can gain. For this reason, the consumers not only continue purchase the brand's products but also promote the product. Furthermore, the result can bring the confidence in executive and staff as well as the supplier to become partnership.

Fox (1974) claimed that there are different types of trust. The successful organization has three basic types of trust: 1) Lateral trust is the trust among the people in the same hierarchy. 2) Vertical trust is the trust between employer and employee, and 3) external trust is the trust between organization and consumers or supplier. In other words, trust can be categorized into two types: intra-organizational trust and inter-organizational trust.

According to Luhmann (1979), trust is the belief that an individual can trust employer and the organization. Trust also produces the confidence in the organization resulted in efficiency in the workplace since the workers can share their opinion freely and participate in more activities. This is the drive to achieve the goal of the organization. Trust can be classified into 5 levels.

Level 1: Blind trust refers to a trust that the individuals establish without knowledge of holding their trust.

Level 2: Calculative trust refers to a trust that related with the economic gains and cheating to determine whether the individual can be trusted or not.

Level 3: Verifiable trust refers to the confidence that one party has the right to inquire another party whether it can be trusted or not.

Level 4: Earned trust is the result of the experience that one party gains from another party.

Level 5: Reciprocal trust is the mutual trust; in other words, it is the trust that two

parties have the confidence in each other.

Lassoued and Hobbs (2015) explained that trust is one of the factors that the consumers concern when purchasing online products resulted in the decreasing of online shopping since the consumer do not have the confidence in the quality and safety of online products. Moreover, the confidence in the characteristics of the organization plays an important role in brand loyalty. Trust in brand image depends on several factors.

1) Brand Competence is the ability to meet the need of the consumers and to become a desired brand of the consumers.

2) Brand Credibility is the confidence that consumers has towards the brand image that the organization determine to provide the best service and product to meet the need of the consumers. Because of the reliability, the consumers can recognize the quality and value of the brand image.

3) Brand Benevolence refers to the desire of the organization to contribute the advantages to the consumers after the consumers purchase the product. For example, the organization concern about consumer's heath. Furthermore, brand benevolence can refer to using profits to improve the community, society and environment.

4) Brand Reputation refers to the positive opinion, confidence and reliability that the consumer has about the product and service. Brand Reputation not only comes from the marketing strategy but also comes from the quality of product and service. Moreover, it leads to positive expectation of the consumers towards the product and service.

Following the concepts and theories of brand trust, a large number of researchers and scholars examined latent variables related to trust. The observed variables of trust could be concluded in Table 2.9.

Table 2.10 Literature Review of Trust

Scholars/Researchers	Latent Variables	Observed Variables
Karajaluoto et al. (2012)	Trust	Brand Competence Brand Credibility Brand Reputation
Sritharan, Zhang, & Sivarajah (2013)	Brand Trust	Brand Competence Brand Credibility Brand Benevolence
Pongcharnchavalit & Fongsuwan (2014)	Customer Trust	Brand Credibility

Table 2.10 (Continue)

Scholars/Researchers	Latent Variables	Observed Variables
Koupai et al. (2015)	Trust	Brand Competence
		Brand Credibility
		Brand Benevolence
		Brand Reputation
Huat, Salleh, & Yusoff (2015)	Trust	Brand Credibility
		Brand Reputation
Park & Kim (2015)	Trust	Brand Competence
		Brand Credibility
		Brand Benevolence
Marakanon et al. (2016)	Trust	Brand Competence
		Brand Benevolence
		Brand Reputation
Hafez & Akther (2017)	Trust	Brand Competence
		Brand Credibility
Fazal & Kanwal (2017)	Trust	Brand Competence
		Brand Credibility
Yuen, Wang, Wong, & Zhou (2018)	Trust	Brand Competence
		Brand Credibility
		Brand Benevolence
Jung et al. (2020)	Trust	Brand Competence
		Brand Credibility
		Brand Reputation

From table 2.10, it could be summarized that observed variables of trust including 1) brand competence 2) brand credibility 3) brand benevolence, and 4) brand reputation. After analyzing and investigating concepts, theories, and studies on the factors related to trust, the model of variable of trust was shown in figure 2.11

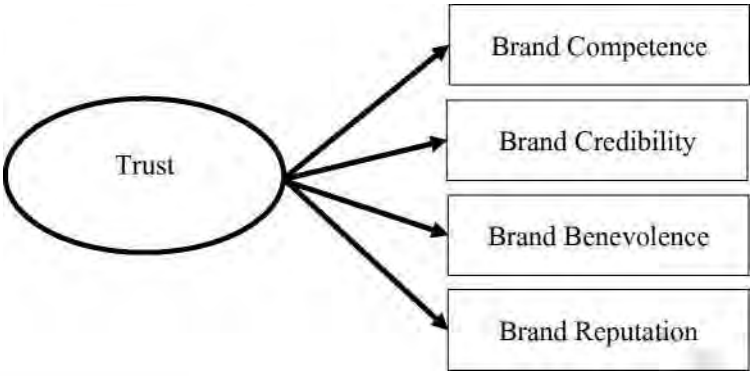


Figure 2.10 Model of Trust

2.8 Theories and Concepts about Brand Loyalty

2.8.1 The Definition of Brand Loyalty

Several definitions of brand loyalty were described below.

Aaker (2014) noted that brand loyalty is the positive view and satisfaction of the consumer about a product. This perception leads to the tendency of consumers to frequently purchase the products. In contrast, Chaudhuri (1999) indicated that brand loyalty is when the consumer continues the purchase a particular brand's products over another. It occurs when the consumer satisfy with the quality of the products. Haque (2013) and Das (2014) stated that brand loyalty is the consumer behavior that they maintain purchasing a particular product. The same goes to Schiffman and Kanuk (2010). They reasoned that brand loyalty is associated with the satisfaction towards the product of the consumers that result in repeatedly purchasing a specific brand.

Kitti Siripullop (1999) defines brand loyalty as a set of positive perception and strong belief about a specific brand; in the other word, the consumers continuously purchase the same brand. It is said that getting a new consumer cost five to 25 times more expensive than maintaining the old consumers. Recently, there are a wide of range of product, together with many strategies that attract the consumer to experiment with the new brand. Consequently, promoting brand loyalty is the key strategy, and the importance of brand loyalty is summarized below.

1) High Sale Volume
2) Premium Pricing Ability
3) Consumers Retention

2.8.2 Brand Loyalty Indicators

To measure brand loyalty, Aaker (2014) classified brand loyalty into five levels.

Level 1: The first level refers to the non-loyal consumers since they do not interest in the brand, and they consider every brand as being adequate.

Level 2: The second level refers to the consumer who satisfies with the product and they formed their habit of buying the same brand.

Level 3: The third level refers to the satisfied consumer who has the power to change their brand loyalty because they have the budget to take risk of changing products.

Level 4: The fourth level refers to the loyal consumers. The loyalty can be related to the positive experience that the consumer has towards the product for this lever, the consumers consider brand as a friends.

Level 5: The fifth level refers to the committed consumers; in other words, this level refers to those who are completely loyal to the brand. They consider the brand as their identity, and they recommend the brand to other consumer.

According to Hawkins and Vel (2013), brand loyalty whereas can be divided into four stages and the degree of brand loyalty can be classified into six degree.

1) Cognitive Loyalty refers to consumers who consider the advantage that they can gain from offering, price and quality of the product.

2) Affective Loyalty refers to a positive attitude that consumers have towards the particular brand's products or service.

3) Conative Loyalty relates to the determination of purchasing the products.

4) Action Loyalty refers to the action of repurchasing a particular brand, and they are habitual consumer.

Levels of Brand Loyalty can be categorized into five groups.

1) Non-Loyal Buyer is those who recognized every brand as being adequate; thus, the brand does not play an important role in decision making of the consumers. Instead, they tend to select any product that it can easily to access or any product that offer discount. This group of consumer called switching group.

2) Habitual Buyer is those who satisfied with the specific brand without purchasing other related brands. This group of consumers does not tend to try other alternatives.

3) Switching-Cost Loyal Buyer refers to the consumer who satisfied with the particular brand with switching cost. If they aim to select other products, they will consider several factors such cost, time, quality and risk. It is difficult to convince this group to change their mind; thus, other brands should offer more advantage than they ever had gotten.

4) Friends of the Brand refer to those who have a favorable attitude towards a particular brand. They admire symbol and satisfy with the quality of the product; in addition, they have positive experience and long intimacy with the brand. This is because of emotional

result that the consumer has towards the specific brand.

5) Committed Consumers relates to the consumers who have completely loyalty to the specific brand. They take the satisfaction in using the same brand since the brand establish and show their identity. As committed consumers, they are likely to recommend the specific brand to other consumers.

Commitment can be measured by the feedback that the consumer has towards the brand by whether they satisfy with the brand, whether they have recommended the brand to other consumer and how they persuade other consumers to experience the brand.

Brand loyalty is probably a result of a positive attitude on the brand that the consumers have a confidence in the brand. It also comes from when the brand can meet the consumers' need or when the consumers continue purchasing the same brand. However, the marketing strategy plays a crucial role in brand royalty since brand royalty should be built otherwise the consumer will purchase other brands.

1) High Sale Volume
2) Premium Pricing Ability
3) Consumers Retention

In conclusion, brand loyalty can be defined as the commitment between the organization and the consumer; in other words, brand loyalty is the continuum of the consumer to repurchases the specific brand over other brands with a favorable attitude (Skogland & Siguaw, 2004). Having the strong and positive relationship with the consumer can benefit a business over its competitors. That the competitors offer the same quality of the products or services are not important since the consumers still have the confidence in the particular brand, and it continuously meets the consumers' need. For this reason, brand loyalty is formed (Weena Kositsurangkakul, 2003).

Apart from the given concepts and theories of brand loyalty, a number of researchers and scholars examined the latent variables related to brand loyalty, as shown in table 2.10.

Table 2.11 Literature Review of Brand Loyalty

Scholars/Researchers	Latent Variables	Observed Variables
Karajaluoto et al. (2012)	Brand Loyalty	Attitudinal Loyalty Behavioral Loyalty
Suhartanto et al. (2013)	Brand Loyalty	Attitudinal Loyalty Behavioral Loyalty
Sritharan et al. (2013)	Brand Loyalty	Attitudinal Loyalty Behavioral Loyalty

Table 2.11 (Continue)

Scholars/Researchers	Latent Variables	Observed Variables
Pongcharnchavalit & Fongsuwan (2014)	Brand Loyalty	Attitudinal Loyalty Behavioral Loyalty
Koupai et al. (2015)	Customer Loyalty	Attitudinal Loyalty Behavioral Loyalty
Marakanon et al. (2016)	Customer Loyalty	Behavioral Loyalty
Chang (2017)	Loyalty	Behavioral Loyalty
Hafez & Akther (2017)	Customer Loyalty	Behavioral Loyalty
Fazal & Kanwal (2017)	Brand Loyalty	Attitudinal Loyalty Behavioral Loyalty

From table 2.11, there were two observed variables of loyalty: 1) attitudinal loyalty and 2) behavioral attitudinal loyalty.

After analyzing and investigating concepts, theories, and studies on the factors related to loyalty, the model of variable of royalty was demonstrated in figure 2.11.

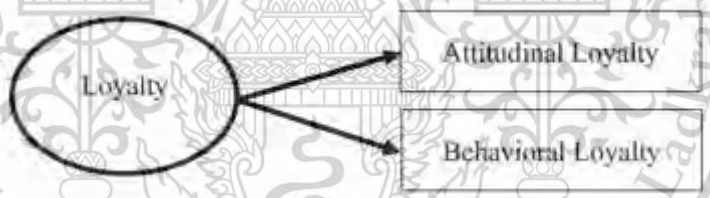


Figure 2.11 Model of Loyalty

2.9 Variables Relationship Analysis

From the study of the factors influencing the sustainability model of rubber farmer institution registered as a juristic person in Thailand, the researcher examined and reviewed the literature and researches related to the exogenous latent variables, mediator variables, and endogenous latent variables. The relationship among the variables was concluded as follows.

2.9.1 Relationship between Brand image and Perceived Value

Khazaei, Pool, and Taghipourian (2016) studied the relationship between brand image and perceived value by using structural equation model (SEM). The sample was 275 organizations. The result revealed that corporate reputation was associated with perceived

value. The key component of corporate reputation consisted of brand identity, brand personality, and activity. Similarly, H. T. Nguyen, H. Nguyen, N. D. Nguyen, and Phan (2018) noted that corporate image could be evaluated by the extent of customer perception on media channels, corporate social activities, and innovative activities. In addition, perceived value was found to be strongly correlated to corporate image.

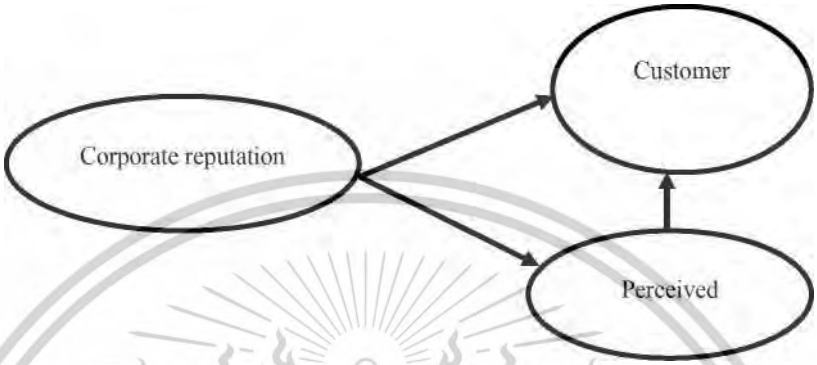


Figure 2.12 Proposed Model from Khazaei, Pool, and Taghipourian
Source: Khazaei, Pool, and Taghipourian (2016).

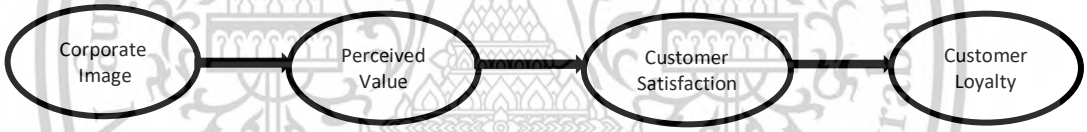


Figure 2.13 Proposed Model from H. T. Nguyen, H. Nguyen, N. D. Nguyen, and Phan
Source: H. T. Nguyen, H. Nguyen, N. D. Nguyen, and Phan (2018).

Suhartanto, Clemes, and Dean (2013) stated that the perception and memory that the consumer has towards the brand create brand image. Thus, positive brand image can strengthen perceived quality and customer satisfaction, and it can produce loyalty.

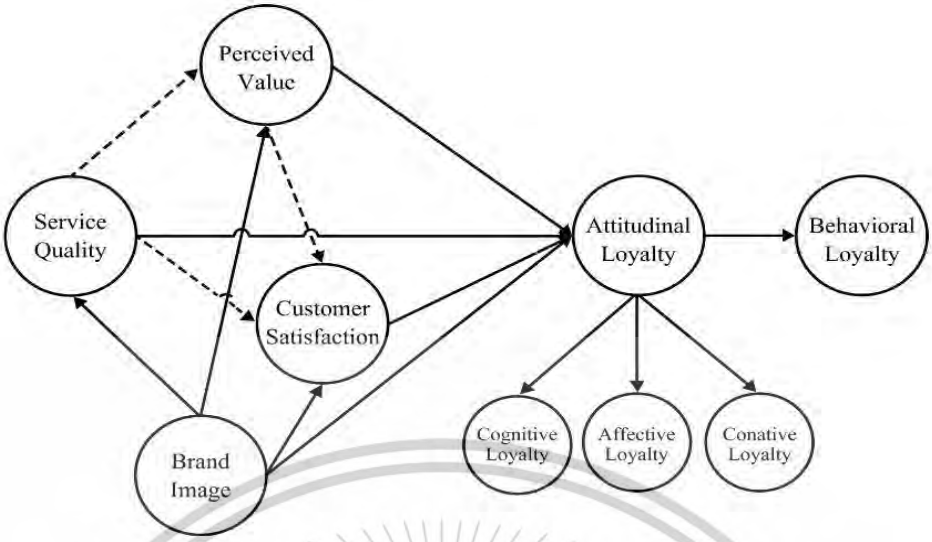


Figure 2.14 Proposed Model from Suhartanto, Clemes, and Dean

Source: Suhartanto et al. (2013).

Shahsavar and Sudzina (2017) conducted the research on "Student satisfaction and loyalty in Denmark: Application of EPSI methodology.'' Apart from the connection between quality of software and students' loyalty, the relationships among variables showed the significance. Moreover, the result indicated that university image significantly dominated the student loyalty with the direct effect; in contrast, perceived value influenced of student satisfaction. The findings suggested that the university should meet the students' expectation and improve students' experiences during the study.

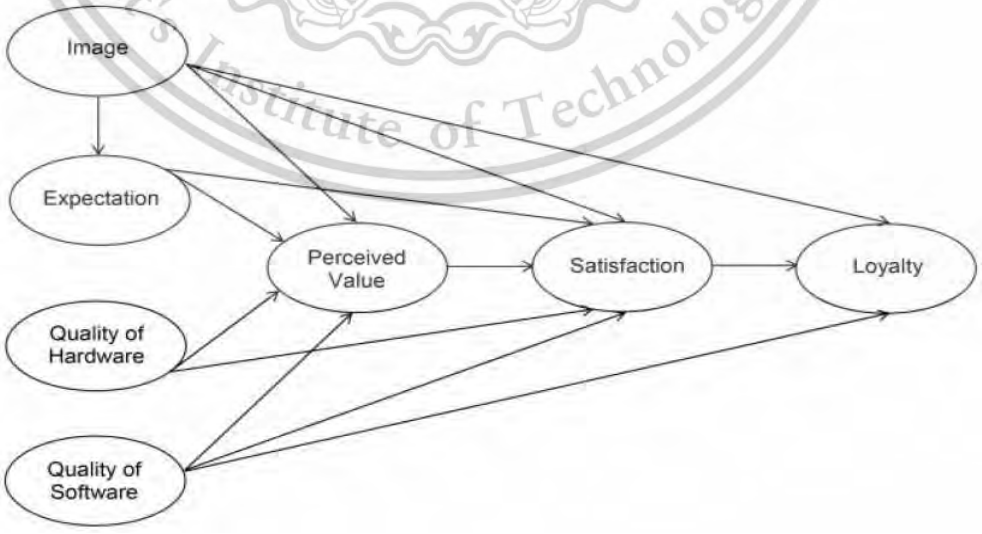


Figure 2.15 Proposed Model from Shahsavar and Sudzina

Source: Shahsavar and Sudzina (2017).

From the literature review, it led to the hypothesis that brand image had direct influence on the perceived value.

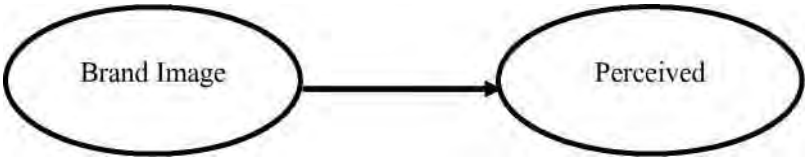


Figure 2.16 Model for Brand Image and Perceived Value

2.9.2 Relationship between Brand Image and Loyalty

Previous research suggests that brand image not only associate with perceived value but also customer loyalty. For instance, Jung et al. (2020) conducted the study on sustainable marketing activities of traditional fashion market and brand loyalty. The finding revealed that sustainable marketing activities resulted in brand image, trust, and satisfaction in positive way. The activities also created brans royalty. Furthermore, the study encouraged the organization, especially marketers to develop and formulate sustainable management strategies.

Figure 2.17 Proposed Model from Jung, S. J. Kim, K. H. Kim

Source: Jung, S. J. Kim, K. H. Kim (2020).

Similarly, Campon-Cerro et al. (2016) did the research on "Sustainable improvement of competitiveness in rural tourism destinations: The quest for tourist loyalty in Spain." The result affirmed that brand image plays an important role in increasing the overall satisfaction and loyalty. In addition, brand image enhances the equity of a specific type of distributor brand. Brand image consists of social, marketing, and strategic image, and it leads to brand royalty (Beristain & Zorrilla 2011).

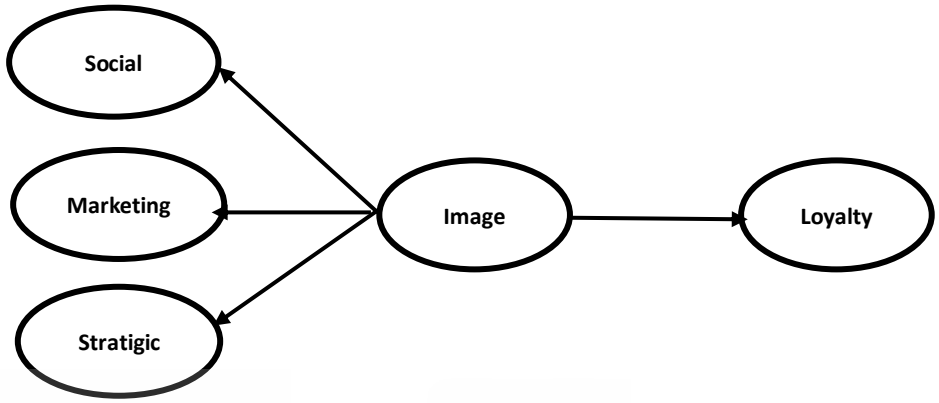


Figure 2.18 Proposed Model from Campon-Cerro et al.

Source: Campon-Cerro et al. (2016).

Corporate image has certain degree relationship with customer loyalty. It is one of the crucial determinants of customer loyalty because loyal customers tend to continue purchase more and spread positive word-of-mouth regarding service provider. Corporate and brand image are the indicator of customer loyalty (Hafez & Akther, 2017; Shahsavar & Sudzina, 2017).

Wasib et al. (2016) conducted the research on "Outcomes of Brand Image: A Conceptual Model." The result indicated that organizations are well-known that brand image will build a competitive advantage in the marketplace that will increase their overall image with long-term sustainability. Wasib et al. (2016) conducted the research on "Outcomes of Brand Image: A Conceptual Model." The result indicated that brand image plays an important role in establishing a competitive advantage for the organization, particularly in the marketplace since it can enhance the long-term sustainability of entire image of organization.

Ismail, Zainol, Yusoff, Owusu, and Ibrahim (2019) studied the development of CSM or Co-Operative Sustainability Model as a tool of planning strategy for sustainability. Five major drivers' member for the co-operative's sustainability were used as an indicator: 1) a strong support from the member 2) strong support system 3) effective management 4) the vision of organization 5) knowledge. Furthermore, this study suggested that strategies for co-operatives in sustaining their businesses.

From the literature review, it led to the hypothesis that the brand image had a direct influence on the loyalty.

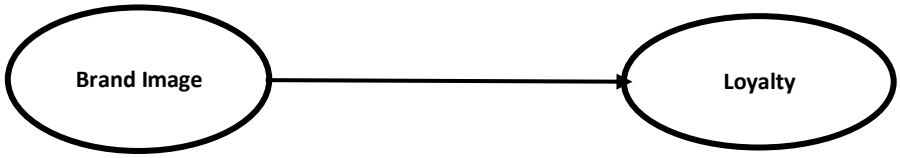


Figure 2.19 Proposed Model from Ismail, Zainol, Yusoff, Owusu, and Ibrahim
Source: Ismail et al. (2019).

2.9.3 Relationship between Brand Image and Sustainability

Tur-Porcar et al. (2017) analyzed the factors that lead to business sustainability planning. One of the factors that related rubber farmer institute registered as a juristic person in Thailand was human relations, and business activity. Ethical principles and values, together with competitive intelligence, are crucial for undertaking actions that lead to sustainability.

From the literature review, it led to the hypothesis that the brand image had a direct influence on the sustainability.

Figure 2.20 Proposed Model from Ismail, Zainol, Yusoff, Owusu, and Ibrahim
Source: Ismail et al. (2019).

2.9.4 Relationship between Perceived Value and Trust

Yuen, Wang, Wong, and Zhou (2018) conducted the research on "The effect of sustainable shipping practices on shippers' loyalty: The mediating role of perceived value, trust and transaction cost." The result revealed that "the relationship between SSP and shippers' loyalty was mediated by shippers' perceived value of SSP, shippers' trust in a shipping company's commitment towards sustainability, and sustainability-related transaction cost." This study offers an alternative theoretical explanation to the relationship and provides important managerial insights to strengthen shippers' loyalty through implementing SSP.

Surachet Pongchamchavalit and Wanno Fongsuwan (2014) studied "factors that how service quality affect customer loyalty in the Thai Information Technology (IT) business." For quantitative analysis, the data was collected from 294 IT customers in the Bangkok

metropolitan area. For qualitative analysis, 10 executives were selected as a sample by purposive sampling. The result revealed that because the customer perceived value affected customer trust, the customer's perceived value plays a vital role in ensuring customer satisfaction of the brand. This could lead long-term customer retention and loyalty.

Karajaluoto et al. (2012) concluded that trust and value are the key factor of long-term relationships. Furthermore, it was found that perceived value, which is positively associated with trust leads to the relationship. The results may be explained by the unique characteristics of the highly competitive mobile telecommunications sector and confirm the view that "loyalty does not pay" without strategies that value long-term customers and thereby build trust with new customers.

From the literature review, it led to the hypothesis that the perceived value had a direct influence on the trust.

Figure 2.21 Proposed Model from Karajaluoto et al.

Source: Karajaluoto et al. (2012).

2.9.5 Relationship between Perceived Value and Satisfaction

As this researcher focus on perceived value and satisfaction, previous studies which related to them had been analyzed as follow.

Anan Chieochankitkan (2018) studied "The Customers' Perception of Service Quality for Spa Establishments in the Active Beach Tourism Cluster, Thailand". Its objective was to evaluate the service quality, perceived value, service encounter, and customer satisfaction of spa customers. The study examined the European customers in Hua Hin district, Prachuap Khiri Khan Province. The study correlated with this research, the model of a rubber farmer institute's sustainability since it focused on perceived value. The result revealed that perceived value positively affects the customer satisfaction.

Koupai, Alipourdarvish, and Sardar (2015) conducted the research on "Effects of trust and Perceived value on customer loyalty by mediating role of customer satisfaction and mediating role of customer habit (case study: Agricultural internet bank customers in Tehran)." This research is in descriptive category. For measurement of information, questionnaires with five - option Likert Spectrum have been used. In the present study, descriptive and inferential

statistics were used to analyze the data using both SPSS and LISREL. Analysis of ANOVA was also used for adjustment test. In the descriptive level, using statistical parameters such as frequency and cumulative frequency, the charts were plotted and data were analyzed, and al inferential level, Cronbach's alpha was used to test reliability of questionnaire. Structural equation modeling (SEM) was used to confirm or reject hypotheses and confirmatory factor analysis was used to assess the ability of each variable to be explained by the questions in the questionnaire. The result indicated that perceived value the key strategy to maintain the customer royalty, especially for business customer. Similarly, Khazaei et al. (2016) found that perceived value had a positive effect on customer satisfaction. When perceived value increases, customer satisfaction also increases (Fazal & Kanwal, 2017). Moreover, H. T. Nguyen et al (2018) explained that Perceived value is the overall assessment result of the business through "what is received and what is given." Perceived value could be one of the most crucial measurements for creating a competitive advantage. Perceived value is considered as the indicator of the customer satisfaction. Consequently, "most customers expect to receive benefits that are greater than the cost. If they feel unexpected sentiments after purchasing, it will affect their perceived value."

Chalita Chanaveerawon (2018) examined the satisfaction on express courier services. This research focused on strategies that can improve and develop services. This research adopted quantitative approach by using questionnaires as a tool for data collection. The related factors were analyzed in group in order to indicate the new factors and to analyze the regression equation to test the hypothesis respectively. For collecting questionnaire, the sample group of 400 people, mostly female, aged 20-29 years. Next-day delivery was the most commonly used express delivery form. The results from Factor Analysis (PCA) found that service quality factors were service Responsiveness, service reliability and completeness of service. Factors of perceived value included emotional response, monetary price, reputation and brand image which are different from other studies. The study indicated that service quality factors including completeness of service, perceived value, emotional response, brand image, monetary price and reputation had a positive effect on the satisfaction of using express courier services.

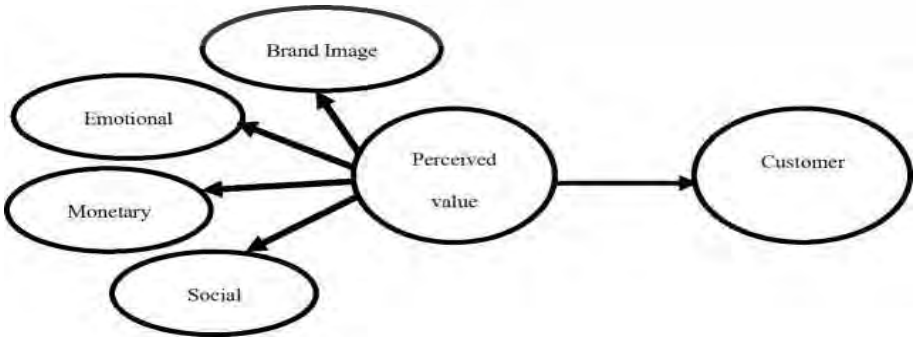


Figure 2.22 Proposed Model from Chalita Chanaveerawon

Source: Chalita Chanaveerawon (2018).

Surachet and Wanno (2014) studied "factors that how service quality affects customer loyalty in the Thai Information Technology (IT) business." For quantitative analysis, the data was collected from 294 IT customers in the Bangkok metropolitan area. For qualitative analysis, 10 executives were selected as a sample by purposive sampling. The result revealed that because the customer perceived value affected customer trust, the customer's perceived value plays a vital role in ensuring customer satisfaction of the brand. This could lead long-term customer retention and loyalty.

Figure 2.23 Proposed Model from Surachet and Wanno

Source: Surachet and Wanno (2014).

2.9.6 Relationship between Trust and Satisfaction

The study on effects of trust and perceived value on customer loyalty by mediating role of customer satisfaction and mediating role of customer habit (case study: Agricultural internet bank customers in Tehran) (Koupai et al., 2015). The result also indicated that the trust had an effect on customer loyalty since it created customer satisfaction and form purchasing habit of the customer. Moreover, satisfaction variable was associated with trust and had a positive and significant influence on establishment of loyalty. The same result goes to Surachet Pongcharnchavalit and Wanno Fongsuwan (2014) that customer who has trust in brand are more likely to satisfy with the brand than those who do not.

Ossama & Kanwal (2017) conducted the research on "Determinants of brand loyalty: A case study of Asian Mobile Phone Users." The result revealed that trust was important the brand since it was variable that produce consumers' commitment, especially in circumstances of high involvement of brand and customers. Moreover, it was found that "the effect of brand trust is strongest as compared to overall satisfaction in brand loyalty."

Hence, to study the relationship between trust and satisfaction and then ultimately on brand loyalty a hypothesis is designed.

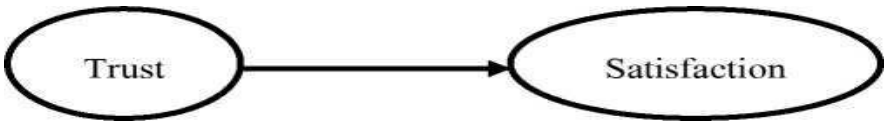


Figure 2.24 Proposed Model from Ossama and Kanwal

Source: Ossama and Kanwal (2017).

2.9.7 Relationship between Trust and Loyalty

Trust reflects the effectiveness, identify, and the culture of the organization, and it leads to the sustainability of the organization. (Yuen et al., 2018). Fazal and Kanwal (2017) studied the factors that lead to brand royalty. The result revealed that brand trust of customers plays an important role in creating brand loyalty. The satisfied customers are the loyal ones. In Pakistan, customer preferred the price comparison among brands, which influence their loyalty with their brand.

Numerous studies indicate that relationship trust dominate customer loyalty. For example, Koupai et al. (2015) examined trust on customer loyalty by mediating role of customer satisfaction and mediating role of customer habit in Tehran. The result found that trust had a positive impact on brand royalty. Trust in brand is a result of when the consumer can rely on the brand. Trust is one the factors that lead to brand loyalty. For instance, Park and Kim (2015) studied the difference of sustainable fashion brands fast fashion brands with a sample of 556 ป.ร. respondents. The results suggested that consumers form brand loyalty toward sustainable versus fast fashion in a different manner. Hence, the operators should put more emphasis on improving trust in order to increase loyalty among customers. (Hafez & Akther, 2017). The results from previous study showed that trust play an important role in developing the sustainable management of the organization (Jung et al., 2020.)

Huat et al. (2015) studied how small and medium enterprises (SMEs) survive in the business arena among established organizations. The result indicated that the advantage food business is uniqueness and its experience to maintain customer loyalty. In addition, it was found that the relationship between brand trust dimensions, and customer loyalty affect sustainable SME brands in Malaysia. Customer trust may lead to buying a product or service, and customer trust has a direct relationship with customer loyalty (Lalinthom Marakanon and Vinai Panjakajomsak, 2016).

From the research on the role of perceived value, trust, and transaction cost in mediating the effect of sustainable shipping practices (SSP) on shippers' loyalty, the results showed that "the relationship between SSP and shippers' loyalty is mediated by shippers'

perceived value of SSP, shippers' trust in a shipping company's commitment towards sustainability, and sustainability-related transaction cost" (Yuen et al., 2018). This research provides an alternative theoretical explanation to the relationship and provides important managerial insights to strengthen shippers' loyalty through implementing SSP. Thus, it can be said that brand loyalty is priceless; it comes from the long-term customer royalty (Karajaluoto et al., 2012).

Jung et al. (2020) emphasized that word-of-month is an important factor for maintaining a close relationship between brands and consumers; moreover, trust created the bond. Thus, in order to create brand royalty, consumer trust should be prioritized since it has a significant influence. Hence, the preceding discussion leads to the following hypotheses.

Figure 2.25 Proposed model from Jung, S. J. Kim, K. H. Kim

Source: Jung et al. (2020).

2.9.8 Relationship between Satisfaction and Loyalty

Numerous in-depth studies found that the satisfaction is associated with loyalty. For example, previous research affirmed that more the customers are satisfied with the brand products and services when they have a loyalty with the brand. (Surachet Pongchamchavalit & Wanno Fongsuwan, 2014). Furthermore, Fazal and Kanwal (2017) studied the aspects that have impact on the brand loyalty of mobile phones brand in market of Asia. The questionnaire was used for collecting data. It had been designed in a layout of seven-point Likert scale. The samples the research were 250 respondents in Pakistan. Specifically, they were the customers who have mobile phones of different brands using more than past two to three years. The result revealed that brand satisfaction positively influenced brand royalty.

Figure 2.26 Proposed Model from Fazal and Kanwal

Source: Fazal and Kanwal (2017).

Koupai et al. (2015) analyzed the effects of trust and perceived value on customer loyalty by mediating role of customer satisfaction and mediating role of customer habit. This research is in descriptive category. To describe the data, questionnaires with five - option Likert Spectrum had been used. Descriptive and inferential statistics were used to analyze the data using both SPSS and LISREL. The result indicated that satisfaction variable is mediator in loyalty.

Customer satisfaction is not only the outcome of the perceived performance of the product, but also the reflection of customer's expectations and a comparison between these two elements will determine customer satisfaction. (Shahsavar & Sudzina, 2017). When the customer expectations do not match with customer perceptions, customer dissatisfaction appears. Thus, satisfaction is important since it creates loyalty (Suhartanto et al., 2013).

Hafez and Akther (2017) conducted the survey of 200 telecom customers in Bangladesh from Dhaka city to determine the key determinants that significantly influence customer loyalty. To collect primary data, convenience sampling was used as a method. Several hypotheses have been extracted from the conceptual framework and are tested using One-way ANOVA, Multiple regression analysis. The result revealed that satisfaction has certain degree of relationship with loyalty.

H. T. Nguyen et al. (2018) conducted the research on "Determinants of Customer Satisfaction and Loyalty in Vietnamese Life-Insurance Setting." To analyze the data, 1476 customers during 2017 are required to complete the questionnaire. The results showed corporate image, service quality and perceived value were used to explain the customer satisfaction in life-insurance services. The findings suggested that a positive brand image created satisfaction, and the satisfaction produce the royalty.

Customer satisfaction has a huge impact on consumer loyalty since it can determine repurchase behavior. "Positive relationships with products or brands such as customer satisfaction have higher levels of brand loyalty" (Strenitzerova & Gana, 2018). Thus, a positive relationship between satisfaction and loyalty influences consumers' intent to repurchase the service and their willingness to recommend the brand to others. In addition, given that the relationship between satisfaction and loyalty is commonly accepted, as discussed previously.

Since the association between the customer satisfaction level and brand loyalty were examined, the following hypothesis is designed.

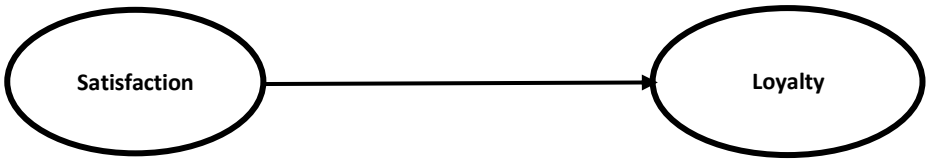


Figure 2.27 Proposed Model from Mariana Strenitzerova and Gana

Source: Strenitzerova and Gana (2018).

2.9.9 Relationship between Loyalty and Sustainability

Chang (2017) conducted the research on "Consumer Socially Sustainable Consumption: The Perspective toward Corporate Social Responsibility, Perceived Value, and Brand Loyalty." Its aim was to investigate the direct influence of CSR on consumer socially sustainable consumption. The findings revealed that the compelling predictor of socially sustainable consumption was found in the ethical and legal aspect of CSR than the philanthropic expectations aspect. Perceived value and brand loyalty also play significant mediating roles between CSR and socially sustainable consumption. Finally, some theoretical and managerial contributions in the field of marketing and management are discussed.

Nosratabadi et al. (2019) reviewed as follow; the concept of the sustainable business of 28 model describes the rationale of how an organization creates, delivers, and captures value, in 29 economic, social, cultural or other contexts in a sustainable way." The process of 30 sustainable business model construction forms an innovative part of business strategy. Different industries and 31 businesses have utilized sustainable business models'concept to satisfy their economic, 32 environmental and social goals simultaneously. However, the success, popularity, and the progress 33 of sustainable business models in different application domains are not clear. To explore this issue, 34 this research provides a comprehensive review of sustainable business models literature in various 35 application areas. Notable sustainable business models are identified and further classified in 36 fourteen unique categories, and in every category, the progress -either failure or success- has been 37 reviewed and the research gaps are discussed. Taxonomy of the applications includes innovation, 38 management and marketing, entrepreneurship, energy, fashion, healthcare, agri-food, supply chain 39 management, circular economy, developing countries, engineering, construction and real estate, 40 mobility and transportation, and hospitality. The key contribution of this study is to provide a 41 insight into the state of the art of sustainable business models in various application areas and future 42 research directions. This paper concludes that popularity and the success rate of sustainable 43 business models in all application domains have been increased along with the increasing use of 44 advanced technologies.

Ismail et al. (2019) did the research on "Developing a Co-Operative Sustainability

Model (CSM) in Malaysia: Whafs driving them." The objective of this research was to explores, proposes, and develops a cooperative sustainability business model (CSM) in exploring the sustainability orientation of the Malaysian cooperative industry. Extensive interviews were used as instrument to examine board members and managers of the five selected co-operatives. The result revealed that five major drivers showed the cooperative's sustainability including strong members' support, a better support system, effective management, an established business strategy and direction, and good knowledge required of the board members. The result of this study leads to the of sustainable businesses model that functions as a as a guide for all co-operatives.

Dey, Malesios, De, Chowdhury, and Abdelaziz (2020) argued that lean management practices (LMP) benefits small and medium sized enterprises (SMEs) whereas sustainability-oriented innovation (SOI) play an important role in environmental and social aspect. Moreover, the previous research on effect of SOI on sustainability and economic performance are undetermined. Another limitation is that the study the mediating effects of corporate social responsibility (CSR) practices (environmental and social practices) on both LMP and SOI achieving sustainability performance remains the myth. As demonstrated in the research gap, the objective of this study was to examine the reason why LMP, SOI, CSR practices, sustainability and economic performance are correlated. For data collection, 119 SMEs within manufacturing industries in the Midlands, UK were selected. The analysis indicated that that LMP and SOI provided the benefit for both sustainability and economic performance; and SOI mediates LMP to accomplish sustainability performance. Nonetheless, CSR practices mediate LMP mediate SOI only borderline to achieve sustainability performance.

Bocken et al. (2014) Eco-innovations, eco-efficiency and corporate social responsibility practices define much of the current industrial sustainability agenda. While important, they are insufficient in themselves to deliver the holistic changes necessary to achieve long-term social and environmental sustainability. How can we encourage corporate innovation that significantly changes the way companies operate to ensure greater sustainability? Sustainable business models (SBM) incorporate a triple bottom line approach and consider a wide range of stakeholder interests, including environment and society. They are important in driving and implementing corporate innovation for sustainability can help embed sustainability into business purpose and processes, and serve as a key driver of competitive advantage. Many innovative approaches may contribute to delivering sustainability through business models but have not been collated under a unifying theme of business model innovation. The literature and business practice review has identified a wide range of examples of mechanisms and solutions that can contribute to business model innovation for sustainability. The examples were collated and analyzed to identify defining patterns and attributes that might facilitate categorization. Sustainable business model archetypes are introduced to describe

groupings of mechanisms and solutions that may contribute to building up the business model for sustainability. The aim of these archetypes is to develop a common language that can be used to accelerate the development of sustainable business models in research and practice. The archetypes are: Maximize material and energy efficiency; Create value from 'waste'; Substitute with renewables and natural processes; Deliver functionality rather than ownership; Adopt a stewardship role; Encourage sufficiency; Re-purpose the business for society/environment; and Develop scale-up solutions.

From the literature review, it led to the hypothesis that the loyalty had a direct influence on sustainability.

Figure 2.28 Proposed Model of Loyalty and Sustainability

2.9.10 Hypothesis of the Research

The above literature review and conceptual framework form the relationship of variables which can determine the hypothesis of the research as follows:

Table 2.12 Summary of Variables, Hypothesis, and Researches Relationships

Relationship	Authors/Researchers
Hypothesis No. 1 (Hl): Brand Image has a positive effect on influence on perceived value.	Khazaei et al. (2016), H. T. Nguyen et al. (2018), Suhartanto et al. (2013), Shahsavar & Sudzina (2017)
Hypothesis No. 2 (H2): Brand Image has a positive effect on loyalty.	Jung et al. (2020), Campon-Cerro et al. (2016), Jose Juan Beristam et al. (2011), Hafez & Akther (2017), Shahsavar & Sudzina (2017), Latif et al. (2016), Ismail et al. (2019)
Hypothesis No. 3 (H3): Brand Image has a positive effect on sustainability.	Tur-Porcar et al. (2017)
Hypothesis No. 4 (H4): Perceived value has a positive effect on loyalty	Yuen et al. (2018), Surachet Pongchamchavalit and Wanno Fongsuwan (2014), Karajaluoto et al. (2012)

Table 2.12 (Continue)

Relationship	Authors/Researchers
Hypothesis No. 5 (H5): Perceived value has a positive effect on satisfaction.	Anan Chieochankitkan (2018), Koupai et al. (2015), Khazaei et al. (2016), Fazal and Kanwal (2017), Chalita Chanaveerawon (2018), Surachet Pongcharnchavalit and Wanno Fongsuwan (2014)
Hypothesis No. 6 (H6): Trust has a positive effect on satisfaction.	Koupai et al. (2015), Surachet Pongcharnchavalit and Wanno Fongsuwan (2014), Fazal and Kanwal (2017)
Hypothesis No. 7 (H7): Satisfaction has a positive effect on loyalty.	Yuen et al. (2018), Fazal and Kanwal (2017), Koupai et al. (2015), Park & Kim. (2015), Hafez & Akther (2017), Jung et al. (2020), Huat et al. (2015), Lalinthom Marakanon and Vinai Panjakajomsak (2016), Yuen et al. (2018), Heikki Karajaluoto et al. (2012), Jung et al. (2020)
Hypothesis No. 8 (H8): Trust has a positive effect on loyalty.	Fazal and Kanwal (2017), Koupai et al. (2015), Shahsavar & Sudzina (2017), Suhartanto et al. (2013), Hafez & Akther (2017), H. T. Nguyen et al. (2018), Strenitzerova & Gana (2018)
Hypothesis No. 9 (H9): Loyalty has a positive effect on sustainability.	Fazal and Kanwal (2017), Koupai et al. (2015), Shahsavar & Sudzina (2017), Suhartanto et al. (2013), Hafez & Akther (2017), H. T. Nguyen et al. (2018), Strenitzerova and Gana (2018)
Hypothesis No. 10 (H10): Perceived value has a positive effect on satisfaction, and satisfaction has a positive effect on sustainability.	Jung et al. (2020), Campon-Cerro et al. (2016), Anan Chieochankitkan (2018), Fazal and Kanwal (2017), Suhartanto et al. (2013), H. T. Nguyen et al. (2018), Strenitzerova and Gana (2018), Surachet Pongcharnchavalit and Wanno Fongsuwan (2014), Shahsavar & Sudzina (2017), Koupai et al. (2015)

2.9.11 Conceptual Framework

From the literature review and concepts, the researcher analyzed, and screened variables related to the objectives of this research, which enabled the researcher to create a conceptual framework for the research as shown in Figure 2.29.

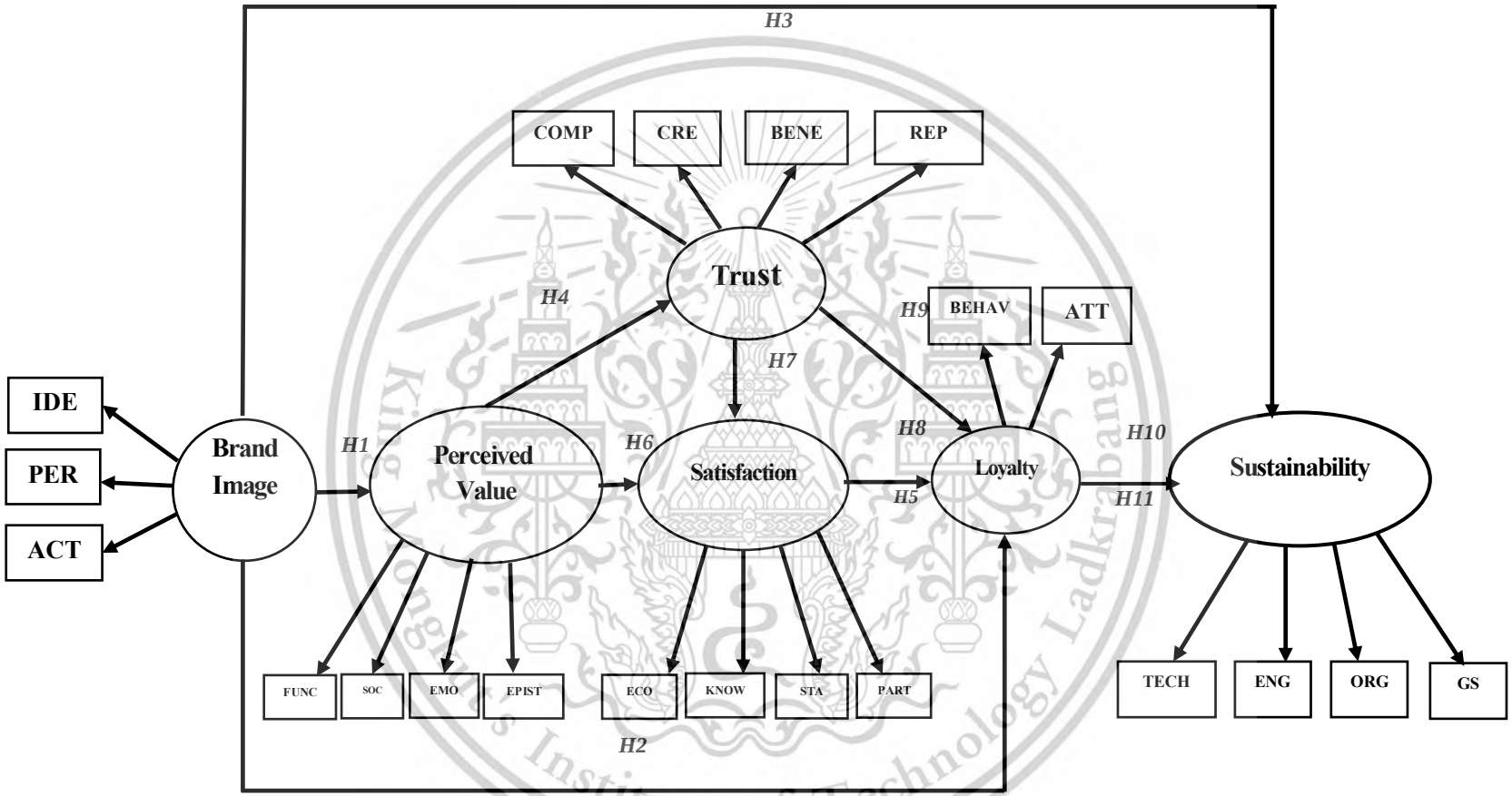


Figure 2.29 Proposed Conceptual Framework

Table 2.13 List of the Abbreviations

ABBR.	Meaning
IDEN	Brand Identity
PERS	Brand personality
ACTI	Activity
FUNC	Functional value
soc	Social value
EMO	Emotional value
EPIST	Epistemic value
MONE	Monetary value
ECO	Economics
KNOW	Knowledge
STA	Stability
PART	Participation
COMP	Brand Competence
CRE	Brand Credibility
BENE	Brand Benevolence
REP	Brand Reputation
BEHAV	Behavior
ATT	Attitude
TECH	Technological
ENG	Engagement
ORG	Organizational
GS	Government Support

2.10 Research Hypothesis

From the review of literature, and with reference to the conceptual framework developed above, the following hypothesis were developed.

2.10.1 Hypothesis for Individual Rubber Farmers

The following hypothesis were developed for the case of individual farmer's research.

H1: The brand image of the rubber farmers has a positive influence on customers' perceived value.

H2: The brand image of the rubber farmers positively influences the loyalty of the members to the group.

H3: The brand image associated with the rubber farmers positively and significantly influences the adoption of sustainability practices

H4: The perceived value in the rubber farmers positively influences member

satisfaction.

H5: The trust of the rubber farmers positively influences satisfaction by members of the collective.

H6: The perceived value of the rubber farmers positively influences members' trust

H7: Satisfaction with the rubber farmers has a positive effect on the loyalty of the members to the group.

H8: Trust in the rubber farmers' group positively influences the loyalty of the members to the group.

H9: Loyalty of the group members towards the policies of the rubber farmers' group positively impacts the adoption of sustainability practices.

H10: Loyalty significantly mediates the effect of independent variables on sustainability in individual rubber farmers'

2.10.2 Hypothesis for Cooperatives Rubber Farmers

The following hypothesis were developed for the case of individual farmer's research.

Hl: Brand Image has a positive effect on influencing perceived value in rubber farmers' cooperatives.

H2: Brand Image has a positive effect on loyalty in rubber farmers' cooperatives.

H3: Brand Image has a positive effect on sustainability in rubber farmers' cooperatives.

H4: Perceived value has a positive effect on satisfaction in rubber farmers' cooperatives.

H5: Trust has a positive effect on satisfaction in rubber farmers' cooperatives.

H6: Satisfaction has a positive effect on loyalty to the organization in rubber farmers' cooperatives

H7: Trust has a positive effect on loyalty in rubber farmers' cooperatives.

H8: Loyalty has a positive effect on sustainability in rubber farmers' cooperatives.

H9: Perceived value has a positive effect on trust to the rubber farmers' cooperatives.

H10: Loyalty significantly mediates the effect of independent variables on sustainability in rubber farmers' cooperatives.

CHAPTER 3
RESEARCH METHODOLOGY

3.1 Introduction

The objective of the research "A Model of a Rubber Farmer Institute's Sustainability: Rubber Farmer Institute as a Juristic Person in Thailand" was geared towards modelling the rubber farmers from individual and cooperative perspectives. In this aspect, a Model of a Rubber Farmer Institute's Sustainability: Rubber Farmer Institute as a Juristic Person in Thailand was to: (1) study the factors of failure of the rubber farmer institutes. (2), to study economic, social, environmental, technological and logistics factors and other factors affecting the sustainability of the rubber farmer institutes. (3), study the factors that lead to the guidelines to create a model for strengthening the rubber farmer institutes and make them sustainable. To clarify this, quantitative approach was used for data collection. The Statistics and the structure Equation Modeling (SEM) were used for data analysis. Apart from quantitative data, this research examined the secondary data, such as journals and well-studied research papers.

The guidelines of this research were shown as follows.

3.1 Introduction
3.2 Research Plan
3.3 Population and Samples
3.4 Variable in the Research
3.5 Instrumentation
3.6 Construction and Efficiency of the Instrument
3.7 Data Collection Method
3.7 Data Analysis
3.8 Statistics

3.2 Research Plan

In this research, the researcher conducted a research plan according to the research methodology to achieve the qualify standard and accuracy theoretically. The overall research process was demonstrated in Figure 3.1

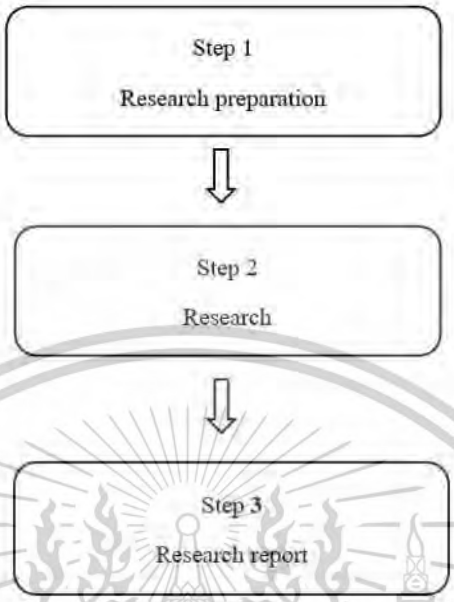


Figure 3.1 Research Process

From Figure 3.1, this research was conducted according to the objectives. The research procedures included the following 3 steps to develop the quality of the research.

Step 1: Research preparation: reviewed the related concepts, theories and researches in both Thai and English from journals, thesis, textbooks, documents, articles, along with various internet media sources, and studied latent variables and empirical variables for creating a research conceptual framework.

Step 2: Research conducting: determined the population and sample group, created questionnaires for collecting data and conducted research instrument according to the theoretical scope from research studies and received approval from advisor. Then, revised the instrument and questionnaires as suggested by the experts, and examined Statistical analysis of the data and results of the analysis.

Step 3: Research Report: It was the process of preparing a research report from the analysis and explained and written report on the results of the research proposed to the advisor. Published a dissertation outline in order to conduct a dissertation examination as well as revised the outline according to the recommendations of the Faculty of Dissertation Examination for preparing a complete dissertation.

3.3 Population and Samples

This research aimed to create the model of the sustainability in rubber farmer institutes that are corporation. Thus, the populations are 730 Thai rubber farmer groups/institutes that are corporation. The samples are nonprobability sampling by using purposive sampling and classified them into 3 groups, namely as follow.

1) The group of rubber farmers in the advanced stage or developed stage with 89 groups

2) The group of rubber farmers in developing stage with 495 groups.

3) The group of rubber farmers in initial stage with 146 groups.

The 3 groups are demonstrated in table 3.1 Policy makers sampling in table 3.2 and Members sampling in table 3.3.

Table 3.1 Population and Samples

No.	The Group	Population (N)	Purposive Sampling (n)	Members
			Policy Makers	
1	The group of rubber farmers in initial stage	146	84	84
2	The group of rubber farmers in developing stage	495	285	285
3	The group of rubber farmers in the advanced stage or developed stage	89	51	51
	Total	**730**	**420**	**420**

Source: Rubber Authority of Thailand (2018).

Table 3.2 Policy Makers Sampling

No.	The Group	Policy Makers (n)
1	The group of rubber farmers in initial stage	84
2	The group of rubber farmers in developing stage	285
3	The group of rubber farmers in the advanced stage or developed stage	51
	Total	**420**

Table 3.3 Members Sampling

No.	The Group	Members (n)
1	The group of rubber farmers in initial stage	84
2	The group of rubber farmers in developing stage	285
3	The group of rubber farmers in the advanced stage or developed stage	51
	Total	**420**

Hair et al. (2010) said that reasoned that the structural equation model analysis by determining the ratio of sample size to the number of parameters or empirical variables is 20 to 1 to making accurate sample estimation with quality and can represent the population well, and Kelloway (1998) explained that appropriately sample group must be at least 200 samples. Nevertheless, the researcher has determined is 730 samples. Each group were classified into a group with respect to policy makers such as executives/managers, and members in a half.

3.4 Variable in the Research

In this research is a Structural Equation Modeling (SEM), which is a statistical model, describes the linear causal relationship between external latent variables through the intermediate variables into internal latent variables, which research has the following related variables. In this research, the Structural Equation Modeling (SEM) was used for analysis the data since it is a statistical model describing the linear causal relationship between external latent variables through the intermediate variables into internal latent variables; this research has the following related variables.

1) Exogenous Latent Variable consists of the following:
   (1) Brand Image consists of 3 observed variables:
      a) Brand Identity
      b) Brand Personality
      c) Activity
2) Mediator Latent Variables consist of the following:
   (1) Perceived value consists of 4 observed variables:
      a) Functional value
      b) Social value
      c) Emotional value
      d) Epistemic value
   (2) Satisfaction consists of 4 observed variables:
      a) Economics
      b) Knowledge
      c) Stability
      d) Participation
   (3) Trust consists of 4 observed variables:
      a) Brand Competence
      b) Brand Credibility
      c) Brand Benevolence
      d) Brand Reputation
   (4) Loyalty consists of 2 observed variables:
      a) Behavior
      b) Attitude
3) Endogenous Latent Variable consists of the following:
   (1) Sustainability consists of 3 observed variables:
      a) Technological
      b) Engagement
      c) Organizational
      d) Government Support

3.5 Instrumentation

Questionnaires were used as an instrument for data collection. The closed-ended questions were applied to ask respondents to choose from distinct set responses. The questionnaire is divided into 2 parts (as detailed in Appendix A.)

1) General information of respondents, which is a checklist and fills answer in the blanks.

2) Questionnaire about Brand Image, Perceived value, and Trust to join as a member is a rating scale with 7 levels such as Extremely agree, Agree, Slightly agree, Neutral, Slightly disagree, Disagree and Extremely disagree. The respondents are required to answer only 1 answer in each question.

3) Questionnaire about Satisfaction of the rubber farmers is a rating scale with 7 levels such as Extremely Satisfied, Satisfied, Slightly Satisfied, OK, Slightly Dissatisfied, Dissatisfied and Extremely Dissatisfied. The respondents are required to answer only 1 answer in each question.

4) Questionnaire about Loyalty is a rating scale with 71evels such as extremely agree, Agree, Slightly agrees, Neutral, Slightly disagree, Disagree and extremely disagree. The respondents are required to answer only 1 answer in each question.

5) Questionnaire about Sustainability is a rating scale with 71evels such as extremely agree, Agree, Slightly agrees, Neutral, Slightly disagree, Disagree and extremely disagree. The respondents are required to answer only 1 answer in each question.

3.6 Construction and Efficiency of the Instrument

The research instrument guidelines were demonstrated as follows.

Step 1: Studied from textbooks, documents, articles and related research to be used as a guideline for defining the variables and definitions in this research.

Step 2: Drafted questions to cover all variables and create a questionnaire that used as an instrument to collect data in this research and a rating scale that has 7 scales (7 - Point Likert Scale) (Suchart Prasithrathsint, 2005)

Class interval = (Highest score - Lowest score) / amount of level (3.1) = (7-1)/7= 0.80

Table 3.4 Definition of Opinion Level

Opinion Level	Rating Score	Definition
7	6.16-7.00	Extremely agree
6	5.30-6.15	Agree
5	4.44 - 5.29	Slightly agree
4	3.58-4.43	Neutral
3	2.72-3.57	Slightly disagree
2	1.86-2.71	Disagree
1	1.00-1.85	Extremely disagree

Step 3: After receiving feedback and recommendations from the advisory committee, the Index of Item-Objective Congruence (IOC) was used to find the content validity. In this process, the questionnaire was reviewed by five experts in a field of this research. The Item-Objective Congruence (IOC) was used to evaluate the items of the questionnaire based on the score range from -1 to +1. The details are as follow.

Congruent = + 1
Questionable = 0
Incongruent = -1

The items that had scores lower than 0.5 were revised. On the other hand, the items that had scores higher than or equal to 0.5 were reserved. (Kanlaya Vanichbuncha, 2011)

Step 4: Regarding to the quality of the scale, index of item-objective congruence (IOC) by Rovinelli and Hambleton (1977) was used to test for content validity. The items were reviewed by five experts in this field. The final items had an IOC of more than 0.5. To check for reliability, the Cronbach's alpha coefficient and item-total correlation were examined. The measurement was tested by 30 samples (tryout). (Cronbach, 1951)

Step 5: After that, the researcher will use a questionnaire that passed the test of the above steps to collect further research data.

3.7 Data Collection Method

The data collection process included the following 2 steps.

3.7.1 Primary Data

1) Step 1: Sent a questionnaire to the sample group by sending a letter, online, mail and handing out the questionnaire directly to the sample group. The questionnaire consists of questionnaires that have reviewed by experts, along with a letter from King Mongkut's Institute of Technology Ladkrabang for request the cooperation.

2) Step 2: Completed validation of all received questionnaires before being analyzed.

3) Step 3: Analyzed the results.

3.7.2 Secondary Data

The researcher examined the secondary data through the relevant research papers, articles, theories and online documents both in national and international sources. Then, the data was synthesized to find factors affecting the sustainability of the rubber farmers' corporation.

3.8 Data Analysis

In this research, the data has been analyzed by using the statistical program. The procedures were demonstrated below.

1) For the analysis of basic statistics of samples by using descriptive statistics such as Frequency, Percentage, Mean, Standard deviation, Coefficient of Variation, Skewness and Kurtosis, the SPSS program was used to process the Empirical data which is in the range of -3.0 to +3.0, showing normal distribution. (Kline, 2011)

2) For the analysis of relationships among variables with Pearson's product moment correlation coefficients to see the linear relationship among various variables in analysis of linear structural equations of variables in the conceptual framework, determining correlation coefficients were used as a criteria. The details are shown in Table 3.5.

Table 3.5 Relation Level of Correlation Coefficient (r)

Correlation Coefficient (r)	Relationship Level
r>0.8	The highest level of relevance
0.6<r<0.8	A high level of relevance
0.4<r<0.6	A moderate level of relevance
0.2<r<0.4	A low level of relevance
r<0.2	The lowest level of relevance

Source: Cooper and Schindler (2008).

1) Statistical analysis of Confirmatory Factor Analysis was used for elements analysis of variables in structural equation model.

2) Path Analysis statistics was used for survey of direct influence, indirect influence and overall influence of factors affecting the sustainability of the rubber farmers' corporation.

3) Structural Equation Modeling (SEM) with AMOS statistical programs. 2.1 were used for the analysis of variable consistency testing based on the conceptual framework created from literature review that both the concepts and theories associated with Empirical data.

3) Identifying the model according to the directing variables (Hair, J. F, et al. 2010) that using directive variables and suing MRA condition that assign a group of samples into executives, manager and members were used for multiple group analysis.

3.9 Statistics

In this research Structural Equation Modeling (SEM) was applied as an instrument. Thanin Silpcharu (2012, p. 523) has explained that SEM was created from combining the principles of two types of linear analysis statistics, namely Path Analysis and Factor Analysis. Static programs that are commonly used in SEM examination include AMOS and LISREL and so forth.

AMOS 2.1 was used to (1) study the relationship between latent variables and (2) analyze the relationship between latent variables and empirical variables, which increases the opportunity for variance and covariance. This technique was applied to the Confirmatory factor analysis: (CFA) to verify a validity of measuring instruments (Suchart Prasitrathasin et al., 2008)

Covariance analysis in this research was based on variance analysis of all variables as the overall study in compliance with SEM to confirm accuracy and completeness, or failure of the indicator variables or observed variables for developing theoretical variables. Involved statistics for congruence evaluation between the conceptual framework and the empirical data were also included. The details are showed in Table 3.6.

Table 3.6 Model Fitness Tests Conducted for CFA and SEM

Statistic	**Symbol**	**Objective**	**Statistics Showing Congruence between the Conceptual Framework and the Empirical Data**
Chi-square	X^2	To test and confirm null Hypothesis. (The conceptual framework was congruent with the empirical data)	Ns. ($p > 0.05$)
Relative Chi-square	x^2/df	To prove the conceptual framework was congruent with the empirical data.	$x^2/df < 2.00$
Nest Chi-square	-	To compare with other conceptual framework and which one was more congruent with the empirical data.	X^2 ($p < 0.05$). Any conceptual frameworks with less Nested X^2 were more congruent with the empirical data.
Goodness of Fit Index	GFI	To measure GFI, between 0-1.00.	>0.90
Comparative Fit	CFI	To measure CFI, between 0-1.00.	>0.95
Normal Fit Index	NFI	Relative fit index	>0.90

Table 3.1 (Continue)

Statistic	Symbol	Objective	Statistics Showing Congruence between the Conceptual Framework and the Empirical Data
Standardized Root Mean Square Residual	Standardized RMR	To show errors of the conceptual framework in the form of standardized RMR, between 0-100.	<0.50
Root Mean Square Error of Approximation	RMSEA	To show errors of the conceptual framework in the form of RMSEA, between 0-100.	<0.50

Source: Wheaton et al. (1977); Joreskong and Sorbom (1989); Bentler (1990); Browne and Cudeck (1993); Hair et al. (1999); Krittakorn Galyarat (2010); Seree Chadchaem (2008, pp. 28-30).

CHAPTER 4
RESULTS & FINDINGS

4.1 Introduction

This chapter discusses the results and findings of the data analysis. The sections included include the descriptive statistics results, model evaluation and empirical results. This study comprised of two studies that were carried out differently and independently. Since this study investigated the sustainability of rubber farmer institute's, two aspects were considered. First, the rubber farmers from individual perspective and rubber farmers from cooperative perspective. This gave two studies as follows:

Exploring the social sustainability of rubber farmers – individual farmers perspective

Sustainability of rubber farmers' cooperatives: empirical evaluation of determining factors.

The results from these studies are presented independently in different sections-for individual rubber farmers, and for cooperative societies.

The first section presents the analysis of demographic statistics based on each group of farmers.

The second section discusses the descriptive analysis results of the respondents' views on each study constructs.

The third section presents the results of the Test for Normality and Correlation Analysis.

The fourth section presents the results for the measurement model, including CFA analysis.

The fifth section is the validity and reliability analysis results.

The last section presents the SEM analysis results with results for each category of rubber farmers presented separately.

4.2 Individual Rubber Farmers Analysis & Findings

4.2.1 Demographic Statistics for Individual Rubber Farmers

The demographic variables evaluated include gender, age, period of rubber farming and the rubber products produced. The results are summarized in Table 4.1.

Table 4.1 Demographic Characteristics for Individual Rubber Farmers

Variables	Values	N	%
Gender	Male	312	72
	Female	124	28
Age	20-30	82	19
	31-40	163	37
	41-50	137	31
	50+	54	12
Farming period (years)	0-5	57	13
	6-10	217	50
	11+	162	37
Rubber Products (kg)	0-20	72	17
	20-50	237	54
	50+	127	29

Most of the respondents evaluated were male (72%) while the females were the minority (28%). The highest age group was 31-40 years (37%) while the lowest group was 50+ years (12%). For the farming period, the majority indicated having farmed for 6-10 years (50%) while for the rubber products, the majority indicated having 20-50 kgs (54%). The data are summarized in Table 4.1 presenting the findings and model evaluation.

4.2.2 Normality Tests for Individual Rubber Farmers

This section evaluated the normality distribution of the study variables. The six latent variables normality was evaluated using their latent variables. The Brand Image consists of three observed variables (Brand Identity, brand Personality and activity). The perceived value consists of four observed variables (functional value Social value, Emotional value and epistemic value). Satisfaction consisted of four observed variables namely (economics, knowledge, stability and participation). Trust consisted of four observed variables namely (brand competence, brand credibility, brand benevolence, and brand reputation). Loyalty consists of two observed variables (behavior and attitude). Sustainability consists of three observed variables (technological, engagement, organizational and government support).

Table 4.2 Normality Tests for Individual Rubber Farmers

Variables	Skewness	Kurtosis	Normal Distribution
Brand Image	-0.32267	0.527	✓
Perceived	-0.499	0.29175	✓
Trust	-0.45575	0.13875	✓
Loyalty	-0.55	0.26125	✓
Satisfaction	-0.564	0.031	✓
Sustainability	-0.7195	0.65175	✓

The results presented in Table 4.2 indicated that for the values for skewness ranged from 0.323 to 0.720. These values were all below 0.70, which is the required threshold according to (Hooland, 1998). The values for kurtosis results ranged between 0.031 and 0.652. These were all below the required threshold of below 1.6 (Hooland, 1998). The fact that the required thresholds were satisfied for skewness and kurtosis confirmed that the normality requirement of the latent variables was satisfied.

4.2.3 Correlation Analysis for Individual Rubber Farmers

This section evaluated the correlation between the latent variables, as measured by the observed variables. The results are summarized in Table 4.3 below. The results indicated that the correlation coefficients for brand image was all-significant and ranged from 0.415 to 0.697. The correlation for the latent variable perceived ranged from 0.445 to 0.768. The correlation coefficients for trust ranged from 0.58 to 0.791. The correlation for the satisfaction ranged from 0.622 to 0.764. The correlation coefficient for loyalty was 0.66 while the correlation coefficient for the sustainability ranged from 0.454 to 0.755. Since all these correlation coefficients were above 0.3, it was concluded that the correlation between the variables were satisfactory.

Table 4.3 Correlation Analysis for Individual Rubber Farmers

Correlations	Iden	Pers	Acti	Func	Soc	Emo	Epis	Comp	Cre	Ben	Rep	Eco	Know	Stab	Par	Beh	Atti	Tech	Enga	Org	GovS
Iden	1																				
Pers	0.697	1																			
Acti	0.415	0.559	1																		
Func	0.414	0.562	0.597	1																	
Soc	0.4	0.477	0.445	0.482	1																
Emo	0.404	0.628	0.574	0.583	0.597	1															
Epis	0.457	0.653	0.593	0.572	0.535	0.768	1														
Comp	0.319	0.48	0.455	0.599	0.524	0.606	0.58	1													
Cre	0.442	0.647	0.547	0.6	0.599	0.789	0.791	0.663	1												
Ben	0.386	0.605	0.545	0.566	0.584	0.726	0.76	0.599	0.777	1											
Rep	0.384	0.55	0.485	0.571	0.522	0.646	0.63	0.535	0.731	0.7	1										
Eco	0.324	0.522	0.485	0.66	0.535	0.622	0.625	0.67	0.712	0.655	0.626	1									
Know	0.449	0.547	0.508	0.605	0.489	0.555	0.617	0.556	0.647	0.625	0.622	0.734	1								
Stab	0.437	0.605	0.532	0.595	0.529	0.629	0.653	0.576	0.712	0.68	0.694	0.728	0.741	1							
Par	0.424	0.626	0.559	0.637	0.524	0.661	0.679	0.583	0.731	0.697	0.68	0.721	0.773	0.764	1						
Beh	0.329	0.545	0.41	0.394	0.526	0.679	0.628	0.505	0.733	0.626	0.608	0.553	0.475	0.616	0.628	1					
Atti	0.331	0.502	0.452	0.477	0.504	0.636	0.615	0.541	0.698	0.642	0.588	0.551	0.529	0.578	0.685	0.667	1				
Tech	0.428	0.517	0.502	0.586	0.47	0.504	0.551	0.505	0.562	0.555	0.577	0.64	0.693	0.662	0.69	0.442	0.515	1			
Enga	0.41	0.602	0.51	0.524	0.54	0.733	0.696	0.564	0.764	0.706	0.675	0.637	0.66	0.701	0.723	0.702	0.683	0.65	1		
Org	0.39	0.555	0.48	0.5	0.507	0.632	0.645	0.514	0.713	0.675	0.673	0.619	0.634	0.663	0.663	0.592	0.661	0.649	0.755	1	
GovS	0.312	0.44	0.377	0.367	0.369	0.49	0.53	0.395	0.544	0.521	0.455	0.404	0.391	0.483	0.468	0.505	0.513	0.454	0.547	0.529	1

4.2.4 Measurement of the Model for Individual Rubber Farmers

The next step of evaluation was evaluating the fitness of the model applied in the research using Confirmatory Factor Analysis (CFA). Two tests were conducted, the First Order CFA model analysis and the Second Order CFA analysis. These are presented in the following sections.

First Order CFA Analysis

CFA Analysis – Brand Image

The first order CFA model was conducted to evaluate validity of the three observed variables for brand image - brand identity (Iden), brand personality (Pers) and activity (Acti). The results are presented in Figure 4.3. It was found that the Chi-square was 0 and degrees of freedom was 0 which implied that it was a saturated model. Additionally, GFI = 1; IFI = 1; CFI = 1 and NFI = 1. The results of factor loadings showed that brand personality had the highest factor weight of 0.97, followed by brand identity (0.72) and lastly activity (0.58).

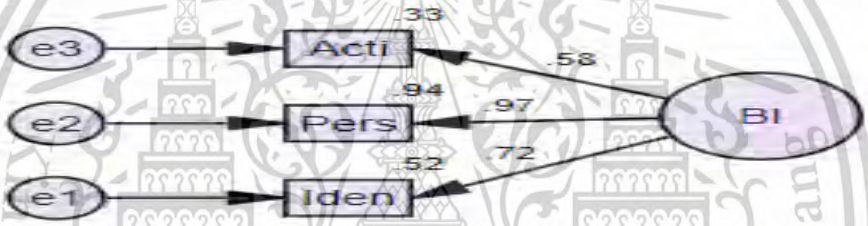


Figure 4.1 Individual Farmers CFA Analysis-Perceived

The first order CFA model was conducted to evaluate validity of the four observed variables for perceived latent variable - functional value (Func) Social value (Soc), Emotional value (Emo) and epistemic value (Epis). The results are presented in Figure 4.2. It was found that the Chi-square was 0 and degrees of freedom was 0 which implied that it was a saturated model. Additionally, GFI = 0.993; IFI = 0.977; CFI = 0.976 and NFI = 0.967, which satisfied the required threshold of >0.90. The results of factor loadings showed that emotional value had the highest factor weight of 0.90, followed by epistemic value (0.72), then functional value (0.67) and lastly social value (0.66).

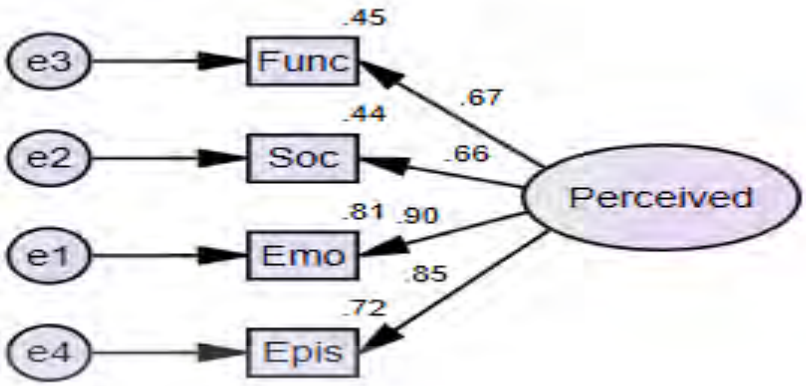


Figure 4.2 Individual Farmers CFA Analysis-Trust

The first order CFA model was conducted to evaluate validity of the four observed variables for trust latent variable - brand competence, brand credibility, brand benevolence, and brand reputation). The results are presented in Figure 4.3. It was found that the Chi-square was 0 and degrees of freedom was 0 which implied that it was a saturated model. Additionally, GFI = 0.994; IFI = 0.984; CFI = 0.984 and NFI = 0.973, which satisfied the required threshold of >0.90. The results of factor loadings showed that brand credibility had the highest factor weight of 0.92, followed by brand benevolence (0.85), then brand reputation (0.80) and lastly brand competence (0.71).

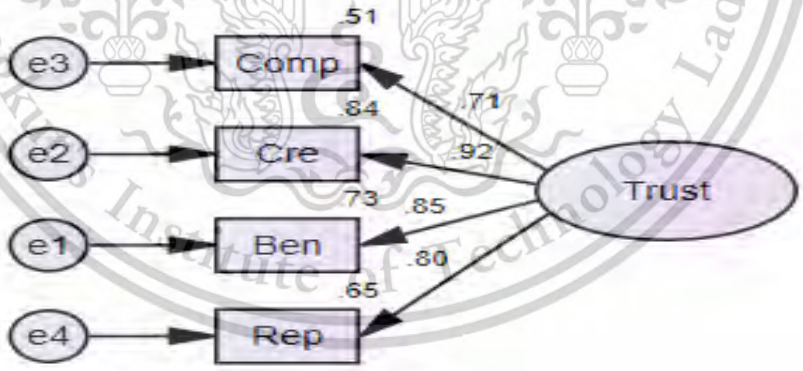


Figure 4.3 Individual Farmers CFA Analysis-Loyalty

The first order CFA model was conducted to evaluate validity of the two observed variables for loyalty - behavior and attitude. The results are presented in Figure 4.4. It was found that the Chi-square was 0 and degrees of freedom was 0 which implied that it was a saturated model. Additionally, GFI = 1; IFI = 1; CFI = 1 and NFI = 1. The results of factor

loadings showed that behavior had the highest factor weight of 0.97, and attitude (0.69).

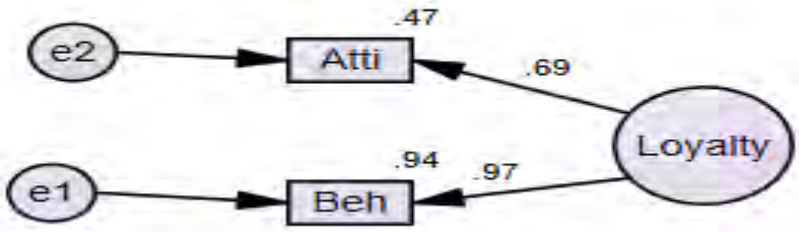


Figure 4.4 Individual Farmers CFA Analysis-Satisfaction

The first order CFA model was conducted to evaluate validity of the four observed variables for satisfaction variable - economics, knowledge, stability and participation. The results are presented in Figure 4.5. It was found that the Chi-square was 0 and degrees of freedom was 0 which implied that it was a saturated model. Additionally, GFI = 1; IFI = 1; CFI = 1 and NFI = 1, which satisfied the required threshold of >0.90. The results of factor loadings showed that participation had the highest factor weight of 0.88, followed by knowledge (0.87), then stability (0.86) and lastly economics (0.84).

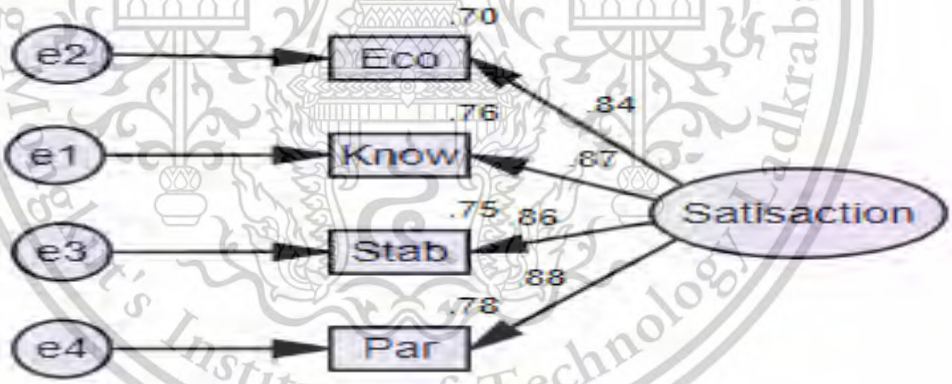


Figure 4.5 Individual Farmers CFA Analysis-Sustainability

The first order CFA model was conducted to evaluate validity of the four observed variables for sustainability latent variable - technological, engagement, organizational and government support). The results are presented in Figure 4.6. It was found that the Chi-square was 0 and degrees of freedom was 0 which implied that it was a saturated model. Additionally, GFI = 1; IFI = 1; CFI = 1 and NFI = 1, which satisfied the required threshold of >0.90. The results of factor loadings showed that engagement had the highest factor weight of 0.87, followed by organizational (0.86), then technological (0.75) and lastly government support (0.62).

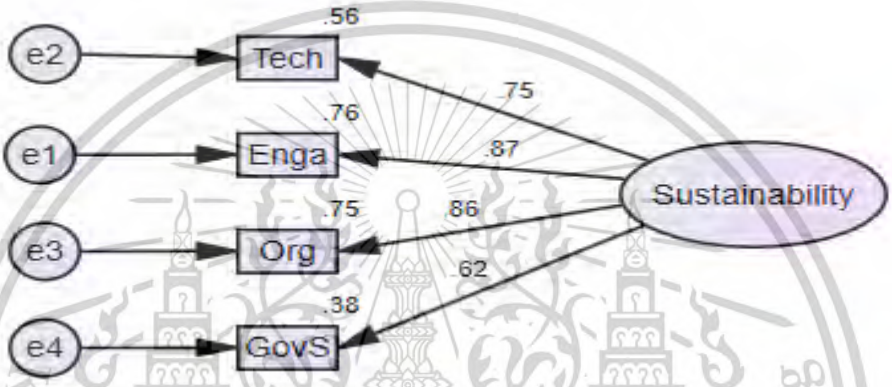


Figure 4.6 Individual Farmers CFA Analysis-Sustainability

4.2.5 Second Order CFA Analysis

In the model evaluation to test the fitness of the model to the data used, the following model was applied. The model tested the covariance of the latent variables as illustrated by the paths between the variables. The CFA results are shown in the other diagram.

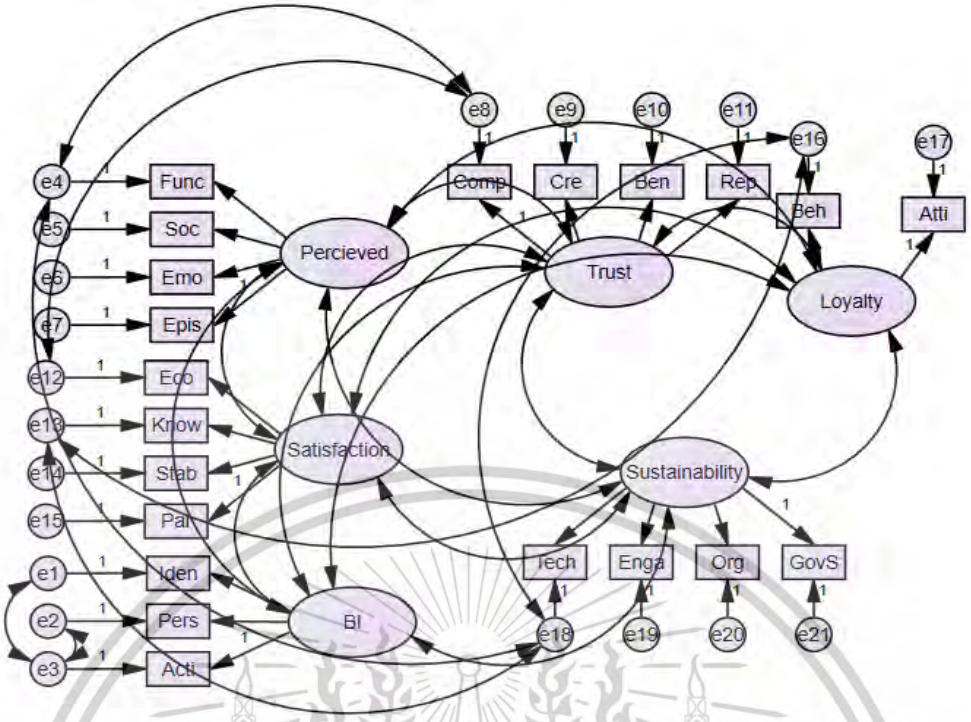


Figure 4.7 CFA Measurement Model for Individual Farmers

The model fitness was evaluated by conducting an analysis to measure various fitness indices. The results are shown in Figure 4.8.

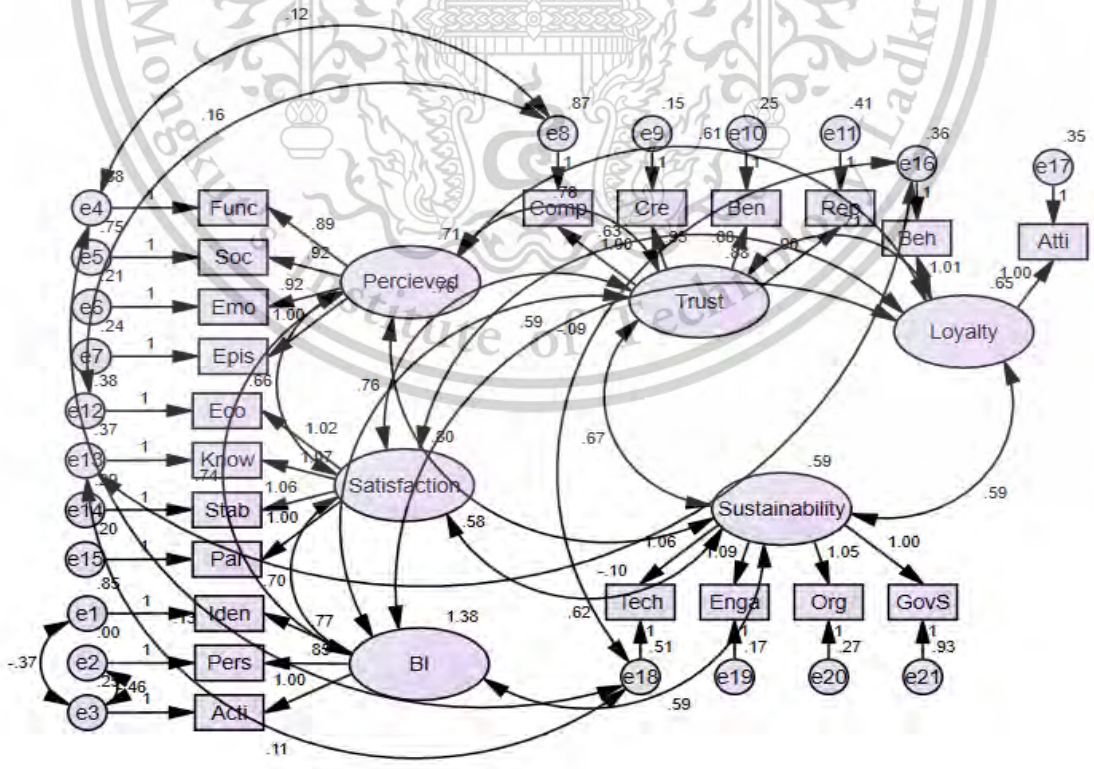


Figure 4.8 CFA Measurement Results for Individual Farmers

The fitness tests conducted included model chi-square, root mean square error of approximation (RMSEA), comparative fit index (CFI), root mean square residue, adjusted goodness of fit (AGFI), and the goodness of fit (GFI) were among the fitness factors that were assessed.

The chi-square statistic for the model was significant ($\chi 2$ [116] = 476.859 $p < 0.01$), while the more practical alternative, the $\chi 2$/df ratio = 2.873 (considered acceptable since it was below 5 and was being influenced by sample size) (Schumacker & Lomax, 2004; Hu & Bentler, 1999;). The following results were obtained; RFI = 0.925, GFI = 0.909, TLI = 0.949, NFI = 0.940, CFI = 0.960, IFI = 0,960 which satisfied the required threshold of >0.900. AGFI = 0.873 satisfied the required minimum threshold of >0.800. The Chi-square/df = 2.941 satisfied the required threshold for <5.00. The RMSEA = 0.066 which satisfied the required threshold of <0.08. These thresholds were suggested by Andersson et al., (2022), Byrne, (1994), Schumacker and Lomax, (2004), and Kline R.B., (2015). The satisfaction of these thresholds confirmed that the data and study constructs fitted well with the model. These are summarized in the Table 4.4 below.

Table 4.4 Measurement Model Fit Indices

Indices	Criteria	Statistics Value
CMIN/DF	<5	2.873
GFI	≥0.90	0.909
NFI	≥0.90	0.940
IFI	≥0.90	0.960
CFI	≥0.90	0.960
RMR	<0.08	0.039
RMSEA	<0.08	0.066
Conclusion		**Model Fit**

In addition to the model fitness tests, the reliability and validity of the constructs utilized in the research were also assessed. Standardized factor loadings and the average variance were used to assess the validity. Reliability was evaluated using composite reliability and Cronbach's α. The results are summarized in Table 4.5 below.

Table 4.5 Model Evaluation for Individual Rubber Farmers

Variables		Factor Loadings			Cronbach's alpha	Composite Reliability	AVE
Latent	**Observed**	**Estimate**	**S.E.**	**Std. Beta**			
BI	Acti	1		0.919			
	Pers	0.851	0.056	0.998	0.782	0.927	0.627
	Iden	0.765	0.071	0.699			
Loyalty	Beh	1.011	0.053	0.808			
	Atti	1		0.806	0.827	0.872	0.682
Perceived	Epis	1		0.865			
	Emo	0.918	0.037	0.863			
	Soc	0.921	0.057	0.667	0.782	0.892	0.667
	Func	0.89	0.051	0.7			
Satisfaction	Par	1		0.892			
	Stab	1.06	0.04	0.871	0.872	0.972	0.628
	Know	1.072	0.044	0.844			
	Eco	1.02	0.043	0.829			
Trust	Comp	1		0.709			
	Cre	0.932	0.05	0.916	0.871	0.971	0.762
	Ben	0.883	0.05	0.856			
	Rep	0.896	0.055	0.796			
Sustainability	GovS	1		0.624			
	Org	1.05	0.074	0.841	0.852	0.897	0.762
	Enga	1.088	0.073	0.896			
	Tech	1.065	0.081	0.752			

The results indicated that brand image (BI) its standardized factor loadings ranged from 0.699 for brand identity (Iden) to 0.998 for activity (Acti), while the AVE was 0.627. These values, according to Hair et al., (2010) and Ghozali, (2014), should be above 0.5, a threshold requirement that was satisfied. The results for Cronbach's alpha was 0.782 and that of composite reliability was 0.927, which satisfied the required threshold of >0.70 (Diamantopoulos et al., 2012; Trizano-Hermosilla and Alvarado, 2016, Khalid, 2021).

For the case of loyalty, its standardized factor loadings were 0.808 and 0.806 while the AVE was 0.682. These values, according to Hair et al., (2010) and Ghozali, (2014), should be above 0.5, a threshold requirement that was satisfied. The results for Cronbach's alpha was 0.827 and that of composite reliability was 0.872, which satisfied the required threshold of

>0.70 (Diamantopoulos et al., 2012; Trizano-Hermosilla & Alvarado, 2016, Khalid, 2021).

For the case of perceived, its standardized factor loadings ranged from 0.667 to 0.865 while the AVE was 0.667. These values, according to Hair et al. (2010) and Ghozali (2014), should be above 0.5, a threshold requirement that was satisfied. The results for Cronbach's alpha was 0.782 and that of composite reliability was 0.967, which satisfied the required threshold of >0.70 (Diamantopoulos et al., 2012; Trizano-Hermosilla & Alvarado, 2016, Khalid, 2021).

Satisfaction variable standardized factor loadings ranged from 0.829 to 0.892 while the AVE was 0.628. These values, according to Hair et al., (2010) and Ghozali, (2014), should be above 0.5, a threshold requirement that was satisfied. The results for Cronbach's alpha was 0.782 and that of composite reliability was 0.972, which satisfied the required threshold of >0.70 (Diamantopoulos et al., 2012; Trizano-Hermosilla & Alvarado, 2016, Khalid, 2021).

Trust variable standardized factor loadings ranged from 0.709 to 0.916 while the AVE was 0.762. These values, according to Hair et al., (2010) and Ghozali, (2014), should be above 0.5, a threshold requirement that was satisfied. The results for Cronbach's alpha was 0.871 and that of composite reliability was 0.971, which satisfied the required threshold of >0.70 (Diamantopoulos et al., 2012; Trizano-Hermosilla & Alvarado, 2016, Khalid, 2021).

For the case of sustainability, its standardized factor loadings ranged from 0.624 to 0.896 while the AVE was 0.762. These values, according to Hair et al., (2010) and Ghozali, (2014), should be above 0.5, a threshold requirement that was satisfied. The results for Cronbach's alpha was 0.852 and that of composite reliability was 0.897, which satisfied the required threshold of >0.70 (Diamantopoulos et al., 2012; Trizano-Hermosilla & Alvarado, 2016, Khalid, 2021).

Table 4.6 Discriminant validity for Individual Rubber Farmers

Discriminant Validity						
	1	**2**	**3**	**4**	**5**	**6**
BI	0.828					
Loyalty	0.618	0.927				
PV	0.728	0.789	0.829			
Satisfaction	0.835	0.756	0.772	0.854		
Sustainability	0.872	0.729	0.872	0.761	0.792	
Trust	0.836	0.863	0.723	0.792	0.773	0.872

Discriminant validity, as shown in Table 3, was also used to assess the constructs' validity. To make sure that each notion for the latent variable is distinct from other latent variables, discriminant validity is used. The Fornell-Larker criteria demand that all constructs must have an AVE square root value that is greater than their correlation with other latent constructs, indicating that the discriminant validity was attained.

4.2.6 Hypothesis Testing using SEM for Individual Farmers

The previous sections reported satisfactory results. The model one and model 2 CFA analysis was aimed at testing the fitness of the model to the data. This was followed by testing the reliability and validity of the data. Having met all the required thresholds, it was okay to go ahead and conduct the hypothesis evaluation.

4.2.6.1 Overview of the SEM Model

In this analysis, two tests were conducted:

1) The direct relationship between the latent variables of the study.

2) The indirect relationship between the latent variables hypothesized as the mediating relationship.

The following were the latent variables and observed variables of the model, including the symbols used in the model. The following symbols were used in the analysis.

Table 4.7 Symbols used in SEM

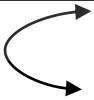
Symbol	Meaning
	Latent Variable
	Observed Variable
	Causal Relationship
	Non-causal relationship

Table 4.8 Abbreviations and Meaning of the Variables Used

Variables Symbols		Variable Names
Latent	Observed	
BI		**Brand Image**
	Acti	• Brand Identity
	Pers	• Brand Personality
	Iden	• Activity
Loyalty		**Loyalty**
	Beh	• Behavior
	Atti	• Attitude
Perceived		**Perceived Value**
	Epis	• Epistemic value
	Emo	• Emotional value
	Soc	• Social value
	Func	• Functional value
Satisfaction		**Satisfaction**
	Par	• Participation
	Stab	• Stability
	Know	• Knowledge
	Eco	• Economics
Trust		**Trust**
	Comp	• Brand Competence
	Cre	• Brand Credibility
	Ben	• Brand Benevolence
	Rep	• Brand Reputation
Sustainability		**Sustainability**
	GovS	• Government Support
	Org	• Organizational
	Enga	• Engagement
	Tech	• Technological

The following model was developed to evaluate the hypothesis of the study. It shows the path relationship between the latent variables and between the latent variables and observed variables.

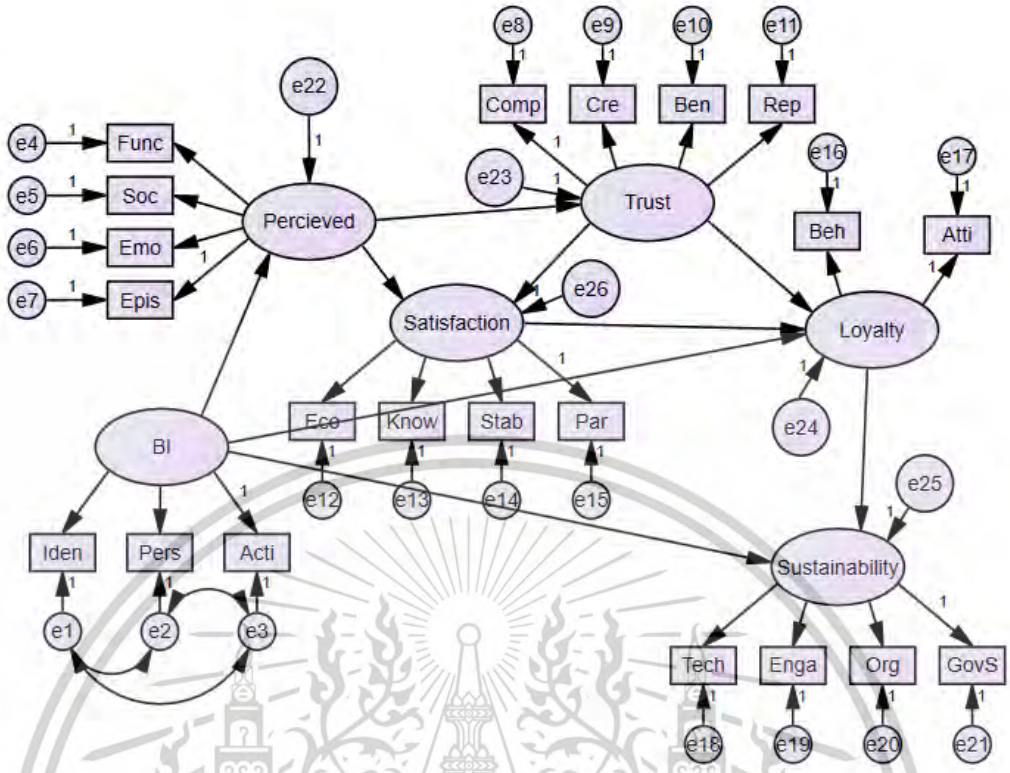


Figure 4.9 SEM Hypothesis Model

4.2.6.2 SEM Hypothesis Results

The analysis of the SEM model was conducted to evaluate the hypothesis of the study. The following Figure 4.9 presents the summary of the results. It shows the path analysis and the standardized path coefficients of the model.

Before analyzing the model, its fitness to the data used was conducted. The fitness tests conducted included model chi-square, root mean square error of approximation (RMSEA), comparative fit index (CFI), root mean square residue, adjusted goodness of fit (AGFI), and the goodness of fit (GFI) were among the fitness factors that were assessed. The chi-square statistic for the model was significant ($\chi 2$ [116] = 476.859 $p < 0.01$), while the more practical alternative, the $\chi 2$/df ratio = 3.726 (considered acceptable since it was below 5 and was being influenced by sample size) (Schumacker & Lomax, 2004; Hu & Bentler, 1999;). The following results were obtained; RFI = 0.902, GFI = 0.909, TLI = 0.926, NFI = 0.918, CFI = 0.936, IFI = 0,938 which satisfied the required threshold of >0.900. AGFI = 0.812 satisfied the required minimum threshold of >0.800. The Chi-square/df = 3.726 satisfied the required threshold for <5.00. The RMSEA = 0.066 which satisfied the required threshold of <0.08. These thresholds were suggested by Andersson et al. (2022), Byrne, (1994), Schumacker and Lomax, (2004), and Kline (2015). The satisfaction of these thresholds confirmed that the data and study constructs fitted well with the model. These are summarized in the Table 4.9 below.

Table 4.9 Measurement Model Fit Indices

Indices	Criteria	Statistics Value
CMIN/DF	<5	3.726
GFI	≥0.90	0.909
NFI	≥0.90	0.918
IFI	≥0.90	0.938
CFI	≥0.90	0.936
RMR	<0.08	0.048
RMSEA	<0.08	0.079
Conclusion		**Model Fit**

Having satisfied the model fitness, the SEM analysis was conducted. The results of the study, presented in Table 4.10.

Table 4.10 Hypothesis Evaluation for Individual Rubber Farmers

	Path Relationships					Estimate	S.E.	C.R.	P
Direct Effects									
H1	BI	→	Perceived			.774	.212	3.648	***
H2	BI	→	Loyalty			-.163	.175	-.929	.353
H3	BI	→	Sustainability			.129	.110	1.173	.024
H4	Perceived	→	Satisfaction			-.087	.289	-.300	.765
H5	Trust	→	Satisfaction			.935	.262	3.565	***
H6	Perceived	→	Trust			1.091	.063	17.251	***
H7	Satisfaction	→	Loyalty			.179	.082	2.187	.029
H8	Trust	→	Loyalty			.789	.182	4.333	***
H9	Loyalty	→	Sustainability			.803	.132	6.098	***
Indirect Effects									
H10	BI	→	Loyalty	→	Sustainability	.672	.283	6.811	***
	Satisfaction	→	Loyalty	→	Sustainability	.028	.189	1.872	***
	Trust	→	Loyalty	→	Sustainability	.427	.897	5.278	0.002
	Satisfaction	→	Trust	→	Loyalty	.719	.236	3.852	***

The SEM results indicated that brand image bears a strong and positive effect on perceived value (β = 0.774, p<0.05) confirming hypothesis 1 of the study. The brand image was deemed to have a negative and insignificant influence on loyalty (β = -0.163, p>0.05), hence rejecting hypothesis 2. Brand image has a positive and significant effect on sustainability (β = 0.129, p<0.05) confirming hypothesis 3 of the study. Perceived value was determined to have a negative and insignificant effect on satisfaction (β = -0.087, p>0.05) hence rejecting hypothesis 4. Trust was shown to have a positive and significant effect on satisfaction (β = 0.935, p<0.05) confirming hypothesis 5 of the study. Perceived value was seen to have a positive and strong effect on trust (β = 1.091, p<0.05) confirming hypothesis 6 of the study. Satisfaction was revealed to positively and significantly affect loyalty (β = 0.179, p<0.05) confirming hypothesis 7 of the study. Trust was found to have a positive and significant effect on loyalty (β = 0.789, p<0.05) confirming hypothesis 8 of the study. Loyalty was confirmed to have a positive and significant effect on sustainability (β = 0.803, p<0.05) confirming hypothesis 9 of the study. In addition, the researchers also evaluated the mediating role of loyalty. The research showed that brand image, customer satisfaction, and trust were all significantly mediated by loyalty when it came to the adoption of sustainability in rubber farming.

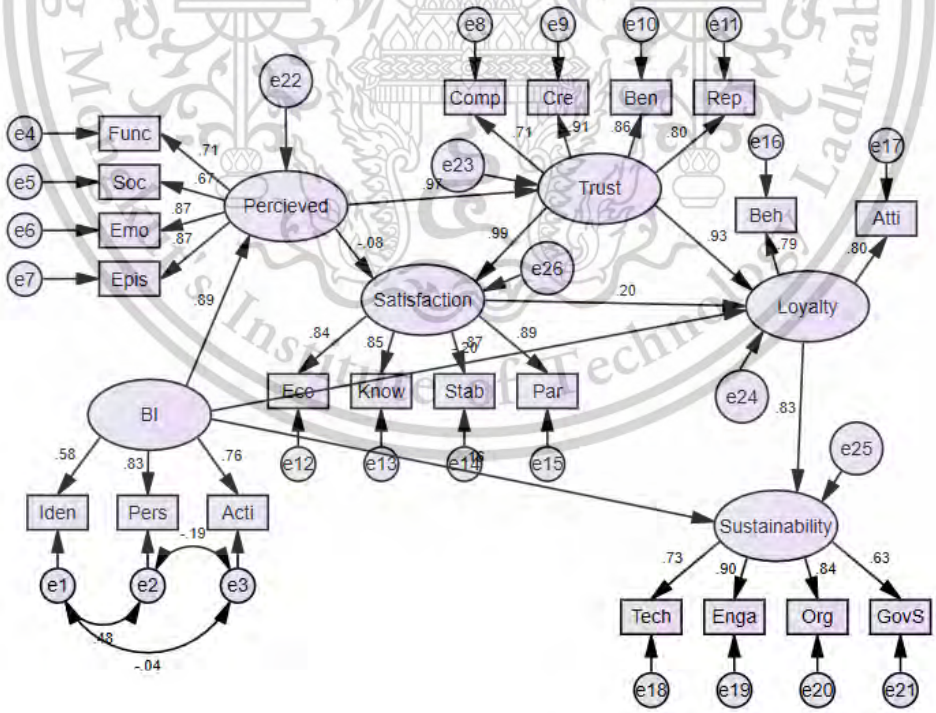


Figure 4.10 Hypothesis Evaluation for Individual Rubber Farmers

4.3 Cooperative Rubber Farmers

4.3.1 Demographic Statistics for Cooperative Rubber Farmers

The results are presented in Table 4.11 below.

Table 4.11 Demographic Statistics for Cooperative Rubber Farmers

Variables	Values	Frequency	Percentage
Gender	Male	284	0.65
	Female	152	0.35
Age	20 -30	87	0.20
	31 -40	180	0.41
	41 - 50	102	0.24
	50+	65	0.15
Rubber farming period	0-5 years	172	0.40
	6-10 years	209	0.48
	10+ years	53	0.12
No. Rubber products	0-10kg	149	0.34
	10-50kg	189	0.44
	50+ kg	96	0.22
Member of cooperative	yes	329	0.76
	no	105	0.24

The results indicated that the majority of male respondents represented 65% of the sample, followed by female respondents, who comprised 35% of the sample respondents. Another characteristic that was evaluated was the age variable. The majority age group was between 30 and 40 years (41%) followed by those aged 40-50 years (24%), then there was the age group 20-30 years (20%) and lastly, the age group above 50 years (15%). Another variable that was evaluated was the rubber farming period in which the respondents had been engaged. The majority indicated 6-10 years (48%) followed by 0-5 years (40%) and lastly, 10+ years (12%). The number of rubber products was also considered where the majority was 10-50 kg, followed by 0-15 kg and lastly 50+ kg (22%). The respondents were also asked whether they were a member of the cooperative and 76% agreed while 24% did not.

4.3.2 Normality Tests for Individual Rubber Farmers

This section evaluated the normality distribution of the study variables. The six latent variables normality was evaluated using their latent variables. The Brand Image consists of three observed variables (Brand Identity, brand Personality and activity). The perceived value consists of four observed variables (functional value Social value, Emotional value and epistemic value). Satisfaction consisted of four observed variables namely (economics, knowledge, stability and participation). Trust consisted of four observed variables namely (brand competence, brand credibility, brand benevolence, and brand reputation). Loyalty consists of two observed variables (behavior and attitude). Sustainability consists of three observed variables (technological, engagement, organizational and government support).

Table 4.12 Normality Tests for Cooperative Farmers

Latent Variables	Skewness	Kurtosis	Normal Distribution
Brand Image	-0.204	0.468	✓
Function	-0.28725	0.5205	✓
Trust	-0.2505	0.09325	✓
Satisfaction	-0.54925	0.25675	✓
Loyalty	-0.5645	0.0215	✓
Sustainability	-0.42475	0.4955	✓

The results presented in Table 4.12 indicated that for the values for skewness ranged from -0.204 to -0.564. These values were all below 0.70, which is the required threshold according to (Hooland, 1998). The values for kurtosis results ranged between 0.0215 and 0.521. These were all below the required threshold of below 1.6 (Hooland, 1998). The fact that the required thresholds were satisfied for skewness and kurtosis confirmed that the normality requirement of the latent variables was satisfied.

4.3.3 Correlation Analysis for Individual Rubber Farmers

This section evaluated the correlation between the latent variables, as measured by the observed variables. The results are summarized in Table 4.13 below. The results indicated that the correlation coefficients for brand image was all-significant and ranged from 0.481 to 0.77. The correlation for the latent variable perceived ranged from 0.445 to 0.768. The correlation coefficients for trust ranged from 0.535 to 0.793. The correlation for the satisfaction ranged from 0.723 to 0.772. The correlation coefficient for loyalty was 0.68 while the correlation

coefficient for the sustainability ranged from 0.455 to 0.755. Since all these correlation coefficients were above 0.3, it was concluded that, the correlation between the variables were satisfactory.

Table 4.13 Correlation Analysis for Individual Rubber Farmers

Corr	Iden	Pers	Acti	Func	Soc	Emo	Epis	Comp	Cre	Ben	Rep	Eco	Know	Stab	Par	Beh	Atti	Tech	Enga	Org	GovS
Iden	1																				
Pers	0.698	1																			
Acti	0.415	0.559	1																		
Func	0.414	0.562	0.597	1																	
Soc	0.399	0.477	0.445	0.481	1																
Emo	0.404	0.628	0.574	0.582	0.596	1															
Epis	0.458	0.653	0.594	0.573	0.536	0.77	1														
Comp	0.319	0.48	0.454	0.598	0.524	0.606	0.58	1													
Cre	0.441	0.648	0.547	0.6	0.599	0.79	0.793	0.663	1												
Ben	0.386	0.606	0.544	0.565	0.583	0.726	0.762	0.599	0.778	1											
Rep	0.383	0.55	0.485	0.571	0.521	0.645	0.632	0.535	0.731	0.701	1										
Eco	0.323	0.522	0.485	0.66	0.534	0.622	0.626	0.669	0.712	0.656	0.625	1									
Know	0.449	0.547	0.508	0.604	0.489	0.554	0.619	0.556	0.648	0.624	0.622	0.735	1								
Stab	0.437	0.605	0.532	0.595	0.529	0.628	0.655	0.576	0.714	0.679	0.695	0.729	0.74	1							
Par	0.423	0.626	0.559	0.637	0.523	0.66	0.682	0.583	0.732	0.696	0.68	0.722	0.772	0.763	1						
Beh	0.33	0.545	0.41	0.395	0.527	0.681	0.628	0.506	0.734	0.628	0.609	0.554	0.477	0.618	0.63	1					
Atti	0.331	0.503	0.452	0.477	0.504	0.637	0.616	0.541	0.698	0.642	0.588	0.55	0.529	0.58	0.686	0.668	1				
Tech	0.428	0.516	0.502	0.586	0.469	0.503	0.553	0.505	0.562	0.554	0.577	0.641	0.692	0.662	0.689	0.443	0.515	1			
Enga	0.409	0.602	0.51	0.524	0.54	0.732	0.698	0.564	0.765	0.705	0.674	0.637	0.66	0.701	0.723	0.703	0.683	0.649	1		
Org	0.389	0.556	0.481	0.5	0.507	0.633	0.646	0.514	0.712	0.676	0.672	0.618	0.635	0.665	0.664	0.593	0.66	0.65	0.755	1	
GovS	0.311	0.44	0.377	0.367	0.368	0.49	0.532	0.395	0.543	0.522	0.455	0.403	0.392	0.484	0.468	0.506	0.512	0.455	0.547	0.529	1

4.3.4 Measurement of the Model for Cooperatives Farmers

Confirmatory Factor Analysis (CFA) was applied to test the fitness of the model. Two tests were conducted, the First Order CFA model analysis and the Second Order CFA analysis. These are presented in the following sections.

First Order CFA Analysis

CFA Analysis – Brand Image

The first order CFA model was conducted to evaluate validity of the three observed variables for brand image - brand identity (Iden), brand personality (Pers) and activity (Acti). The results are presented in Figure 4.11. It was found that the Chi-square was 0 and degrees of freedom was 0 which implied that it was a saturated model. Additionally, GFI = 1; IFI = 1; CFI = 1 and NFI = 1. The results of factor loadings showed that brand personality had the highest factor weight of 0.97, followed by brand identity (0.72) and lastly activity (0.58).

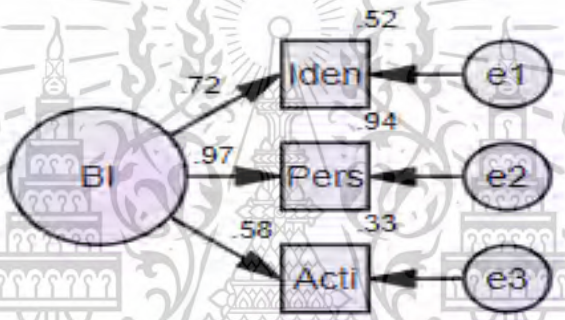


Figure 4.11 Cooperative Farmers CFA Analysis-Perceived

The first order CFA model was conducted to evaluate validity of the four observed variables for perceived latent variable - functional value (Func), Social value (Soc), Emotional value (Emo), and epistemic value (Epis). The results are presented in Figure 4.12. It was found that the Chi-square was 6.057 and degrees of freedom was 2 which implied that it was a saturated model. Additionally, GFI = 0.993; IFI = 0.977; CFI = 0.976 and NFI = 0.966, which satisfied the required threshold of >0.90. The results of factor loadings showed that emotional value had the highest factor weight of 0.90, followed by epistemic value (0.85), then functional value (0.67) and lastly social value (0.66).

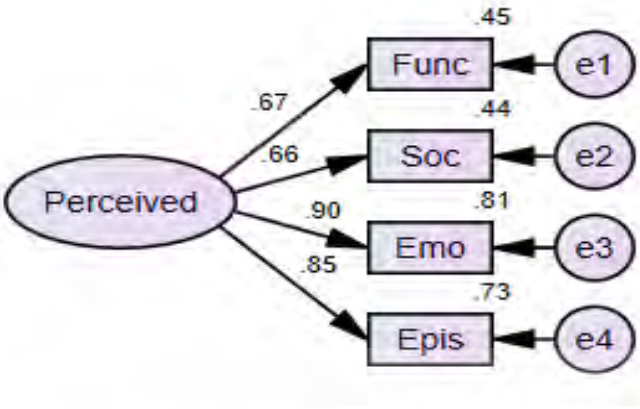


Figure 4.12 Cooperative Farmers CFA Analysis-Trust

The first order CFA model was conducted to evaluate validity of the four observed variables for trust latent variable - brand competence, brand credibility, brand benevolence, and brand reputation). The results are presented in Figure 4.13. It was found that the Chi-square was 4.888 and degrees of freedom was 2 which implied that it was a saturated model. Additionally, GFI = 0.994; IFI = 0.984; CFI = 0.984 and NFI = 0.974, which satisfied the required threshold of >0.90. The results of factor loadings showed that brand credibility had the highest factor weight of 0.92, followed by brand benevolence (0.86), then brand reputation (0.80) and lastly brand competence (0.71).

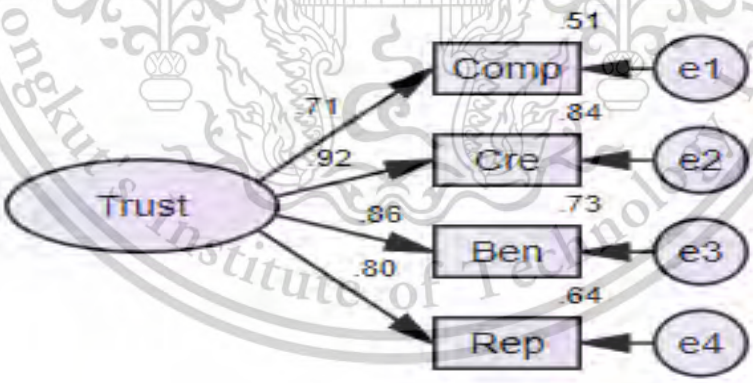


Figure 4.13 Cooperative Farmers CFA Analysis-Loyalty

The first order CFA model was conducted to evaluate validity of the two observed variables for loyalty - behavior and attitude. The results are presented in Figure 4.14. It was found that the Chi-square was 0 and degrees of freedom was 0 which implied that it was a

saturated model. Additionally, GFI = 1; IFI = 1; CFI = 1 and NFI = 1. The results of factor loadings showed that behavior had the highest factor weight of 0.97, and attitude (0.69).

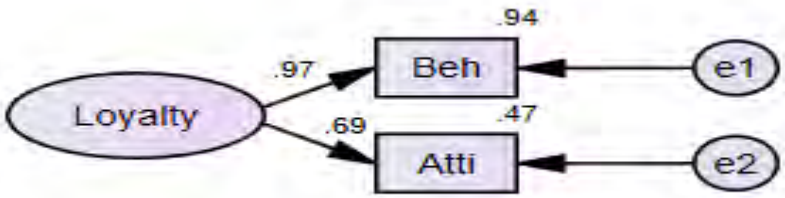


Figure 4.14 Cooperative Farmers CFA Analysis-Satisfaction

The first order CFA model was conducted to evaluate validity of the four observed variables for satisfaction variable - economics, knowledge, stability and participation. The results are presented in Figure 4.15. It was found that the Chi-square was 3.222 and degrees of freedom was 2 which implied that it was a saturated model. Additionally, GFI = 996; IFI = 993; CFI = 993 and NFI = 982, which satisfied the required threshold of >0.90. The results of factor loadings showed that participation had the highest factor weight of 0.88, followed by knowledge (0.87), then stability (0.86) and lastly economics (0.84).

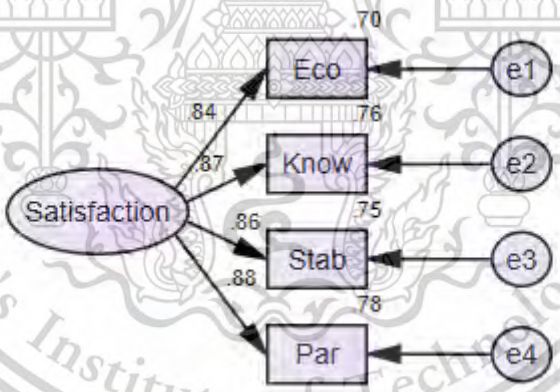


Figure 4.15 Cooperative Farmers CFA Analysis-Sustainability

The first order CFA model was conducted to evaluate validity of the four observed variables for sustainability latent variable - technological, engagement, organizational and government support). The results are presented in Figure 4.16. It was found that the Chi-square was 0.402 and degrees of freedom was 2 which implied that it was a saturated model. Additionally, GFI = 1; IFI = 1; CFI = 1 and NFI = 0.998, which satisfied the required threshold of >0.90. The results of factor loadings showed that engagement had the highest factor weight of 0.87, followed by organizational (0.86), then technological (0.75) and lastly government support (0.62).

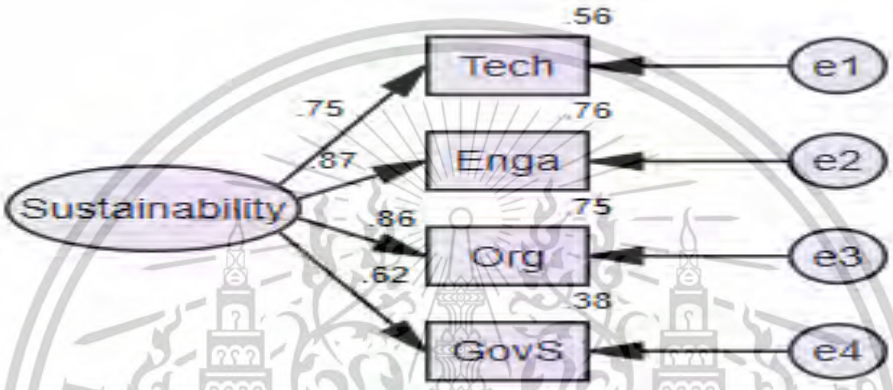


Figure 4.16 Cooperative Farmers CFA Analysis

4.3.5 Second Order CFA Analysis

In the model evaluation for the cooperatives farmers to test the fitness of the model to the data used, the following model was applied. The model tested the covariance of the latent variables as illustrated by the paths between the variables. The CFA results are shown in the other diagram.

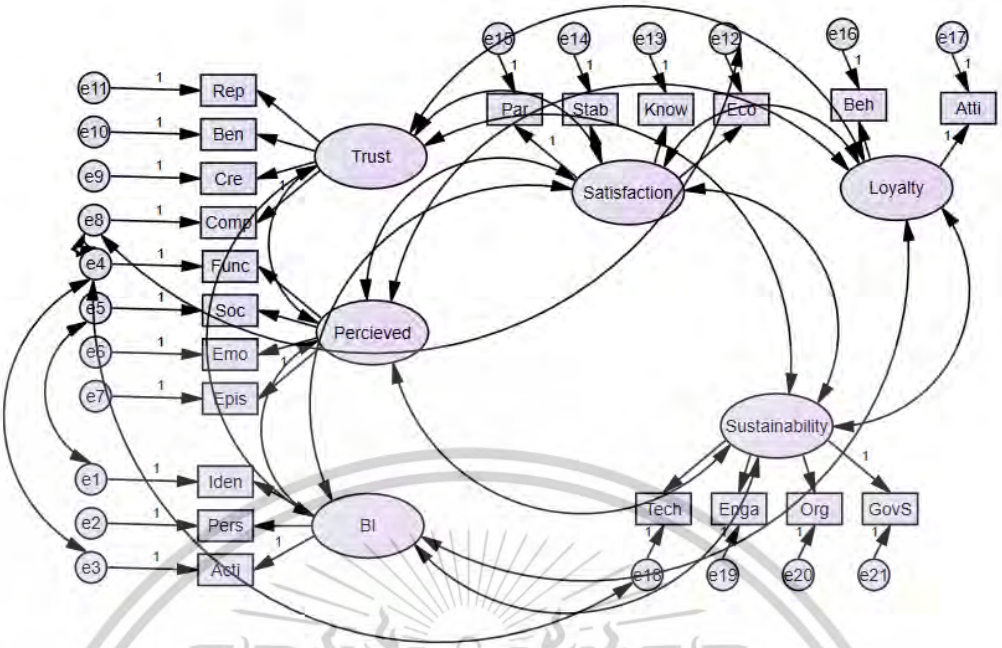


Figure 4.17 CFA Measurement Model for Cooperative Farmers

The model fitness was evaluated by conducting an analysis to measure various fitness indices. The results are shown in Figure 4.18.

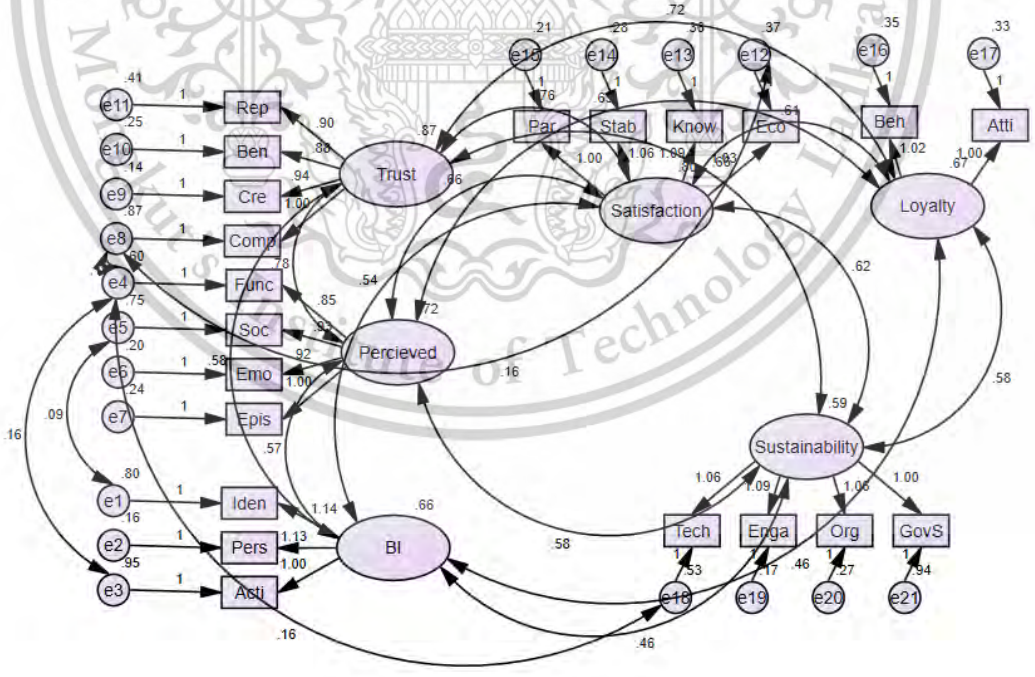


Figure 4.18 CFA Measurement Model Results

The fitness tests conducted included model chi-square, root mean square error of approximation (RMSEA), comparative fit index (CFI), root mean square residue, adjusted goodness of fit (AGFI), and the goodness of fit (GFI) were among the fitness factors that were assessed.

The chi-square statistic for the model was significant ($\chi 2$ [169] = 575.797 $p < 0.01$), while the more practical alternative, the $\chi 2$/df ratio = 3.407 (considered acceptable since it was below 5 and was being influenced by sample size) (Schumacker & Lomax, 2004; Hu & Bentler, 1999). The following results were obtained; RFI = 0.910, GFI = 0.887, TLI = 0.935, NFI = 0.928, CFI = 0.948, IFI = 0,948 which satisfied the required threshold of >0.900. AGFI = 0.873 satisfied the required minimum threshold of >0.800. The Chi-square/df = 3.407 satisfied the required threshold for <5.00. The RMSEA = 0.066 which satisfied the required threshold of <0.08. These thresholds were suggested by Andersson et al. (2022), Byrne (1994), Schumacker and Lomax, (2004), and Kline (2015). The satisfaction of these thresholds confirmed that the data and study constructs fitted well with the model. These are summarized in the Table 4.14 below.

Table 4.14 Measurement Model Fit Indices

Indices	Criteria	Statistics Value
CMIN/DF	<5	3.407
GFI	≥0.90	0.887
NFI	≥0.90	0.929
IFI	≥0.90	0.948
CFI	≥0.90	0.948
RMR	<0.08	0.062
RMSEA	<0.08	0.075
Conclusion		**Model Fit**

In addition to the model fitness tests, the reliability and validity of the constructs utilized in the research were also assessed. Standardized factor loadings and the average variance were used to assess the validity. Reliability was evaluated using composite reliability and Cronbach's α. The results are summarized in Table 4.15 below.

Table 4.15 Model Evaluation for Cooperative Rubber Farmers

Variables		Factor Loadings			Cronbach's alpha	Composite Reliability	AVE
Latent	**Observed**	**Estimate**	**S.E.**	**Std. Beta**			
BI	Acti	1.000		0.645			
	Pers	1.131	0.078	0.85	0.892	0.922	0.721
	Iden	1.143	0.09	0.777			
Loyalty	Beh	1.017	0.053	0.802	0.972	0.975	0.851
	Atti	1.000		0.804			
Perceived	Epis	1.000		0.87			
	Emo	0.917	0.037	0.872	0.867	0.956	0.682
	Soc	0.931	0.057	0.668			
	Func	0.847	0.051	0.683			
Satisfaction	Par	1.000		0.893			
	Stab	1.063	0.041	0.869	0.952	0.957	0.859
	Know	1.087	0.044	0.85			
	Eco	1.026	0.043	0.836			
Trust	GovS	1.000		0.632			
	Org	1.059	0.075	0.843	0.913	0.856	0.638
	Enga	1.091	0.074	0.899			
	Tech	1.060	0.082	0.718			
Sustainability	Comp	1.000		0.705			
	Cre	0.936	0.05	0.919	0.852	0.897	0.762
	Ben	0.885	0.051	0.857			
	Rep	0.898	0.055	0.797			

The results indicated that brand image (BI) its standardized factor loadings ranged from 0.645 for activity (Acti) to 0.85 for brand personality. These values, according to Hair et al., (2010) and Ghozali (2014), should be above 0.5, a threshold requirement that was satisfied. The results for Cronbach's alpha was 0.892 and that of composite reliability was 0.922, which satisfied the required threshold of >0.70 (Diamantopoulos et al., 2012; Trizano-Hermosilla & Alvarado, 2016, Khalid, 2021).

For the case of loyalty, its standardized factor loadings were 0.802 and 0.804 while the AVE was 0.851. These values, according to Hair et al., (2010) and Ghozali, (2014), should be above 0.5, a threshold requirement that was satisfied. The results for Cronbach's alpha was 0.972 and that of composite reliability was 0.975, which satisfied the required threshold of >0.70 (Diamantopoulos et al., 2012; Trizano-Hermosilla and Alvarado, 2016, Khalid, 2021).

For the case of perceived, its standardized factor loadings ranged from 0.668 to 0.872 while the AVE was 0.682. These values, according to Hair et al. (2010) and Ghozali (2014), should be above 0.5, a threshold requirement that was satisfied. The results for Cronbach's alpha was 0.867 and that of composite reliability was 0.956, which satisfied the required threshold of >0.70 (Diamantopoulos et al., 2012; Trizano-Hermosilla and Alvarado, 2016, Khalid, 2021).

Satisfaction variable standardized factor loadings ranged from 0.836 to 0.893 while the AVE was 0.859. These values, according to Hair et al. (2010) and Ghozali, (2014), should be above 0.5, a threshold requirement that was satisfied. The results for Cronbach's alpha was 0.952 and that of composite reliability was 0.957, which satisfied the required threshold of >0.70 (Diamantopoulos et al., 2012; Trizano-Hermosilla & Alvarado, 2016, Khalid, 2021).

Trust variable standardized factor loadings ranged from 0.632 to 0.899 while the AVE was 0.638. These values, according to Hair et al. (2010) and Ghozali (2014), should be above 0.5, a threshold requirement that was satisfied. The results for Cronbach's alpha was 0.852 and that of composite reliability was 0.856, which satisfied the required threshold of >0.70 (Diamantopoulos et al., 2012; Trizano-Hermosilla & Alvarado, 2016, Khalid, 2021).

For the case of sustainability, its standardized factor loadings ranged from 0.705 to 0.919 while the AVE was 0.762. These values, according to Hair et al. (2010) and Ghozali, (2014), should be above 0.5, a threshold requirement that was satisfied. The results for Cronbach's alpha was 0.852 and that of composite reliability was 0.892, which satisfied the required threshold of >0.70 (Diamantopoulos et al., 2012; Trizano-Hermosilla & Alvarado, 2016, Khalid, 2021).

Table 4.16 Discriminant validity for Cooperative Rubber Farmers

	1	2	3	4	5	6
BI	0.897					
Loyalty	0.782	0.8323				
Perceived	0.687	0.818	0.973			
Satisfaction	0.783	0.672	0.732	0.893		
Sustainability	0.872	0.723	0.792	0.732	0.892	
Trust	0.836	0.732	0.863	0.682	0.739	0.983

In addition to the above model evaluation, the discriminant validity test was conducted and presented in Table 4.7. The Fornell-Lacker criterion was applied where it measures the

degree of differences between the overlapping construct. n the assigned construct have to be higher than all loading of other constructs with condition that the cut-off value of factor loading is higher than 0.70. This criterion was satisfied, confirming the construct validity of the research model.

4.3.6 Hypothesis Testing using SEM for Cooperative Farmers

The previous sections reported satisfactory results. The model one and model 2 CFA analysis was aimed at testing the fitness of the model to the data. This was followed by testing the reliability and validity of the data. Having met all the required thresholds, it was okay to go ahead and conduct the hypothesis evaluation.

4.3.6.1 Overview of the SEM Model

In this analysis, two tests were conducted:

1) The direct relationship between the latent variables of the study.

2) The indirect relationship between the latent variables hypothesized as the mediating relationship.

The following were the latent variables and observed variables of the model, including the symbols used in the model. The following symbols were used in the analysis.

Table 4.17 Symbols Used in SEM

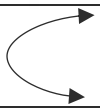
Symbol	Meaning
	Latent Variable
	Observed Variable
	Causal Relationship
	Non-causal relationship

Table 4.18 Abbreviations and Meaning of the Variables Used

Variables Symbols		Variable Names
Latent	Observed	
BI		**Brand Image**
	Acti	• Brand Identity
	Pers	• Brand Personality
	Iden	• Activity
Loyalty		**Loyalty**
	Beh	• Behavior
	Atti	• Attitude
Perceived		**Perceived Value**
	Epis	• Epistemic value
	Emo	• Emotional value
	Soc	• Social value
	Func	• Functional value
Satisfaction		**Satisfaction**
	Par	• Participation
	Stab	• Stability
	Know	• Knowledge
	Eco	• Economics
Trust		**Trust**
	Comp	• Brand Competence
	Cre	• Brand Credibility
	Ben	• Brand Benevolence
	Rep	• Brand Reputation
Sustainability		**Sustainability**
	GovS	• Government Support
	Org	• Organizational
	Enga	• Engagement
	Tech	• Technological

The following model was developed to evaluate the hypothesis of the study for cooperative farmers. It shows the path relationship between the latent variables and between the latent variables and observed variables.

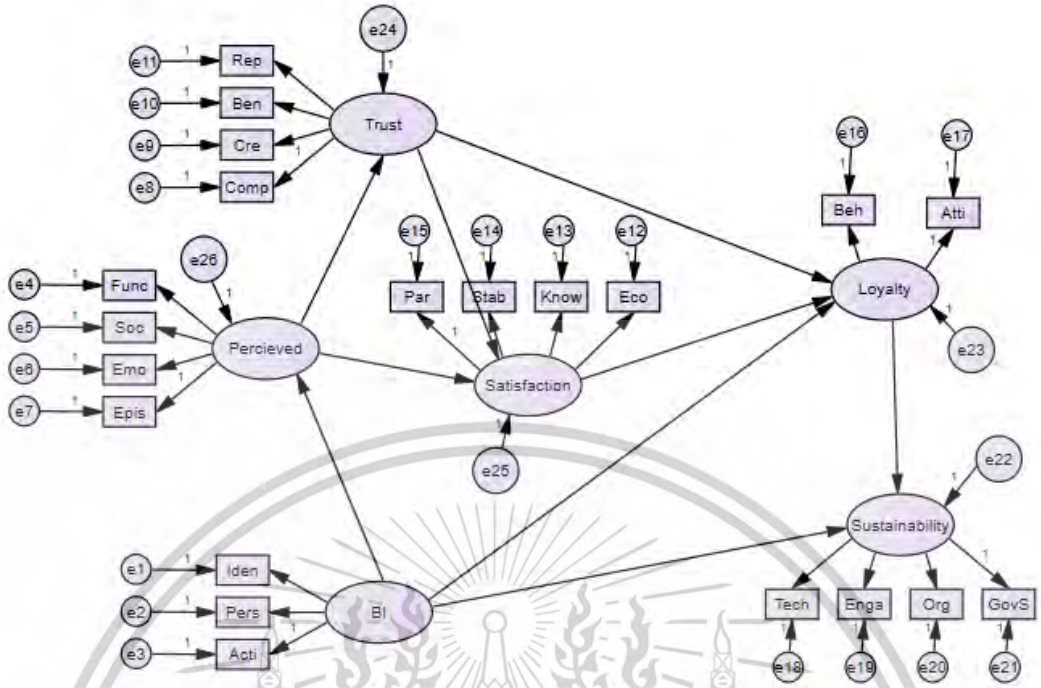


Figure 4.19 SEM Model for Cooperative Farmers

4.3.6.2 SEM Hypothesis Results for Cooperative Farmers

The analysis of the SEM model was conducted to evaluate the hypothesis of the study. The following Figure 4.20 presents the summary of the results. It shows the path analysis and the standardized path coefficients of the model for cooperative farmers.

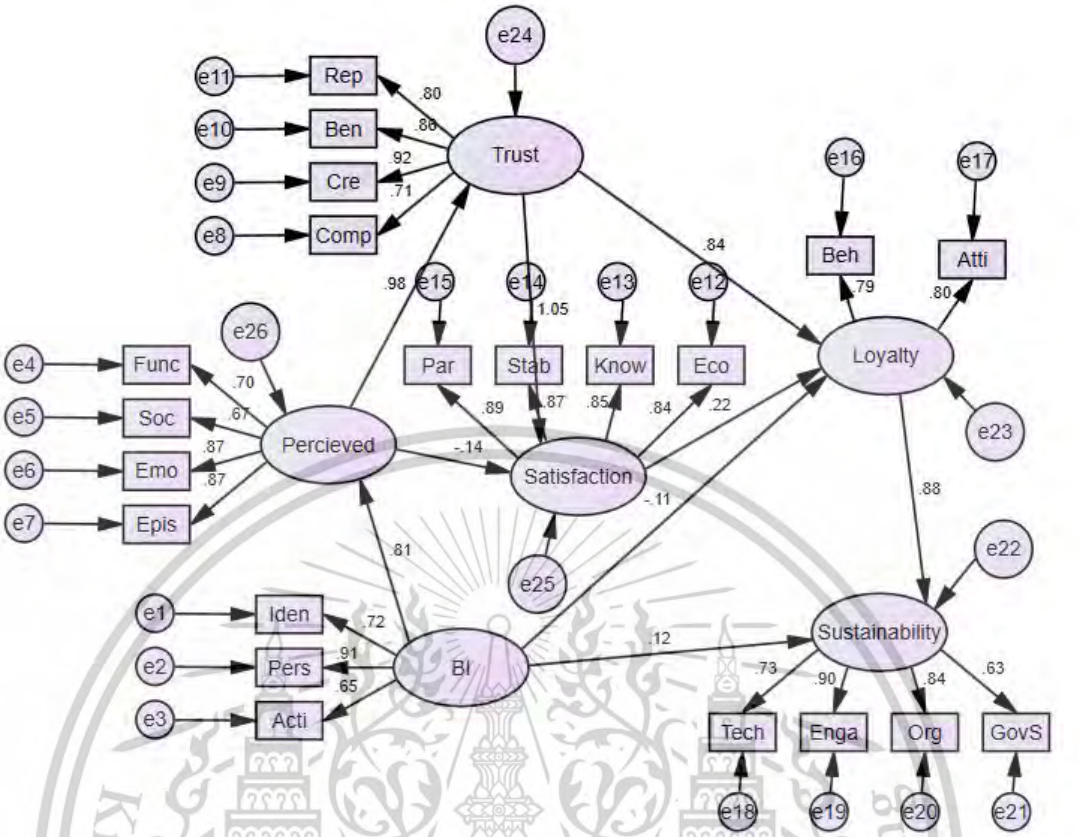


Figure 4.20 SEM Results for Cooperative Farmers

It was also necessary to check how the SEM model fitted the data for cooperative farmers. The results revealed that the chi-square statistic for the model was significant ($\chi2$ [180] = 724.095 $p < 0.01$), while the more practical alternative, the $\chi2$/df ratio = 4.023 (considered acceptable since it was below 5 and was being influenced by sample size) (Schumacker & Lomax, 2004; Hu & Bentler, 1999). The following results were obtained; RFI = 0.900, GFI = 0.901, TLI = 0.918, NFI = 0.909, CFI = 0.930, IFI = 0,930 which satisfied the required threshold of >0.900. AGFI = 0.812 satisfied the required minimum threshold of >0.800. The Chi-square/df = 4.023 satisfied the required threshold for <5.00. The RMSEA = 0.074 which satisfied the required threshold of <0.08. These thresholds were suggested by Andersson et al. (2022), Byrne, (1994), Schumacker and Lomax, (2004), and Kline (2015). The satisfaction of these thresholds confirmed that the data and study constructs fitted well with the model. These are summarized in the Table 4.19 below.

Table 4.19 Measurement Model Fit Indices

Indices	Criteria	Statistics Value
CMIN/DF	<5	4.023
GFI	≥0.90	0.901
NFI	≥0.90	0.909
IFI	≥0.90	0.930
CFI	≥0.90	0.930
RMR	<0.08	0.066
RMSEA	<0.08	0.074
Conclusion		**Model Fit**

All the above model fitness tests-for CFA and SEM-as well as the reliability and validity, shows that there is a complete satisfaction of the model. Therefore, it was advisable to conduct the SEM model analysis. The results are summarized in the following Table 4.20.

Table 4.20 Hypothesis Results for Cooperative Farmers

	Path Relationships					β	S.E.	C.R.	P
	Direct Effects								
H1	BI	→	Perceived			0.826	0.064	12.98	***
H2	BI	→	Loyalty			-0.104	0.061	-1.694	0.09
H3	BI	→	Sustainability			0.111	0.052	2.16	0.031
H4	Perceived	→	Satisfaction			-0.151	0.327	-0.461	0.644
H5	Trust	→	Satisfaction			0.988	0.296	3.338	***
H6	Satisfaction	→	Loyalty			0.194	0.077	2.515	0.112
H7	Trust	→	Loyalty			0.705	0.096	7.352	***
H8	Loyalty	→	Sustainability			0.846	0.077	11.03	***
H9	Perceived	→	Trust			1.093	0.063	17.25	***
	Indirect Effects								
	BI	→	Loyalty	→	Sustainability	0.672	0.872	2.92	***
H10	Satisfaction	→	loyalty	→	Sustainability	0.089	0.0563	8.872	***
	Trust	→	Loyalty	→	Sustainability	0.278	0.0826	4.283	***
	Perceived	→	Trust	→	loyalty	0.783	0.278	1.774	***

The results of the SEM analysis indicate that BI has a positive and significant effect on perceived value (β = 0.826, p<0.01), confirming H1. BI was found to have negative and significant effect on loyalty (β = -0.104, p<0.05), rejecting H2. BI was found to have positive and significant effect on sustainability (β = 0.111, p<0.05), confirming H3. Perceived value was found to have negative an insignificant effect on satisfaction (β = -0.151, p>0.05), leading to rejection of H4. Trust was found to have a positive and significant effect on satisfaction (β = 0.988, p<0.01), confirming hypothesis 5. Satisfaction has a positive and insignificant effect on loyalty (β = 0.194, p>0.05), hence rejecting H6. Trust was found to have a positive and significant effect on loyalty (β = 0.705, p<0.01), confirming hypothesis 7. Loyalty has a positive and significant effect on sustainability (β = 0.846, p<0.01), confirming hypothesis 8. Perceived value has a positive and significant effect on trust (β = 1.093, p<0.01), confirming hypothesis 9. In addition, the mediating role of loyalty was evaluated. The results was found to indicate that loyalty was a significant mediator of the effects of BI, satisfaction and trust on sustainability (β = 0.672, 0.089, 0.278 p<0.01) respectively.

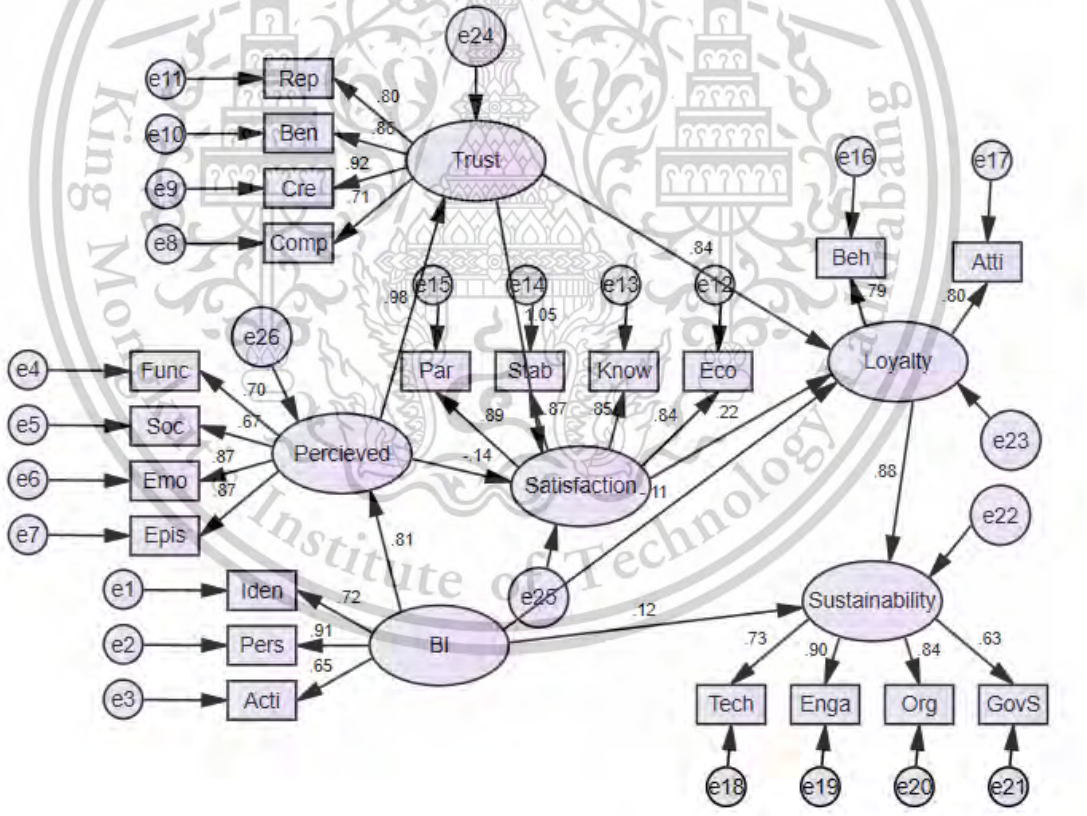


Figure 4.21 Hypothesis Results for Cooperative Farmers

CHAPTER 5
CONCLUSIONS, DISCUSSIONS & RECCOMENDATIONS

5.1 Introduction

The purpose of this research was to investigate the sustainability of rubber farmers in Thailand, from the individual perspectives and from the cooperatives perspectives. The research worked towards finding out the factors influencing the sustainability of rubber farmers in Thailand. The study was aimed at finding out brand image and loyalty influences the rubber farmers' sustainability, as well as the mediation effects of satisfaction, trust and perceived value. The study comprised of two categories of respondents-the individual rubber farmers, and the cooperatives rubber farmers. The individual rubber farmers' respondents were 436 while that of the cooperative respondents were 434. The study comprised of 6 latent variables, from which one was dependent variable, five independent variables, where four of them doubled up as mediating variables. The data was analyzed using statistical techniques. The tests used included descriptive statistics, correlation analysis, reliability and validity analysis of the data, confirmatory factor analysis (CFA), and structural equation modeling (SEM). Based on the findings of the previous chapters, this chapter presents the discussion of the findings, the summary of the findings, implications, and recommendations of the research.

5.2 Discussions of Findings

The results discussions are arranged according to the research questions and research hypothesis. The current findings are compared and referenced with the previous research to establish whether there is agreement or contracts. An analysis is done for individual rubber farmers and cooperative rubber farmers separately.

5.2.1 Relationships of the Variables in the Sustainability Model

This section was geared towards answering the first and second research questions (the first and second objectives) of the research. The first objective was "to study the relationships of the variables in the model of sustainability in rubber farmer institutes that are individuals" and the second is "to study the relationships of the variables in the model of sustainability in rubber farmer institutes that are cooperation". As a result, this section comprised of two sections – for individual rubber farmers and for cooperatives coffee farmers.

5.2.1.1 Case for Individual Rubber Farmers

The first relationship that was evaluated was between the brand and other variables. The results indicated that brand image has a positive relationship with rubbers farmers' perceived value and rubber farmers' sustainability, but a negative relationship with the loyalty. This implies that an increase in brand image of the rubber farming enhances and increases perceived value and sustainability of the rubber farmers. Satisfaction was found to have a negative relationship with perceived value, but a positive relationship with trust and loyalty. This implied that increased satisfaction of the rubber farmers has a positive response in terms of trust, and loyalty. The study also found that trust had a positive relationship with perceived value and loyalty, implying that increased individual rubber farmers trust, would enhance their loyalty and perceived value.

5.2.1.2 Case for Cooperative Rubber Farmers

Just as it was observed in the case of individual rubber farmers, brand image was found to have a positive relationship with rubbers farmers' perceived value and rubber farmers' sustainability, but a negative relationship with the loyalty. This implies that an increase in brand image of the rubber farmers' cooperatives would enhance their perceived value and sustainability of the rubber farmers. With regard to satisfaction of rubber farmers' cooperatives, it was found to have a negative relationship with perceived value, but a positive relationship with trust. Sustainability of rubber farmers' cooperatives was found to have a positive relationship with loyalty. This implied that increased loyalty enhanced rubber farmers' sustainability and vice-versa. The loyalty of rubber farmers was found to have a positive relationship with satisfaction and trust, which implied that an improvement in the trust and satisfaction of rubber farmers towards their cooperatives, this would enhance their loyalty.

5.2.2 Factors Affecting the Sustainability of the Rubber Farmer Institutions

This section addressed the third and fourth research questions (third and fourth objectives) of our research, which investigated the variables related to rubber farming in Thailand, which influenced the sustainability of rubber farmers' institutions. This evaluation was done, both from the perspective of individual rubber farmers as well as cooperatives. The third objective addressed the case for individual rubber farmers as follows "to study factors affecting the sustainability of the rubber farmer institutions that are individuals". The fourth objective addressed the case for rubber farmers, which were cooperatives, and was stated as follows "to study factors affecting the sustainability of the rubber farmer institutions that are cooperatives". The discussions for each case is presented below.

5.2.2.1 The Case for Individual Farmers

1) Effect of BI on Perceived Value

This section discusses the effects of brand image on perceived value of individual rubber farmers' sustainability. The SEM results indicated that brand image bears a strong and positive effect on perceived value ($\beta = 0.774$, $p<0.05$) confirming hypothesis 1 of the study. These findings are in line with Khazaei et al. (2016) who indicated that corporate reputation aspects such as brand identity, brand personality, and activity were associated with perceived value. Similarly, H. T. Nguyen et al. (2018) indicated that brand image determines the people's perceptions and attached value.

2) Effect of BI on Loyalty

This section discusses the effects of brand image on loyalty of rubber farmers' sustainability. The results indicated that brand image was deemed to have a negative and insignificant influence on loyalty ($\beta = -0.163$, $p>0.05$), hence rejecting hypothesis 2. These findings are in agreement with Jung et al. (2020) in his study on sustainable marketing activities of traditional fashion market and brand loyalty. The finding revealed that sustainable marketing activities resulted in brand image, trust, and satisfaction in positive way, which in turn enhanced the brand royalty. Similarly, Shahsavar and Sudzina, (2017) argued that corporate image has certain degree relationship with customer loyalty. It is one of the crucial determinants of customer loyalty because loyal customers tend to continue purchase more and spread positive word-of-mouth regarding service provider.

3) Effects of BI on Sustainability

This research evaluated the direct effect of brand image on sustainability of rubber farmers who were individuals (Hypothesis 3). The results revealed that brand image had a positive and significant influence on sustainability ($\beta = 0.129$, $p = 0.024$), hence accepting the hypothesis. This implied that an improvement in brand image would results to an improvement in the sustainability of individual rubber farmers that were individuals. Robinson echoed these results and Barlow (1959) who indicated that brand image is a critical aspect, in presenting the self-image of an organization, and establishing a connecting to people through sense of mind. Additionally, Wijaya (2013) indicated that brand image is an important framework in establishing sustainable models of rubber farmers.

4) Effect of Perceived value on Satisfaction

This section discusses the direct effect of perceived value on satisfaction of rubber farmers who were individuals (Hypothesis 4). Perceived value was determined to have a negative and insignificant effect on satisfaction ($\beta = -0.087$, $p>0.05$) hence rejecting hypothesis 4. While these findings showed a negative relationship, that of Anan Chieochankitkan (2018) revealed that perceived value positively affects the customer

satisfaction. As well, Koupai et al. (2015) results indicated that perceived value the key strategy to maintain the customer royalty, especially for business customer.

5) Effect of Trust on Satisfaction

This section discusses the effect of trust on satisfaction of rubber farmers who were individuals (Hypothesis 5). The results indicated that trust has a positive and significant effect on satisfaction ($\beta = 0.935$, $p<0.05$) confirming hypothesis 5 of the study. These findings align with those of Reast (2005) the effect of trust of a service are sometimes best identified by customers' satisfaction. The executive must survey consumer satisfaction towards the product and service because the results can reveal the attitude and comments of the consumers on the product and service. Thus, the providers can offer services that meet the need of each aspect of the consumers (Reast, 2005). Consumer satisfaction is a significant variable in evaluating the quality of service, and their trust on the business. If any providers can offer a service that meets the need and expectations of the consumers, the consumers continue to get the same service. The quality of service depends on the place, equipment the personality of the staff, the creditability of the service, the willingness of the staff as well as the ability to provide service with reliability and compassion.

6) Effect of Perceived Value on Trust

This section discusses the effect of perceived value on trust of rubber farmers who were individuals (Hypothesis 6). The results revealed that perceived has a positive and strong effect on trust ($\beta = 1.091$, $p<0.05$) confirming hypothesis 6 of the study. These resuts alighn with that of Karajaluoto et al. (2012) concluded that trust and value are the key factor of long-term relationships. Furthermore, it was found that perceived value, which is positively associated with trust leads to the relationship. Surachet and Wanno (2014) cemented the findings from the fact that customer perceived value affected customer trust, the customer's perceived value plays a vital role in ensuring customer satisfaction of the brand.

7) Effect of Satisfaction on Loyalty

This section discusses the effect of satisfaction on loyalty of rubber farmers who were individuals (Hypothesis 7). Satisfaction was revealed to positively and significantly affect loyalty ($\beta = 0.179$, $p<0.05$) confirming hypothesis 7 of the study. These findings align with Pisit Kaojan (2003) who asserted that satisfaction is a positive feeling that the employees have towards their profession. This feeling can arouse the feeling of appreciation, enthusiasm, determination, and the morale of the employee work. All these feelings have impacted the effective work and the organization's success.

8) Effect of Trust on Loyalty

This section discusses the effects of trust on loyalty of individual rubber farmers' sustainability. Trust was found to have a positive and significant effect on loyalty ($\beta = 0.789$, $p<0.05$) confirming hypothesis 8 of the study. According to Koupai et al.

(2015) trust has a positive impact on brand royalty. Trust in brand is a result of when the consumer can rely on the brand. Trust is one the factors that lead to brand loyalty. Additionally, Jung et al. (2020) emphasized that in order to create brand royalty, consumer trust should be prioritized since it has a significant influence.

9) Effects of Loyalty on Sustainability

This section discussed the findings of the relationship between loyalty and sustainability (Hypothesis 9) Loyalty was found to have positive and significant influence on sustainability of individual rubber farmers ($\beta = 0.803$, $p = 0.000$), hence accepting hypothesis 9. Loyalty has a high influence on sustainability, from the fact that an increase in one unit of loyalty would lead to 0.803 units in sustainability of rubber farmers. The research indicated that loyalty is a crucial element in bringing about aspects of sustainability of individual farmers (Chang, (2017). The respondents believed when there is loyalty; there is the sustainability of the concerned aspect. For this study, the loyalty of customers regarding the rubber farmers would increase the associated sustainability.

10) Mediating effect of Loyalty

This section discusses the mediating role of loyalty. The research showed that effect of brand image, customer satisfaction, and trust on individual rubber farmers' sustainability was significantly mediated by loyalty. This confirmed hypothesis 10. These findings are in agreement with that of Fazal and Kanwal (2017) that loyalty referred to the commitment and obligation between the rubber farmer members that willingly participate in the activities of the group. It leads to a positive relationship and encourages the members to maintain their commitment. It is the result of brand loyalty that the consumer has towards the product and service and the result of a source of inspiration that the consumers can gain (Chang, (2017). For this reason, the consumers not only continue to purchase the brand's products but also promote the product. Furthermore, the result can bring confidence in executives and staff as well as the supplier to become a partnership. If there is brand loyalty, a collection of favorable evaluations and unwavering convictions about a certain brand, the consumers continuously purchase the same brand.

5.2.2.2 The Case for Farmers in Cooperatives

1) Effects of BI on Perceived Value

This section discusses the effects of brand image on perceived value of rubber farmers' sustainability who were in cooperatives. The results of the SEM analysis indicate that BI has a positive and significant effect on perceived value ($\beta = 0.826$, $p<0.01$), confirming H1. This was according to the findings of Amir Jalilvand et al. (2016) that corporate reputation was associated with perceived value, where the increased brand image is a recipe that enhances the farmer's perceived value.

2) Effects of BI on Loyalty

This section discusses the effects of brand image on loyalty of rubber farmers' sustainability who were in cooperatives. BI was found to have negative and significant effect on loyalty ($\beta = -0.104$, $p<0.05$), rejecting H2. However, these results were on centrally with Hafez and Akther (2017) whose research indicated that brand image is one of the crucial determinants of customer loyalty because loyal customers tend to continue purchase more and spread positive word-of-mouth regarding service provider. Corporate and brand image are the indicator of customer loyalty.

3) Effects of BI on Sustainability

This section discusses the effects of brand image on sustainability of rubber farmers' sustainability who were in cooperatives. BI was found to have positive and significant effect on sustainability ($\beta = 0.111$, $p<0.05$), confirming H3. The aspects of brand image that were considered relevant in this analysis included brand identity, brand personality, and activity. These results are supported by Tur-Porcar et al. (2017) whose results indicated that one of the factors that related rubber farmer cooperatives registered as juristic persons in Thailand was human relations, and business activity. Ethical principles and values, together with competitive intelligence, are crucial for undertaking actions that lead to sustainability.

4) Effects of Perceived Value on Satisfaction

This section discusses the effects of perceived value on satisfaction of rubber farmers' sustainability who were in cooperatives. Perceived value was found to have negative an insignificant effect on satisfaction ($\beta = -0.151$, $p>0.05$), leading to rejection of H4. Centrally to these results, Chalita Chanaveerawon (2018) indicated that service quality factors including completeness of service, perceived value, emotional response, brand image, monetary price and reputation had a positive effect on the satisfaction of using express courier services. Additionally, Surachet and Wanno (2014) contradicted the results of this study by revealing that because the customer perceived value affected customer trust, the customer's perceived value plays a vital role in ensuring customer satisfaction of the brand.

5) Effects of Trust on Satisfaction

This section discusses the effects of trust on satisfaction of rubber farmers' sustainability who were in cooperatives. Trust was found to have a positive and significant effect on satisfaction ($\beta = 0.988$, $p<0.01$), confirming hypothesis 5. These results were supported by Ossama and Kanwal (2017) who researched on "Determinants of brand loyalty: A case study of Asian Mobile Phone Users." The result revealed that trust was important to the brand since it was variable that produce consumers' commitment, especially in circumstances of high involvement of brand and customers. Moreover, it was found that the effect of brand trust is strongest as compared to overall satisfaction in brand loyalty.

6) Effects of Satisfaction on Loyalty

This section discusses the effects of satisfaction on loyalty of rubber farmers' sustainability who were in cooperatives. Satisfaction has a positive and insignificant effect on loyalty ($\beta = 0.194$, $p>0.05$), hence rejecting H6. The aspects of satisfaction that were found to influence loyalty include economics, knowledge, stability, and participation. However, Strenitzerova and Gana (2018) had centrally arguments that customer satisfaction has a huge impact on consumer loyalty since it can determine repurchase behavior. Positive relationships with products or brands such as customer satisfaction have higher levels of brand loyalty. Thus, a positive relationship between satisfaction and loyalty influences consumers' intent to repurchase the service and their willingness to recommend the brand to others. In addition, given that the relationship between satisfaction and loyalty is commonly accepted, as discussed previously.

7) Effects of Trust on Loyalty

This section discusses the effects of trust on loyalty of rubber farmers' sustainability who were in cooperatives. Trust was found to have a positive and significant effect on loyalty ($\beta = 0.705$, $p<0.01$), confirming hypothesis 7. It implied that a unit increase in trust would lead to 0.705 units increase in loyalty of the rubber farmers' cooperatives. It therefore indicated that trust is a critical factor as far as better performances of rubber farmers' cooperatives are concerned. In line with these findings, Koupai et al. (2015) result indicated that the trust had an effect on customer loyalty since it created customer satisfaction and form purchasing habit of the customer.

8) Effects of Loyalty on Sustainability

This section discusses the effects of loyalty on sustainability of rubber farmers' sustainability who were in cooperatives. Loyalty has a positive and significant effect on sustainability ($\beta = 0.846$, $p<0.01$), confirming hypothesis 8. If brand loyalty was improved by 1 unit, then sustainability would be improved by 0.543 units and vice-versa. These results were supported by Ismail et al (2019) whose results indicated that five major drivers showed the cooperative's sustainability including strong members' support, a better support system, effective management, an established business strategy and direction, and good knowledge required of the board members.

9) Effects of Perceived Value on Trust

This section discusses the effects of perceived value on trust of rubber farmers' sustainability who were in cooperatives. Perceived value has a positive and significant effect on trust ($\beta = 1.093$, $p<0.01$), confirming hypothesis 9. Another important result to consider is that, perceived value has significant effect on trust of rubber farmer's cooperatives. The aspects of perceived value worth considering in this case include the functional value, social value, emotional value, and epistemic value (Kot & Brzezinski, 2015; Ayu et al., 2020).

These results were in line with that of Karajaluoto et al. (2012) whose findings concluded that trust and value are the key factor of long-term relationships.

10) Mediating Role of Loyalty

This section discusses the mediating role of loyalty, on the effects of BI, satisfaction and trust on sustainability. The results was found to indicate that loyalty was a significant mediator of the effects of BI, satisfaction and trust on sustainability ($\beta = 0.672$, 0.089, 0.278 $p<0.01$) respectively. According to Haque (2013) and Das (2014) brand loyalty is the consumer behavior that maintain purchasing behavior of a particular product. Similarly, Schiffman and Kanuk (2010) reasoned that brand loyalty is associated with the satisfaction towards the product of the consumers that result in repeatedly purchasing a specific brand. The brand image was considered as a critical determinants of customer loyalty because loyal customers tend to continue purchase more and spread positive word-of-mouth regarding service provider, which in turn enhances the sustainability of the concerned brand. Jung et al., 2020) argues that more emphasis on improving trust in order to increase loyalty among customers is the best strategy to achieve sustainability in the business undertakings.

5.3 Recommendations

From the findings of this research, several recommendations are relevant. For the case of individual rubber farmers rubber farmers groups in Thailand can leverage on the results to understand the needs of their members by understanding the relevance of the brand image, perceived value and build trust which can lead to sustainability of the group. The study advocates that the loyalty of customers regarding the rubber farmers' institutes would increase the associated sustainability. Future studies can consider the influence of loyalty towards attracting new members to the farmers' cooperative and foster a sustainable relationship between the government and farmers cooperatives. Future studies can also replicate the study in other cooperative groups to ascertain the consistency of the results.

For the case of rubber farmers' cooperatives, first, the rubber farmers' cooperatives, over a long period of time have been in situations that needs urgent re-evaluation and improvement. The past activities organized by the rubber farmer cooperatives could not motivate and be a model of stability and sustainability to convince small rubber farmers to become the members and participate in the activities, due to many factors. There has also been lack of strength and ability to survive as if the farmer institutions were not able to be a center to solve problems for small farmers. To address this issue, it is relevant to improve the sustainability of the rubber farmer cooperatives. There are three factors that should be improved, in order to improve the rubber farmer cooperatives sustainability. These are brand image, loyalty, and satisfaction. For the brand image, the specific factors to improve include

brand identity, brand personality, and activity; for the loyalty, the specific factors to improve include behavior and attitude; while the specific factors to improve for satisfaction include economics, knowledge, stability, and participation. This research also recommends that to improve the rubber farmer cooperatives loyalty and satisfaction, trust factor should be addressed and improved to significant levels.

For the case of individual rubber farmers.Rubber farmers groups in Thailand can leverage on the results to understand the needs of their members by understanding the relevance of the brand image, perceived value and build trust which can lead to sustainability of the group. The study advocates that the loyalty of customers regarding the rubber farmers' institutes would increase the associated sustainability.

For the case of rubber farmers' cooperatives.Rubber farmers' cooperatives need urgent re-evaluation and improvement. There is need to motivate and be a model of stability and sustainability to convince small rubber farmers to become the members and participate in the activities.To improve the rubber farmer cooperatives sustainability, brand image, loyalty, and satisfaction should be leveraged.

For The Rubber Authority of Thailand.Ministry of Agriculture and Cooperatives by the Rubber Authority of Thailand should apply "A Model of a Rubber Farmer Institute's Sustainability: Rubber Farmer Institute as a Juristic Person in Thailand" obtained from this research to be applied as the policy of Thailand's rubber organization and strategy. For maximum benefit to rubber farmers, rubber farmers' institutes, rubber entrepreneurs and the Rubber Authority of Thailand.

5.4 Conclusions

This study sought to identify characteristics that, from a personal standpoint, affect the viability of rubber farmers. The research developed and adopted a comprehensive model that was considered suitable to evaluate the sustainability aspect. The model considered sustainability as the endogenous variable. Brand image, perceived value, contentment, trust, and loyalty made up the external factors. Important conclusions were developed after the examination of the findings. These include that brand image is important to sustainability, and satisfaction is important to sustainability. The research revealed that loyalty, trust, and satisfaction significantly influenced the sustainability of rubber farmers. Brand image is a critical and significant factor for the improvement of sustainability. The improvement in the brand image of the rubber farmers in states both locally and internationally would result in increased business sustainability. In this case, brand image referred to the positive perception of the rubber farmer institutions that are cooperating so that the memberships, non-memberships, and other people can recognize the products and the organization. Satisfaction

was considered and found to be an important aspect in improving the sustainability of the respondents. The aspects of satisfaction that are critical in improving sustainability include economics, knowledge, stability, and participation. When there is loyalty, there is the sustainability of the concerned aspect.

Several conclusions could be highlighted from the research regarding the sustainability of rubber farmer cooperatives as corporations. The first conclusion is that three factors are significant when considering targeting and improving the sustainability of rubber farmer cooperatives as a corporation. These factors include brand image, loyalty, and satisfaction. Each of these variables has a specific aspect that should be considered necessary. For brand image, these factors include brand identity, brand personality, and activity; for loyalty, these factors include behavior and attitude; while the factors for satisfaction include economics, knowledge, stability, and participation. It is also concluded that trust is a critical factor as far as the satisfaction and loyalty of rubber farmer cooperatives are concerned. Trust has an effect on customer loyalty since it creates customer satisfaction and form purchasing habit of the customer. The limitation of this research is that it focused on Thailand's rubber farmer cooperatives specifically as corporations; therefore, the application of these results outside of this scope should be made with these considerations. Future studies can compare the applicability with rubber farmers in Thailand and other ASEAN countries to understand the dynamics of the data from Thailand. Another limitation was the use of only rubber farmers' who are members of rubber cooperatives. Future studies should consider rubber farmers who are not affiliated with any cooperatives. This is to ascertain their views on rubber cooperatives and why they are yet to join one, especially whether factors such as trust, attitude, brand image, and perception have any influence on their current and future decisions to join a cooperative.

For the continuous rubber industry. If the Institute of Rubber Farmers is strong and sustainable, it will contribute to the development of both rubber plantations. Processing, upstream, midstream and downstream production. Rubber Entrepreneurs Investors in Thailand's Rubber Industry. Able to compete in the international market. It has a positive impact on the quality of life of rubber farmers. Institute of Rubber farmers. Investors in the rubber industry and Thailand's income from rubber product exports increased.

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APPANDIX

APPENDIX A

Relevant Laws, Rules and Regulations

APPENDIX A
RELEVANT LAWS, RULES AND REGULATIONS

1. Rubber Authority of Thailand Act

On 8 July 2015, His Majesty King Bhumibol Adulyadej is graciously pleased to proclaim that whereas it is expedient to have a law on rubber authority of Thailand; be it, therefore, enacted by the King by and with the advice and consent of the National Legislative Assembly (The Rubber Authority of Thailand, 2015).

The significant of this act is that para rubber are crucial to the country's economy and the world community; it is important to reform the rubber management system, research and development, stabilization of rubber prices, business operations and allocation of benefits since these factors are related with the improvement of the quality of rubber farmers' life and rubber business operators; moreover, these factors are associated with the country's economic and social developments. Consequently, in order to promote and support rubber farmers and rubber business operators, it is essential to establish a central organization that is responsible for the administration and management of the whole country's system of Para rubber. It should perform with an integrated manner so that the organization can operate independently and flexibly, and the rubber product can be used to achieve maximum productivity and efficiency. Thus, The Rubber Authority of Thailand should be established to be responsible in promoting and developing the activities related to the country's rubber (Rubber Authority of Thailand Act. B.E. 2558, 2015)

Section 1: This Act is called the "Rubber Authority of Thailand Act, B.E. 2558 (2015)".

Section 2: This Act shall come into force as from the day following the date of its publication in the Government Gazette.

Section 3: In this Act, "rubber tree" means a para rubber tree (Hevea brasiliensis), and shall include other types of rubber trees prescribed in the Notification by the Committee.

"Rubber' means natural rubber latex, rubber piece, rubber scrap, concentrated latex, rubber sheet, block rubber, crepe rubber or any other types of rubber made of or derived from any parts of the rubber tree, but excluding rubber products and finished

artificial rubber materials; “rubber wood” means a rubber tree or a wood log from a rubber tree.

“Para rubber” means rubber and rubber wood; “good-quality rubber” means the rubber tree species that produce good yields, and shall include the rubber tree species that are appropriate for planting on a rubber plantation as prescribed in the Notification by the Committee;

“Rubber plantation” means the planting land for rubber trees with an area of not less than two rai. Each rai contains not less than ten rubber trees and, on average, not less than twenty-five trees.

“Rubber plantation farmer” means a rubber plantation owner or lessee or a rubber farmer and tapper who has the right to collect harvests from the rubber trees in such rubber plantation and has been registered with the Rubber Authority of Thailand in accordance with the rules, procedures and conditions prescribed in the Notification by the Committee;

“Rubber farmer institute” means an association, a cooperative or a group of rubber plantation farmers registered as a juristic person under the law which has been registered with the Rubber Authority of Thailand in accordance with the rules, procedures and conditions prescribed in the Notification by the Committee, but excluding limited companies, limited partnerships and ordinary partnerships in which a rubber plantation farmer holds shares or partnership interests, in whole or in part;

“Rubber business operator ‘means a person engaged in the business related to para rubber; “replanting” means the planting of good-quality rubber or other types of trees which are economically important as prescribed in the Notification by the Committee to replace the old rubber trees, wholly or partially; “new planting” means the planting of good-quality rubber on the land on which no rubber tree has ever been planted.

Section 4: Chapter I: Establishment, Capital, Incomes and Reserves.

Section 5: There shall be established a rubber authority called the “Rubber Authority of Thailand”, to be called “RAOT” in brief, and it shall have the RAOT’s emblem. The characteristics of the emblem under paragraph one shall be as prescribed in the Ministerial Regulations.

Section 6: RAOT shall be a juristic person and shall have its head office in the Bangkok Metropolis or other nearby province and may establish its branch offices or

agents elsewhere within or outside the Kingdom, but the establishment of any branch office outside the Kingdom shall be approved by the Council of Ministers.

Section 7: RAOT shall have the following objectives:

i. To be a central organization to be responsible for and supervise the administration and management of the whole system of para rubber of the country on an integrated basis and the administration and management of the Fund's finance and to promote and support the country to become a center for para rubber product industry;

ii. To promote, support and provide education, analysis, research, development and information dissemination in relation to para rubber;

iii. To promote, support and provide assistance to rubber plantation farmers, rubber farmer institutes and rubber business operators in respect to academic matters, finance, production, processing, industry, marketing, business operation and other related operations in order to improve income levels and quality of life;

iv. to take action to stabilize the prices of para rubber;

v. to promote and support replanting and new planting;

Section 8: RAOT shall have the power to carry out the following activities within the scope of its objectives under Section 8:

To promote and support the improvement of product quality and marketing system in order to bring the utmost benefit to rubber plantation farmers and rubber business operators;

i. To carry out the business related to para rubber;

ii. To promote and support the integration of rubber plantation farmers into a rubber farmer institute in order to invest in the business and industry related to para rubber as prescribed by the Committee;

iii. To promote, support and cooperate with para rubber producing countries and international organizations in relation to para rubber;

iv. To promote and provide personnel development and administration and management in relation to para rubber;

v. To perform any other necessary or related act to ensure the achievement of the objectives of RAOT as prescribed by the Committee.

In addition, Section 8 is also supported by Section 10 that RAOT shall have the power and duty to perform the following activities:

i. To have ownership, possessory rights or property rights;

ii. To create rights or to engage in any juristic act, within or outside the Kingdom;

iii. To enter into an agreement and cooperate with organizations or agencies, domestically or internationally in the business related to the operations under the objectives of RAOT;

iv. To participate or jointly invest with other juristic persons in the business related to the objectives of RAOT;

v. To borrow or lend money for its operations under the objectives of RAOT;

vi. To establish a limited company or a public limited company in order to conduct business in relation to para rubber;

vii. To collect fees, maintenance fees, remuneration or service fees for its operations;

viii. To perform any other necessary or related act to ensure the achievement of the objectives of RAOT. The participation in the business or the joint investment under (4) and the borrowing and lending of money under (5) in the amount of not more than fifty million baht shall be in accordance with the criteria prescribed by the Committee.

Section 12: RAOT may have the following incomes:

i. capital under section 11;

ii. general subsidy allocated as appropriate by the Government;

iii. money subsidized from private sectors or other organizations including from foreign countries or international organizations;

iv. fees, maintenance fees, remuneration, service fees or incomes from the operations or investments;

v. fruit from money or properties of RAOT.

Section 13: The income received by RAOT from its operations shall be vested in RAOT for use as operating expenses, maintenance expenses, depreciation expenses, reserves under section 14, bonus or award under section 34, provident fund, pension fund or aid fund and other aids for the welfare of officials, employees and their family members under section 54 and capital investment under the capital budget approved under section 55 as well as other appropriate charges as prescribed by the Committee. The yearly income after deducting the expenses and charges under paragraph one shall be remitted by RAOT to the Treasury as State revenue. In the case where the income is

not sufficient to meet the expenses and charges under paragraph one other than the reserves under section 14 and the bonus or award under section 34, and RAOT is unable to obtain money by any other means, the State shall pay money to RAOT for the shortfall amount.

Chapter III Promotion and Support for Rubber Plantation Farmers, Rubber Farmer Institutes and Rubber Business Operations.

Section 41: A rubber plantation farmer, a rubber farmer institute and a rubber business operator who wishes to apply for the promotion, support and assistance in respect to academic matters, finance, production, processing, industry, marketing, business operation and other operations related to para rubber under this Act shall file an application to RAOT in accordance with the form and procedures prescribed by the Committee. Chapter IV Para Rubber Development Fund

Section 42: There shall be established in RAOT a fond called the "Para Rubber Development Fund" to be expended for the promotion and support for the development of para rubber. The spending of the Fund's money shall be made on an extensive and efficient basis, primarily taking into account the benefits of rubber plantation farmers.

The 12th National Economic and Social Development Plan (2017-2021)

After the 12th National Economic and Social Development Plan had been examined, the following strategies are compatible with the objectives of this research:

Strategy 1: Strengthening an the realizing the potential of human capital both in education and learning and health, society and living

Strategy 3: Strengthening the economy and underpinning sustainable competitiveness so that the economy will expand on a stable and sustainable path.

The above strategies are important since they can (1) strengthen economic security (2) reinforce and develop the competitiveness of production and service sectors by focusing on creating the linkage of value chains among agricultural, industrial and service sectors (3) increase the country's competitiveness (4) and create and distribute income to overall community leading to the strength of both overall economy and local economy under the principle of sustainable development.

Agricultural Sector

- Reducing costs of production and promoting opportunities in agricultural product competition
- Project for developing the standards of agricultural products

- Agricultural Land Management (Zoning)
- Promoting the Large-Scale Agricultural Production
- Supporting Organic Agriculture
- Learning Centers of Agricultural Productivity Enhancement
- Animal Gene and Plant Seed Pools
- Preventing Illegal Unreported and Unregulated (IUU) Fishing and Developing Sustainable Fisheries and Aquaculture Systems
- Implementing Strategies in the Related National Agendas and Development Plans of Cooperatives Industrial Sector
- Eco-industrial Town Project
- National Automobile and Tire Test Center
- Extension of the Automotive and Auto-parts Human Resource Development Academy (AHRDA)
- Manufacturing Automatic and Robotic Institute (MARI)
- Thailand Food Valley Project
- Food Innovative Project

Strategy 4: Environmentally friendly growth for sustainable development

Strategy 5: Reinforcing national security for the country's progress towards prosperity and sustainability

Strategy 7: Advancing infrastructure and logistics. The development guidelines include:

- Transportation Infrastructure Development
- Improvement of Supporting Factors for Transportation Infrastructure
- Logistics Advancement
- Energy Sector Development
- Growth of Digital Economy
- Improvement of Water Supply System

Strategy 8: The Development of science, technology, research, and Innovation

The main goal of the agricultural development plan during the period of the 12th National Economic and Social Development Plan (2017-2021) corresponds to

the objectives of this research and it can be used as the guidelines for the development of rubber farmers' sustainability.

There are four strategies with development guidelines as follows:

Strategy 1: Strengthen and reinforce farmers and farmer institutes to allow the agricultural occupation creates professional agriculture farmers with stability, self-reliance and pride; to develop and connect the network in agricultural occupation.

Five Development Guidelines include:

Expand the results of agriculture based on the sufficiency economy philosophy

- Enhance pride and stability in the agricultural occupation, encourage new generation farmers to apply agricultural knowledge to develop their communities, change the attitude, motivation and pride in the succession of agricultural occupations by promoting outstanding farmers, publicize the honor and work to the public acknowledgement, create a new model of farmers who are successful in agriculture, create welfare system for farmers and continuously restructure farmers' debts and make a long-term plan.
- Promote sustainable agriculture for practical results, create knowledge that is necessary for the production of safe agricultural products to meet the standards for farmers, develop teaching and learning courses under the cooperation with the Ministry of Education by inserting the necessary knowledge contents and develop a safe agricultural product market as an alternative to consumers.
- Develop the knowledge of farmers to be a smart farmer, apply local wisdoms in the development, production and integration into strong farmers groups in various forms, develop the thinking process of farmer and develop their potentials to be the center of local wisdoms as a learning center.
- Create and link farmer's networks and farmer institutions, create prototypes for production of standard agricultural products throughout the supply chain that are successful in each product category, support assistance between large farmers and small farmers to create the development of production groups and link them to agro-industry, develop a farmer network, farmer's institutes through information system and promote the integration of farmer groups for strengthening.

Strategy 2: Increase the efficiency of agricultural product management throughout the supply chain.

Strategy 3: Increase the competitiveness of the agricultural sector with technology and innovation to promote research and development of agricultural technology and innovations in an integrated basis under the cooperation among government sector, private sector and farmers and to drive the use of research on agricultural technology and innovation for benefits.

Strategy 4: Manage the agricultural resources and environment in a balanced and sustainable manner in order to have a balanced and sustainable management of agricultural resources and environment; and to produce environmentally friendly products for balancing between the use and the conservation of natural resources and environment.

Development Guidelines: manage agricultural areas, organize the area as appropriate in accordance with the environment or manage the economic zone management (Zoning) to promote the arrangement of agricultural land to create a utility system that facilitates the transportation of production factors and distributes products to consumers.

Government Policies

The solution of rubber problems for the whole system can perform in short-term, medium-term and long-term by promoting rubber processing and preparing rubber situation data and zoning. This solution needs the integration of government agencies related to rubber research and development departments and relevant private institutions to participate in study, research, improvement, development on rubber quality, processing and value-adding for rubber products.

The Ministry of Agriculture and Cooperatives has recognized the continuous operation in agriculture. They concern with area, production factor, the co-operative that should be prioritized, the use of the co-operative for benefits by monitoring the quality standards, the integration and optimization of co-operatives, and farmers' debt problems, works that are required to achieve sustainability include zoning of crop plantation, finding water sources, strengthening, and ranking of credibility for cooperatives, etc.

APPENDIX B

Questionnaire (English Version)

APPENDIX B

QUESTIONNAIRE (ENGLISH VERSION)

A Model of a Rubber Farmer Institute's Sustainability: Rubber Farmer Institute as a Juristic Person in Thailand

Section A: Demographic Characteristics of Respondents

1. Sex
   - Male……..
   - Female……..
2. For General public/Vice president
3. Age……
4. Highest Education Level
   - Lower than Junior High School……..
   - Junior High School…….
   - High School……
   - D Voc. Cert D High Voc. Cert……..
   - Undergraduate Degree……..
   - Higher than Undergraduate Degree…….
   - Other specify……..
5. How long have you been a rubber framer ?.....year(s)
6. Family role
   - The head of the family…..…….
   - Members of the family……
7. The number of family members……. person
8. The number of family members working as rubber framer…….person
9. Are you a member of an agricultural cooperative or other cooperative?..... specify
10. Have you ever attended the agricultural training held by Rubber Farmer Institute?
    - No……...
    - Yes…… Times/per year……
11. Average income from Para Rubber Planting
    Baht/Monthly…….

12. Average income earning apart from Para Rubber Planting (If any)
    Baht/Monthly ……..
13. The number of land for rubber planting……..Rai
14. The number of rubber products…….kilogram/rai/monthly
15. The number of people in rubber tapping……person/daily
16. Production Cost (Baht)
    No. Lists Baht/Monthly
    a. Fertilizer……
    b. Chemical……
    c. Wage ……
    d. Equipment…….
    e. Electricity……
    f. Other expenses such as maintenance/material/fule and so on ……..
17. Debt (Baht)
18. No. Sources such as relatives and financial institution. Baht/Monthly
    a. Relatives……
    b. Financial institution……
    c. Loan shark……

Other……

Section B: Building brand image, perceived value, and confidence in Rubber farmer institute as a juristic person

Rating scales are divided into 7 levels. (7 = Exceptional, 6 = Excellent, 5 = Very Good, 4 = Good, 3 = Fair, 2 = Poor, 1 = Very Poor)

BRAND IMANGE	**7**	**6**	**5**	**4**	**3**	**2**	**1**
1) Brand Identity							
The logo of your group/institute is recognizable.							
You are be able to recognize the color of rubber group/institute.							
You can recognize the logo, color, and slogan of successful group/institute.							
2) Brand Personality							
Your group/institute's brand personality manifests a sense of trust, strength, modernity, flexibility, and up-to-date and so on.							
You understand the structure and the vision of group/institute							
Organizational culture and working environment are the reasons why you become a member of group/institute							
3) Brand Activity							
Your group/institute organizes the activities fostering the earning for the farmer both direct and indirect ways.							
Your group/institute regularly conducts a seminar.							
Your group/institute encourage the member to take part in the administration							
PERCEIVED VALUE	**7**	**6**	**5**	**4**	**3**	**2**	**1**
1) Functional Value							
The members are able to negotiate the rubber prices with the trader.							
The rubber price at rubber group/institute is higher than the general market.							

Your group/institute set the material in manufacturing concerning productive capacity, equipment and workers.							
Your rubber group/institute is able to take the material to be processed and add value and sell the sell the products.							
Your rubber group/institute can ensure that you can get enough income that meet your needs.							
Becoming part of your rubber group/institute can wipe off your debt.							
You get the dividend every year.							
2) Social Value							
The members feel accepted by other members, family and communities.							
You have a welfare such as medical fee and funeral expenses support.							
3) Emotional Value							
You understand the competitiveness, especially for import domain of your group/institute.							
The members are able to take part in decision-making.							
The members have a good relationship with each other.							
4) Epistemic Value							
The members have initiative idea, share the perspective and knowledge with each other.							
Becoming a member of your group/institute allows you to participate seminars, field trip resulted in career development that meet the need of the social and global change, and it can foster the development of the country.							
After being a member of your rubber group/institute, you can develop your community.							
TRUST	**7**	**6**	**5**	**4**	**3**	**2**	**1**
1) Competence							
You have stable income after being a member of your group/institute.							

If you encounter with external factors such as economic crisis, political issues, and natural disaster uncontro, your group/institute has the strategies to cope with the above problem.							
2) Credibility							
You trust the administration and the management of your group/institute.							
You have a confidence in the logo of the group/institute that represent the ability and determination to support the members.							
Your group/institute is creditable in qualified product and the reasonable price with transparency.							
Your group/institute is a reliable organization that has quality control of Para rubble.							
3) Benevolence							
You get positive feedback about your group/institute from your acquaintances, family and friends.							
You are content with becoming a member of your rubber group/institute.							
4) Reputation							
The executive has leadership skill.							
You recognize the reputation of your group/institute and the confidence that other people have towards your organization, and these lead to positive expectation of rubber farmers towards the logo of the organization.							

Satisfaction in Rubber farmer institute as a juristic person

Rating scales are divided in to 7 levels. (7 =very satisfied, 6 =moderately satisfied, 5 =slightly satisfied, 4 =neutral, 3 =slightly dissatisfied, 2 = moderately dissatisfied, 1 = very dissatisfied).

SATISFACTION	7	6	5	4	3	2	1
1) Economics							
You are satisfied with the weight and the price of the rubber at your rubber group/institute.							
You are satisfied with the negotiation with the trade							
You are satisfied with the yearly dividend.							
You are satisfied with the extra income that you earn from your rubber group/institute's activities.							
2) Knowledge							
You understand and give the precedence to the use of strategic benefits interim of information technology in your organization.							
You keep yourself updated about the demand of rubber							
You keep yourself updated about the factors of production and production cost.							
You are always prepared for the risk and have a second plan.							
You keep yourself updated about labour market.							
3) Stability							
You are satisfied with your group/institute that can build the stability and the competitiveness of exporting.							
You have a career advancement of becoming a chairperson, committee, auditor by voting.							
4) Participation							
You can participate in establishing the mle/ regulation/guideline about rubber price, trading, dividend, compensation inter of financial and non-financial support.							
You can take part in amending the mle/ regulation/guideline about economic status of your rubber group/institute.							
You are able to vote for allocating budget, loan, financial support, dividend, profit, investment, wage properly.							

SATISFACTION	7	6	5	4	3	2	1
You are able to inquire about the administration work and examine the budget of the gmop/institute.							
You are able to check the quality of material for qualified processing products that are in international standard, and it can be sold in every market.							
You take part in recruiting chairperson, committee, and auditor. The committee will be elected.							
You participate in adopting the technology to foster the manufacture of rubber products.							
You employ the technology to create a business model, develop marketing strategy and expand the business.							
You are able to foster and develop new innovation for rubber manufacturing and processing, and you can cooperate with the private sector, especially in academic purposes to enhance the organization in short-term development that the public sector are not able to cope with.							

Loyalty in Rubber farmer institute as a juristic person

Rating scales are divided in to 7 levels. (7 = Extremely agree, 6 =Agree, 5 =Slightly agree, 4 =Neutral, 3 = Slightly disagree, 2 =Disagree, 1 = Extremely disagree)

LOYALTY	7	6	5	4	3	2	1
5) Behavior							
You are willing to invite other people to become a member of your group/institute.							
You are able to give reasons to support your your group/institute if you found someone severely criticize your group/institute.							
6) Attitude							
You believe that your group/institute meet your needs.							
You are willing to support and engage in management and activities of your group/institute.							
You are able to raise a petition for the problems of your group/institute.							
The above problems will be as addressed actively.							

Sustainability in Rubber farmer institute as a juristic person

Rating scales are divided in to 7 levels. (7 = Extremely agree, 6 = Agree, 5 = Slightly agree, 4 =Neutral, 3 = Slightly disagree, 2 = Disagree, 1 = Extremely disagree)

SUSTAINABILITY	7	6	5	4	3	2	1
1) Technology							
Your group/institute adopts the technology to foster the manufacturing, shipment, and maintenance the rubber sheet and latex, and crate innovation for sustainability.							
2) Engagement							
The administrator encourages each section to cooperate with each other so that they can work and solve the problems effectively.							
Your group/institute allow you to contribute the idea for the development of die organization							
You have loyalty towards your group/institute							
Your group/institute has the effective management for the stakeholders							
3) Organization							
Your group/institute has market segmentation strategy in term of financial performance indicators							
The economic situations affect the sustainability of your group/institute							
The environmental issues affects the sustainability of your group/institute							
Your group/institute has environmental policy.							
Your group/institute are credible to die community and society in term of corporate social responsibility							
4) Government Support							
Your group/institute receives financial support or oilier support from public sector regularly.							
Public sector always provides an academic support and training/seminar.							
Public sector always supports the factors of production, especially for processing products.							

APPENDIX C

Questionnaire (Thai Version)

APPENDIX C

QUESTIONNAIRE (THAI VERSION)

No. _____

☐ สำหรับประธาน/รองประธาน

☐ สำหรับสมาชิก

ต้นแบบความยั่งยืนของสถาบันเกษตรกรชาวสวนยางที่เป็นนิติบุคคลในประเทศไทย

1: ข้อมูลทั่วไปของผู้ตอบแบบสอบถาม

1. เพศ ☐ ชาย ☐ หญิง
2. อายุ ..... ปี
3. การศึกษา ☐ ต่ำกว่ามัธยมศึกษาตอนต้น ☐ มัธยมศึกษาตอนต้น (ม.3)
   ☐ มัธยมศึกษาตอนปลาย (ม.6) ☐ ปวช. ☐ ปวส.
   ☐ ปริญญาตรี ☐ สูงกว่าปริญญาตรี
   ☐ อื่น ๆ โปรดระบุ .....
4. ประสบการณ์การทำสวนยางพารามาแล้ว ..... ปี
5. สถานะในครอบครัว ☐ หัวหน้าครอบครัว (ผู้รับผิดชอบค่าใช้จ่ายในครัวเรือนเป็นหลัก)
   ☐สมาชิกในครอบครัว
6. จำนวนสมาชิกในครอบครัว ..... คน
7. จำนวนสมาชิกในครอบครัวที่เป็นแรงงานสวนยางพารา ..... คน
8. ท่านเป็นสมาชิก สหกรณ์ กลุ่มการเกษตร หรือสถาบันใด
   .....
9. ท่านเคยเข้าร่วมอบรมทางการเกษตรที่ทางสถาบัน/กลุ่มเกษตรกรชาวสวนยางจัดขึ้นหรือไม่
   ☐ ไม่เคย ☐ เคย จำนวนครั้งโดยเฉลี่ย ..... ครั้งต่อปี
10. รายได้จากการทำสวนยางพาราโดยเฉลี่ย ..... บาท/เดือน
11. รายได้จากอาชีพอื่น ๆ โดยเฉลี่ย (ถ้ามี) ..... บาท/เดือน
12. พื้นที่สวนยางพารา ..... ไร่
13. ผลผลิตยางพารา ..... กิโลกรัม/ไร่/เดือน
14. จำนวนแรงงานกรีดยาง ..... คน/วัน

15. ต้นทุนการทำสวนยางพารา

ลำดับ	รายการ	บาทเดือน/
15.1	ค่าปุ๋ย	.....
15.2	ค่ายา/สารเคมี	.....
15.3	ค่าจ้างแรงงาน	.....
15.4	ค่าวัสดุ อุปกรณ์	.....
15.5	ค่าไฟฟ้า	.....
15.6	ค่าใช้จ่ายอื่น ๆ เช่น ค่าซ่อมบำรุงอุปกรณ์ ค่าเชื้อเพลิง เป็นต้น	.....

16. หนี้สิน (บาท)

ลำดับ	แหล่งที่มา เช่น ญาติพี่น้องเป็นต้น สถาบันการเงิน ,	บาทเดือน/
16.1	ญาติพี่น้อง	.....
16.2	สถาบันการเงิน	.....
16.3	เงินกู้นอกระบบ	.....
16.4	อื่น ๆ	.....

2: การสร้างภาพลักษณ์ การรับรู้คุณค่าและความไว้วางใจของสถาบันเกษตรกรชาวสวนยางพาราที่เป็นนิติบุคคล

จำแนกเป็น 7 ระดับ ได้แก่ 7 = มากที่สุด, 6 = มาก, 5 = ค่อนข้างมาก, 4 = ปานกลาง, 3 = ค่อนข้างน้อย, 2 = น้อย, 1 = น้อยที่สุด

การสร้างภาพลักษณ์ของสถาบันเกษตรกรชาวสวนยางพาราที่เป็นนิติบุคคล)BRAND IMAGE(	7	6	5	4	3	2	1
1) ด้านเอกลักษณ์ของกลุ่ม) สถาบันเกษตรกร/Brand Identity(							
ตรา)logo) ของสถาบันเป็นที่จดจำได้ กลุ่มเกษตรกรชาวสวนยาง/ ง่าย							
สามารถจำสีประจำสถาบัน ได้ กลุ่มเกษตรกรชาวสวนยาง/							
หากนึกถึงสถาบันกลุ่มเกษตรกรชาวสวนยาง ที่ประสบความสำเร็จ / กลุ่มเกษตรกร/เราจะสามารถนึกถึงตรา สี สโลแกนของสถาบันชาวสวนยาง นั้นได้							

2) ด้านบุคลิกภาพของกลุ่ม) สถาบันเกษตรกร/Brand Personality(							
บุคลิกภาพของตราสถาบันกลุ่มเกษตรกรชาวสวนยางของท่าน / สามารถบ่งบอกถึงความจริงใจ ความเข้มแข็ง ความทันสมัย ความยืดหยุ่น ตามทันเทคโนโลยี หรืออื่น ๆ เป็นต้น							
ท่านทราบถึงโครงสร้างและเข้าใจวิสัยทัศน์ ของสถาบันกลุ่มฯ ของ/ท่าน							
เหตุผลที่ท่านตัดสินใจสมัครเข้าเป็นสมาชิกแห่งนี้เพราะวัฒนธรรม และ สภาพแวดล้อมในการทำงาน							
3) ด้านกิจกรรมของกลุ่ม) สถาบันเกษตรกร/Brand Activity(							
สถาบันกลุ่มฯ ของท่าน มีการจัดกิจกรรมอันส่งเสริมและสนับสนุน/ให้เกิดรายได้แก่เกษตรกรทั้งทางตรงและทางอ้อม							
สถาบันกลุ่มฯ ของท่าน มีการจัดอบรมให้ความรู้แก่เกษตรกรอยู่/สม่ำเสมอ							
สถาบันผลักดันให้สมาชิกมีส่วนในการ/กลุ่มฯ ของท่าน ได้สนับสนุน/ดำเนินงาน							
การรับรู้คุณค่าของสถาบันเกษตรกรชาวสวนยางพาราที่เป็นนิติบุคคล)PERCEIVED VALUE(	**7**	**6**	**5**	**4**	**3**	**2**	**1**
1) คุณค่าตามหน้าที่)Functional Value(							
สมาชิกมีอำนาจการต่อรองราคากับผู้ซื้อผลผลิตยางพารา							
ราคายางพาราของสถาบันเกษตรกรชาวสวนยางพาราที่รับซื้อสูงกว่าท้องตลาด							
สถาบัน ของท่าน กลุ่มฯ/สามารถกำหนดปริมาณวัตถุดิบที่เข้าสู่ขบวนการผลิตของกลุ่มสถาบันเกษตรกรฯ ด้วยเหตุผลของกำลังการผลิต อุปกรณ์และเครื่องมือ รวมถึงแรงงาน							
สถาบันสามารถนำส่งวัตถุดิบเพื่อขายให้กับสถาบัน ของท่าน กลุ่มฯ/เกษตรกรฯ โดยจะนำไปแปรรูปเพื่อเพิ่มมูลค่า และส่งขายต่อไป							
สถาบัน สามารถสร้างให้ท่านมีรายได้ที่มั่นคง ของท่าน กลุ่มฯ/สามารถเลี้ยงดูครอบครัวและตนเองได้							
การเข้าร่วม สถาบันสามารถช่วยให้ท่านสามารถ ของท่าน กลุ่มฯ/ปลดหนี้ที่มีอยู่ได้							
ท่านได้รับเงินปันผลที่ได้รับตามหุ้นทุกปี							

2) คุณค่าทางสังคม)Social Value(							
สมาชิกได้รับการยอมรับจากสมาชิก ครอบครัว เพื่อน และสังคมในการเข้าร่วม							
ท่านมีสวัสดิการจากการเป็นสมาชิก เช่น ค่าช่วยเหลือค่ารักษาพยาบาล ค่าทำศพ ฯลฯ							
3) คุณค่าทางอารมณ์)Emotional Value(							
ท่านรับรู้ถึงความสามารถในการแข่งขันด้านการส่งออกยางพาราสถาบันของท่าน กลุ่มฯ/							
สมาชิกมีส่วนร่วมในกระบวนการตัดสินใจ							
สมาชิกมีความสัมพันธ์อันดีต่อกัน							
4) คุณค่าทางองค์ความรู้)Epistemic Value(							
สมาชิกมีความคิดริเริ่ม การปรึกษาหารือ แบ่งปันความรู้กับสมาชิกสถาบันเกษตรกรฯ							
การเข้าร่วม สถาบันกลุ่มฯ ของท่าน ทำให้ท่านมีโอกาสเข้ารับการ/ฝึกอบรม ศึกษาดูงาน ทัศนศึกษา ที่ส่งผลต่อการพัฒนาในการประกอบอาชีพและสอดคล้องกับความเปลี่ยนแปลงของสังคม เพื่อการพัฒนาประเทศและการเปลี่ยนแปลงของสังคมโลกได้							
หลังจากที่ท่านได้เข้าร่วมเป็นสมาชิก สถาบันกลุ่มฯ แล้ว ท่านได้มี/พัฒนาภาคประชาสังคมในชุมชนที่ตัวเองอาศัยอยู่ /ส่วนช่วยเหลือ							
ความไว้วางใจที่มีต่อสถาบันเกษตรกรชาวสวนยางพาราที่เป็นนิติบุคคล)TRUST(	7	6	5	4	3	2	1
1) ด้านความสามารถของกลุ่ม) สถาบันเกษตรกร/Competence(							
ท่านรู้สึกถึงรายได้ที่มั่นคงหลังจากเข้าร่วมเป็นสมาชิกของสถาบัน/ของท่าน กลุ่มฯ							
หากมีเหตุการณ์ เช่น อันเนื่องมาจากปัจจัยภายนอก สถานการณ์/เป็นต้น ภัยธรรมชาติ การเมือง เศรษฐกิจที่ท่านไม่สามารถควบคุมได้ท่านไว้วางใจและเชื่อมั่นว่า สถาบันสามารถ ของท่าน กลุ่มฯ/ควบคุมและการดำเนินให้ทุกอย่างเป็นไปด้วยความเรียบร้อยได้							
2) ด้านความน่าเชื่อถือของกลุ่ม) สถาบันเกษตรกร/Credibility(							
ท่านสามารถเชื่อมั่นในการบริหารงานและการจัดการของสถาบัน/กลุ่มฯ ของท่านได้							

ท่านมีความเลื่อมใส ศรัทธา ต่อตราสถาบันกลุ่มเกษตรกรชาวสวน/ กลุ่มฯ นั้น/ยางที่ต้องการให้ชาวเกษตรกรรับรู้ว่าตราสถาบันมีความสามารถและความตั้งใจอย่างยิ่งจะส่งคุณค่าให้กับเกษตรกรชาวสวนยาง							
สถาบันกลุ่มฯ มีความน่าเชื่อถือในข้อมูลของผลิตภัณฑ์ที่มีคุณภาพ / โปร่งใส และในส่วนของการตั้งราคาที่เป็นมาตรฐาน							
สถาบัน ของท่าน กลุ่มฯ/มีความน่าเชื่อถือในการคัดคุณภาพยางพาราที่สถาบันเกษตรกรฯรับซื้อ สามารถตรวจสอบได้							
3) ด้านความเมตตากรุณาของกลุ่ม) สถาบันเกษตรกร/Benevolence(							
ท่านทราบความคิดเห็นในเชิงบวกที่มีต่อสถาบันกลุ่มฯ ของท่าน / จากคนใกล้ชิด ครอบครัว เพื่อน							
ท่านมีความสุขที่ได้เป็นสมาชิกของสถาบันกลุ่มฯ/							
4) ด้านความมีชื่อเสียงของกลุ่ม) สถาบันเกษตรกร/Reputation(							
ผู้นำสถาบันกลุ่มฯ ของท่าน มีภาวะผู้นำ/							
ท่านทราบชื่อเสียงของสถาบัน กลุ่มเกษตรกรชาวสวนยางของท่าน/ ที่มาจากความเห็นผู้อื่นที่แสดงถึงความไว้ใจได้ นำไปสู่ความคาดหวังของเกษตรกรชาวสวนยางที่เป็นบวกต่อตราสถาบันกลุ่มฯ/							

3: ความพึงพอใจของสมาชิกสถาบันเกษตรกรชาวสวนยางพาราที่เป็นนิติบุคคล จำแนกเป็น 7 ระดับ ได้แก่

7 = พึงพอใจมากที่สุด, 6 = พึงพอใจมาก, 5 = พึงพอใจ, 4 = ปานกลาง, 3 = ไม่พึงพอใจ, 2 = ไม่พึงพอใจมาก, 1 = ไม่พึงพอใจมากที่สุด

ความพึงพอใจของสมาชิกสถาบันเกษตรกรชาวสวนยางพาราที่เป็นนิติบุคคล)SATISFACTION(	**7**	**6**	**5**	**4**	**3**	**2**	**1**
1) ด้านรายได้และเศรษฐกิจ)Economics(							
ท่านพึงพอใจกับน้ำหนักและราคายางพาราของสถาบันของ กลุ่มฯ/ ท่าน							
ท่านพึงพอใจกับอำนาจการต่อรองราคากับผู้ซื้อผลผลิตยางพารา							
ท่านพึงพอใจกับเงินปันผลที่ได้รับตามหุ้นทุกปี							
ท่านพึงพอใจกับรายได้เพิ่มเติมจากกิจกรรมการส่งเสริมการขายยางพาราของทางสถาบัน กลุ่มฯ ของท่าน จัดขึ้น/							
2) ด้านความรู้และความเข้าใจ)Knowledge(							

ความพึงพอใจของสมาชิกสถาบันเกษตรกรชาวสวนยางพาราที่เป็นนิติบุคคล)SATISFACTION(	**7**	**6**	**5**	**4**	**3**	**2**	**1**
ท่านมีความรู้ ความเข้าใจ และ ตระหนักถึงประโยชน์ในเชิงกลยุทธ์ (Strategic Benefits) ในการนำระบบสารสนเทศ (Information Technology) มาใช้ในกิจกรรมของสถาบันเกษตรกรฯ							
ท่านทราบสถานการณ์ความต้องการผลผลิตยางพาราอยู่เสมอ							
ท่านทราบสถานการณ์ที่เกี่ยวข้องกับด้านปัจจัยการผลิตและต้นทุนการผลิตอยู่เสมอ							
ท่านทราบความเสี่ยงและวิธีการป้องกันรองรับอยู่เสมอ							
ท่านทราบสถานการณ์ตลาดแรงงานอยู่เสมอ							
<u>3) ด้านความมั่นคง</u>)Stability(							
ท่านพึงพอใจที่สถาบันกลุ่มของท่าน สามารถ/สร้างเสถียรภาพ และมีความสามารถแข่งขันด้านการส่งออกยางพารา							
ท่านมีความก้าวหน้าในการเป็นผู้บริหารของสถาบัน ได้แก่ ประธานกรรมการ หรือผู้สอบบัญชี ในฐานะสมาชิก โดยผ่านการเลือกตั้งของสมาชิกทุกคน							
<u>4) การมีส่วนร่วม</u>)Participation(							
ท่านมีส่วนร่วมในการออก กฎระเบียบหลักเกณฑ์การ/ข้อบังคับ/ปฏิบัติ ที่เกี่ยวเนื่องกับการขับเคลื่อนสถานการณ์ราคายางพารา การ การกำหนดราคา ซื้อขายการปันผล การเฉลี่ยคืน การตอบแทนในรูปแบบที่ทางการเงินและไม่ใช่ทางการเงิน							
ท่านมีส่วนร่วมในการกำหนด/แก้ไข หลักเกณฑ์เงื่อนไข/ข้อบังคับ/ระเบียบ วิธีปฏิบัติในส่วนที่เกี่ยวของกับการดำเนินงานด้านปรับปรุงสถานะทางเศรษฐกิจของสถาบันเกษตรกรฯ							
ท่านมีส่วนร่วมในการออกเสียงเพื่อกำหนดวงเงินการดำเนินงาน วงเงินกู้ วงเงินการช่วยเหลือสังคม สัดส่วนของการปันผล การแบ่งกำไร สัดส่วนการลงทุนเพิ่ม และค่าตอบแทนกรรมการและพนักงานของของสถาบันเกษตรกรฯ อย่างสมเหตุสมผล							
ท่านมีส่วนร่วมในการตรวจสอบการบริหารเงินของสถาบัน รวมถึงการติดตามกำกับตรวจสอบการใช้เงินของสถาบันเกษตรกรฯ							

ความพึงพอใจของสมาชิกสถาบันเกษตรกรชาวสวนยางพาราที่เป็นนิติบุคคล)SATISFACTION(	**7**	**6**	**5**	**4**	**3**	**2**	**1**
ตรวจสอบคุณภาพของวัตถุดิบ เพื่อให้สถาบันเกษตรกรฯได้สินค้าที่ผ่านการแปรรูปที่มีคุณภาพที่เป็นสากลส่งขายในตลาดยางในทุกระดับ							
ท่านมีส่วนร่วมในการสรรหา ประธาน กรรมการสถาบันเกษตรกรฯ ผู้ตรวจสอบกิจการกลุ่ม การสรรหากรรมการขอสถาบันเกษตรกรฯ โดยการผ่านการออกเสียงเลือกตั้งคณะกรรมการสถาบันเกษตรกรฯ กลุ่ม							
ท่านมีส่วนร่วมในการนำเทคโนโลยีมาใช้เพื่อสร้างมาตรฐานต่อการผลิตผลิตภัณฑ์ยางพารา							
ท่านใช้เทคโนโลยีเพื่อจัดทำต้นแบบธุรกิจ (Business model) พัฒนาด้านการตลาดยางพารา และขยายช่องทางการดำเนินธุรกิจของสถาบันเกษตรกรให้กว้างขึ้น							
ท่านมีส่วนสนับสนุนส่งเสริม สร้างนวัตกรรมการใหม่/ ๆ ในการช่วยเหลือขั้นตอนกระบวนการต่าง ๆ/ ในการผลิตยางพาราตลอดจนการแปรรูป รวมถึงสร้างความร่วมมือด้านวิชาการกับภาคเอกชน เพื่อดำเนินการพัฒนากิจกรรมของสถาบันฯ ได้ในระยะเวลาอันสั้น ในจุดที่ภาครัฐไม่สามารถดำเนินการได้							

4: ความจงรักภักดีของสมาชิกสถาบันเกษตรกรชาวสวนยางพาราที่เป็นนิติบุคคล จำแนกเป็น 7 ระดับ ได้แก่

7 = เห็นด้วยมากที่สุด, 6 = เห็นด้วยมาก, 5 = เห็นด้วยค่อนข้างมาก, 4 = เห็นด้วยปานกลาง, 3 = เห็นด้วยค่อนข้างน้อย, 2 = เห็นด้วยน้อย, 1 = เห็นด้วยน้อยที่สุด

ความจงรักภักดีของสมาชิกสถาบันเกษตรกรชาวสวนยางพาราที่เป็นนิติบุคคล)LOYALTY(	**Observed**	**7**	**6**	**5**	**4**	**3**	**2**	**1**
<u>5) ด้านพฤติกรรมของกลุ่ม</u>) <u>สถาบันเกษตรกร/</u>Behavior(								
ท่านมีความเต็มใจและยินดีอย่างยิ่งที่จะชวนคนรู้จักเข้าร่วมสถาบัน/ กลุ่มของท่าน								
ท่านสามารถแจ้งเหตุผล หรือสามารถให้ข้อมูลตอบโต้ หากท่านทราบว่ามีบุคคลอื่นกล่าวถึงสถาบันกลุ่มของท่าน ในแง่ลบ/								
<u>6) ด้านทัศนคติของกลุ่มสถาบันเกษตรกร/</u>)Attitude(								

ความจงรักภักดีของสมาชิกสถาบันเกษตรกรชาวสวนยางพาราที่เป็นนิติบุคคล)LOYALTY(	**Observed**	**7**	**6**	**5**	**4**	**3**	**2**	**1**
ท่านคิดว่าสถาบันกลุ่มฯ ของท่าน สามารถดำเนินการตรงความ/ต้องการของท่านได้								
ท่านยินดีที่จะสนับสนุนมีส่วนร่วม ในการดำเนินการและกิจกรรม/อื่น ๆ ของสถาบันกลุ่มฯ ของท่าน/								
โอกาสที่ท่านจะร้องเรียน หากเกิดปัญหาหลังจากเข้าร่วมสถาบัน/กลุ่มฯ ของท่าน								
โอกาสที่ปัญหาการร้องเรียนดังกล่าวจะได้รับการแก้ไข								

5: ความยั่งยืนของสถาบันเกษตรกรชาวสวนยางพาราที่เป็นนิติบุคคล จำแนกเป็น 7 ระดับ ได้แก่ 7 = เห็นด้วยมากที่สุด, 6 = เห็นด้วยมาก, 5 = เห็นด้วยค่อนข้างมาก, 4 = เห็นด้วยปานกลาง, 3 = เห็นด้วยค่อนข้างน้อย, 2 = เห็นด้วยน้อย, 1 = เห็นด้วยน้อยที่สุด

ความยั่งยืนของสถาบันเกษตรกรชาวสวนยางพาราที่เป็นนิติบุคคล)SUSTAINABILITY(	**7**	**6**	**5**	**4**	**3**	**2**	**1**
1) ด้านเทคโนโลยี)Technology(							
สถาบันกลุ่มฯ ของท่าน มีการนำเทคโนโลยีมาใช้ เพื่อพัฒนา/กระบวนการในการผลิต การขนส่ง การเก็บรักษายางพาราและน้ำยางพารา รวมถึงการสร้างนวัตกรรมใหม่เพื่อนำไปสู่การพัฒนาอย่างมีประสิทธิภาพและยั่งยืน							
2) ด้านความผูกพัน)Engagement(							
ผู้บริหารส่งเสริมให้ส่วนงานต่าง ๆ ของสถาบันกลุ่มฯ ของท่าน / ร่วมกันพัฒนาและ ปรับปรุงการทำงานอย่างรวดเร็วและมีประสิทธิภาพ							
สถาบันกลุ่มฯ ของท่านส่งเสริมให้สมาชิกได้เสนอแนวคิดใหม่ ๆ เพื่อ/นำไปปรับปรุงและพัฒนา							
ท่านมีความภักดีต่อสถาบันกลุ่มฯ ของท่าน/							
สถาบันกลุ่มฯ/ ของท่าน สามารถจัดการความสัมพันธ์กับสมาชิกและผู้ที่มีส่วนได้ส่วนเสียอย่างมีประสิทธิภาพ							
3) ด้านองค์กร) Organization(							

ความยั่งยืนของสถาบันเกษตรกรชาวสวนยางพาราที่เป็นนิติบุคคล)SUSTAINABILITY(	**7**	**6**	**5**	**4**	**3**	**2**	**1**
สถาบัน กลุ่มฯ ของท่าน มีการวางแผนส่วนแบ่งการตลาด/ในด้านตัวเงินช่วยวัดความสำเร็จของสถาบันกลุ่มฯ/							
สถานการณ์สภาวะทางเศรษฐกิจในปัจจุบันมีผลต่อความยั่งยืนของ/กลุ่มฯ ของท่าน/สถาบัน							
สถานการณ์สภาวะด้านสิ/งแวดล้อมในปัจจุบันมีผลต่อความยั่งยืนของสถาบันกลุ่มฯ ของท่าน/							
สถาบัน กลุ่มฯ ของท่าน/มีแนวทางการรักษาสิ่งแวดล้อมอย่างชัดเจน							
การยอมรับของชุมชน และสังคมโดยเฉพาะในด้านความรับผิดชอบต่อสังคมของสถาบันกลุ่มฯ มีความ/กลุ่มฯ ของท่าน อันเป็นผลให้สถาบัน/น่าเชื่อถือเป็นที่ไว้วางใจแก่สมาชิกและสังคม							
4) ด้านการสนับสนุนจากรัฐบาล)Government Support(							
สถาบันกลุ่มฯ ของท่านได้รับการสนับสนุนงบประมาณ หรือการ/ช่วยเหลือจากหน่วยงานของรัฐบาลอย่างต่อเนื่อง							
สถาบันกลุ่มฯ ของท่านได้รับการสนับสนุนด้านวิชาการ การ/ฝึกอบรมจากหน่วยงานของรัฐบาลอยู่เสมอ							
สถาบัน กลุ่มฯ/ของท่านได้รับการสนับสนุนปัจจัยการผลิต แปรรูปจากหน่วยงานของรัฐบาลอยู่เสมอ							

ข้อเสนอแนะ

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APPENDIX D

Individual Rubber Farmers SEM & CFA Results

APPENDIX D

INDIVIDUAL RUBBER FARMERS SEM & CFA RESULTS

C:\Users\sam\Desktop\Individual Farmers SEM Test.amw

Analysis Summary

Date and Time

Date: Sunday, February 12, 2023

Time: 8:20:31 PM

Title

Chi-square=\cmin, Df=\df, P-value=\p, Chi-square/df=\cmindf, GFI=\gfi, AGFI=\agfi, CFI=\cfi RMSEA=\rmsea, RMR=\rmr,

Groups

Group number 1 (Group number 1)

Notes for Group (Group number 1)

The model is recursive.

Sample size = 436

Variable Summary (Group number 1)

Your model contains the following variables (Group number 1)

Observed, endogenous variables

Acti

Pers

Iden

Epis

Emo

Soc

Func

Par

Stab

Know

Eco

Comp

Cre

Ben

Rep

Atti

Beh

GovS

Org

Enga

Tech

Unobserved, endogenous variables

Percieved

Satisfaction

Trust

Loyalty

Sustainability

Unobserved, exogenous variables

BI

e3

e2

e1

e7

e6

e5

e4

e15

e14

e13

e12

e8

e9

e10

e11

e17

e16

e21

e20

e19

e18

e22

e25

e23

e24

e26

Variable counts (Group number 1)

Number of variables in your model:	53
Number of observed variables:	21
Number of unobserved variables:	32
Number of exogenous variables:	27
Number of endogenous variables:	26

Parameter Summary (Group number 1)

	Weights	Covariances	Variances	Means	Intercepts	Total
Fixed	32	0	0	0	0	32
Labeled	0	0	0	0	0	0
Unlabeled	24	3	27	0	0	54
Total	56	3	27	0	0	86

Models

Default model (Default model)

Notes for Model (Default model)

Computation of degrees of freedom (Default model)

Number of distinct sample moments:	231
Number of distinct parameters to be estimated:	54
Degrees of freedom (231 - 54):	177

Result (Default model)

Minimum was achieved

Chi-square = 659.445

Degrees of freedom = 177

Probability level = .000

Group number 1 (Group number 1 - Default model)

Estimates (Group number 1 - Default model)

Scalar Estimates (Group number 1 - Default model)

Maximum Likelihood Estimates

Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
Percieved	<---	BI	.774	.212	3.648	***	
Trust	<---	Percieved	1.091	.063	17.251	***	
Satisfaction	<---	Trust	.935	.262	3.565	***	
Satisfaction	<---	Percieved	-.087	.289	-.300	.765	
Loyalty	<---	Satisfaction	.179	.082	2.187	.029	
Loyalty	<---	Trust	.789	.182	4.333	***	
Loyalty	<---	BI	-.163	.175	-.929	.353	
Sustainability	<---	Loyalty	.803	.132	6.098	***	
Sustainability	<---	BI	.129	.110	1.173	.241	
Acti	<---	BI	1.000				
Pers	<---	BI	.860	.057	15.089	***	
Iden	<---	BI	.769	.072	10.667	***	
Epis	<---	Percieved	1.000				
Emo	<---	Percieved	.921	.037	24.658	***	
Soc	<---	Percieved	.925	.057	16.217	***	
Func	<---	Percieved	.892	.051	17.435	***	
Par	<---	Satisfaction	1.000				
Stab	<---	Satisfaction	1.056	.040	26.102	***	
Know	<---	Satisfaction	1.076	.044	24.613	***	
Eco	<---	Satisfaction	1.027	.043	24.072	***	
Comp	<---	Trust	1.000				
Cre	<---	Trust	.918	.049	18.911	***	
Ben	<---	Trust	.872	.049	17.700	***	
Rep	<---	Trust	.887	.054	16.475	***	
Beh	<---	Loyalty	1.004	.055	18.338	***	
GovS	<---	Sustainability	1.000				
Org	<---	Sustainability	1.049	.073	14.341	***	
Enga	<---	Sustainability	1.085	.073	14.944	***	
Tech	<---	Sustainability	1.032	.080	12.926	***	
Atti	<---	Loyalty	1.000				

Standardized Regression Weights: (Group number 1 - Default model)

			Estimate
Percieved	<---	BI	.886
Trust	<---	Percieved	.973
Satisfaction	<---	Trust	.990
Satisfaction	<---	Perceived	-.082
Loyalty	<---	Satisfaction	.200
Loyalty	<---	Trust	.934
Loyalty	<---	BI	-.196
Sustainability	<---	Loyalty	.834
Sustainability	<---	BI	.161
Acti	<---	BI	.757
Pers	<---	BI	.831
Iden	<---	BI	.579
Epis	<---	Perceived	.867
Emo	<---	Perceived	.867
Soc	<---	Perceived	.671
Func	<---	Perceived	.706
Par	<---	Satisfaction	.894
Stab	<---	Satisfaction	.869
Know	<---	Satisfaction	.845
Eco	<---	Satisfaction	.836
Comp	<---	Trust	.714
Cre	<---	Trust	.914
Ben	<---	Trust	.857
Rep	<---	Trust	.798
Beh	<---	Loyalty	.788
GovS	<---	Sustainability	.626
Org	<---	Sustainability	.843
Enga	<---	Sustainability	.897
Tech	<---	Sustainability	.732
Atti	<---	Loyalty	.799

Covariances: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
e2	<-->	e1	.278	.171	1.621	.105	
e3	<-->	e1	-.038	.200	-.192	.848	
e3	<-->	e2	-.090	.217	-.415	.678	

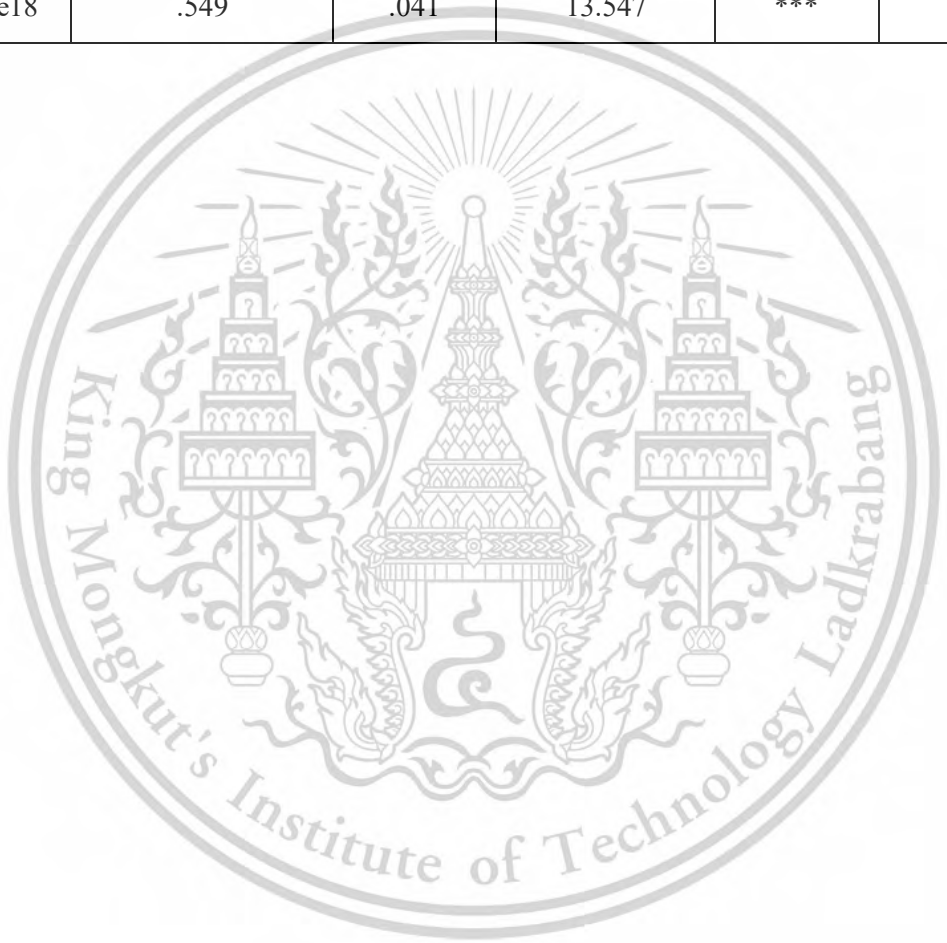
Correlations: (Group number 1 - Default model)

			Estimate
e2	<-->	e1	.476
e3	<-->	e1	-.044
e3	<-->	e2	-.194

Variances: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
BI	.937	.273	3.429	***	
e22	.154	.151	1.023	.306	
e23	.049	.015	3.173	.002	
e26	.136	.020	6.769	***	
e24	.056	.015	3.689	***	
e25	.044	.014	3.056	.002	
e3	.696	.259	2.693	.007	
e2	.310	.188	1.649	.099	
e1	1.099	.171	6.406	***	
e7	.237	.020	12.073	***	
e6	.199	.017	12.052	***	
e5	.747	.053	14.063	***	
e4	.574	.041	13.917	***	
e15	.202	.018	10.985	***	
e14	.289	.024	11.828	***	
e13	.371	.030	12.399	***	
e12	.364	.029	12.573	***	
e8	.866	.061	14.098	***	
e9	.149	.013	11.204	***	

	Estimate	S.E.	C.R.	P	Label
e10	.248	.019	12.953	***	
e11	.403	.030	13.631	***	
e17	.363	.030	11.899	***	
e16	.394	.032	12.168	***	
e21	.924	.066	14.085	***	
e20	.266	.022	12.101	***	
e19	.171	.017	10.117	***	
e18	.549	.041	13.547	***	



Matrices (Group number 1 - Default model)

Factor Score Weights (Group number 1 - Default model)

	Tech	Enga	Org	GovS	Beh	Atti	Rep	Ben	Cre	Comp	Eco	Know	Stab	Par	Func	Soc	Emo	Epis	Iden	Pers	Acti
BI	.009	.030	.019	.005	-.022	-.024	.027	.044	.076	.014	.009	.009	.012	.016	.031	.025	.094	.086	-.011	.385	.212
Percieved	.011	.036	.022	.006	.021	.022	.046	.074	.129	.024	.013	.013	.017	.023	.059	.047	.174	.159	-.002	.069	.038
Trust	.018	.060	.037	.010	.043	.047	.079	.126	.221	.041	.025	.026	.033	.044	.033	.026	.097	.088	-.001	.042	.023
Satisfaction	.009	.030	.019	.005	.023	.025	.020	.031	.055	.010	.132	.136	.171	.232	.007	.006	.021	.019	.000	.011	.006
Loyalty	.041	.138	.086	.024	.115	.124	.037	.059	.104	.020	.026	.027	.033	.045	.013	.010	.037	.034	.001	-.029	-.016
Sustainability	.072	.244	.151	.041	.055	.060	.021	.033	.058	.011	.014	.014	.018	.024	.009	.007	.026	.024	.000	.016	.009

Total Effects (Group number 1 - Default model)

	BI	Perceived	Trust	Satisfaction	Loyalty	Sustainability
Perceived	.774	.000	.000	.000	.000	.000
Trust	.844	1.091	.000	.000	.000	.000
Satisfaction	.722	.933	.935	.000	.000	.000
Loyalty	.632	1.028	.956	.179	.000	.000
Sustainability	.636	.825	.768	.144	.803	.000
Tech	.657	.851	.792	.148	.828	1.032
Enga	.690	.895	.833	.156	.871	1.085
Org	.668	.866	.806	.151	.842	1.049
GovS	.636	.825	.768	.144	.803	1.000
Beh	.635	1.032	.960	.180	1.004	.000
Atti	.632	1.028	.956	.179	1.000	.000
Rep	.749	.968	.887	.000	.000	.000
Ben	.736	.951	.872	.000	.000	.000
Cre	.775	1.002	.918	.000	.000	.000
Comp	.844	1.091	1.000	.000	.000	.000
Eco	.741	.958	.960	1.027	.000	.000
Know	.777	1.004	1.006	1.076	.000	.000
Stab	.763	.986	.988	1.056	.000	.000
Par	.722	.933	.935	1.000	.000	.000
Func	.690	.892	.000	.000	.000	.000
Soc	.716	.925	.000	.000	.000	.000
Emo	.712	.921	.000	.000	.000	.000
Epis	.774	1.000	.000	.000	.000	.000
Iden	.769	.000	.000	.000	.000	.000
Pers	.860	.000	.000	.000	.000	.000
Acti	1.000	.000	.000	.000	.000	.000

Standardized Total Effects (Group number 1 - Default model)

	BI	Perceived	Trust	Satisfaction	Loyalty	Sustainability
Perceived	.886	.000	.000	.000	.000	.000
Trust	.861	.973	.000	.000	.000	.000
Satisfaction	.781	.881	.990	.000	.000	.000
Loyalty	.764	1.084	1.132	.200	.000	.000
Sustainability	.798	.904	.943	.166	.834	.000
Tech	.584	.662	.691	.122	.610	.732
Enga	.716	.811	.846	.149	.748	.897
Org	.673	.762	.796	.140	.703	.843
GovS	.500	.566	.591	.104	.522	.626
Beh	.602	.855	.892	.157	.788	.000
Atti	.610	.867	.905	.160	.799	.000
Rep	.688	.776	.798	.000	.000	.000
Ben	.738	.833	.857	.000	.000	.000
Cre	.787	.889	.914	.000	.000	.000
Comp	.615	.694	.714	.000	.000	.000
Eco	.653	.737	.828	.836	.000	.000
Know	.660	.745	.837	.845	.000	.000
Stab	.679	.766	.861	.869	.000	.000
Par	.698	.788	.885	.894	.000	.000
Func	.625	.706	.000	.000	.000	.000
Soc	.594	.671	.000	.000	.000	.000
Emo	.768	.867	.000	.000	.000	.000
Epis	.768	.867	.000	.000	.000	.000
Iden	.579	.000	.000	.000	.000	.000
Pers	.831	.000	.000	.000	.000	.000
Acti	.757	.000	.000	.000	.000	.000

Direct Effects (Group number 1 - Default model)

	BI	Perceived	Trust	Satisfaction	Loyalty	Sustainability
Perceived	.774	.000	.000	.000	.000	.000
Trust	.000	1.091	.000	.000	.000	.000
Satisfaction	.000	-.087	.935	.000	.000	.000
Loyalty	-.163	.000	.789	.179	.000	.000
Sustainability	.129	.000	.000	.000	.803	.000
Tech	.000	.000	.000	.000	.000	1.032
Enga	.000	.000	.000	.000	.000	1.085
Org	.000	.000	.000	.000	.000	1.049
GovS	.000	.000	.000	.000	.000	1.000
Beh	.000	.000	.000	.000	1.004	.000
Atti	.000	.000	.000	.000	1.000	.000
Rep	.000	.000	.887	.000	.000	.000
Ben	.000	.000	.872	.000	.000	.000
Cre	.000	.000	.918	.000	.000	.000
Comp	.000	.000	1.000	.000	.000	.000
Eco	.000	.000	.000	1.027	.000	.000
Know	.000	.000	.000	1.076	.000	.000
Stab	.000	.000	.000	1.056	.000	.000
Par	.000	.000	.000	1.000	.000	.000
Func	.000	.892	.000	.000	.000	.000
Soc	.000	.925	.000	.000	.000	.000
Emo	.000	.921	.000	.000	.000	.000
Epis	.000	1.000	.000	.000	.000	.000
Iden	.769	.000	.000	.000	.000	.000
Pers	.860	.000	.000	.000	.000	.000
Acti	1.000	.000	.000	.000	.000	.000

Standardized Direct Effects (Group number 1 - Default model)

	BI	Perceived	Trust	Satisfaction	Loyalty	Sustainability
Perceived	.886	.000	.000	.000	.000	.000
Trust	.000	.973	.000	.000	.000	.000
Satisfaction	.000	-.082	.990	.000	.000	.000
Loyalty	-.196	.000	.934	.200	.000	.000
Sustainability	.161	.000	.000	.000	.834	.000
Tech	.000	.000	.000	.000	.000	.732
Enga	.000	.000	.000	.000	.000	.897
Org	.000	.000	.000	.000	.000	.843
GovS	.000	.000	.000	.000	.000	.626
Beh	.000	.000	.000	.000	.788	.000
Atti	.000	.000	.000	.000	.799	.000
Rep	.000	.000	.798	.000	.000	.000
Ben	.000	.000	.857	.000	.000	.000
Cre	.000	.000	.914	.000	.000	.000
Comp	.000	.000	.714	.000	.000	.000
Eco	.000	.000	.000	.836	.000	.000
Know	.000	.000	.000	.845	.000	.000
Stab	.000	.000	.000	.869	.000	.000
Par	.000	.000	.000	.894	.000	.000
Func	.000	.706	.000	.000	.000	.000
Soc	.000	.671	.000	.000	.000	.000
Emo	.000	.867	.000	.000	.000	.000
Epis	.000	.867	.000	.000	.000	.000
Iden	.579	.000	.000	.000	.000	.000
Pers	.831	.000	.000	.000	.000	.000
Acti	.757	.000	.000	.000	.000	.000

Indirect Effects (Group number 1 - Default model)

	BI	Percieved	Trust	Satisfaction	Loyalty	Sustainability
Percieved	.000	.000	.000	.000	.000	.000
Trust	.844	.000	.000	.000	.000	.000
Satisfaction	.722	1.020	.000	.000	.000	.000
Loyalty	.795	1.028	.167	.000	.000	.000
Sustainability	.508	.825	.768	.144	.000	.000
Tech	.657	.851	.792	.148	.828	.000
Enga	.690	.895	.833	.156	.871	.000
Org	.668	.866	.806	.151	.842	.000
GovS	.636	.825	.768	.144	.803	.000
Beh	.635	1.032	.960	.180	.000	.000
Atti	.632	1.028	.956	.179	.000	.000
Rep	.749	.968	.000	.000	.000	.000
Ben	.736	.951	.000	.000	.000	.000
Cre	.775	1.002	.000	.000	.000	.000
Comp	.844	1.091	.000	.000	.000	.000
Eco	.741	.958	.960	.000	.000	.000
Know	.777	1.004	1.006	.000	.000	.000
Stab	.763	.986	.988	.000	.000	.000
Par	.722	.933	.935	.000	.000	.000
Func	.690	.000	.000	.000	.000	.000
Soc	.716	.000	.000	.000	.000	.000
Emo	.712	.000	.000	.000	.000	.000
Epis	.774	.000	.000	.000	.000	.000
Iden	.000	.000	.000	.000	.000	.000
Pers	.000	.000	.000	.000	.000	.000
Acti	.000	.000	.000	.000	.000	.000

Standardized Indirect Effects (Group number 1 - Default model)

	BI	Percieved	Trust	Satisfaction	Loyalty	Sustainability
Percieved	.000	.000	.000	.000	.000	.000
Trust	.861	.000	.000	.000	.000	.000
Satisfaction	.781	.963	.000	.000	.000	.000
Loyalty	.960	1.084	.198	.000	.000	.000
Sustainability	.637	.904	.943	.166	.000	.000
Tech	.584	.662	.691	.122	.610	.000
Enga	.716	.811	.846	.149	.748	.000
Org	.673	.762	.796	.140	.703	.000
GovS	.500	.566	.591	.104	.522	.000
Beh	.602	.855	.892	.157	.000	.000
Atti	.610	.867	.905	.160	.000	.000
Rep	.688	.776	.000	.000	.000	.000
Ben	.738	.833	.000	.000	.000	.000
Cre	.787	.889	.000	.000	.000	.000
Comp	.615	.694	.000	.000	.000	.000
Eco	.653	.737	.828	.000	.000	.000
Know	.660	.745	.837	.000	.000	.000
Stab	.679	.766	.861	.000	.000	.000
Par	.698	.788	.885	.000	.000	.000
Func	.625	.000	.000	.000	.000	.000
Soc	.594	.000	.000	.000	.000	.000
Emo	.768	.000	.000	.000	.000	.000
Epis	.768	.000	.000	.000	.000	.000
Iden	.000	.000	.000	.000	.000	.000
Pers	.000	.000	.000	.000	.000	.000
Acti	.000	.000	.000	.000	.000	.000

Modification Indices (Group number 1 - Default model)

Covariances: (Group number 1 - Default model)

			M.I.	Par Change
e26	<-->	e22	5.002	-.029
e25	<-->	e26	13.330	.034
e18	<-->	e22	7.440	-.055
e18	<-->	e26	76.440	.158
e18	<-->	e24	14.960	-.060
e20	<-->	e18	4.159	.042
e21	<-->	e26	7.516	-.063
e16	<-->	e26	11.734	-.054
e16	<-->	e18	28.144	-.131
e16	<-->	e19	6.926	.040
e16	<-->	e20	7.608	-.050
e17	<-->	e18	4.129	-.048
e17	<-->	e16	5.499	.048
e11	<-->	e23	8.100	.037
e11	<-->	e26	7.473	.042
e11	<-->	e25	4.065	.025
e11	<-->	e20	7.847	.050
e9	<-->	e22	5.383	.026
e9	<-->	e26	4.877	-.022
e9	<-->	e18	24.674	-.079
e9	<-->	e16	15.512	.054
e8	<-->	e26	4.589	.048
e8	<-->	e24	5.029	-.043
e12	<-->	e22	5.104	.038
e12	<-->	e24	10.393	-.042
e12	<-->	e18	4.899	.053
e12	<-->	e17	5.421	-.047
e12	<-->	e8	35.469	.176
e13	<-->	e22	4.767	-.038
e13	<-->	e26	12.453	.053

			M.I.	Par Change
e13	<-->	e25	14.967	.048
e13	<-->	e18	32.289	.138
e13	<-->	e21	5.644	-.074
e13	<-->	e16	30.548	-.117
e13	<-->	e17	7.077	-.054
e13	<-->	e9	5.135	-.031
e13	<-->	e12	4.983	.045
e14	<-->	e17	7.367	-.050
e14	<-->	e11	8.360	.054
e15	<-->	e24	12.078	.036
e15	<-->	e18	4.748	.041
e15	<-->	e17	21.815	.074
e15	<-->	e12	6.881	-.041
e4	<-->	e22	17.057	-.084
e4	<-->	e26	35.960	.110
e4	<-->	e24	20.845	-.072
e4	<-->	e18	36.322	.173
e4	<-->	e19	8.192	-.051
e4	<-->	e16	29.004	-.134
e4	<-->	e9	6.648	-.041
e4	<-->	e8	21.214	.163
e4	<-->	e12	21.663	.113
e4	<-->	e13	8.043	.070
e5	<-->	e8	4.425	.085
e6	<-->	e26	18.132	-.049
e6	<-->	e24	5.258	.022
e6	<-->	e18	22.055	-.084
e6	<-->	e19	14.068	.042
e6	<-->	e16	13.104	.056
e6	<-->	e9	5.006	.022
e6	<-->	e13	13.934	-.057
e7	<-->	e21	4.713	.054

			M.I.	Par Change
e7	<-->	e11	7.225	-.045
e7	<-->	e10	9.440	.041
e7	<-->	e9	5.547	.026
e7	<-->	e4	6.801	-.051
e7	<-->	e5	8.577	-.066
e1	<-->	e18	8.816	.101
e1	<-->	e16	4.044	-.059
e1	<-->	e12	5.400	-.067
e1	<-->	e13	14.760	.112
e1	<-->	e5	8.071	.111
e2	<-->	e16	7.726	.051
e2	<-->	e13	5.506	-.043
e2	<-->	e15	5.395	.033
e2	<-->	e5	4.647	-.052
e3	<-->	e23	6.821	-.049
e3	<-->	e18	6.228	.088
e3	<-->	e9	7.173	-.053
e3	<-->	e4	21.827	.166

Variances: (Group number 1 - Default model)

Regression Weights: (Group number 1 - Default model)

			M.I.	Par Change
Tech	<---	Satisfaction	7.553	.117
Tech	<---	Beh	11.237	-.121
Tech	<---	Eco	11.280	.113
Tech	<---	Know	25.599	.164
Tech	<---	Stab	8.605	.100
Tech	<---	Par	10.498	.119
Tech	<---	Func	17.105	.143
Tech	<---	Emo	4.705	-.089
Tech	<---	Iden	7.564	.079
Tech	<---	Acti	5.057	.065
Beh	<---	Tech	13.276	-.107

			M.I.	Par Change
Beh	<---	Know	11.846	-.097
Beh	<---	Func	11.959	-.104
Rep	<---	Stab	4.248	.060
Cre	<---	Tech	11.142	-.064
Cre	<---	Beh	6.320	.051
Cre	<---	Acti	4.516	-.034
Comp	<---	Eco	12.873	.149
Comp	<---	Func	10.588	.139
Eco	<---	Comp	19.427	.103
Eco	<---	Func	12.522	.103
Eco	<---	Iden	7.289	-.065
Know	<---	Tech	10.449	.094
Know	<---	GovS	4.990	-.057
Know	<---	Beh	18.279	-.132
Know	<---	Atti	6.691	-.082
Know	<---	Emo	7.775	-.098
Know	<---	Iden	5.378	.057
Par	<---	Tech	4.122	.046
Par	<---	Atti	10.586	.080
Func	<---	Tech	13.625	.127
Func	<---	Beh	12.929	-.131
Func	<---	Comp	10.326	.090
Func	<---	Eco	15.933	.135
Func	<---	Know	9.215	.099
Func	<---	Par	5.138	.084
Func	<---	Acti	14.483	.111
Emo	<---	Tech	9.518	-.066
Emo	<---	Beh	4.876	.051
Emo	<---	Know	8.981	-.061
Epis	<---	Soc	4.549	-.047
Acti	<---	Func	10.071	.136

Minimization History (Default model)

Iteration		Negative eigenvalues	Condition #	Smallest eigenvalue	Diameter	F	NTries	Ratio
0	e	14		-.895	9999.000	7926.445	0	9999.000
1	e	21		-.279	3.069	4616.360	19	.434
2	e	9		-.859	1.173	3093.797	5	.890
3	e	5		-.291	1.017	2154.561	5	.708
4	e	1		-.130	.930	1211.442	4	.932
5	e	2		-.280	.409	926.261	4	.874
6	e	1		-.133	.526	743.107	7	.871
7	e	1		-.018	.387	680.985	6	1.071
8	e	0	8177.211		.425	663.737	9	1.038
9	e	0	38471.163		.510	659.856	1	1.071
10	e	0	4887.329		.245	659.639	1	.583
11	e	0	56287.361		.038	659.451	1	.970
12	e	0	12739.745		.078	659.447	2	.000
13	e	0	20074.269		.007	659.445	1	1.011
14	e	0	19455.787		.003	659.445	1	1.006
15	e	0	20341.757		.000	659.445	1	1.000

Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	54	659.445	177	.000	3.726
Saturated model	231	.000	0		
Independence model	21	7995.288	210	.000	38.073

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.048	.856	.812	.656
Saturated model	.000	1.000		
Independence model	.625	.128	.040	.116

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.918	.902	.938	.926	.938
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.843	.773	.791
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	482.445	407.588	564.874
Saturated model	.000	.000	.000
Independence model	7785.288	7496.249	8080.661

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	1.516	1.109	.937	1.299
Saturated model	.000	.000	.000	.000
Independence model	18.380	17.897	17.233	18.576

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.079	.073	.086	.000
Independence model	.292	.286	.297	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	767.445	773.198	987.638	1041.638
Saturated model	462.000	486.610	1403.935	1634.935
Independence model	8037.288	8039.525	8122.919	8143.919

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	1.764	1.592	1.954	1.777
Saturated model	1.062	1.062	1.062	1.119
Independence model	18.477	17.812	19.156	18.482

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	138	148
Independence model	14	15

Execution time summary

Minimization:	.252
Miscellaneous:	1.488
Bootstrap:	.000
Total:	1.740

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2. Chairman of the Association of Natural Rubber Producing Countries (ANRPC)
3. Acting Governor of Rubber Authority of Thailand
4. Chairman of Sustainable Rubber Plantation Study Committee
5. Member and the Secretary of the Committee on Administration of Government Sector's Program on Rubber Promotion

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2. Corporate Governance for Directors and Senior Executives of Regulators, State Enterprises and Public Organizations
3. 10th Senior Budget Executive Program (Budget Burureau)
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5. 74th Alumni of Executive-level for Agriculture and Cooperatives Development Program
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