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Aims and scope

International Journal of Multidisciplinary in Management and Tourism is an interdisciplinary journal seeking an engagement between scholars working across a range of disciplinary fields, including Management, Tourism, critical theory and Interdisciplinary of humanities and social sciences.

Frequency of Issue:

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Peer Review Policy:

All submitted manuscripts must be Reviewed by at least two experts via the double-blinded review system

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Preface

We are pleased to present the fifth volume, first issue of the 2021 edition of the International Journal of Multidisciplinary in Management and Tourism. This volume consists of five articles.

The first article touches on a very important topic, which relates to innovation performance of a very successful e-commerce and technological company in China – Huawei. Huawei has been the market leader for telecommunications manufacturing as early as 2012, and their unique innovative culture in the corporate group and businesses is also a competitive advantage in the industry. The authors take a cross-sectional survey of Huawei 's customer-facing contact stores, known as Huawei Authorized Experience Stores (abbreviated as HAES), and study the impact of employee training on Huawei innovation performance in Shanxi Province, China. In particular, the employee-training-related factors, consisting of corporate and innovative cultural atmosphere, innovative service concept, innovation promotion, innovation service reward mechanism, employee's enthusiasm, initiative and creativity, and the promotion of innovative brand and innovative culture, are shown to significantly able to explain innovation performance.

The second article exploits the CATWOE in helping the authors to identify the right informants for the targeted study. CATWOE is a mnemonic from soft systems methodology (SSM), which stands for customers, actors, transformation, Weltanschauung (the viewpoint from which the transformation is significant), owners, and environmental constraints. In short, CATWOE serves as a triangulated means in the qualitative in-depth interviews, and based on the CATWOE guideline, the aim and objectives for the morning glory supply chain design can be clearly set. Based on their research, the authors propose a model of Tung Yee Peng morning global supply chain, to benefit the communities in sustainable way and in manner that is able to cushion the seasonal impact.

The third article sets up an objective function to optimize the selection plan for vegetable crop that is capable of maximizing net profits. The authors utilize linear programming (LP) subjected to two constraints, namely the total vegetable bed to be less than or equal to the total available vegetable bed, and another set on non-negativity constraints. The optimization can be realistically presented to the farmers using web-based application to guide their decision makings on vegetable planning.

Based on taking on the public opinion survey concerning the Thai government's economic policy of the NCPO, the fourth article recommends to prioritize on measures to cushion the negative impacts of political uncertainty and to improve governance quality. Their findings stress on, for instance, the government capital investment in large projects, the strategic measures for strengthening networks of enterprises, especially within the entrepreneurial groups of agriculture and services, the streamlining of investment promotion policies in high-tech domains, while the governance reinforces on the establishment of information systems for production and clear indicators.

The last article, which is the fifth, provides us with the lessons drawn from the cannabis taxation issues in California USA. This topic comes at the time Thailand is currently opening up for more legalized opportunities, which can serve to push forward the cannabis industry with positive thrusts capable of not only improving the healthiness of patients, due to

the potential therapeutic benefits from medical cannabis, but also innovatively enabling a host of creative industries to emerge, such as Cannabis fibers being used in construction materials, automobiles and fashions.

Once again, we are proud to present the five quality articles in the 5(1) issue of the International Journal of Multidisciplinary in Management and Tourism.

As a closure here, we continue to welcome any article contributions, of multidisciplinary nature, that can help improve any aspects of understanding, competences and applications to manage operations, innovation and creativity, or any nature, at any level – individual, team and group, organizational, societal, national, ecosystems or global levels.

All papers must be original, had not been published elsewhere, have not been submitted to other publication venues while submitting to us, and should be subjected to plagiarism assessment. Your manuscripts will pass through the editorial review and are sent for double-blind reviews by anonymous independent referees.

Apart from research articles, we also accept quality book reviews. All accepted articles, upon appropriately revisions to the required quality and expectations, would be published online in our Journal website, and are downloadable free of charge. We recommend that potential authors review our publishing policies, manuscript requirements and formats, before submitting your manuscripts to our Journal.

Dr. Chai Ching Tan

Editor in Chief

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The Impact of Employee Training on Huawei innovation Performance in Shanxi Province, China

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Abstract

This study underpins on the case of Huawei in Shanxi Province, China, for studying the roles of employee training in contributing towards the innovation performance of the company. As the terminal department, Huawei authorizes the experience stores (HAES), whose employees can more truly understand customers' needs, leading to China's first Huawei 5G smart experience store being opened in Shanxi Province.

The population is 9478 employees of Huawei in HAES in Shanxi Province, spanning all the technical research and development, product production, sales, service and other job functions. This paper adopts the mix method with in-depth interview and questionnaire survey, and SPSSAU is used for data analysis. Quantitative statistics focus on the validity and reliability assessments of the questionnaire instrument, the correlations analysis and the linear regression. The analysis results show that there is a positive impact of employee training on Huawei innovation performance. The conclusion is that they become the most important part of employee training and need to be constantly updated, including collaborative innovation culture and atmosphere, innovative service concept, innovation promotion and innovation service incentive mechanism, employees' enthusiasm, initiative and creativity, the promotion of brand culture, feedback Mechanism, etc.

Keywords: Employee training; innovation performance; collaborative innovation culture and atmosphere; innovative service concept; employee creativity.

Introduction

Huawei Group is a typical Chinese and a global enterprise. Under the corporate umbrella of Huawei Group, there are many highly competitive enterprises, all of which contributing to technical collaborative innovation. However, as an important part of Huawei's terminal business, Huawei Authorized Experience Stores (the abbreviation HAES is used) is the most direct organization to contact the end consumers. The employees of the authorized experience stores have direct contacts with the final consumers, and they know the real needs of customers best, and thus, they are vital in bringing the products of technological innovation cooperation to consumers. Therefore, Huawei's success in the technological markets is due to the promotion of employee-customer technical collaborative innovation and is based on employee-oriented vitality, customer-centered, value-oriented and customer-demand-oriented innovation. Effective cooperation between employees and customers will have a positive impact on Huawei's enterprise performance.

Research Objectives

The purpose of this paper is to examine the relevance of technical employee training on Huawei innovation performance through employees' understanding for customers' needs. Externally, Huawei focuses on technological innovation, product innovation and service innovation, and takes customers as the center to create value for customers. The source of all innovation is the ecosystem formed by Huawei's employees and other stakeholders, including suppliers, partners, industry organizations, standards organizations and other industry-university-research institutions. On this basis, open-source effective cycle is realized to achieve long-term sustainable innovation and development.

Research Methodology

The paper employed mixed qualitative and quantitative methods with random sampling in sample selection. Qualitative method is in-depth interview. Quantitative methods is questionnaire survey. Huawei authorized stores in Shanxi Province were randomly sampled. From June to September 2020, the author has in-depth interviewed with total of 30 employees including 3 field masters, 3 store managers, 3 supervisors, 9 sale consults and 12 others, including other relevant employees in charge of technical services and terminal business department of Huawei authorized experience stores in Shanxi Province.

The 404 employees of the authorized experience stores were randomly selected based on the ability to be interviewed and investigated easily, decision on availability of respondents during interviews.

The total population refers to the entire collection of objects to be studied. The population for this article is 9478 employees of 158 Huawei authorized experience stores in Shanxi province, China. These employees include all the employees affiliated to Huawei Group and Huawei's terminal business division who are related to the business and technology related to Huawei authorized experience stores, including all the members who are responsible for solving the problems of products, services and technologies of Huawei authorized experience stores in Shanxi Province.

This study adopts a combination of qualitative and quantitative empirical research methods, selects samples through random sampling, and obtains research data through in-depth interviews and questionnaire surveys.

The sample size of the questionnaire-based survey is calculated using the formula of Taro Yamane (1973), shown in Equation (1), with a confidence level of 95%, as follows:

$$N = N / (1 + Ne^2) \tag{1}$$
n = required sample size
N = total population
e = the error of 5 percentage points

After substituting the total number of population in this study into the Yamane formula to calculate the required number of sample size, it yields at least 384 persons ($n=9478/(1+9478\times(0.05)^2)$. In order to obtain reliable of data, 418 questionnaires were sent out. 414 questionnaires were returned. 404 questionnaires were effective. If the error rate of 5% is excluded and all the questionnaires are valid, it is reasonable to return 404 questionnaires.

The conceptual framework of the study is given in Fig. 1, being described by the hypothesis H1, H_1a, and H_1b.

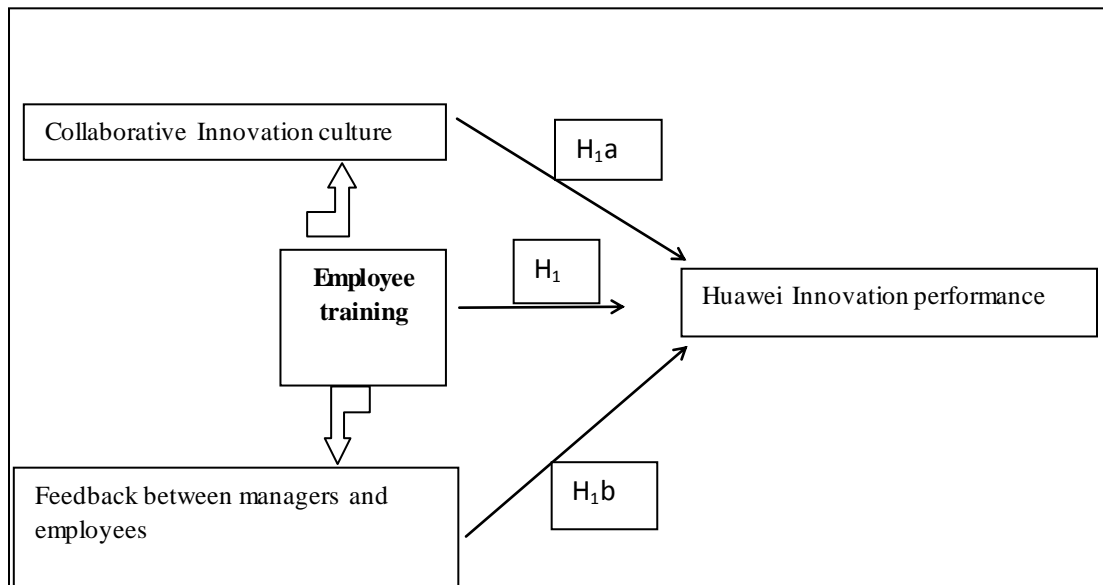
Fig. 1. Research conceptual framework

H_1: There is an important influence between employee training and Huawei's innovation performance.
H_1a: There is a significant correlation between the collaborative innovation culture and Huawei's innovation performance.
H_1b: There is an obvious mechanism between the feedback between managers and employees and Huawei's innovation performance.

The qualitative data were collated to figure out the proportion of each answer to each question. The quantitative data collected were analyzed. The data was organized into themes in order to determine the impact of Huawei's technical collaborative innovation on Huawei enterprise performance from the perspective of Huawei authorized experience stores' employees. Fig. 2 illuminates the validity strategies of the content analysis, adapted from Li (2014).
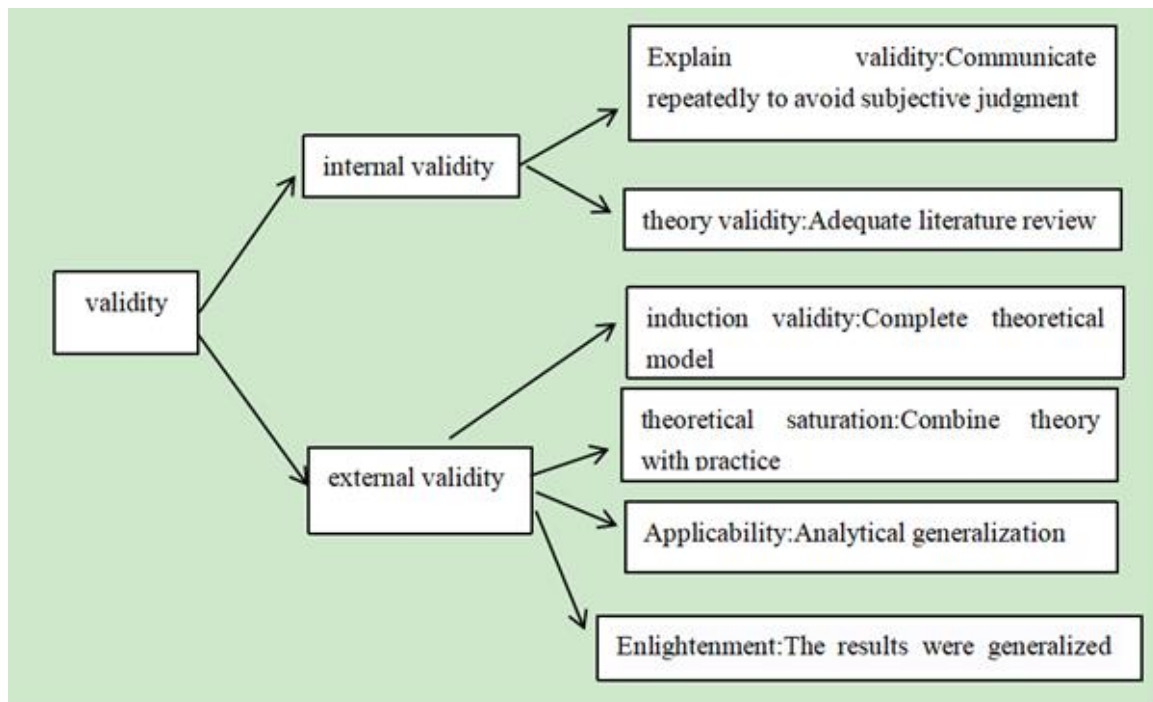
Fig. 2. The validity strategy of content analysis (Source: Adapted from Li, 2014).

Research Results

Prior to performing the regression analyses, the correlations were performed, and the highly correlated relationships are evidenced in the Pearson coefficients in Table 1. Clearly, the factors shown in Table 1 are conducive to employees and their training in order to contribute to innovation performances of the company.

Table 1. Correlations between innovation performance and its determinants

	Innovation Performance
Corporate and innovative cultural atmosphere	0.699** (P = 0.000)
Innovative service concept	0.692** (P = 0.000)
Innovation promotion, innovation service reward mechanism	0.663** (P = 0.000)
Employee's enthusiasm, initiative and creativity	0.732** (P = 0.000)
The promotion of innovative brand and innovative culture	0.666** (P = 0.000)

Specifically, the regression analysis in Table 2 shows that "innovation service concept in employee training" can explain 66.1 per cents of the variance of innovation performance.

Table 2. Innovation performance explained by innovation service concept in training

Linear regression analysis results		
	Regression coefficient	VIF
Independent variable	0.771	-
	(6.079**)	
Innovative service concept in employee training	0.822	1.000
	(28.023**)	
Sample size	404	
R^2	0.661	
Adjust R^2	0.661	
F value	F (1,402) = 785.314, p=0.000	
Dependent variable: innovation performance		
D-W value : 1.844		
* p<0.05 ** p<0.01 () is t value		
ANOVA		
	Sum of Square	df	Mean Square
Regression	130.560	1	130.560
Residual	66.833	402	0.166
Total	197.394	403	

From the data in Table 3, it can be known that the fit of the model is 57.1%. F value indicates that the model has passed the F test, and the model construction is meaningful.

Table 3. Innovation performance determined by feedback in employee training

Linear regression analysis results		
	Regression coefficient	VIF
Independent variable	0.751	-
	(4.933**)	
Feedback in employee training	0.816	1.000
	(23.116**)	
Sample size	404	
R^2	0.571	
Adjust R^2	0.570	
F value	F (1,402) = 534.340, p=0.000	
Dependent variable: innovation performance		
D-W value : 1.914		
* p<0.05 ** p<0.01 () is t value		
ANOVA		
	Sum of Squares	df	Mean Square
Regression	123.863	1	123.863
Residual	93.186	402	0.232
Total	216.050	403	

Discussion

The three hypotheses of the same root of H1 are supported.

H_1: There is a significant positive correlation between employee training and Huawei's innovation performance.

H1 is supported by both the correlations and regression analyses. The finding also reinforces a question raised by Oana-Maria et al. (2017) in how leaders think about bridging the innovation gap between new products, new services, new business models, and between their own businesses and other businesses, to achieve leapfrog innovation. By understanding the real needs of customers and strengthening the innovation cooperation between enterprises and customers, employees can promote the technological innovation of enterprises and this is the most appropriate way to reduce the innovation gap.

Rooted in H1 is the two sub-hypotheses H_{1a} and H_{1b}.

H_{1a}: There is a strong positive correlation between the collaborative innovation culture and Huawei's innovation performance.

In addition, employees must have the attitude in order to come up with and developing innovations. The employees are constantly thinking of how their processes could be improved upon. Creativity comes as standard equipment with everyone who works in your organization. Everyone is creative and that includes the end users of innovation. Users are not simply passive customers of new products or services, and they generally have plenty of ideas about of how they would like to improve or change what they are using.

H_{1b}: There is an obvious positive correlation between the feedback between managers and employees and Huawei's innovation performance.

Feedback between managers and employees are vital, as it can help mold the working attitude and behavior of employees, which, then guide purposeful activities that the company organizes employees to learn and apply the training to their work practice, aiming to improve employees' professional knowledge and professional skills. At the same time, it is more effective to motivate employees to innovate in their work, and to achieve benign and professional communication with customers. The finding here supports Qin (2017) that the environment the enterprise created for employees to acquire or learn knowledge and skills is closely related to their job requirements in order to meet their own needs.

New Knowledge

Huawei adopts independent management and decision-making, and open and transparent communication. Huawei is a 100% employee-owned private enterprise. Employees are the vitality and creators of Huawei's sustainable development and innovation. Employee training, collaborative innovation culture, innovative ideas, innovation atmosphere,

feedback mechanism, etc. have become effective links between employees and the organization, and encourage employees and organizations to improve together Innovation performance. Based on the findings of this research, the following strategies are to be stressed:

First, Huawei should build a training system that is conducive to employee innovation.

Second, Huawei should create an innovative organizational learning atmosphere and platform.

Third, Huawei should strengthen employee innovation consciousness and learning behavior.

Specially, employee training has become one of the most important links for Huawei to achieve effective innovation, and needs to be constantly updated, including collaborative innovation culture and atmosphere, innovative service concept, innovation promotion and innovation service incentive mechanism, employees' enthusiasm, initiative and creativity, the promotion of brand culture, feedback Mechanism, etc.

Suggestion

It is suggested that further research can be enlightened with richness, by comparative study within others, for comparing their strategies and operational processes for HR training and focus on talent management, resource-based management and knowledge management, and Delphi assessments.

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Approaches to Morning Glory Supply Chain Management of Tung Yee Peng Community, Ko Lanta District, Krabi Province

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Abstract

The study uses soft systems methodology (SSM) to guide the in-depth interview in proposing the Morning Glory Supply Chain Model for Tung Yee Peng Community, Ko Lanta District, Krabi Province. Informants include the community head, Tung Yee Peng farmers, project partners and possible buyers. Results revealed that the Morning Glory Supply Chain Model was indeed functional. The model of Tung Yee Peng Morning Glory Supply Chain was started with the Upstream Level, Tung Yee Peng farmers cultivating and harvesting their morning glory and delivering them to the distributor agent or a community head, followed by the Mid-stream Level placing emphasis on the distribution management. The distribution agent or a community head was in charge of an intermediary connecting the farmers and the morning glory buyers such as hotels, restaurants and markets in Ko Lanta. The last one was the Downstream Level consisting of ultimate consumers such as household consumers, tourists, and etc. However, the proper Morning Glory Supply Chain Model for Tung Yee Peng Community, Ko Lanta District, Krabi Province, revealed that Tung Yee Peng Morning Glory Project should focus on the supply chain management in order to get more morning glory distribution channels, including managing the amount of cultivating morning glory, which was to set the cultivating and harvesting duration. Tung Yee Peng farmers cooperated with the distribution agent and a community head and to determine the sales price, the production volume, the collection and the transfer of morning glory from Tung Yee Peng to be distributed in Ko Lanta.

Keyword: Supply chain, morning glory, Tung Yee Peng community, soft systems methodology.

Introduction

Tung Yee Peng Community, Ko Lanta District, Krabi Province, has recently developed the community way of life. They had ever worked in the sea, fishing around Ko Lanta, as well as working on a farm and a rubber plantation. Now, Ko Lanta has become an ecotourism community relying on the tourism trend flowing into Ko Lanta. The villagers have learned and adapted themselves to be in harmony with the tourism trend, even though they are still holding their cultures and protecting their natural resources for the continuity of the community. They have also received supports in various aspects from government sectors and networks. The area survey and discussion with a community head and Tung Yee Peng Community farmers, Ko Lanta District, Krabi Province, was intended to seek an approach to developing the community and to transform Tung Yee Peng Community into a functional agricultural community.

The villagers cultivate their home-grown vegetables to provide sufficient food for household consumption and to increase the household income by selling the vegetables. However, the problem and obstacle obstructing home-grown vegetable cultivation of Tung Yee Peng Community is that macaques, insects and pests invade the vegetables. Especially, the macaques, when the vegetables produce their buds, the macaques will eat the buds and fruits immediately. As a result, a community head and the villagers propose to cultivate vegetables that are not eaten by macaques and are fast to grow and sell such as morning glory, Chinese cabbage and fennel. Most of the villagers are interested in growing morning glory which is an economic crop and makes a good profit for the farmers (Ketkrai, Dampin, & Chunkao, 2018).

Then, they had an idea to embark on Tung Yee Peng Morning Glory Project. However, the smallholder vegetable farmers make low bargaining power of the buyers due to lack of the product delivering continuously to the buyers (Chudang & Waisarayut, 2014). So, there should be a plan to design an approach for supply chain management; started by studying the model of Tung Yee Peng Morning Glory Supply Chain and existing distribution channels and followed by creating a group of morning glory cultivating farmers, morning glory buyers, distribution markets, distribution channels and consumers. Launching Tung Yee Peng Morning Glory Project will enable the villagers to understand the processes of the supply chain and be ready to work for the project.

This study aims to investigate the Morning Glory Supply Chain Model and to study the proper Morning Glory Supply Chain Model for Tung Yee Peng Community, Ko Lanta District, Krabi Province.

Research Methodology

This research is aimed to study the Morning Glory Supply Chain Management of Tung Yee Peng Community, Ko Lanta District, Krabi Province.

Data were collected using an in-depth interview and a purposive sampling method. Main informants were the project partners. There were fourteen samples in total, consisting of a community head, three leaders from the community participating in the project and ten morning glory buyers in the area of Ko Lanta District, Krabi Province.

An analysis and design process was conducted with assistance of the Soft System Methodology (SSM) (Checkland, 2000) which is a technique for systematically analyzing the problem and possibility of the supply chain within the related social conditions (Gencoglu, Altmann, Smith, & Mackay, 2002); (Ragsdell, West, & Wilby, 2012). The model of supply chain was presented by the supply chain structure (Chopra & Meindl, 2007).

Research Results

Result from the general data survey to study the model of Tung Yee Peng Morning Glory Supply Chain, Ko Lanta District, Krabi Province, revealed that the needs of morning glory buyers in Ko Lanta was on Chinese morning glory at most and followed by Thai morning glory.

According to the study on the morning glory buying data in Ko Lanta District from a group of vegetable distributors, restaurants and general consumers, most of the vegetable distributors are buying morning glory and other vegetables from other provinces being distributed in Ko Lanta such as Hua It Market in Nakhon Si Thammarat province and etc. Restaurants always buy Chinese morning glory because during the high seasons, foreign tourists usually order a stir-fried morning glory dish. The general consumers do not buy a big amount of morning glory because it is only for household consumption.

In addition, the study on the morning glory buying trend in Tung Yee Peng Community, Ko Lanta District, revealed that most of the morning glory buyers were interested in buying morning glory from Tung Yee Peng Community. If there were any project implementation, 90 percent of 10 groups of morning glory buyers would be interested in morning glory from Tung Yee Peng Community and most of them are groups of restaurant businesses due to the variety of price ranges and a lack of supply.

Interviewing for the problems and obstacles of the Morning Glory Project in Ko Lanta, Krabi Province, revealed that the main problem is a season of Ko Lanta being affected the needs of morning glory. The tourism cycles have been divided into high seasons and low seasons. These cycles generate effect on the amount, the needs, and the price of morning glory. During the low seasons, there is relatively low demand for morning glory and so there is for other vegetables because most of the businesses will be at a standstill within this period.

From the aforementioned impact, the study of the model of Tung Yee Peng Morning Glory Supply Chain in Ko Lanta proposed two models of the Morning Glory Supply Chain: 1) the Supply Chain of morning glory from outside Ko Lanta and 2) the Supply Chain of morning glory cultivating and distributing in Ko Lanta:

1) The Supply Chain of morning glory from outside Ko Lanta, starting with a middleman selling the morning glory and other vegetables to Mai Yord Shop. Then, the middleman and Mai Yord Shop distributed them to the hotels, markets, restaurants and consumers.

2) The Supply Chain of morning glory cultivating and distributing in Ko Lanta, starting with farmers cultivating and distributing the morning glory in Ko Lanta. They collected the morning glory and distributed to the hotels, markets, and restaurants, including the consumers buying directly from the farmers.

An in-depth interview with the community head about an approach to design distribution channels for Tung Yee Peng morning glory revealed that a community head is a distributor of Tung Yee Peng morning glory and make a distribution in Ko Lanta District, Krabi Province. The distribution channel is designed as a one-level channel. The distribution passes through a middleman who is a distributor agent or community head in charge of distributing the product to the consumers, instead of Tung Yee Peng farmers, as shown in Fig. 1.
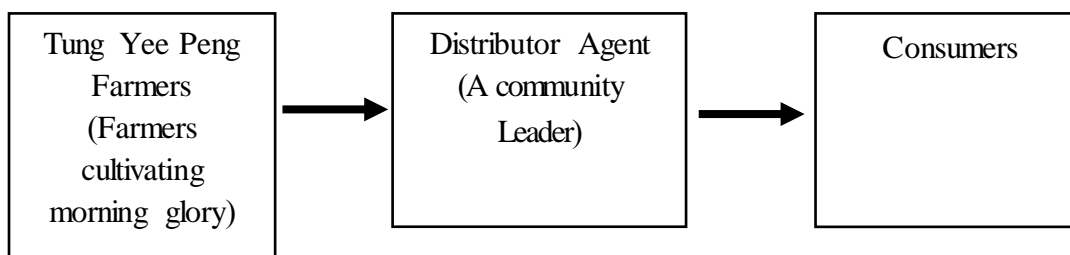
Fig. 1. The design of distribution channel for morning glory from Tung Yee Peng community

Yee Peng Community is undertaken by the Soft System Methodology (SSM). It is to design and describe the perspective Morning Glory Supply Chain Management of Tung Yee Peng Community structure, comparing to the possible facts and analyzing the existing problem, and to carry out an improvement to be a functional structure. The analysis started with an overall analysis of Tung Yee Peng Morning Glory Supply Chain. After that, the researchers performed the cultural analysis or the supply chain operation analysis to identify problems, structure and roles of the supply chain.

The supply chain relationship analysis results were illustrated in Table 1 below.

Table 1. The morning glory supply chain analysis

1) Customer: (The ones using the supply chain model)	Farmers cultivating morning glory and/or suppliers, supply chain partners
2) Customer needs:	Improve and design the supply chain
3) Problem solvers: (The ones facilitating the supply chain improvement and design)	Related facilitators, Supply Chain Partners
4) Existing resources:	Supply Chain Partners, data, knowledge
5) Limitation:	Duration, knowledge and data about the supply chain of the partners, environment and climate in Ko Lanta, season
6) Parties facing the problems:	Farmers cultivating morning glory and Tung Yee Peng Community head
7) Impact of the selected problem (arising as a result of the identified problems)	Tung Yee Peng Morning Glory Project has not been launched. So, the farmer cultivating morning glory and a community head does not have any exact activities because they cannot understand clearly the perspective of Tung Yee Peng Morning Glory Supply Chain.
8) Consequences of the existing problem: (Consequence of the problem, if unsolved.)	They may lose marketing, cooperation and effective operation opportunity.
9) Value of the ongoing problems: (The value gained from solving the problem)	Reducing instability of cultivating area, avoiding environment and climate in Ko Lanta, morning glory cultivating season, including getting new morning glory distribution channels and the perspective of Tung Yee Peng Morning Glory Supply Chain

As illustrated in Table 1, for customers or the ones who want to modify the analysis and design of the supply chain to use with Tung Yee Peng Morning Glory Project, the table displays the structure and roles of partners in Tung Yee Peng Morning Glory Project such as supply chain facilitators and partners, the relationship within Tung Yee Peng Morning Glory Supply Chain. It takes into account the needs and its partners. Many factors have an impact on the improvement and design of the supply chain such as existing resources, limitation, and impact of the selected problem, cause of the happening problem and value of the happening problem.

At the next stage, the scope of CATWOE analysis will be determined. Table 2 summarizes the CATWOE descriptions for guiding the data collection and analysis.

Table 2. CATWOE analysis

CATWOE Analysis	Scope of Data Analysis
C (Customers): The ones using the model	Tung Yee Peng villagers
A (Actors): Operator	Tung Yee Peng Morning Glory Supply Chain partners such as villagers cultivating morning glory, morning glory distributors and buyers
T (Transformation): Things to be modified	In-depth interview and observation
W (Weltanschauung): All perspectives	Project operation of Tung Yee Peng Morning Glory Supply Chain and to truly use the model in Tung Yee Peng Community
O (Ownership): Partners	Tung Yee Peng Morning Glory Supply Chain partners
E (Environment): Environment	Duration, knowledge and data about the supply chain of the partners, environment and climate in Ko Lanta, season and the cultivating area.

From Table 2, the operational structure of Tung Yee Peng Morning Glory Supply Chain was subsequently designed based on the comparison with the possible facts. In analyzing the possibility of each activity within Tung Yee Peng Morning Glory Supply Chain, as shown in Table 3, if there is any implementation to study the on-going activities, it is to find out the management format as shown in Table 3.

Table 3. Comparative analysis of supply chain design and the fact

Activity in the Model	Status	How	Who	Good or not good	Option
Tung Yee Peng Morning Glory Project	Partly on-going	Plan and design the supply chain, including morning glory distribution channel (If the project is on-going)	Supply Chain Partners	Good	Study the Morning Glory Supply Chain in Ko Lanta to plan and design the supply chain and find distribution channels
Cultivating morning glory	Not started yet.	Plan to cultivate morning glory	A community head and Tung Yee Peng farmers	Good	Considering production ability, cultivating area of each family and the amount and needs of morning glory in the Ko Lanta markets

| Morning glory distribution agents from Tung Yee Peng Community | Not started yet. | Be a morning glory collector from Tung Yee Peng to distribute to the consumers in Ko Lanta | A community head | Good | It can be operated, if the distributors have a connection with the consumers throughout Ko Lanta |

After comparing the operation possibility of Tung Yee Peng Morning Glory Project, it can be improved as a proper operation as shown in Table 4.

Table 4. Properly-improved approaches

Activity	How	Possibility	Possible Operation
Determine the amount of cultivating morning glory	Study morning glory cultivating areas of villagers participating in the project	Possible	Calculate the total area that can cultivate morning glory and plan a plan for each family by determining the cultivating duration and amount.
Grow the morning glory	Tung Yee Peng villagers growing morning glory according to the volume specifying for each family location	Possible	Cultivate morning glory depending on the calculated cultivating area or the plan determining by a community head
Tung Yee Peng morning glory distributor (A community head)	Contact the morning glory buyers in Ko Lanta District to gather orders and also plan the total cultivated amount	Possible	Tung Yee Peng morning glory distribution agent or a community head contacting the buyers in Ko Lanta is to make a production plan and cultivating prediction.

For the data analysis of the supply chain design, the Soft System Methodology (SSM) was employed in order to design and display the possibility of Tung Yee Peng Morning Glory Project within Tung Yee Peng Supply Chain, accompanied by data derived from the in-depth interviews of the supply chain partners such as Tung Yee Peng farmers, a community head, and morning glory buyers. It is to study all related Morning Glory Supply Chain in Ko Lanta in order to design Tung Yee Peng Morning Glory Supply Chain. If there is an implementation of Tung Yee Peng Morning Glory Project, it commenced with receiving orders from the buyers to delivering the product to the ultimate consumers.
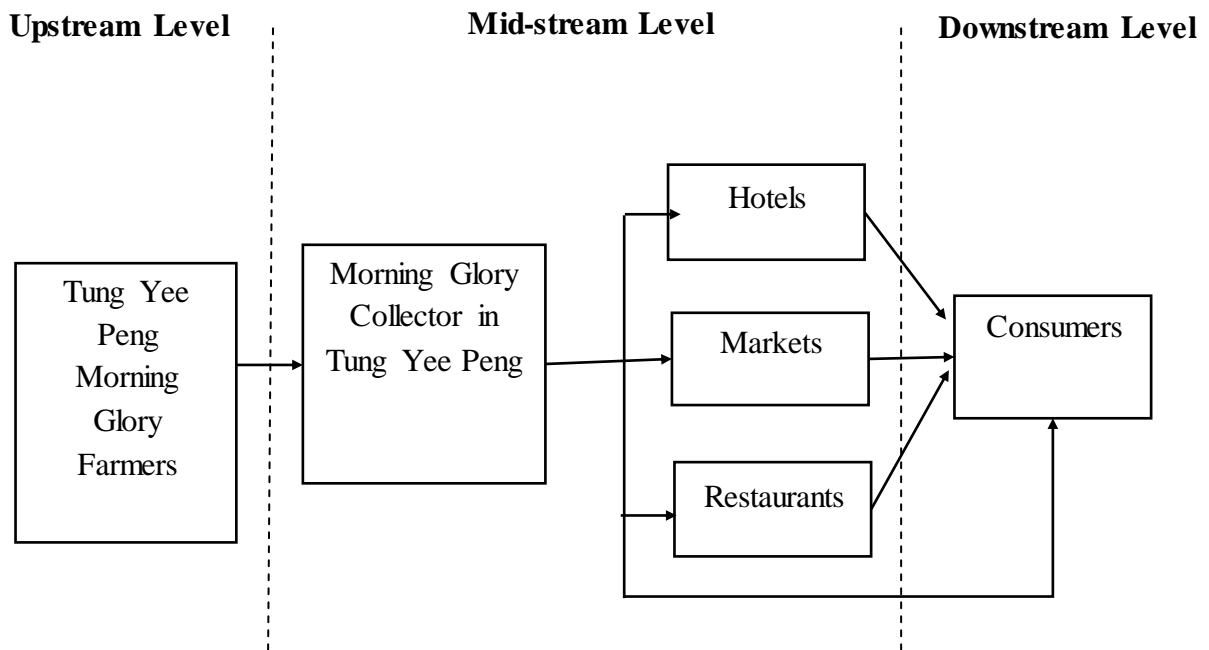
Fig. 2. A proper model of Tung Yee Peng morning glory supply chain

It is also noted in Fig. 2 that Tung Yee Peng Morning Glory Project starts its structure with Tung Yee Peng farmers cultivating morning glory. After harvesting the product, a community head will collect all the products for quality classification and packaging. Then, the product will be distributed to the consumers in Ko Lanta according customer's orders, both in retail and wholesale to the customers.

Obviously, the supply chain partners are the Upstream Level, Tung Yee Peng farmers cultivating their morning glory according to the order given by a community head. Each family has to cultivate morning glory at least 10 kilograms per week. When the morning glory is ready for harvesting, the distribution agent or a community head will collect the morning glory in order to classify their quality and perform a basic cleaning. Then, prepare the packaging for customers' orders in Ko Lanta, Krabi Province. Mid-stream Level focuses on distribution operation to the predominant morning glory buyers such as hotels, restaurants and markets in Ko Lanta, Krabi Province.

Therefore, the model of Tung Yee Peng Morning Glory Supply Chain places emphasis on the supply chain management to provide morning glory distribution channel for Tung Yee Peng community, including management of morning glory cultivating amount by determining duration, cultivating date and harvesting date as shown in Fig. 3.
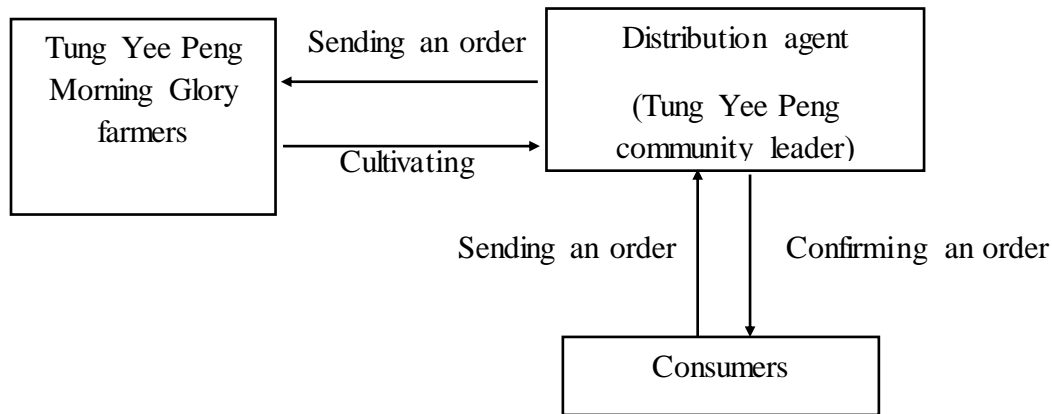
Fig. 3. A proper morning global supply chain operation

Discussion and Conclusion

The research on "Approaches of Morning Glory Supply Chain Management of Tung Yee Peng Community, Ko Lanta District, Krabi Province" revealed that the design of Tung Yee Peng Morning Glory Supply Chain, Ko Lanta, Krabi Province.

The SCM model is designed using the Soft System Methodology (SSM), which describes the perspective structure in comparison with the possible facts and to analyze the existing problem and to carry out an improvement to be a well functional structure.

Started with the Upstream Level, Tung Yee Peng farmers cultivate and harvest the morning glory and deliver the morning glory to the distributor agent or a community head. Next, the Mid-stream Level places is focusing on the distribution management. The distribution agent or community head is in charge of an intermediary connecting the farmers and the morning glory buyers such as hotels, restaurants and markets in Ko Lanta, Krabi Province. The farmers have a close connection with the leader and the middleman in the area. It is appeared to be consistent with the study of Saraswati (2020), who found that a community business farmers and traders have a close connection and mutual trust, so that they can cooperate. In addition, the Downstream Level, the product is delivered to the ultimate consumers such as household consumers in Ko Lanta, tourist, etc.

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A Development Web Application for Planning Cultivated Vegetable to Maximize Profits in Nam Kam District, That Phanom, Nakhon Phanom Province, Thailand[*]

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Abstract

In this paper the mathematical model is proposed to optimize the vegetable cropping pattern in Nam Kam District, That Phanom, Nakhon Phanom Province, Thailand. The results showed the potential of the model to optimize vegetable cropping pattern and estimated profit about 10,327.36 $US. (327,219 THB) with celery and coriander. A web application for vegetable crop selection and planning has also been developed for easy access enabling the farmers to utilize via mobile phone. A web application offers the cropping pattern similar computing mathematical model technique.

*Keywords***:** Vegetable farm, production planning, Nakhon Phanom Province.

Introduction

Agriculture is an important sector in the economy and represents a valuable source of income and employment (Filippi et al, 2012). Vegetable growing is an important sector of agriculture providing fresh vegetables throughout the year. It is important for survival of any business including vegetable growing, to have food security. For survival of any business, including vegetable plant, it is important to maximize profits (Szewzyx and Kaliczyriska , 2017). In Thailand agriculture contributes significantly to the Thai economy. The demand for vegetables has increased sharply in many parts of Asia including Thailand. Data on the production of main crops in Thailand show that there is an increased production of vegetables with a corresponding increase in planted areas (Chalermpol et al, 2014).

Many vegetable farmers used crop rotation techniques to make their cropping plans. The decisions for crop rotations have a critical impact on crop yields over the long term (You and Hsieh, 2017). It is a common problem in the optimization and allocation of production

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resources (Stamenkovaska et al, 2012). A simple criterion is often used in practice for crop selection in Thailand included past knowledge and experience, which results in large variations in productivity. Kumari and co-worker (2014) have said that using instinct and experience cannot guarantee maximum profits. The right crop selection for a specific field can maximize the crop yield and numerical simulation was a useful method to developing crop decision. Farm production planning is a complex process. A vegetable's harvestable periods may consist of several days or several weeks. Generally, the harvest schedule for proper vegetables' collection times and size is based on market demands. Since demands usually change evenly over time, farmers will harvest their corps several times to match supply with demands (You and Hsieh, 2017). Agricultural economics, which deals with scientific planning for agricultural development, has become an important area of specialization in agriculture.

Crop optimization has received extensive attention in recent years. It is a widely used approach to solve problems of production planning based on optimal resource allocation given the changing conditions that farms face. Mathematical models have been developed to determine the optimal use of the available resources for maximizing the net benefits subjected to some constraints. Various modelling techniques have been developed by concentrating on the most efficient use for the available resources. This method includes linear and nonlinear optimization models (Alabdulkader et al, 2012; Osama et al, 2017; Stamenkovaska et al, 2012).

Linear Programming (LP) is utilized by all sorts of firms in making decisions about establishment of new industries and in deciding upon different methods of production, distribution, marketing and policy decision making. LP model is perhaps the most important and best-studied optimization problem. LP technique is appropriate in optimization of resource allocation and achieving efficiency in production planning particularly in achieving increased agriculture production. Many real-world problems can be formulated as linear programming problems (Haouari and Azaiez, 2001; Sofi et al, 2015).

In this perspective, the aim of the paper is to develop and present an optimization model to support the decision-making by the vegetable farming group in Nam Kam district, That Phanom, Nakhon Phanom, Northeastern Thailand. A mathematical model has been formulated to achieve the ultimate objective of this study using the LP Model. This is reliable software used for solving optimization models (Alabdulkader et al, 2012). A web application for vegetable cultivation and planning has also been developed for easy access, which enables the farmers to utilize a valuable tool for future vegetable production.

Research Methodology

Problem description

Problem: the farmer's objective is to look for the optimal selection of vegetable crop. The model was formulated to find the optimal cropping pattern, which gives the maximum profitability according to the available area.

Basic notation and expected profit maximization model

Optimization is a commonly used approach to solve the problem of production planning. Linear programing (LP) is the most often used mathematical programing method, because of its simplified linear and normative nature (Stamenkovska et al, 2012). The model was set in MS Excel, using Excel Solver for calculation of optimal solution.

Let:

i be the vegetable type ($i = 1, 2,…, $ m),

s be the planting date or cropping time ($s = 1, 2, 3,…, n$),

t be cropping season or planting period (the period from planting to harvesting date) of vegetable i,

AC_i be the land preparation cost vegetable i,

SC_i be vegetable seed cost of vegetable i,

CC_i be the plant maintenance cost of vegetable i ,

HC_i be vegetable harvest cost of i,

P_{it} be price of vegetable i in the planting period t ,

Y_{it} be yield of vegetable i in the planting period t ,

L be the cultivation area for vegetable crop i as the land of farm limited. L $\leq$ 1 Rai,

F be the size of cultivate vegetable bed and

Q_{it} be amount of vegetable bed of vegetable i in planting period t.

The goal is to allocate the amount which maximizes a high level of profit (Maximize profit: Max Z).

The model for crop selection as follows:

Objective function

$$Max\ Z = M\sum_{i=1}^{M}\sum_{s=1}^{N}\sum_{t=1}^{O} P_{it}Q_{i(t+L_t-1)}Y_{it}$$
$$- \sum_{i=1}^{M}\sum_{s=1}^{N}\sum_{t=1}^{O} AC_iQ_{it} - \sum_{i=1}^{M}\sum_{s=1}^{N}\sum_{t=1}^{O} SC_iQ_{it} - \sum_{i=1}^{M}\sum_{s=1}^{N}\sum_{t=1}^{O} CC_iQ_{it} - \sum_{i=1}^{M}\sum_{s=1}^{N}\sum_{t=1}^{O} HC_iQ_{it} \qquad (1)$$

The objective function (1) maximizes the sum of net profits of all the selected crops. The net profit for each crop is measured as the difference between the expected revenue and the sum of cost related to the operations required to cultivate the crop. Value of revenue depends on the unit price (P) and yield per bed (Y) and amount of vegetable bed of vegetable i in planting period t (obtained by multiplying P_{it} by Y_{it} and Q_{it}).

Constraints

The optimization method must be fulfilling some constraints. In this method, we use vegetable bed constraint. The total vegetable bed must be less than or equal to the total available vegetable bed. So vegetable bed can be declared as in equation (2). In the non-negative constraint, the decision variable must be greater than or equal to zero, as shown in equation (3).

$$\sum_{i=1}^{M} \sum_{t^*=t-L_i}^{t} Q_{it^*} \leq F \quad ; \forall_t \tag{2}$$

$$Q_{it} \geq 0 \quad ; \forall_{it} \tag{3}$$

A Real Case Study

The stated model is applied to the real case of 30 vegetable farmers in Nam Kam district, That Phanom, Nakhon Phanom, Thailand.

To achieve the objective function, a methodological approach in three phases was employed. In the first phase, the study production processes, cost of production, yield market price response factors were obtained from literature (Nam kam District of Agricaltural Extension Office, a five-year period commencing 2014 to 2018). Primary data was collected by interviewing the farmers during January and March 2018 (see Figs. 1 and 2, and Table 1 and Table 2).

Table 1. Type of vegetable and planting period in Nam Kam district, That Phanom, Nakhon Phanom, Thailand

Type	Spring onion	Chinese kale	Morning glory	Chinese cabbage	Cabbage	Lettuce (salad)	Coriander	Tomato	Dill
Planting period (week)	6	7	3	5	6	6	6	12	7

Table 2. Cost of vegetable production of farmers in Nam Kam district, That Phanom, Nakhon Phanom, Thailand

Vegetable	Total variable cost ($US / 1 Rai)	Total fixed cost ($US / 1 Rai)	Total cost ($US / 1 Rai)
Spring onion	817.91	58.44	876.35
Chinese kale	730.16	58.44	788.6
Morning glory	586.58	58.44	645.02
Chinese cabbage	731.65	58.44	790.09
Cabbage	600.64	58.44	659.08
Lettuce (salad)	705.3	58.44	763.74
Coriander	721.01	58.44	779.45
Tomato	727.56	58.44	786
Celery	700.14	58.44	758.58
Dill	997.11	58.44	1055.55

Note: 1 Rai = 0.6 hectare, 1 $US = 31.66 THB

The most frequent types of vegetables are spring onion, Chinese kale, morning glory, Chinese cabbage, cabbage, lettuce (salad), coriander, tomato, celery, and dill. Fig. 1 provides the yield response factor for the different growing states of each of the crops in $US per Kilogram (Kg).
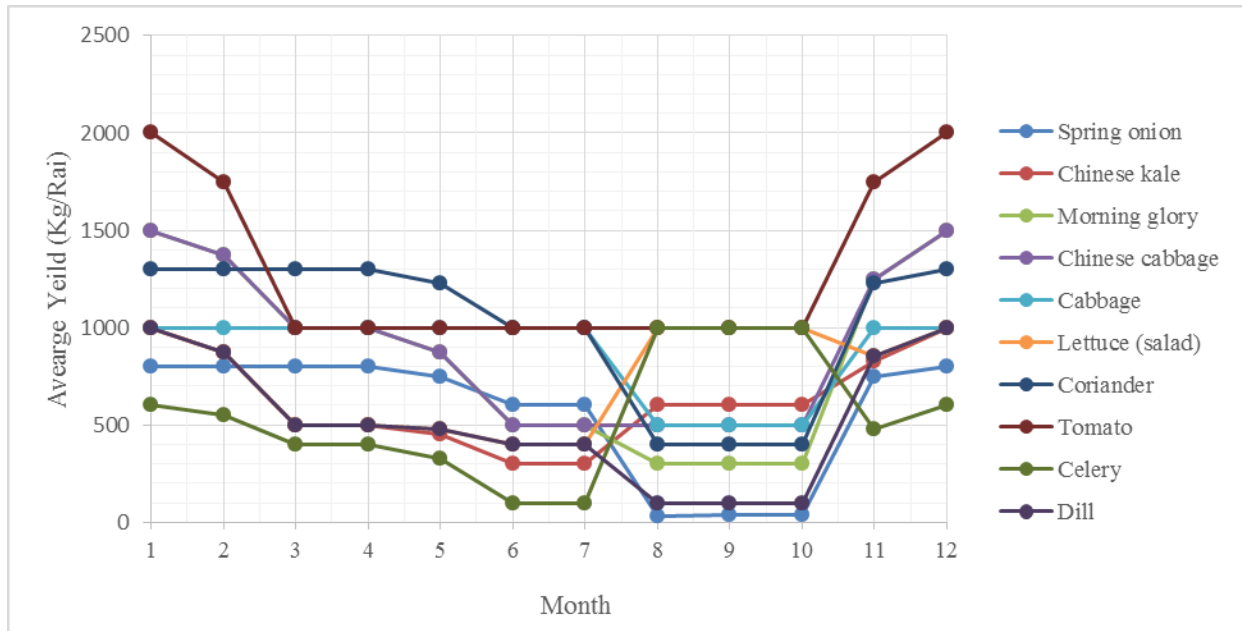

Fig. 1. Average yield of 10 vegetables during 12 months

Fig. 2 shows the market price for the different crops. Table 1 contains the planting period (planting date to the harvesting date) unit in the week. Table 2 provides the cost of production for each of the crops.
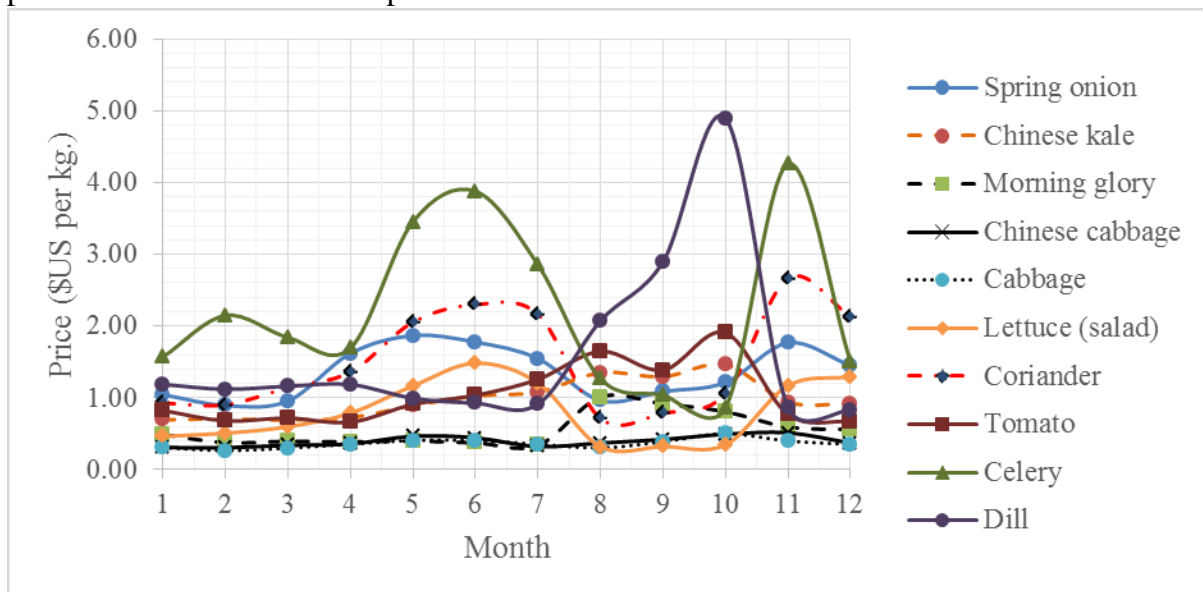

Fig. 2. Average price of 10 vegetables during 12 months.

Moreover, to determine the factor affecting to farmer decision making was conducted by use of the questionnaire. From this study, profit, market demand and production costs were the main factor affecting to farmer's decision to grow vegetables.

In the second phase, the mathematical sector model was formulated to achieve the ultimate objective of this study using the Solver function on Microsoft Excel.

Finally, in the last phase, there was a web application for vegetable plan. Cultivation planning has been developed for easy access by System Development Life Cycle. Validation of the developed web application comparing profits, planting and harvesting plans was derived from mathematical figure using the Solver function on Microsoft Excel.

Research Results

In this paper, 520 variables were computed for optimizing vegetable crop planning by Solver the objective function on Microsoft Excel. An average yield of each crop is divided by 12 months. The growing results and cost of ten different types of vegetables over an annual (52 weeks) were determined at a cost of 1 Rai (0.6 hectare). The optimal selection of crops and operations timing are done to guarantee the best expected profit (revenue minus costs). The result shows that optimal production was achieved from two crops, celery and coriander crops (see Fig. 3).

From Table 3, the cultivate plan of celery and coriander crop based on the mathematic model is as follows: to grow coriander in the first week and harvest in week 8, to grow celery in weeks 9, 20, 31 and 42 and harvest in weeks 19, 30, 41 and 52, respectively.

Table 3. Computational results for plantation schedule under optimization method.

Vegetable	Week		Size of cultivate (Rai)
	Planting	Harvesting	
coriander	0	8	1
celery	9	19	1
	20	30	1
	31	41	1
	42	52	1

The profit between one crop and mixed crops. In this paper, we compared the profit between one crop plantation and vegetable plan using this mathematic model (Coriander and Celery). Table 4 shows the results, when we increase the number of crop the total profit are also increased. The profit from crops using the mathematic model is greater than one crop production. Based on this mathematical model, a total farm profit of 10,327.36 $US.

Table 4. Computational results of profit comparison between one crop production and   profit
crop based on mathematical model

No	One crop production	Profit per year ($US)	Profit from crop based on mathematic model ($US)	Difference ($US)	Different percent (%)
1	spring onion	4,768.39		5,568.95	117
2	Chinese kale	1,503.53		8,833.80	588
3	morning glory	3,433.84		6,903.50	201
4	Chinese cabbage	1,227.96		9,109.38	742
5	cabbage	1,218.01	10,337.04	9,119.33	749
6	lettuce (salad)	2,026.29		7,301.05	240
7	coriander	9,207.41		1,129.93	12
8	tomato	2,840.64		7,496.69	264
9	celery	5,712.12		4,625.22	81
10	dill	577.97		9,759.37	1689
Average		**3,352.62**	**10,337.04**	**6,984.72**	**208**

Note: 1 $US = 31.66 THB, crop based on mathematical model are coriander and celery (time period
of plantation see Table 3)

A web application for crop planning. A web application for vegetable cultivation
planning has been developed for easy access to farmers. Fig. 3 shows the results of
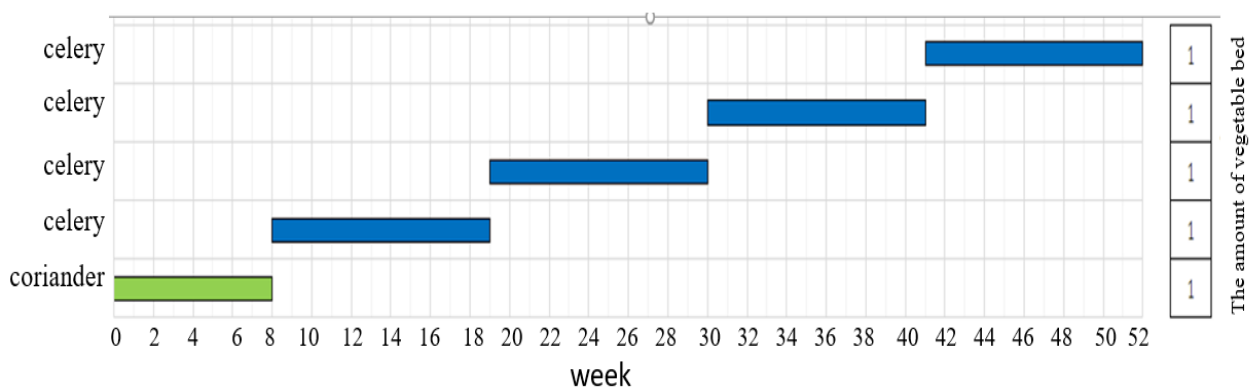cultivation planning by application developed by System Development Life Cycle.

Fig. 3. An application results for optimal vegetable crop and planting periods under
optimization method

Table 5 showed the comparison of performance between a web application and a mathematical model was conducted to help solve crop planting.

The seven problems solving are follows:
1) Spring onion, Chinese kale and morning glory, planting period during January to December.
2) Chinese cabbage, cabbage, lettuce, planting period from January to December.
3) Spring onion, Chinese kale and morning glory, planting period during January to December.
4) Tomato, celery, dill , planting period from January to December
5) All of ten crop, planting periods from January to April.
6) All of ten crop, planting periods from May to August.
7) All of ten crop, planting periods from September to December.

The results show that the application performance did not differ from the mathematical model solving (see Table 5, mistake = 0)

Table 5. Comparison between mathematical model and an application problem solving on web site

| The problem solve | Calculation results (profit) | | Mistake |
	Mathematical model	An application on web site	
1	177,707	177,707	0
2	96,890	96,890	0
3	327,219	327,219	0
4	195,037	195,037	0
5	69,628	69,628	0
6	65,742	65,742	0
7	136,454	136,454	0

Note: 1 $US = 31.66 THB

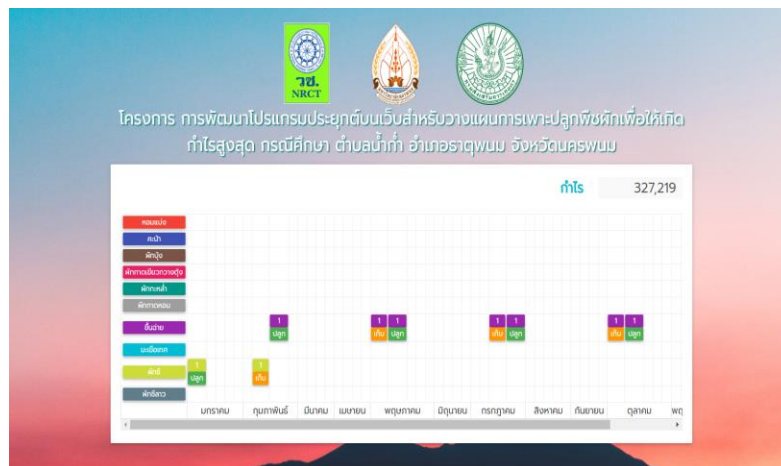The application on web site show in Fig. 4 (in Thai language).
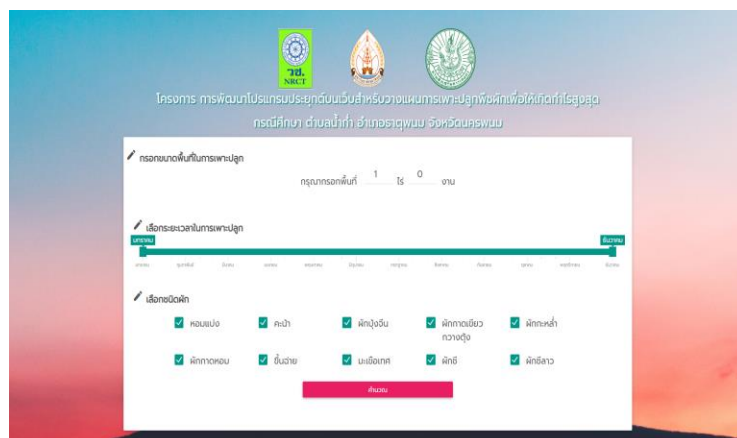
Fig. 4. The example of a web application for vegetable planning (in Thai language), http://ie-advisor.com/vplaning.

Conclusion

To conclude, the aim of this study was to devise mathematical model to optimize vegetable crop by using login 16 program, and to create an application for optimizing a cropping pattern. The small examples based on the historical data base is on real case study. The modelling is aimed only to maximize the total profit. An application on web site in the present work could support the farmer's decision making on vegetable planning. The program will continue to be monitored and adjustments will be made to ensure successful vegetable cropping in the future.

Acknowledgement

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Public Opinion Survey on the Government's Economic Policy of the NCPO*

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Abstract

This research gathers the public opinion on the economic policy of the government's past operations (the NCPO) for research analysis, which uses qualitative research, group discussions, and interviews with individuals and business sector entrepreneurs. The research instrument is carefully scrutinized, and the credibility is strengthened by triangulated observations of the environment and the reactions of the people interviewed. The research identifies a significant influence of government policy implementation on the opinions of people and entrepreneurs, which also affect the production potential and economic growth in the future. To effectively use the results of this study for policy recommendation, four Thai-economy supportive factors are to be stressed: (1) government capital factors have a positive effect on long-term economic growth; therefore there is a need to increase investment in large projects; (2) should promote the network of enterprises to be strong in order to create exchange of knowledge within the entrepreneurs group of agriculture and services, and (3) Investment promotion policies that are beneficial to production development attracting foreign investment with high technology to increase production and, (4) have information systems for production and clear indicators to improve the productivity of Thailand effectively.

Keywords: Public opinion; government's economic; policy.

Introduction

Since the coup in Thailand on 22 May 2014, the government under the leadership of General Prayut Chan-ocha, Prime Minister and the leader of the National Peacekeeping Council or the NCPO, took control of the situation. Conflict between political groups is one of the most important problems that affect the lives of people in Thai society and economic activities in the country. Political conflicts that occur, such as the debate within the parliamentary system of democracy or inconsistency between the various political groups, lead ultimately to political gatherings. It may spread as a measure of the suppression of official leading to unrest and political violence. Conflicts are issues that affect the general public and receive attention from public media both inside and outside the country. Seen from various news reports newspapers, radio and television, it reflects the severity of the

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problem in each period, causing changes such as changing the direction of the government's public policy, cabinet adjustments, government changes, dissolution of the coup, etc.

The problem of political instability is an issue that has received academic attention. Study abroad has shown the negative impact of political instability on the country's long-term economic growth, both theoretically (such as Darby et al., 2004; Svensson, 1998) and empirically (Alesina et al., 1996; Barro, 1991; Fosu, 2001), manifested, for instance, in the reduction of the efficiency of policy formulation laws and enforcement, and in reducing the motivation of investment, in particular, the effective long-term projects.

Therefore, political conflicts are one of the institutional factors. To study the political turmoil's long-term economic growth potential, most of these studies were conducted in the manner of analysis by using information of many areas, giving importance to developing countries. Conflict Has reflected through the political crisis, such as government changes and the coup, etc. The research later focuses on measuring uncertainty levels of economic policy, which has a connection dimension with political uncertainty and the divide of political groups by giving more importance to Impacts that occur in developed countries as well.

The analysis focuses on the uncertainty of economic policy, which results in macroeconomic variables such as investment and consumption. The financial markets in this manner must use information showing risk changes and political conflict to explain short-term changes. The study of economic impacts caused by political conflicts can rely on analyzing the data capturing the major causes, such as the political conflicts that affect the uncertainty of the economy as a warning signal for the public to watch, and beware of problems and losses that may arise from future political conflicts as well.

Research Objective

To gather information on public opinion on economic policy and satisfaction with past operations of the NCPO government to be used as a reflection to the government to acknowledge and continue to solve the problems of the country.

Concepts and Theories Used

The definition of the word "comment" has been presented and debated by many scholars, which can be divided into 6 groups, consisting of

The first group considers the opinion caused by learning, not something that has inherited, through both direct and indirect experiences (Arun Ruk Tham, 1997).

The second group views the opinions as evaluations through personal values, which depends on how the person has knowledge or belief in the matter, that will lead to a positive or negative feeling of that person (Gibson, 2000; Prapa Pensuwan, 1994; Sanguan Sutthireerarun, 1979).

The third group sees the opinions having different qualities and concentrations in different forms and levels. That is, comments occur both positively and negatively, and the concentration is both very small and different (Thurston, 1946).

The fourth group considers that comments are permanent things that have happened, and it will be difficult to change (Sak Thai Surakit Bowon, 2002).

The fifth comments are tied to one thing or another. No comments that occurred floating (Sopa Chu Phikun Chai, 1979; Phong Real, 1997; Newstrom and Devis, 2002) and

The last group considers the comments showing the relationship between one person and an object, or one situation (Paphawadee Dulyachinda, 1997).

This research examines the opinions of three elements, namely perception, feeling and behavior tendency, but the elements of the opinions of the researcher were selected under the topic. The public opinion of the NCPO's government's economic policy is limited only to awareness and feelings. Based on the theoretical concept that the researcher has used, as a basis for thinking and explaining the opinions of the public on the economic policies of the NCPO government's past operations, political conflicts and division of divisions have continued academic studies, especially in the study of political economics.

By emphasizing the role of political stability on the country's economic development, the theoretical study of Darby et al. (2004) extends the endogenous growth model concept by adding the role of political divide, which causes political uncertainty and changes in the government affecting the reduction Government investment incentives that promote long-term economic growth.

By making public spending focus on consumption expenditure that results in short-term results, it negatively affects the country's economic growth rate in the long term. These theoretical concepts are supported by the empirical studies, most of which focus on problems that arise in developing countries that are experiencing instability and uncertainty in high level politics, by the first study which gives importance to political stability factors that affect the economic growth of the country, other than factors from other economic theories.

Related Research

The survey of public opinion on the government's policy of the NCPO is mostly in the form of surveys, conducted from time to time. In each issue from the Bangkok Poll, Bangkok University Research Center, together with the Faculty of Economics, conducted a survey of economists from leading organizations on the economic performance evaluation of the Government of Prayut (6 months).

Government overview should be adjusted by the cabinet because it is found that the Minister is lacking of real expertise, coupled with, somewhat restricted framework working as a government official, a lack of new ideas. Professionalism should be promoted. In addition, the delayed operation of the jobs is another concern. There is a small part that should not be adjusted by reasoning that (1) for continuity in implementing policies /

projects, and that (2) the government has less working time on the announced roadmap and therefore should not have to change the cabinet.

Phongsak Leungaram, Faculty of Economics, Chulalongkorn University, Yuttana Sethapramote University Faculty of Economic Development, The National Institute of Development Administration have, together, studied the economic costs of political uncertainty in Thailand. The study focuses on the economic impact of the political uncertainty in Thailand. The two objectives are, one to create a measure of political uncertainty in Thailand that may help reflect the political conflict and can be used to monitor the political risks in a timely manner and second, in order to evaluate the impact on important macroeconomic variables through the econometric model. Guidelines for measuring political uncertainty by searching for key words from news articles in newspapers, which are classified into 5 areas:

(1) Conflicts expressed through protest demonstrations
(2) Disarming measures
(3) Revolution
(4) Dissolution of parliament or election
(5) Constitutional amendment or political reform.

The overall study found that the political uncertainty index in each area can reflect political milestones well and show the trend of rising uncertainty over the period of about 20 years since the year 1997-2016. Moreover, the source of uncertainty in politics has changed significantly, especially in the last 10 years, with the political uncertainty associated with political reform being the main factor of the current Thai political uncertainty.

Considering the impact on the macro economy, the increasing political uncertainty has negatively affected both the short-term economy, especially in private investments, and towards long-term growth potential.

Research Methodology

Data were collected and analyzed based on qualitative research principles, which interviews the stakeholders in the field, performs field-observation, and reviews the relevant documents, academic articles, news, theses, journals, and research information available. Informants are both drawn from the public and entrepreneurs. Discussions have both informal and formal formats. The researchers also make use of field-notes taking of what were observed and reflected upon. Observation, which involves observing the environment and the reactions of the people being interviewed, is non-participatory.

The interview questions were carefully scrutinized by three experts, in checking the tools, the results of the interview, and in ensuring the meaning of media covering research objectives is appropriate.

Data are analyzed qualitatively from the interviewed scripts, and were synthesized also with the observations and the guided theory.

Discussion and Conclusion

The results are summarized as follows:

Thailand's political uncertainty is likely to increase in the horizons, combined with the movement from the assembly calling for the dissolution of the parliament, by the Democratic Alliance Against National Dictatorship or the UDD group until leading to the dissolution of the assembly.

The clash between the authorities and the protesters caused many injuries and deaths, not until the leader of the UDD announced the end of the rally in the reign of Yingluck Shinawatra. It has emerged to put pressure on the Prime Minister to resign and conducted a closing ceremony in the heart of Bangkok in early 2014. The rally was triggered by a general coup through Prayut Chan-ocha, with the news events outside the parliamentary system (Articles with the words related protest Emergency declaration or martial law and the coup d'état) and two aspects related to events in the parliamentary system (Articles that are related to elections and political reform)

The relationship was great during the years 2006-2014, which before 2006, the relationship was not clear. While after the coup of the National Peacekeeping Council (NCPO) in 2014, it was found that the relationship of external uncertainties outside the council and within the council ran in a direction that was opposite, which see that uncertainty in the events related to the protest have decreased the most. Nevertheless, the uncertainty in the election and political reforms remains high in the overall picture.

Interview with Assoc. Prof. Dr. Nuan Noi Trirat, Director of the Asian Studies Institute and a lecturer at the Faculty of Economics Chulalongkorn University mentioned 4 years of Thai economy in the hands of the NCPO government. The NCPO government's economic development model in the past, the Thai economy is still slow, sluggish, and still has a condition that has no clear guidelines. During the past period, he took up the position. The Thai economy grows only 2-3 percent per year. It is considered a very small number, as the country's potential can actually grow more. Nonetheless, it has changed both from the global economy. The state must accelerate to keep pace with the 4.0 era. There should be infrastructure investment. The rail system reduces congestion and reduces travel costs.

The government has a duty to invested on good infrastructure, to enact laws and regulations such as on rules to drive the business, especially small and medium-sized businesses. Most of the government of the NCPO has not performed well as it should be. Conducive but big capital, and non-competition money will not spread to the people below. There is also lacking of infrastructure in the database system, both public information statistics, in facilitating the creation of social welfare policies. By identifying the profiles of the poor and the needed, it is expected that the government can be more effective in helping the societies. Nevertheless, it is yet to be evidentially seen on the poor really being benefited as of today.

Based on the study of the economic impact of political uncertainty in Thailand, the research of Phongsak Leungaram, Faculty of Economics, Chulalongkorn University and Yuttana Sethapramote Faculty of Economic Development of the National Institute of

Development Administration (NIDA) found that consumption of durable goods and consumption of non-durable goods declined as the eruption in political uncertainty.

Besides, the size of the adjustment of consumption of durable goods is more severe than non-durable goods. Durable goods and non-durable goods have decreased -1.3 percent and -0.4 percent respectively. Although the size was not high, it has a clear statistical significance.

When considering the response results based on political uncertainty, the calculated results of various types of consumption responses such as on the separate political uncertainty index, it is found that consumption of durable goods has a high level of response to the increase in uncertainty. In every aspect of politics, the aspect that affects the consumption of durable goods has decreased the most, i.e., political reform decreased by -1.3 percent. The election fell by -1.2 percent and the conflict rally decreased by -1.0 percent. Respectively, while the effect on consumption of durable goods has a lower response size in the case of durable goods, but still has clarity, especially when compared to total private consumption.

By the result of uncertainty in the city in terms of conflict assembly and the declaration of forgiveness for war is the side that has the size of the adjustment of consumption of non-durable goods decreasing the most. From the study of the government's economic policy implementation, the NCPO impacts production and economic growth in the future. To use the study results as an element, suggestions should have a policy of factors that support the Thai economy, namely of the following:

(1) Government capital factors have a positive effect on the growth of the long-term economy. Therefore, there is a need to increase investment in large projects, as it will cause capital accumulation in the economic system to support future expansion;

(2) Should promote the network of enterprises to be strong and to create exchange of knowledge within the entrepreneur group by creating an industrial cluster, and to encourage participation in group activities together;

(3) Improve laws and regulations to facilitate the industrial business, agriculture and services; and

(4) Investment promotion policies that are beneficial to production development and in attracting foreign investment with high technology

(5) To increase production and have information systems for production and pointers, with clear measurement to be able to be used to determine the direction of planning in order to develop the productivity of Thailand effectively.

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The Best Practice Drawn From the Cannabis Taxation Lessons in California, USA

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Abstract

In 2018, the state of California and Massachusetts, and Maine USA announced the legalized use of marijuana for "entertainment". It is the seventh state in the United States to allow the recreational use of marijuana, while 29 other states allow the use of marijuana for medical purposes. The latest research from Gallup reveals that in 2017, over 64% of the US adult population advocated the legalization of Cannabis. By seeing that there is more benefit than harm, over 57% of the voters in California support the legalization of recreational cannabis. The objective of this study is to identify the lessons drawn of the taxation on marijuana in the United States.

The results of the research are as follows: The legal cannabis industry will generate more than $ 40 billion in revenues and create more than 400,000 jobs in the United States by 2021. The government will tax $ 4 billion in three years. Worth not less than 15 billion US dollars (approximately 480,000 billion baht), however. Although local law recognizes the status of the sales and use of cannabis in state-run areas, national laws still classify Cannabis as a Schedule 1 Narcotic, which prohibits the planting, possession, and trading. Therefore, the California cannabis business faces two major problems in the cannabis industry: Some banks have not yet endorsed marijuana-related transactions, because they want to avoid money laundering charges. This has caused a large number of unverified money migration problems. Besides, local authorities under the State have different policies.

Keywords: Best practice, cannabis taxation, California.

Introduction

The estimated origin of early cannabis derives from the ancient Central Asia, where the temperature and environment were temperate and moist. Indigenous people began utilizing oil from the cannabis plant for cooking, fuel, medicine, and soap. The stalks provided long, strong, and durable fibers used to weave twine ropes and baskets, useful for many purposes. Psychoactive effects are thought to have been encountered shortly after the discovery of the multipurpose plant, leading to its use in ritual ceremonies and traditions.

Main article: Cannabis in California July 1975: Senate Bill 95 reduced the penalty for possession of 1 oz (28 g) or less of cannabis to a citable misdemeanor. Budman (1977) November 1996: first state to legalize medical marijuana when Proposition 215 passed by 56%. Kaye, Jeffrey (1996). November 2016: Proposition 64 passed by 57% to 43%, legalizing sale and distribution, effective January 1, 2018.
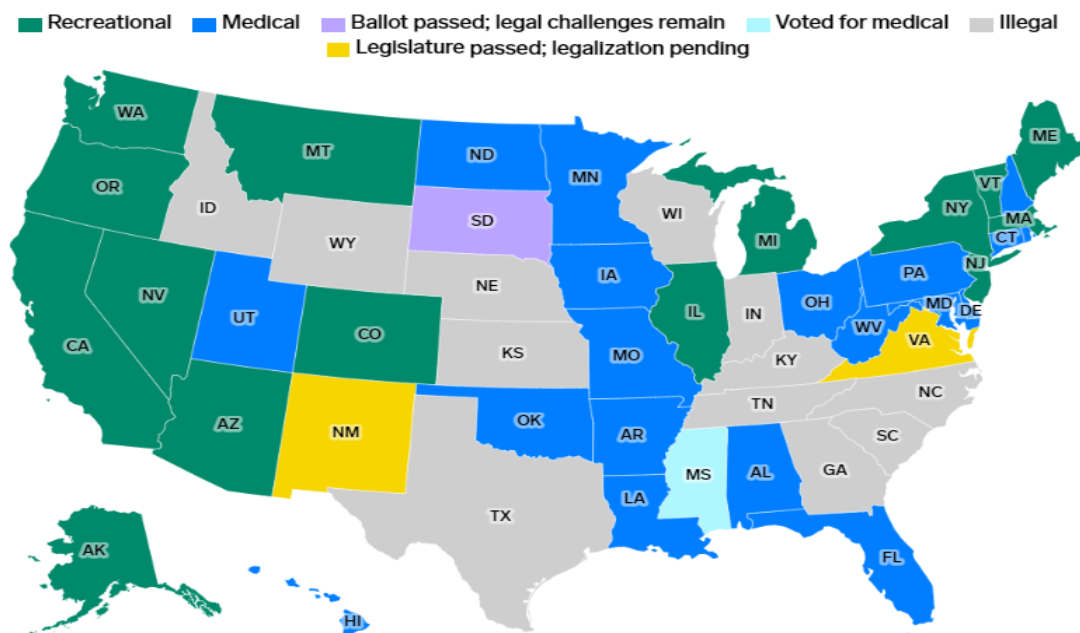
Fig. 1. All the states where cannabis is legal (Source: https://www.businessinsider.com/legal-marijuana-states-2018-1#alaska-1)

The cannabis-related business (cannabis) is growing and gaining a lot of attention in the United States, while many companies are listed on the stock exchange, making it an attractive stock for investors. with excellent performance. This makes it likely that many cannabis-related businesses will grow more this year. The Motley Full reports that three companies involved in the US cannabis industry have benefited from the booming cannabis trend. Starting with Cresco Labs, the largest cannabis-related product wholesaler in the US takes a 60% market share in the United States. It distributes cannabis-derived products from brands such as Remedi, hemp extract, tinctures, capsules, and RSO (Rick Simpson oil) to "min Mindy's, a cannabis-containing snack and food brand This includes products for smoking cannabis such as "Vape Pens" to cannabis strains selected by the country's top growers.

Business Wire reported that Cresco Labs' Q3/2020 revenue was $153.3 million ($4.6 billion), an increase of $59 million, or 63% from the previous quarter, the third consecutive quarter of revenue growth. grow more than 40% (https://www.businesswire.com /news/home/20201013005414/en/Cresco-Labs-to-Report-Third-Quarter-2020-Financial-Results-on-November-18th-2020).

The California Department of Tax and Fee Administration (CDTFA) is a government agency in the United States responsible for taxing marijuana and issuing licenses for distributors. In California, cannabis businesses must be registered with CDTFA for a seller's

license. and file sales and use tax returns regularly. The interest page has all the steps listed in Adjusting California's Cannabis taxes.

Report Required by Proposition 64. Proposition 64 established two state excise taxes on cannabis. The first is a 15 percent retail excise tax, effectively a wholesale tax under current law. The second is a tax based on the weight of harvested plants, often called a cultivation tax. The measure authorizes the Legislature to amend its tax provisions without voter approval, but the scope of this authorization is unclear.

In November 2016, California voters approved Proposition 64, which legalized the nonmedical use of cannabis (typically called recreational or adult-use) and created a structure for regulating and taxing it. Proposition 64 also directed to submit a report to the Legislature by January 1, 2020, with recommendations for adjustments to the state's tax rate on cannabis to achieve three goals: undercutting illicit market prices, ensuring sufficient revenues are generated to fund the types of programs designated in the measure, and discouraging use by persons younger than 21 years of age. This report responds to that requirement, which includes:

(1) background information on cannabis and its legalization in California,
(2) a discussion of the effects of adjusting the tax rate,
(3) an assessment of other potential changes to California's cannabis
    tax structure, and
(4) recommendations for the Legislature.

Cannabis Legalization in California Under the Federal Law: The U.S. Department of Justice (US DOJ) does not prosecute most cannabis users and businesses that follow state and local cannabis laws if those laws are consistent with US DOJ priorities, such as preventing cannabis from being exported to other states. Despite federal law, California and many other states have taken steps to legalize and regulate cannabis in the past few decades. However, these states have not been able to include exported cannabis in these efforts due to federal prohibitions. In California, exports likely account for a large share of California-grown cannabis—roughly 80 percent by some recent estimates.
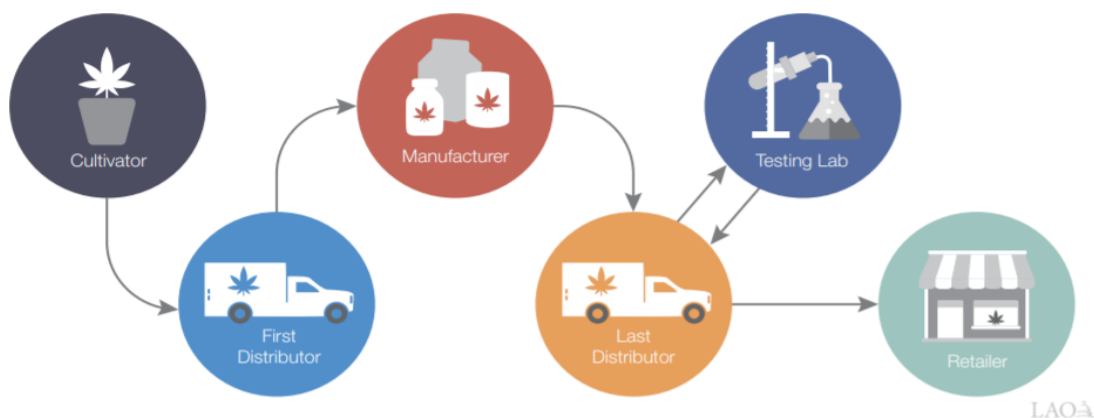

Fig. 2. The cannabis supply chain in California
(Source: https://lao.ca.gov/reports/2019/4125/cannabis-taxes-121719.pdf)

Sales Taxes on Cannabis

Sales Taxes Apply to Tangible Goods, Including Cannabis: California's state and local governments levy a sales and use tax (commonly known as a sales tax) on retail sales of tangible goods. The rate varies across the state, ranging from 7.25 percent to 10.5 percent, with a statewide average of 8.6 percent. Cannabis products are tangible goods, so their retail sales generally is subject to this tax.

Legislative Analyst's Office Definition of Cannabis Taxes does not include sales tax. Two reasons for not including the sales tax, as follows: First, as discussed in the 2018 report, Taxation of Sugary Drinks, changes in excise tax rates, such as cannabis tax rates, primarily affect the price of one specific type of good relative to the prices of other items that consumers buy. The sales tax applies to a wide range of goods, so it does not have this property. Second, as described above, Proposition 64 (2016) requires that state cannabis tax revenues be allocated to purpose specified by the measure. In contrast, sales tax revenue goes to the state's General Fund and local programs, regardless of whether that revenue comes from cannabis sales or sales of other goods.

The United States is an interesting model for teaching cannabis taxation lessons: To study how the management of the public sector should be carried out appropriately and will generate large sums of money returned to the local and government for use in the administration of the country.

Research Objective

To study by taking lessons from taxation in the cannabis business in California. United States.

Research Methodology

This study used a research model to obtain information from papers, works published in the form of articles, research report Tax Guide California as well as websites that include information related to the cannabis business. Analyze and present the results by summarizing the content and in descriptive presentation.

The Best Result of the Transcript

Economic Impact of Cannabis in San Diego County indicates that the cannabis industry has gone through many series of events that have brought it to the billion-dollar industry it is today. Since its move from the illicit market, to the legalization of medicinal cannabis in 1996, and continued positive shifts of perceptions of cannabis, there has been exponential growth in the industry. The Office of Business Research and Analysis (OBRA) has analyzed the general impact of the cannabis industry in San Diego County. Throughout this research, OBRA sought to find how adult-use and medicinal cannabis sales increases in

revenue and influence the community regarding finances, police enforcement, cannabis license types, public health, and social equity.

The cannabis industry yields a considerable amount of revenue to municipalities from cannabis city taxes. Data from the public records requests from the cities of San Diego, La Mesa, and Vista illustrate the amount of money by quarter that each city has brought in since they legalized medicinal cannabis and or adult-use cannabis. In 2019, medicinal cannabis taxation brought in over $1M to the city of Vista. In 2019, adult-use cannabis taxation yielded over $12M to the city of San Diego and $183K to the city of La Mesa. As additional dispensaries are added, revenue numbers are expected to grow exponentially.

Cannabis business license holders in San Diego County completed a survey arranged by OBRA, that was used to analyze the industry's demographics of those who hold cannabis licenses in the San Diego County region. The survey indicated that 68% of cannabis business license holders were White, 14% Hispanic, 7% African-American, 3% Middle Eastern, 4% American-Indian, and 4% Asian. Additionally, 87% of cannabis business license holder participants were male and 13% were female. Their surveys indicates that racial diversity within the cannabis industry remains an issue. It is advisable for jurisdictions in the County to look into other cities that have successfully implemented social equity programs to increase the diversity in potential cannabis license holders. Establishing a social equity program in San Diego County could result in more racial diversity and equity among cannabis license holders.

As more new entrants emerge, the cannabis industry will continue to increase in size as long as regulations allow for it. This will result in more revenue brought in by cannabis taxation.

Ten U.S. states, Canada, and Uruguay have passed laws to legalize the production and sale of cannabis for non-medical purposes. Available research has documented rapidly falling prices and changing product mixes, but many details are not well understood: particularly, the popularity, prices, and product characteristics of different cannabis edibles and extract-based products – each offering different ways to consume cannabis, with unclear health consequences (Steven, 2019).

A LAO estimate of the average cumulative tax rate, including taxes on cultivation, manufacturing, distribution, testing, and retail: California's Cannabis Taxes Tax State retail excise tax Ad valorem tax primarily on wholesale sales Nominally 15 percent of the retail price.

In practice:
- For most sales, administratively determined percentage of the wholesale price (currently 27 percent)
- For some sales, 15 percent of retail price State cultivation tax Weight-based tax on harvested cannabis • $9.65 per ounce of dried cannabis flowers
- $2.87 per ounce of dried cannabis leaves
- $1.35 per ounce of the fresh cannabis plant

- Local taxes Varies; most commonly ad valorem or based on square footage Varies—on average, roughly equivalent to 14 percent tax on retail sales

Table 1. California's cannabis taxes

California's Cannabis Taxes

Tax	Type	Rate on January 1, 2020
State retail excise tax	Ad valorem tax primarily on wholesale sales	Nominally 15 percent of retail price. In practice: • For most sales, administratively determined percentage of wholesale price (currently 27 percent) • For some sales, 15 percent of retail price
State cultivation tax	Weight-based tax on harvested cannabis	• $9.65 per ounce of dried cannabis flowers • $2.87 per ounce of dried cannabis leaves • $1.35 per ounce of fresh cannabis plant
Local taxes	Varies; most commonly ad valorem or based on square footage	Varies—on average, roughly equivalent to a 14 percent tax on retail sales[a]

[a] LAO estimate of the average cumulative tax rate, including taxes on cultivation, manufacturing, distribution, testing, and retail.

Source: Gabriel Petek Legislative Analyst (2019)

Retail Excise Tax. Retailers generally must pay the retail excise tax to final distributors when they make wholesale purchases. These distributors then remit the retail excise taxes to CDTFA. Retailers must make these payments before they sell the products to consumers, so the tax is based directly on the wholesale price (the price that retailers pay to distributors) rather than the retail price (the price that consumers pay to retailers). Pursuant to Chapter 27, CDTFA sets the tax based on its estimate of the average ratio of retail prices to wholesale prices—commonly known as a "markup." CDTFA's current markup estimate (as of January 1, 2020) is 80 percent. Due to the 15 percent statutory tax rate and the 80 percent markup estimate, the current effective tax rate on wholesale gross receipts is 27 percent (15 percent x [100 percent + 80 percent]).
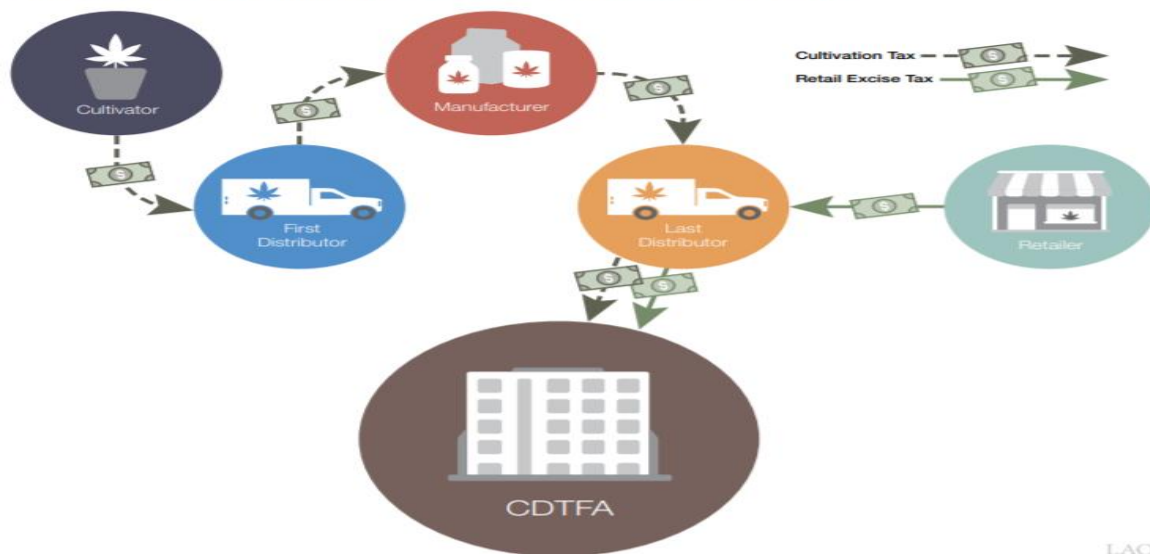
Cannabis Tax Collection for a Simple Manufactured Product

Fig. 3 All processes in the cannabis business are taxable (Source: Gabriel Petek Legislative Analyst, 2019)

Table 3 outlines the number of businesses, city tax revenue, estimated gross taxable sales, and the general economic impact of individual cannabis businesses for each quarter, since the second quarter of 2018, for the City of La Mesa.

Table 3. la Mesa estimated local cannabis market value by quater

Adult - Use Cannabis Estimated Market Value by Quarter in La Mesa				
Tax Period (Quarter)	Number of Businesses	Tax Revenue	Gross Sales	Impact per Business
2nd Q 2018 (Apr-Jun)	0	-	-	-
3rd Q 2018 (July-Sep)	0	-	-	-
4th Q 2018 (Oct-Dec)	1	-	-	-
1st Q 2019 (Jan-Mar)	1	$49,415	$1,235,367	$1,235,367
2nd Q 2019 (Apr-Jun)	1	-	-	-
3rd Q 2019 (July-Sep)	1	$29,815	$745,384	$745,384
4th Q 2019 (Oct-Dec)	3	$104,438	$2,610,959	$870,320
1st Q 2020 (Jan-Mar)	3	$142,663	$3,566,576	$1,188,859
2nd Q 2020 (Apr-Jun)	3	$263,860	$6,596,505	$2,198,835

Source: Information retrieved via City of La Mesa public records request on August 12, 2020.

Source: Information retrieved via City of San Diego public records requests on August 12, 2020 and November 2, 2020.

The estimated gross taxable sales were derived by applying a 4% tax rate to city revenue. The revenue figures for La Mesa in the second quarter of 2019 are not available; the City of La Mesa finance department maintains that there are "no responsive records for this period (Piper, personal communication, November 2, 2020)." The City of La Mesa further

explained that "an omission in the La Mesa Municipal code from the original tax measure was discovered and corrected at the end of quarter 2. No taxes were collected during that quarter until the correction was made (R.C., Piper, personal communication, November 16, 2020)." It can be seen that the trend of tax collection is increasing every year. This could mean that the business is growing.

TYPES OF CANNABIS TAXES TO CONSIDER

- Basic Ad Valorem Tax. Under a basic ad valorem tax, the amount of tax due is a percentage of the price. The sales tax and California's current retail excise tax on cannabis are examples of ad valorem taxes.
- Weight-Based Tax. Under a weight-based tax, the amount of tax due is based directly
- on the weight of the product. The rates can vary depending on the part of the plant (for
- example, flower or leaves) or its condition (for example, dried or fresh). California's current
- cultivation tax is an example of a weight-based tax.
- Potency-Based Tax. Under a potency-based tax, the amount of tax due depends only on the potency of the cannabis product. For example, Canada's cannabis tax system includes a rate of $0.01 Canadian (roughly three-quarters of a cent of the U.S.) per milligram of tetrahydrocannabinol (THC) in certain types of cannabis products. Hereafter, we use "potency-based" primarily to refer to this simple THC-based structure. However, potency-based taxes could take a variety of forms—for example, incorporating other cannabinoids in addition to THC.
- Tiered Ad Valorem Tax. A tiered ad valorem tax is similar to the basic ad valorem tax, but with multiple rates. These rates could depend on potency and/or the type of product. For example, Illinois has set three different ad valorem tax rates on cannabis-based on potency and product type: 10 percent on cannabis flower and other products with THC concentrations below 35 percent; 20 percent on cannabis infusions, such as edibles; and 25 percent on products with THC potency above 35 percent, such as concentrates. part to the potency of the products used. Accordingly, a potency-based tax is a direct, consistent way to use taxes to discourage harmful use, so it scores well on this criterion.

Comparing Different Types of Cannabis Taxes
Scale From 🍁 *(Worst) to* 🍁🍁🍁🍁🍁 *(Best)*

	Basic Ad Valorem Tax	Weight-Based Tax	Potency-Based Tax	Tiered Ad Valorem Tax
Reducing Harmful Use	🍁🍁	🍁🍁	🍁🍁🍁🍁🍁	🍁🍁🍁🍁
Raising Stable Revenue	🍁🍁	🍁🍁🍁🍁🍁	🍁🍁🍁🍁🍁	🍁🍁🍁
Administration and Compliance	🍁🍁🍁🍁🍁	🍁	🍁	🍁🍁🍁

Fig. 4. Comparing different types of cannabis taxes (Source: Gabriel Petek Legislative Analyst, 2019)
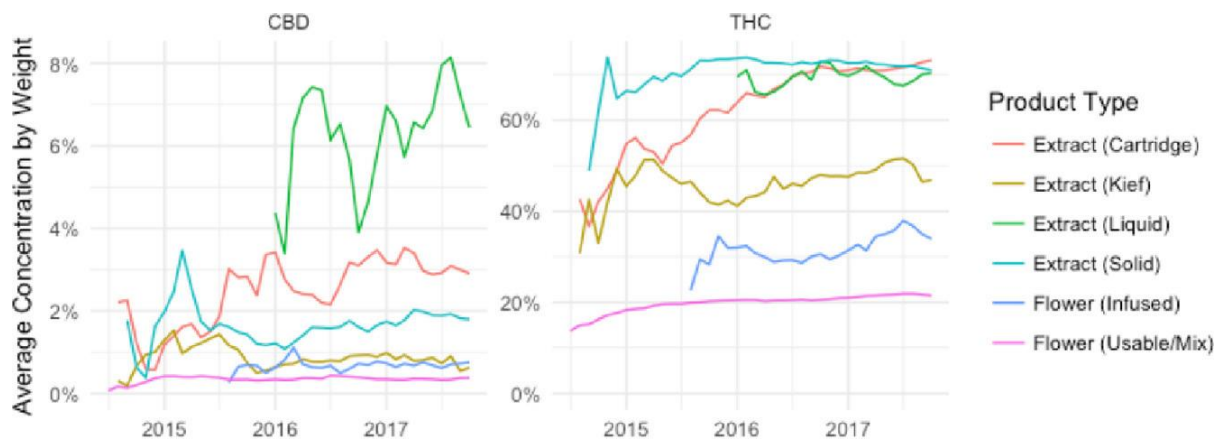
Fig. 5. Average concentration by weight (Source: Steven, 2019)

From the information, it was found that the extracts were accounted for 28.5% of sales and were labeled "dabs" and half as "cartridges." The price per 10 mg THC was about $3 for the consumable item, 70 cents for the extract, and 30–. 40 cents for cannabis flowers Solid concentrates offer the lowest cost THC among extract products. Prices have continued to decline but have slowed down. High-CBD chemotherapy is becoming more common. But it is still almost nonexistent in floral cannabis and is rare (1% of sales) in extract products.

Discussion

The cannabis-related business (cannabis) is growing and gaining a lot of attention in the United States, with many companies being listed on the stock exchange, making it an attractive stock for investors. with excellent performance This makes it likely that many cannabis-related businesses will grow more this year. The Motley Full reports that three companies involving in the US cannabis industry have benefited from the booming cannabis trend. Starting with Cresco Labs, the largest cannabis-related product wholesaler in the US has a 60% market share in the United States following Research of Steven (2019). As Washington's recreational cannabis market has developed over three and a half years, trends identified in that market may serve as an early indication of potential issues in other states.

Legislators and regulators in other jurisdictions with commercial non-medical cannabis markets may wish to establish policies that are responsive to these trends in product popularity, price, and potency. There is a comparative study on the management of the cannabis business but from the point of view of the policy. Taupachit1 and Kessomboon (2021) state that cannabis prescribing system for medical use involves prescribing by

physicians, having the registration system for patients being approved by the government agencies, and often a central unit called the "Cannabis Agency" under the Ministry of Health is installed for control. Israel, Canada, Germany, and more than 50 percent of the states in the United States currently allow cannabis use in form of the herbs. While cannabinoids are widely allowed, some countries limit further.

The results of the study and the opinions of the experts were consistent, i.e., agreeing with the medical use of cannabis and policy formulation appropriate to the context, allowing cannabis use in Thailand by service providers or for self-treatment, setting up comprehensive systems from production, planting, distribution, use, including advertisement control, preventing monopoly from patents and cannabis abuse.

Conclusion

In this report, we analyze several decisions regarding potential changes to California's cannabis taxes. The first and most basic decision is the type of tax to levy. We recommend that the Legislature replace the state's existing cannabis taxes with a tax designed to reduce harmful cannabis use more effectively—namely, a potency-based tax or tiered ad valorem tax. That said, if the Legislature prioritizes administration and compliance more highly, a basic ad valorem tax is worth considering. We further recommend changes to the way the state collects cannabis taxes (the taxed event and point of collection) and to the tax rate itself. Our recommended range of tax rates reflects the three goals outlined in the statute: undercutting illicit market prices, generating sufficient revenues, and discouraging youth use. In pursuit of these goals, we also encourage the Legislature to consider complementing tax changes with nontax policies.

Suggestions

Government policy proposals should establish a federal cannabis agency to cover the entire system throughout the supply chain from planting, processing, transportation distribution and use by the Ministry of Health should have a robust system. Medical marijuana treatment to suit the context of Thailand has been allowed the use of cannabis in medicinal and medicinal forms. There is a prescription system for both modern medicine and Thai traditional medicine. The government should control the misuse of anti-monopoly and establish an appropriate patent system. The government should give the patients the right to

access this drug, which is a fundamental right of the patient and to help reduce drug imports. All processes that are traded or sold are subject to different taxes. For example, buying to extract medicines to keep at a low rate to promote production. Recreational sales may be charged at a high rate, in order to use the tax revenues to develop the country.

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