# Supply Chain Management Information System Model for Agricultural Management in a Large Plots in Thailand

Artaphon Chansamut
*Office of Dean, Faculty of Home Economic Technology, Rajamangala University of Technology Krungthep, Thailand*
artaphon.c@mail.rmutk.ac.th

***Abstract*—The research aimed to develop supply chain management information system model for agricultural management in a large plots in Thailand and an evaluation of the model. Samples are ten experts in the field of information system and supply chain. The data is analysed by means and standardized deviations. The research result shows that 1) the model consists of five elements namely main components, Farmer group ( Producers) , Field manager, Finished large plots. Consumers. the assessment of supply chain management information system model for agricultural management in a large plots in Thailand using Black-Box technique and the result of the assessment of supply chain management information system model for agricultural management in a large plots in Thailand shows the overall rating mean of 3.68 and standard deviation of 0.88, which means that the model is appropriate at the high level and can support sustainable Information system development.**

***Keywords*—** *supply chain management information system model, Agricultural management in a large plots in Thailand*

## 1. Introduction

In this globalization age, the Thai government has realized the importance of adjusting the country to increase its capability to compete with other countries in every aspect. Especially in an agricultural development in Thailand the Ministry of Agriculture and Cooperatives planned and initiated the policy to solve the agricultural products problem for all agriculturalists for the long run. The active policy in the fiscal year 2016 included the promotion of large agricultural plots.

This implementation with the rice cultivators aimed to encourage them to coordinate together for the large agricultural plots. The goal of this policy was to reduce the costs in order to enhance the competitive advantage of agricultural products cultivators (economy of scale). They prioritized utilizing production factors (fertilizers, pesticides, and grains), labor and agricultural machines, soil improvement, and administration. The group appointed a plot manager (the representative from the governmental unit) to manage and coordinate the group members to follow the guidelines. The criteria of the agricultural group were the agricultural plots must be located nearby to each other, and the size of the 50 members' plots was not over 1,000 rai. The responsibility of the agricultural groups according to the large agricultural plot guidelines consisted of 1) the gathering and process management of the group to operate the large agricultural plot, 2) cooperative production and marketing with the analytical process and target setting (return, production quantity, and price), 3) managing the implementation plan and selecting appropriate technology for the production and marketing process, and 4) deciding the use of the production factors by collaborating together for the purchase or procurement. In accordance with the large agricultural plot guidelines that had been operated in the fiscal year 2016, the provinces in the Upper Northern region that contained the potential surface included 1) Chiang Rai comprising Wiang Chai, Phan, and Khun Tan districts with 1,000 rai each and Chiang Khong district with 2,000 rai, and 2) Phayao with 1,400 rai in Mueang district. Consequently, to compare the appropriate proportion and area for rice cultivation, there were many major opportunities to increase the group number or the size of the large agricultural plot. However, the group of agriculturalists to plan the product (the use of the production factors), the marketing (selling volume), and the goal was deprived of a crystal clear pathway, and the operation was unable to examine the quantity. Furthermore, it was unable to evaluate the economic effects of the environmental uncertainty (e.g., water volume or climate), and economic uncertainty (e.g., price or cost). As a result, this study proposed to find a pathway for the decision-making to appropriately use factors with multiple-criteria decision-making (MCDM) and participation of the agriculturalists to prioritize [19] application of the concept of supply chain management information system is applied to the agricultural sector It will be optional, according to the criteria or the constraints in the community's resources and technology. because the business and industrial sector needs to be highly competitive due to increasingly high competitions from both within and outside the country. In order to be

highly competitive, organizations in the sector need to have personnel with knowledge, ability and skills who can work efficiently to increase output and products. The organizations, therefore, need to have sufficient information and resources to increase their values and respond to the demand of their clients. Thus, the supply chain management process is a key process to support the organization's whole activities system from upstream to downstream. It enables the organization to promptly check the information system to ensure that the organization operates smoothly and effectively based on the determined strategies. [ 1] Based on realization, researcher has decided to develop supply chain management information system model for agricultural management in a large plots in Thailand for application to increase satisfaction of consumers.

## 2 Literature review

An agribusiness management in supply chain implies managing the relationships between the businesses responsible for the efficient production and supply of products from the farm level to the consumers to meet consumers' requirements reliably in terms of quantity, quality and price

Agribusiness management and Information system is one of the goals that all organizations strive to achieve. Supply Chain and Information will help organizations improve efficiency and reduce organizations expenses, High value customers and suppliers can be added or retained by maintaining a reliable Supply Chain and Information**.** These will promise the organizations to the goal to produce high-quality products that are reliable.

## 3 Research Methodology

3.1 Analyze and synthesize former researches relevant to the elements of supply chain management information system model for agricultural management in a large plots in Thailand

3.2 Study about supply chain management information system model for agricultural management in a large plots in Thailand by interviewing the expert

3.3. Design supply chain management information system model for agricultural management in a large plots in Thailand

3.4 Present the model to the advisors for consideration and revision.

3.5 Present the model to the experts for consideration by in-depth interview.

3.6. Create the evaluation tools for evaluate the model's suitability.

3.7 Present the designed model to the ten experts consisted of five experts on supply chain management, 5 experts on information system.

3.8 The model is modified according to the experts' suggestions.

3.9 After modification, presenting the model in the form of diagram with report.

3.10 Analyze the results of evaluation of the model by mean and standard deviation consisting of 5 criteria for evaluation according to the idea of Likert scale.

## 4 Results

Supply chain management information system model for agricultural management in a large plots in Thailand are shown in Figure 1.

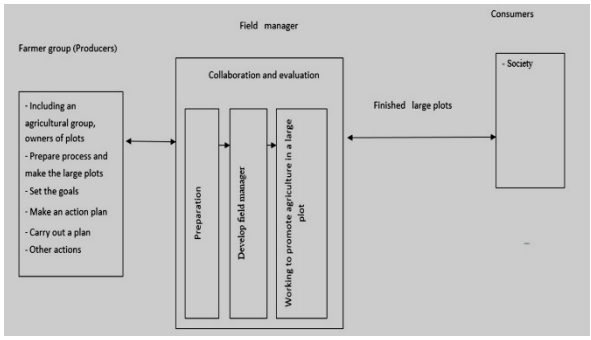


**Figure 1:** Supply chain management information system model for agricultural management in a large plots in Thailand

4.1 Farmer group

Farmer group mean producers . It performs the duty to study, analyze, set the goals, make an action plan, determine the appropriateness of technology ,carry out a plan and other actions

4.2 Field manager

Field manager mean agricultural scholar in the area. It performs the duty to manage activities throughout the supply chain namely Preparation , Develop field manager, Working to promote agriculture in a large plot and other activity.

4.3 Finished large plots

Finished large plots mean product from farmer group.

4.4 Consumers

The consumers mean the end-of-process component of the model . They include the society in general and farmer group.[1],[2],[3],[4],[5],[6],[7],[8],[9],[10],[11],[12],[13],[14],[15],[16], [17] and [18].

**Table 1:** Results for evaluation of supply chain management information system model for agricultural management in a large plots in Thailand

| No | Evaluation Lists | $\overline{X}$ | S.D. | Suitability |
|---|---|---|---|---|
| 1 | Main components | 3.65 | 0.80 | High |
| 2 | Farmer group | 3.65 | 0.64 | High |
| 3 | Field manager | 3.70 | 0.48 | High |
| 4 | Finished large plots | 3.70 | 1.25 | High |
| 5 | Consumers | 3.70 | 1.25 | High |
| | Summary | 3.68 | 0.88 | High |

Table 1, The experts found that supply chain management information system model for agricultural management in a large plots in Thailand is highly appropriate ($\overline{X}$ = 3.68, S.D. = 0.88).

## 5 Discussion

Supply chain management information system model for agricultural management in a large plots in Thailand is considered to be high appropriate ($\overline{X}$ = 3.68, S.D. = 0.88), and the design was corresponds to the research of Chansamut and Piriyasurawong has studied supply chain and information system about educational [1] In addition, with the study of chansamut suggesting that supply chain and information system also. [2],[3],[4],[5],[6]

## 6 Conclusion

Supply chain management information system model for agricultural management in a large plots in Thailand is appropriate at the high level development The rating mean of 3.68 and standard deviation of 0.88, which means that the model is appropriate at the high level and can support sustainable Information system development.

## 7 Recommendation

Supply chain management information system model for agricultural management in a large plots in Thailand is considered to be high appropriate if possible it should create database for the developed model.

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