

Chapter 6

Conclusion and Discussion

The objective of this research is to study the supply chain management in exported frozen food industry, the development of measurement framework of the performant supply chain management in this kind of food industry, including adopts the measurement framework to assess the sample organizations. The developed measurement framework is utilized the criterion to measure the performance of supply chain management. The measurement is used to choose the related criteria between the food industry and the in dept interview with the expert whether those criteria are suitable or not and conform to the operation of Thailand's exported frozen food industry.

This research initiates with the study of primary data and the unique characteristic of frozen food industry along with the study of supply chain management concept and the measurement of supply chain management as the main point. Those principles and related previous research are applied with the primary data to create the measurement framework which is studied before and then created the questionnaire to interview the experts about the measurement criterion point of view. In this process, the criterion measurements are categorized into 4 main criteria and 9 sub-criteria.

The measurement framework from the following process will be used to measure the total sample of organization. The researcher chose the measured organizations which are register with the Department of Export Promotion in frozen food industry type. There are 239 organizations in total but there are only 24 respondent organizations and can sum up as follow.

6.1. Thesis conclusion

The researcher has reviewed the related literatures from both domestic and international which are mentioned about the measurement of the performance of supply chain management. The study also consists of the in dept interview with the expert who experienced about the supply chain management. Therefore, the researcher can summarize the criterion structure of the performant supply chain management measurement in frozen food industry into 4 main criterions and 9 sub-criterions.

This research adopts problem solving and complicated processed which are Fuzzy Analytic Hierarchy Process (Fuzzy AHP). The process is used to indicate the weight of criterion in order to measure the performance of supply chain

management to increase the accuracy, decrease instability. Thus, the decision making process is trustable by considering under Triangular Member Function.

As weight an importance of the experienced expert in relate field by using pairwise comparison, the result indicates that the most important criterion is ‘Quality’ (0.362). The second is ‘Efficiency’ (0.271) and ‘Responsiveness’ (0.258). The last one with less importance is ‘Inter-Organizational alignment’ (0.048).

Regarding to the weight marked by the expert and refers from the point of view of Balance Scorecard including. The point will be calculated by using Fuzzy Analytic Hierarchy Process (Fuzzy AHP) and considering under Triangular Membership Function as well as the process of weight indicating of each criterion as shown in the figure 6.2.

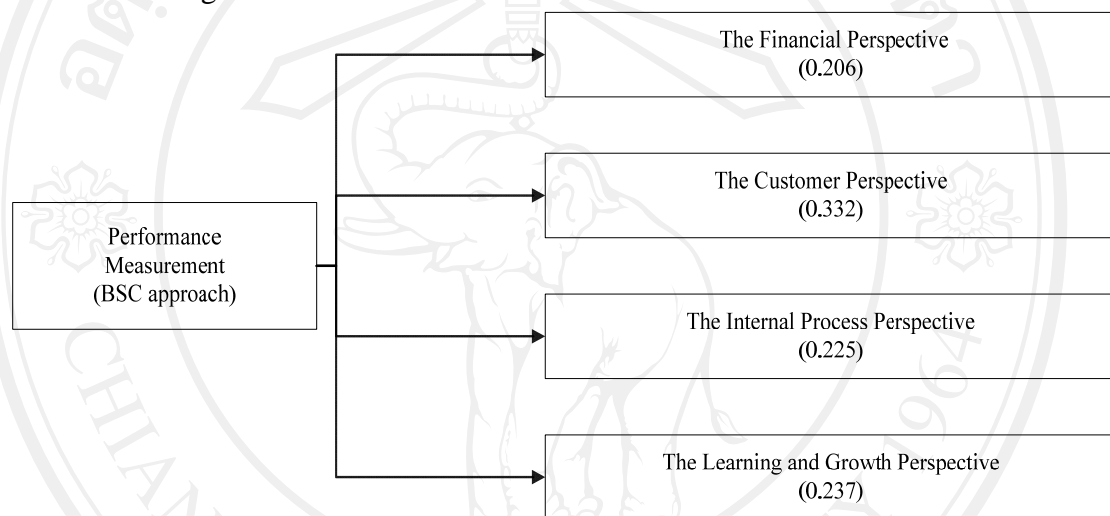


Figure 6.1 The structure of measurement framework by Balanced Scorecard approach

The result of important weighting from the experienced specialist in the relevant field by using the principle of pairwise comparison found that the most important perspective by weighting is ‘the customer’ (0.332). The second is ‘The learning and growth’ (0.237) followed by ‘the internal process perspective’ (0.225) and the minimum is ‘the finance perspective’ (0.206).

According to the questionnaires sent to the relevant frozen food industry organizations, there are 24 respondent organizations from the total of 239. The products are divided into 4 main types which are vegetable, fruit, chicken and seafood industries. Most of the respondents are the managers or engineers. The measurement has found that most of them weight an ability to deliver on time as their priorities and followed by rate of customer’s complaint and interaction rate between organization and customer. The lowest weight is the ability to produce the product as their plan, the interaction between organization and supplier and high cost of transportation and invention which are inefficient to supply chain management.

The overall performance of exported frozen foods supply chain is in the medium level. In term of dealing with customers is in the good level. In term of organizations management is moderate and if there is an improvement, it will increase the performance of supply chain management. In term of dealing with suppliers, the level is relatively low. It should be focused and more consolidated to increase the performance and enhance competitiveness of the exported frozen foods.

From the investigation and in dept interview with the sample organizations, the researcher has collected the data of supply chain management measurement and made the conclusion by the SWOT analysis. For the strength of the industry, this type is divided into three main topics which are high perfect of order fulfillment, good ability for solving customer complaints and high customer contract and level of information exchange. It can be seen that all three topics are associated directly with customers. This demonstrates the ability to meet customers' needs is very high for this kind of industry. The obvious weaknesses of the result are low production accuracy rate and low supplier contract and level of information exchange. This weaknesses show that the organizations still have the waste in the process and produce still not match with the production plan. The main cause is the low communication with suppliers which is the one of the weaknesses that should be improved. The opportunities of this industry are support from government in terms of investment. Also projects which held to benefit the industry together with the increasing of market that will increase the chances of growth of this industry including supply chain management approach integration with new research and knowledge to enhance competitiveness to increase. In the majority of the treats are new strong competitors, which in many neighboring countries, they have potential to produce more food. In some countries, they can manufacture in lower cost than Thailand. The food standard from the importers in the country is still increasing measures to import frozen food. According to this, organizations need to increase standards in manufacturing to comply with these regulations.

As the SWOT analysis of frozen food industry are mentioned above, it can be found that most of the problems in this industry is occurred from material. This is because this industry depends on the material. Hence, the management of supplier and the development of material source needed to be handling in the same direction and the researcher has concluded the way to develop and solve the problem as follow.

1. The material transportation should be well organized between organization and supplier. Furthermore, the principle of logistic needs to be adopted because some materials may face the problem easily such as shrimp. It may be because of the long distance of the source and contribute to high cost of transportation or the proportion of mistake may occur during the transportation.

2. The coordination between organization and customer or organization and supplier in order to increase the effectiveness of quality product in terms of planning, producing, marketing and quality assessment processing. Specially, for seafood industry, organization and agriculturist should coordinate with each other or create the farming contract in order to improve an adequate material production.

3. For the production within the organization, a variety product needed to be improved in order to expand the market and add value of the product at the same time.

6.2 Result discussion

1. The principle of Fuzzy Set Theory can be adopted with Multiple Criteria Decision Making (MCDM) for the trustable decision making. Moreover, these principles can be used to make a decision about the performance measurement for other purposed in the future.

2. The reliability of criteria specification and weighting importance of each criteria needs to interview the trustable expert and widely acceptable in that field about the related criterion. Then the result will be reconsidered and choose the most suitable way and meets the fact. However, an importance of some criterions may change by the time accordingly.

3. An adaptation of the multi-comparative to indicate the weighting importance needs to use the data from the expert and without any bias. Therefore, the interview must consist of the expert more than one person from the relevant field, from both government and private institute and they need to experienced and respond with the following field.

4. According to the data collection, the range of each criterion is difference because of the characteristic which is difference from the sample organizations. The examples for this are type of product and size of organizations. Therefore the data analyzing can be identified only based on the group of the organizations which are interviews.

5. In accordance with the result of measurement, the type of organization affect directly to the score of the criteria. Some types are good in one criterion but some are not. Therefore the selecting the measurement, the measurer should consider this effect.

6. The criteria weighting importance by using AHP is the most accurate to choose the choices. This is because there is the consistency check process for each criteria comparison.

6.3 Research discussion

From the study and measurement of the performance for exported frozen foods supply chain management in Thailand mentioned before, there are the processes to apply this research to use in the real situation.

1. According to the limitation of time to conduct this research, the interview with the experts in the related field who can indicate the criterion structure format and important weight can interview only 3 available experts. If there are several experts interviewing in this research, the data and research result will be more reliable.

2. Regarding to the interview with the expert about the important weight specification of each criterion by using AHP, the interview might be difficult because

there is the comparison of an important weight of each pair. Moreover, sometimes the interviewees may confuse and faced the difficulties to make a decision. However, AHP still has its own advantage as it can be assessed the decision systematically.

3. To apply the performance supply chain management measurement in reality, the researcher has realized that each organization may be measured in the different way because of different database and different criterion importance. Therefore, for the measurement form, the measurer can apply the measurement criterion to suit the characteristic of each organization.

4. The measurement level that the researcher has developed is only in a short period. Thus, if the measurer would like to adapt the measurement to use in reality, the measurer should improve the measurement range to conform to the changing capability.

5. For problem and threat of this research, the researcher believes that if there is the cooperation from the sample organization of both information and time to collect more data, the data will be more accurate.