Collaboration practice in supply chain of unshu citrus in Muchacha-En, Ltd, Japan

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Abstract. A new concept in supply chain management stressed the importance of forming collaboration among supply chain actors to provide the supply chain efficiently and effectively. This study aims to identify and analyze the collaboration practice in the supply chain of Unshu Citrus in Muchacha-En, Ltd Japan. The study was conducted in a paired sample between partner farmers and Muchacha-En, Ltd, from August 2014 until January 2015 in Akehama Town, Seiyo City, Ehime Prefecture, Japan. Sampling was obtained by purposive sampling to determine the characteristic which represents 75 partner farmers and three staffs from the company. The descriptive explanation for depicting an outlook of supply chain practice in Muchacha-En, Ltd among farmers to three supply styles in general and between farmer and Muchacha-En, Ltd supply chain practice in particular. Collaboration between farmers and Muchacha-En, Ltd is one of three forms of the supply chain, which is the main focus of this study showed that maintaining the effectiveness and efficiency of cooperation to support the supply chain performance are successfully committed by both parties. Through this collaboration, it is also confirmed that convenience and satisfaction in partnering moderated the customer demand for organic Unshu Citrus.

1. Introduction
As Japan industrialized and the urban population increased, after the mid-nineteenth century, the demand for fresh fruits and other specialized agricultural products gradually increased. Japan leads to citrus production, especially in Ehime Prefecture. The Satsuma mandarin or Unshu mikan originated in Japan either in the early 1400s as a nucellar seedling from the Tsao Cieh mandarin imported from Wenzhou, China, or, as now seems more probable, from the Bendiguanchu mandarin around the mid-sixth century AD. It was given the name Satsuma in 1878 by the wife of the United States Minister to Japan, general van Valkenberg, Satsuma being the former name of the prefecture now known as Kagoshima on Kyushu Island in western Japan [1].

In the environment of global competition, it is difficult to win over the competition with only depends on the capacity of the individual or company itself. So, who succeeded in the future is a company that establishes cooperation in a chain of supply or called collaboration supply chains. A
variety of studies have reported that supply chain collaboration can improve your competitive advantage and performance of the supply chain of the agricultural industry [2].

Along with the increasing awareness of healthy lifestyles, and market demand, citrus is one of the leading products of Muchacha-En, Ltd, which currently has limited the use of chemicals of its cultivating practices. This company is the private sector, which the company as the core, and the farmers around it as the plasma. The remarkable nature of Japan’s supply chain relationships has been identified as a significant factor in its industrial success. Yet, Japanese companies do not recognize the term ‘supply chain management.’ Lamming [3] stated that for four decades, Japan’s industrial giants developed sourcing strategies based on highly-pressured, customer-dominated supply relationships in which subcontractors enjoyed the benefits of the success of their customers at the expense of yielding their autonomy. Nonetheless, supply chain practice in Japan depicts the occurrence of recession, the supply relationships have retained their 'tough but fair' character, but the stakes are now much higher, and suppliers are seen for the first time as potential sources of technological solutions: suppliers must do much more than simply obey commands. Results of the study of Tukamuhabwa et al. [4] revealed the existence of the relationship between collaboration and supply chain performance in SMES in Uganda. But unfortunately, still, a little study was done in the agricultural sector. So it needs to be an effort of learning from the success of the agricultural industry in order to improve its competitive advantage to export agricultural products to give priority to quality.

The partnership is not only increasing the speed in responding to every request in the supply chain but also providing efficiency in responding to consumer demand. Partnership in the long-term period among supply chain actors will build a strong relationship so that it can make a direct effect to supply chain performance. A long-term partnership among actors supply chain will allow actors to supply chain know recognize the needs among each other. Partnership effect on the level of company responsive to consumers’ needs. Previous researches were only explained collaboration affects competitiveness directly without formulating supply chain performance is obtained through trust-building and partnership, while trust and partnership are only categorized in social capital. This study aims to identify and reveal the collaboration practice, trust, and partnership effect on the supply chain performance of Unshu Citrus in Muchacha-En, Ltd.

2. Methods

2.1. Location and period of research
The approach of the study is descriptive quantitative, and the type is a survey method. This research is conducted in Akehama Town, Seiyo City, Ehime Prefecture, Japan. The research location is selected by purposive sampling with the consideration that the area is the center production of Unshu Citrus that partnered with Muchacha-En, Ltd. Research carried out from August 2014 until January 2015.

2.2. Sampling
The condition in the research site is possibly observed farmers based on a list of farmers who partnered with Muchacha-En, Ltd. Research is focused on one planting area, namely Akehama Town. Purposive sampling is chosen to determine the characters which represent the aim of this study. There are 75 partner farmers and three staff from the company, namely the director, the person in charge of farmers union, and marketing division, which considerably appropriate as a sample of this study.

2.3. Data collecting method
Field observation is conducted by direct observation of researched objects, which aims to understand the actual activities of the performance of the supply chain. Observation should be implemented by direct observation in the location of Unshu Citrus production to find out supply chain collaboration practices of producers, namely farmers with Muchacha-En, Ltd. A structured interview is conducted to farmers and Muchacha-En, Ltd staff using both open and closed-ended questions.
3. Results and discussion

According to Van der Vorst [5] that as one of the crucial concepts of supply chain management, collaboration based that each member (actor) supply chain must be implemented in holistic, integrating goals and activities to optimize the benefit of the supply chain. A member of the supply chain is the focus of research partnered farmers that act as unshu citrus suppliers and Muchacha-En, Ltd, that acts as a company that supplied. In general, the scheme of supply chain collaboration of Unshu Citrus shown in figure 1.

![Supply Chain Collaboration Scheme in Muchacha-En, Ltd](image)

Farmer is the main actor in supply chain collaboration. Farmers who partner with Muchacha-En, Ltd strives to supply Unshu Citrus in line with the amount which prompted by the company. Farmers supply Unshu Citrus in a certain amount of supply; the smooth and precision depend on information sharing from the company, namely Muchacha-En, Ltd, including the financial flow fluency of the cooperation of the Unshu Citrus supply that runs. In line with Mathuramaytha [6] revealed that collaboration among agencies in the supply chain could facilitate cooperation between agencies in order to increase the competitive advantage. Kitagawa, 1981 in Ladaniya, stated that in Japan, growers had formed large cooperatives through which they market their produce. The Nakagai (middlemen) and Seika Company (wholesale company) are involved in marketing fruit. Domestic market shipments continue year-round as stored and imported fruits come into the market when fresh citrus harvesting season is over. The peak domestic marketing in harvest season is from October to February.

Supply chain management (SCM) partnership requires trust and commitment for long-term cooperation, along with a willingness to share risks. The partnership can be defined as a complex member interaction channel. In this relationship, the members need to trust and cooperate with each other in the way to have this kind of relation. The goal is very important because they only have the same goal, and then the members can do anything on the same path toward the goal. Muchacha-En, Ltd is the citrus suppliers company and various derivation products with four distribution styles, namely 25% directly to customers. Purchasing products are ordered online on the official company website, then fill identity and some other information needed for delivery. There are catalogs for variant citrus and other processed products. The product will be sent in line with the desired time of customers in line with the availability of the product. The availability of the product will be informed immediately to a postponed order if a customer has ordered a few months before the harvest period of the desired citrus.

Payment made by transfers to bank account appointed. Unshu Citrus delivers to customers accompanied by information on the names of some farmers who are cultivating and the general
condition of land cultivated for producing the citrus. From the results of interviews with Muchacha-En, Ltd staff, that would give satisfaction to customers knowing citrus they consumed derived from the farmers that they have the information. Along with farmers, take pleasure for producing organic citrus by getting customers' testimony through Muchacha-En, Ltd. Indirect relationships between farmers and customers are believed as one factor that made many loyal customers order and enjoys citrus of farmers Muchacha-En, Ltd. In line with Lambert et al., 1996 stated that a partnership is a tailored business relationship based on mutual trust, openness, shared risk, and shared rewards that result in business performance greater than would be achieved by the two firms working together in the absence of partnership. A partnership is not the same as a joint venture, which involves some degree of shared ownership across the two parties. Nor is the same as vertical integration. Yet, a well-managed partnership can provide benefits similar to those found in joint ventures or vertical integration without the problems associated with ownership.

Coop is the second style of Muchacha-En, Ltd distributing citrus. Coop in the Kanto Area (Ibaraki, Tochigi, Gunma, Saitama, Chiba, Tokyo, dan Kanagawa) is the major part distribution of the three ways distribution of about 65%. Pal system, which applied along in the coop system, is good enough to connect with many customers all over Japan. Muchacha-En, Ltd also joined in this system. Pal system will promote product aiming to realize the next '7 promises': building a 'face-to-face relationship' with the creators, delivering products created from the trust, giving priority to domestic production in order to protect us from the agricultural foundation of food, pursuing the way of sustainable food production with consideration of the environment, not using chemical seasoning, using selected material, not as much as possible rely on an additive, creating products that reflect the voice of the union members.

Some shops that have the same orientation to sell an organic product are also Muchacha-En, Ltd target to distribute citrus. This distribution style has a 10% contribution. Including schools that serving food healthy becomes a target of the company for selling their products. So it is with some supermarkets was becoming a distribution center of organic citrus supported Muchacha-En, Ltd both in and beyond the scope of Ehime Prefecture.

3.1. Partner farmers
Partnership strategy is one form of a strategic alliance that would improve business performance through several influenced variables Johnson [7], namely the dependence, relationship quality, continuity expectation, and information sharing. Partner farmers are the chain actor who performs Unshu Citrus cultivation activities starting from a nursery, maintenance, harvesting, and post-harvest. Partner farmers are the beginning of citrus supply chain activity in Muchacha-En, Ltd. The citrus farmer who is members of the supply chain in Muchacha-En, Ltd, are farmers who are a partner with Muchacha-En, Ltd. Farmers have a crucial role in producing products with expected quantity and quality. Supply information will always be notified by email, which contains a detailed number of every demand and fax as a reminder that has been sent out. Some farmers also aware of technology with each mobile phone. They are equipped with an email service that is easy to obtain information quickly.

Besides obtaining support from the company, farmers must fulfill the duty that is agreed upon when farmers joined to become a partner with Muchacha-En, Ltd, namely an obligation to apply organic citrus cultivation by some rules which must be obeyed, extent tolerance the use of pesticides and herbicides particularly as well as land conditions must be the whole organic in 5 years cultivation.

Each farmer also received testimony from household customers that consume citrus, and it is an appreciation of their hard work in producing citrus than profit-making matter.

3.2. Muchacha-En, Ltd
Muchacha-En, Ltd was established in August 1993 as a private company which initiated organic farming in processing agricultural and marine product, especially citrus. It is stretched out between 123°28′9.18″E longitude and 33°18′49.15″N latitude Akehama Town, Ehime Prefecture. The term
"Muchacha" in Spanish means "daughter," in Mexico "sister," and "maid" in the Philippines. While "En" means garden in Japanese.

Muchacha-En, Ltd acts as a company supplied by partner farmers to strive to fulfill the demand of Unshu Citrus and, of course, maintaining the partnership which has been built with farmers to achieve a joint purpose to produce quality organic citrus so it can support a healthy lifestyle. In terms of cultivation, Muchacha-En, Ltd fully provides agricultural input in the first three years are the provision of seedling, fertilizer, pesticides, and herbicides procurement. Next, farmers are given the freedom to cultivate orange land but keep rules imposed company to farmers, especially the use of pesticides and herbicides rules.

Muchacha-En, Ltd also provides farmers with a workshop once a year and is provided with additional information needed by farmers. Keeping the effectiveness of cooperation and efficiency to support the supply chain performance are expected by two sides can give convenience and satisfaction in partnering so that the needs of the customer can always be fulfilled are the main key in collaboration. Together with discussing problems that occurred, determination of the purchase price of citrus for the following year and retrieval of other important decisions in the annual meeting is held by Muchacha-En, Ltd to keep the partnership relationship that has existed with partner farmers. Dependence resources in economics exchange acquire an important resource beyond ability [8]. So cooperation with each partner needs resources from another, and where needs that is each other reciprocal, so each strives to complement, which means interdependence applied.

This study revealed that the collaborative practice between farmers and Muchacha-En, Ltd related to the effect of collaboration itself, trust, through partnership to supply chain performance. Simatupang & Sridharan [9], propose three collaborative enablers to reflect the intensity of operational interfaces amongst the participating members, namely information sharing, decision synchronization, and incentive alignment. Collaboration with those indicators needed to build a partnership. Trust building is one of the crucial factors to build a partnership based on contractual and competence indicators. Supply chain management (SCM) partnership requires trust and commitment for long-term cooperation, along with a willingness to share risks.

Partnership variable based on two indicators formed, namely resource interdependency, and relationship quality, is expected to support and increase supply chain performance. The partnership is built by resource-based interdependency, and relationship quality has a great effect on supplying chain performance. It means the partnership is strongly needed between supply chain actors, namely farmers and Muchacha-En, Ltd, to increase supply chain performance, while on the contrary, collaboration has less effect on the partnership. It apparently indicates collaboration practice is not strongly fulfilling coordination in partnership, while trust is strongly affecting the supply chain performance through partnership.

4. Conclusion
Collaboration, trust, partnership, and supply chain performance are significantly influenced in each relation. Collaboration through partnership has a lesser effect on supplying chain performance than trust through partnership. Trust is raising through agreement and competence for managing resources that both side need, along with relationship quality, which maintains by the effort to improve skill and ability to develop the citrus cultivation better and gaining high supply chain performance. Further study is recommended to explore, identify, and analyze between other actors of citrus chain and competitiveness. Moreover, measuring performance to gain competitiveness is strongly recommended to conduct.

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