

Concerns of Vietnamese Producing-exporting Seafood SMEs (VPESSEs) on Supply Chain

Chen Shieh-Liang¹, Nguyen Thi Huyen Tran^{1,2}, Nguyen Thi Thu Ha²

¹College of Management, Department of Business Administration, Asia University, 500 Lioufeng Rd. Wufeng, Taichung 41354, Taiwan R.O.C.

²Foreign Trade University, Ho Chi Minh City Campus, No. 15 D5, Ward 25, Binh Thanh Dist., Ho Chi Minh City, Vietnam

Correspondence: Nguyen Thi Huyen Tran, Foreign Trade University, Ho Chi Minh City Campus, No. 15 D5, Ward 25, Binh Thanh Dist., Ho Chi Minh City, Vietnam. Phone: (84) 909 828275. Email: tran2011vnvn@yahoo.com or nguyenthithuha.cs2@ftu.edu.vn

Received: March 2, 2016

Accepted: March 28, 2016

Online Published: April 13, 2016

doi:10.5539/ibr.v9n6p120

URL: <http://dx.doi.org/10.5539/ibr.v9n6p120>

Abstract

Supply chain has been discussed for many decades, however, previous researches have focused on the supply chain in general, in industrial fields or in developed countries. It is rare to find articles about supply chain in agricultural and fishing industries in a developing country like Vietnam. Moreover, there have been few researches using FsQCA in analyzing the factors affecting supply chain of small and medium enterprises (SMEs). This research focuses on using FsQCA to analyze the weight of factors that influence a supply chain of an industry which is one of the key exporting industries in Vietnam specifically seafood industry. Findings show that Vietnamese producing-exporting seafood SMEs (VPESSEs) do not have any clear supply chain structure and sufficient consideration into building an effective supply chain. The authors would like to draw up some limitations of the supply chain management of Vietnamese producing-exporting seafood SMEs (VPESSEs) then offer some suggestions especially for the fishing and agricultural industry.

Keywords: agility, leanness, management, partnership, information sharing, technology

1. Introduction

A supply chain is “The network of retailers, distributors, transporters, storage facilities and suppliers that participate in the sale, delivery and production of a particular product” (investorwords.com, 2015). This relationship was also discussed by Gunasekaran and his co-author with an affirmation that Supply chain management (SCM) has been a major component of a competitive strategy to enhance organizational productivity and profitability (Gunasekaran, Patel, & McGaughey, 2004). Supply chain management creates values for companies, customers and stakeholders interacting throughout a supply chain (Estampe, Lamouri, Paris, & Brahim-Djelloul, 2013). However, supply chain performance influences business performance at different levels; firms with higher information quality in aligning supply chain can receive better business performance (Zhou, Shou, Zhai, Li, Wood, & Wu, 2014).

Around the world, the concept of supply chain management is well known but it is still a new phenomenon in Vietnam where most Vietnamese firms do not have enough understanding of it as well as lack of experience in building and operating an effective supply chain. It leads to ineffective management and lower the competitiveness of Vietnamese enterprises (Nguyen, 2015). Recently, there are many articles discussing supply chain in general, in industrial fields or in developed countries but it is rare to find articles about supply chain in agricultural and fishing industries in a developing country like Vietnam. The fishery sector has a significant contribution to Vietnamese exports in particular and the economy of Vietnam in general. Fisheries/ seafood exports are one of the top earners of export turnovers of Vietnam, behind only crude oil, textiles, garments and footwear. However, in recent years, the export markets of Vietnam seafood nosedived. Exports to the US fell by 27.7%, exports to the EU fell by 14%, and exports fell by 10.4% in Japan compared to the previous year (exportersportal.com.vn, 2015). There are many reasons for the reduction of exports of Vietnamese sea foods including poor supply chain management, especially thinking and viewpoints of supply chain managers. Improving supply chain management in this field can greatly enhance Vietnamese seafood exportation. Accordingly to this study, author would like to understand what key factor Vietnamese

Producing-Exporting Seafood SMEs (VPESSEs) pay and do not pay attention to when building and operating their supply chain.

This study is to find out critical circumstances of supply chain in Vietnamese Producing-Exporting Seafood SMEs (VPESSEs) and determine the success and limitations of the supply chain of those companies. After finding those features, the study will provide discussions and suggestions to help Vietnamese Producing-Exporting Seafood SMEs (VPESSEs) correct those limitations. Vietnam's exports may decline in some commodity groups, especially in agro-forestry-fishery industries of Vietnam into markets (Nguyen, 2015). The worst problem is that Vietnam Association of Seafood Exporters and Producers (VASEP) forecast a sharp decline in fishery commodity groups (Can Tho Promotion, (2015).

2. Literature Review

The supply chain management of companies includes critical elements such as: factories, transportation, warehouses, distribution facilities, wholesalers and retailers (Thomas, 1996). An effective supply chain must help companies satisfy customers' requirements at reasonable prices. An effective supply chain policy can greatly reduce total cost of ownership by reducing transportation costs, lower inventory level as well as other transaction costs (Hill, 2000). Supply chain is a process of movement and transforms raw materials at the point of origin into final products, deliver them to the ultimate customers. Up to a company's scale of business and globalization strategy, each organization needs to choose a suitable chain model to maximize profit and minimize costs and labor (Kee & Hoekman, 2007).

Sharing information among members in a supply chain will help reduce costs than applying any other methods. This can push managers with managerial insights to improve supply chain performance through information sharing and integration partnerships (Cho & Lee, 2013). Bian, Guo, Lai, & Hua (2014) found that information sharing significantly affects supply chain performance. If information is not shared correctly and accurately between manufacturers and retailers, it can make a supply chain of a firm less reliable than that of firm's competitors. Sharing information in a supply chain, therefore, is also one of key elements affecting the supply chain performance (Wu, Chuang, & Hsu, 2014); so, this item must be discussed when planning a supply chain developing strategy. Besides, it is clearly proved that firms' profitability has a positive relation with the level of information sharing, which means there is interdependence between retailers' information sharing strategies and manufacturers' operational and marketing decisions (Li & Zhang, 2015). Furthermore, in a modern competition environment, firm-to-firm competition has not been important anymore the supply chain-to-supply chain competition nowadays is more critical and more severe. Virtually, a coordinative contract between manufacturers and distributors can help to protect their mutual benefits and profits, and this is also a good way to increase a supply chain's revenue.

One remarkable support of IT to supply chain performance is that IT can help transform many resources into a higher value for a firm then the firm can take all advantages of this to transfer them into useful materials for improving firm performance (Wu, Yenyurt, Kim, & Cavusgil, 2006). Many papers in recent years have discussed the impacts of information technology (IT) capacity on firm performance (Liu, Ke, Wei, & Hua, 2013). It is clear that supply chain ability to respond to market changes significantly depends on IT, and good performance of supply chain can lead to firm performance represented by market share, profitability, speed to market and customer satisfaction (DeGroot & Marx, 2013). On the other hand, IT capacity can affect firm performance through absorptive capacity and supply chain agility in the supply chain context (Liu, Ke, Wei, & Hua, 2013).

An effective supply chain, as a chain of participants connecting each other to supply a certain product to a market, is based on partnership. "A partnership is a tailored business relationship based on mutual trust, openness, shared risks and shared rewards that results in business performance greater than what to be achieved by the two firms working together in the absence of partnership" (Supply Chain Management Institute). Each partner in a supply chain plays an important role. Involvement of partners in supply chain illustrates the risks and benefits (Ellram & Cooper, 1990). Low-cost computing and communication seem to tap into partnerships of smaller companies, each of which perform one part of the value chain and coordinates its activities with the rest of the chain (Thompson, Frances, Levacic, & Mitchell, 1998). Therefore, supply chain partnerships can mitigate deficiencies associated with decentralized control and reduce the "bullwhip effect" and specifically, the supply chain members can reap benefits in terms of reductions in inventory levels and cost savings from forming partnerships with one another (Yu, Yan, & Cheng, 2001).

Similar to partnership, management culture and commitment are internal elements which involve a supply chain's performance; accordingly, supply chain performance will only improve if its cost position is communicated honestly (Voigt & Inderfurth, 2012). Thus, the presence of trust and trustworthiness in supply chain interaction will enhance the chain's performance. Wu, Chuang, and Hsu (2014) found that a high level of trust should be the initial belief of practitioners who are willing to take risks in building collaborative relationships. Without building initial trust with their partners, other issues of social exchange such as commitment, reciprocity, power, and necessary actions will not be

good. Therefore, a high level of trust is a fundamental underlying strategy to build a long-term partnership (Wu, Chuang, & Hsu, 2014).

Based on flexibility, a supply chain management strategy can be agile, lean or mixed. According to Christopher (2000) an agile supply chain is a flexible supply chain which focuses much on effectiveness rather than saving costs. An agile supply chain aims to serve volatile demand and various high requirements. A lean supply chain works best in high volume, various low requirements and predictable market trend (Christopher, 2000). A lean supply chain involves more than just-in-time or does more, speed but focuses on cost and quality, then impact flexibility and time-based technology, which affect firm performance (Yusuf, Gunasekaran, Adeleye, & Sivayoganathan, 2004). Companies adopting an agile supply chain practices are fewer than the ones with a lean supply chain (Yusuf, Gunasekaran, Adeleye, & Sivayoganathan, 2004) because a lean supply chain aims to reduce inventory cost while maximizing revenue as well as profit (Agarwal, Shankar, & Tiwari, 2006). However, an agile supply chain can generate cost savings even for firms operating in industries with fewer opportunities for growth (Khalili-Damghani & Tavana, 2013), (Gligor, Esmark, & Holcomb, 2015). What do Vietnam's small-medium companies consider while building their supply chain is very important and will be studied in the next part?

Especially, in the research by Naylor, Naim and Berry(1999), there are two popular paradigms of supply chain which are lean and agile: "Agility means using market knowledge and a virtual corporation to exploit profitable opportunities in a volatile market place. Leanness means developing a value stream to eliminate all waste, including time and to ensure a level schedule". It is clear that a lean supply chain is suitable for low demand for a variety of products and low demand for a variety of production, and thus it can be applied to the supply chain upstream while an agile supply chain is toward high demand for a variety of products and high demand for variety of production, so it can be applied to the downstream. Therefore, this research on one side is to know which structure of supply chain VPESMEs are using.

3. Methodology

As one of the most important task from questionnaires, authors will calculate mean and mode of score evaluated by participants to know their evaluation of important level of elements in a supply chain. All these elements are selected from a research by Naylor et al. (1999). The results of this step will be presented in table 1.

After that, in order to have more understandings of priority and important elements in a supply chain according to the viewpoints of VPESMEs' managers, the authors use Qualitative Comparative Analysis (QCA) in FsQCA software to analyze what VPESMEs consider while designing their supply chain. FsQCA is one of the best software tools in computing logical truth tables in order to find out which elements are seen as the most important factors in building and developing a supply chain of VPESMEs. In FsQCA technique, both the casual conditions and outcome are presented using fuzzy set scores (Ragin, 2000) "The fuzzy program allows users to create configurations from single sets coded either dichotomously or fuzzily, to evaluate the sufficiency of these configurations statistically, using a variety of different benchmarks, and to reduce the configurations determined sufficient to their common logical elements" (Longest and Vaisey 2008). QCA is based on the analysis of set relationships rather than correlations. Most theoretical arguments of social sciences concern set-theoretic relationships, not linear relationships between variables (Ragin, 2000). In order to transform conventional variables into fuzzy set membership scores, variables are celebrated for their degree of membership in set of cases to produce scores ranging from 0.00 to 1.00. Interval scale variables are converted into fuzzy set membership scores by using the celebration function of FsQCA software. In order to celebrate variables, analysts specify the value of an interval scale that responds to three quantitative anchors that structure a fuzzy set, including a threshold for full membership (fuzzy score = 0.95), the threshold for non-membership (fuzzy set = 0.05). Besides, to match fuzzy set celebration with the Likert-type seven-point scale used in questionnaire, the authors set the original values of 7.0, 4.0 and 1.0 to correspond to the full membership, full non-membership, cross-over anchors respectively. QCA examines cases with their different causally relevant conditions (Woodside & Zhang, 2012). Thus, an approach of QCA focuses on defined types of cases for the combination of causal precursors related (Woodside & Zhang, 2012). QCA has three characteristics: equifinality, asymmetric and causal complexity (Woodside & Zhang, 2012); therefore, QCA can be used to identify characteristics of the intervention, practices and assumptions; there can be many pathways to the same outcome, and that is relevant to the aim of this research. Results of this step will be presented in table 2 including various solutions, which could be considered and applied by VPESMEs' managers. Besides, because two of the authors are Vietnamese, some information and implications will be based on observations to provide more empirical suggestions.

Before the official survey, the authors ran a pilot test by directly asking and sending questionnaires to ten directors and vice directors of manufacturing companies who were studying in the course of Keiejuku 6 held in VJCC HCMC in April, 2015 in order to receive their feedbacks about the questionnaire. Most of them are unfamiliar with supply chain and supply chain management because in Vietnam supply chain is a new phenomenon which has just been discussed in

recent years. In addition, there are a few Vietnamese companies applying this tool in management. However, this limitation is also a good reference because all pilot participants with very little understanding of supply chain can also fulfill the questionnaire completely without any misunderstanding. After the pilot test, we adjusted the questionnaire then officially sent the survey to Vietnamese seafood companies. Participants' experience in their current situation and knowledge of supply chain is presented in Fig 1 and Fig 2 below.

Participants' experience at current position

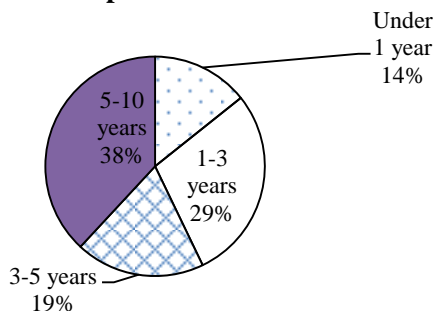


Figure 1. Participants' experience at current position

Source: Result of survey by authors

Knowledge of supply chain

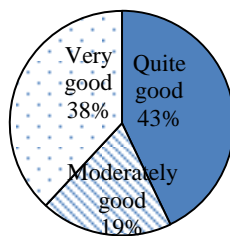


Figure 2. Knowledge of Supply chain

Source: Result of survey by authors

From the results of the survey, the authors will analyze to find out which elements receive much attention from the managers of VPESMEs. Therefore, the authors can explore weaknesses of VPESMEs, then suggest some solutions to helping Vietnamese food manufacturing companies in particular and Vietnamese enterprises in general for them to survive and develop in a very fiercely competitive environment nowadays. Besides, this research also uses Pearson correlation analysis to determine relationship between factors and flexibility of an agile supply chain and costs of a lean supply chain.

4. Research Result

An official survey was conducted in the period from 09/2015 to 11/2015. There were 19 directors/vice directors of Vietnam's food industry in HCMC. The results of the survey are presented in table 1 in comparison with Naylor *et al.* (1999) findings.

Table 1. Rating the importance of different characteristics – compared from findings of (Naylor *et al.* 1999) and viewpoint of VPESMEs' managers

Rating the importance of different characteristics of leanness and agility by Naylor <i>et al.</i> (1999)			Rating the importance of different characteristics by VPESMEs
Elements	Lean SC	Agile SC	
Use of market knowledge	● ● ●	● ● ●	● ● ●
Virtual corporation/ value stream/ integrated supply chain	● ● ●	● ● ●	● ● ●
Lead time compression	● ● ●	● ● ●	● ●
Eliminate muda/ wastefulness	● ● ●	● ●	● ●
Rapid reconfiguration	● ●	● ● ●	● ● ●
Robustness	●	● ● ●	● ● ●
Smooth demand/level scheduling	● ● ●	●	● ● ●

Note. ● ● ● : Essential; ● ● : Desirable; ● : Not very important

From information in table 1, we can confirm that VPESMEs tend to use neither an apply agile nor lean supply chain model. For VPESME, essential elements to take advantage of these fluctuations to maximize their profits include: Use of market knowledge, Virtual corporation/value stream/integrated supply chain, Rapid reconfiguration (supply chain operations must be able to respond quickly to changes in information from the market), and Robustness (ability to withstand variations and disturbances and so on). Because, nowadays, if a firm or a supply chain likes to have its products well consumed on the market, the firm or supply chain must pay much attention to customers' purchase behavior and demand. When a society increasingly develops, demand of consumers will be also upgraded, good understandings of market needs as well as consumer requirements will make the firm or supply chain operate more effectively. The cooperation between members of a supply chain will help to provide good and accurate information as well as forecast about markets and customer demand. Once there is a good connection between members of the chain, regardless of any changes in market needs such as consumption volume, quality, model, etc, the chain will still easily react positively to change production plans and capacity. Another requirement which an agile supply chain must focus on is the ability to withstand variations and disturbances and so on and it must be in a position to take advantage of these fluctuations to maximize their profits. A supply chain not only faces many obstacles from market trend and customers' demand, but also struggles with many challenges from competitors, new policies from the government, etc., to be able to maximize profits; such supply chain must have a good adaptability to all objective fluctuations.

As for the lead-time compression, the result of survey shows that VPESMEs do not paid much attention to elimination of waste time. If a supply chain can shorten the time of launching a product into the market or respond to customer complaints quickly in precise time but cannot perform all tasks on time, it will not much improve their business performance. However, this is the wrong viewpoint of VPESMEs' managers. VPESMEs' managers do not measure all impacts of market as well as customer reaction to some products or services. Once customers feel dissatisfaction, they can take full use of worth-of-mouth and all communication means to express their disappointment. If such problem happen, it will be harmful to supply chain business performance and reputation. Thus, lead-time compression is not everything but if VPESMEs appropriately care about this and put more effort on this element, they can perform with better results because this is one of the best ways to obtain customer satisfaction, trust and loyalty. In addition, while a lean supply chain always tries to avoid the requirement of robustness by calling for the demand to be stable, it sees smooth demand or level scheduling as the least important factors. It is thought that a stable production plan or schedule is essential because they would change anytime to adapt to changes in the market.

Meanwhile, eliminating muda is another essential factor. This does not totally match with what Naylor and his co-workers affirmed. VPESMEs during the past time did try to cut off everything to save costs and expenses. This is also one of the key points that confirm VPESMEs do not purely follow an agile supply chain model in operation.

The reason why VPESMEs do not purely follow the agile supply chain model is that they still think about saving cost as one of the most important elements of a supply chain. So, finding out which factors affect agility (represented by flexibility) and leanness (represented by cost) of VPESMEs' supply chains is also necessary. After receiving responses of managers of VPESMEs, the authors run a qualitative comparative analysis (QCA) and receive the results as presented in table 2.

Table 2. QCA output-intermediate solution for an agile supply chain and lean supply chain

QCA output-intermediate solution for agility				QCA output-intermediate solution for leanness	
Solution F1	Solution F2	Solution F3	Configuration	Solution L1	Solution L2
		○	Information sharing		
		○	Information technology	○	
		○	Partnership		
			Management culture and commitment		
0.621	0.704	0.372	Raw coverage	0.60	0.624
0.058	0.124	0.019	Unique coverage	0.127	0.151
0.986	0.954	0.993	Consistency	0.997	0.977
	0.790		Overall solution coverage	0.751	
	0.954		Overall solution consistency	0.981	

Note. Frequency threshold=1; Consistency threshold: 0.97; white square “ ” indicates the presence of causal conditions; white circle “○” indicates the absence of negation of casual condition; the blank cells present “don’t care” condition.

Because VPESMEs obviously apply neither a lean nor an agile supply chain structure, their evaluation of the essence of drivers is also flawed. Hence, they could not exploit all functions and advantages of these elements effectively. And, because supply chain structures of VPESMEs are mixed with lean and agile ones, authors explain results in both sides: agility and leanness to discover all their characteristics.

Firstly, we can see that for the two elements, partnership, management culture and commitment are key factors, which can result in high performance while information sharing and information technology do not contribute to the operations of VPESMEs’ supply chains. *Secondly*, the raw coverage of the two issues in table 2 includes flexibility and cost; raw coverage and solution coverage measure the extent to which the configurations account for the outcome. The raw coverage of all solutions of both variables is greater than 50 percent, indicating that the configurations explain a large proportion of purchase intention. *Thirdly*, the consistencies of all values exceeding 0.90 indicate that the configuration is a sufficient condition causing high performance of all elements.

4.1 Agility

In terms of agility (flexibility), there are three solutions in which solution 1 and 2 show remarkably high configuration to outcome, which means that solutions 1 and 2 are really important. VPESMEs normally tend to focus on factors in solution 1 and 2 when managing and developing their supply chain. Especially, “management culture and commitment” is the most important factor in an agile supply chain as it appears in all three solutions. “Management culture and commitment” itself configures more than 30 percent on the success of the supply chain (37.2 percent in solution F3); this can explain the special attention of VPESMEs to management. VPESMEs think if they jointly share and solve problems with their partners, they will gain many benefits. Moreover, VPESMEs regularly engage suppliers in new product/service development, and engage extensively in a two-way exchange of important/technical information with all supply chain members. Besides, making long-term commitment to suppliers to achieve mutually acceptable outcomes is what VPESMEs have done when running a supply chain. Accordingly, VPESMEs require all departments in the plant to communicate frequently with each other, especially for important decisions. One of the main requirements which VPESMEs expect is that supply chain partners keep promises made to us and protect our rights, and are always truthful and frank. It is hoped that supply chain partners consider their welfare as that of their own, and trouble them when they face problems or obstacles. In general, VPESMEs regard trust, thorough and transparent integration, communication and behaviors as key drivers of a successful flexible supply chain.

However, as for “Integration of partnership”, “Information sharing” and “Information technology”, the result configures a higher percentage, which means the three mentioned variables also play important role in supply chain orientation of VPESMEs. Furthermore, compared to solution F3, the raw coverage of solution F1 and F2 is relatively higher (62.1 percent for solution F1 and 70.4 percent for solution F2). This result could be interpreted that a flexible supply chain can be better when it has at least two conditions including good management culture and commitment and partnership. However, if a supply chain applies information technology or maximizes information sharing, it can gain higher

effectiveness. Nevertheless, the solutions also can show clear trade-off with information technology and information sharing substituting for each other and allowing neutral permutations around the core conditions, thus also indicating the presence of second-order equifinality. The presence of information technology results in 70.4 percent of raw coverage much higher than that of information sharing (62.1 percent). This explains that if a supply chain’s data system is opened to all supply chain partners with accurate accessible information, the chain performance would be better than if they only share information about inventory, production, delivery data, sale data, demanding forecasts and performance metrics with partners.

Last but not least, we can affirm that VPESMEs do not like to share their information with their partners because they may think that sharing information can reveal all their business secret and, they therefore, deny to share with their partners. However, as we can see, a successful supply chain is the chain in which all member must well understand each other as well as members’ operation to have a good link to match all mission and objectives. This way of thought can leave VPESMEs behind the development and improvement.

4.2 Leanness

Solution L1 and solution L2 show that the idea that their supply chain costs are low among VPESMEs: distribution costs (including transportation and handling costs), manufacturing costs (including labor, maintenance, and re-work costs) and inventory costs (including inventory investment and obsolescence, work-in-progress, and finished goods) and that is because they have good management culture and commitment and closed partnership with all members. And similar to flexibility, information sharing helps to improve VPESMEs’ supply chain leanness but at just a small percentage (2.4 percent), by comparing raw coverage between solution L1 (60 percent) and solution L2 (62.4 percent). This implies that sharing information and investing in information technology can help to save operational costs of VPESMEs’ supply chain. This is different from building an agile supply chain. Another problem is that information technology seems to not contribute to save any cost of VPESMEs’ supply chains which is different from researches of some scholars such as (Thomas, 1993), (Stoneburner, Goguen, & Fering, 2002) etc.

Table 3. Degree of information sharing in VPESMEs’ supply chain

	Share all inventory data with our partners	Share of production and delivery data with our partners	Share all actual sale data with our partners	Share all demanding forecasts with our partners	Share all performance metrics with our partners
Agree	24%	38%	24%	24%	24%
Neither agree or disagree	19%	33%	19%	19%	19%
Disagree	57%	29%	57%	57%	57%

In general, investing in information technology as well as sharing information with each other is unnecessary (similar to what VPESMEs’ opinions about ways of building up a successful agile supply chain in order to have a perfect lean supply chain) as illustrated in table 3. This is one of the reasons why Vietnamese could not have a good supply chain to promote the growth of enterprises in particular and the development of the industry in general.

Table 4. Correlation between factors and Flexibility, cost in VPESMEs’ supply chain

	Flexibility	Cost
Information sharing	.226	.332
Information technology	.047	.035
Partnership	.218	.340
Management culture and commitment	.567**	.323

Table 4 shows analysis results of correlation between observed factors and flexibility and cost. Findings implies that management culture and commitment is the only factor which has significant relationship with flexibility at p=0.01. Other elements show significant correlation with an agile supply chain nor a lean supply chain. This one more time confirms that information sharing, information technology and partnership play a very small role in supply chains of VPESMEs.

5. Conclusion and Discussion

First, from above analysis, we found that in reality managers of VPESMEs still follow outdated traditional ways in managing their supply chain by mostly basing on management culture and partnership (very small). Managers’ decisions in VPESMEs will be final although they also ask for opinion from partners as well as their staff as they think good managers can drive their supply chain in the best way. Therefore, Vietnamese managers are so bossy and opinionated, and they are so reluctant in learning and accepting new knowledge. In addition, unparalleled technology among members of a supply chain also contributes to a high proportion to less use high-tech facilities in management. Those are disadvantages of Vietnamese managers in general and VPESMEs managers in particular. That explains why they deny the roles of information technology although their knowledge of supply chains and managers’ experience are relative high on average (see figure 3 and 4).

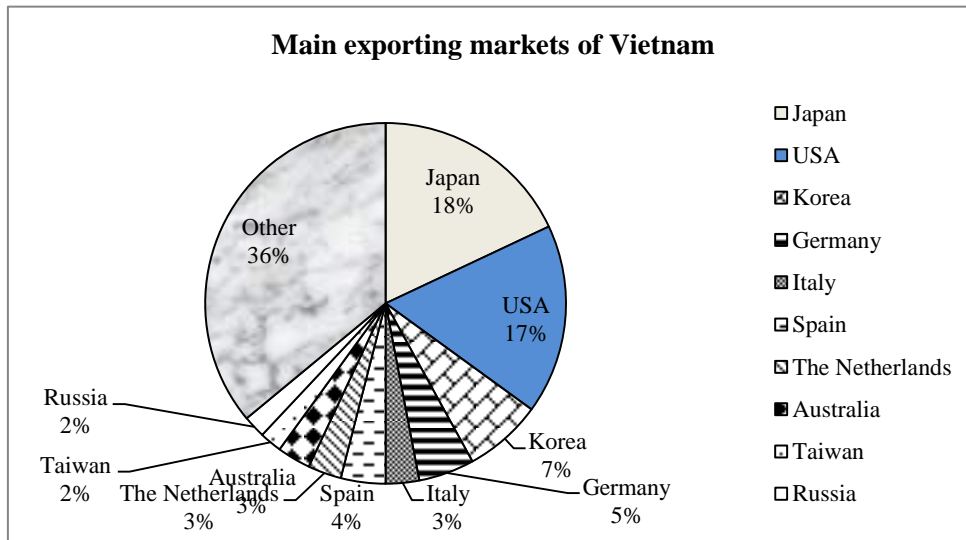


Figure 3. Main exporting markets of Vietnamese seafoods.

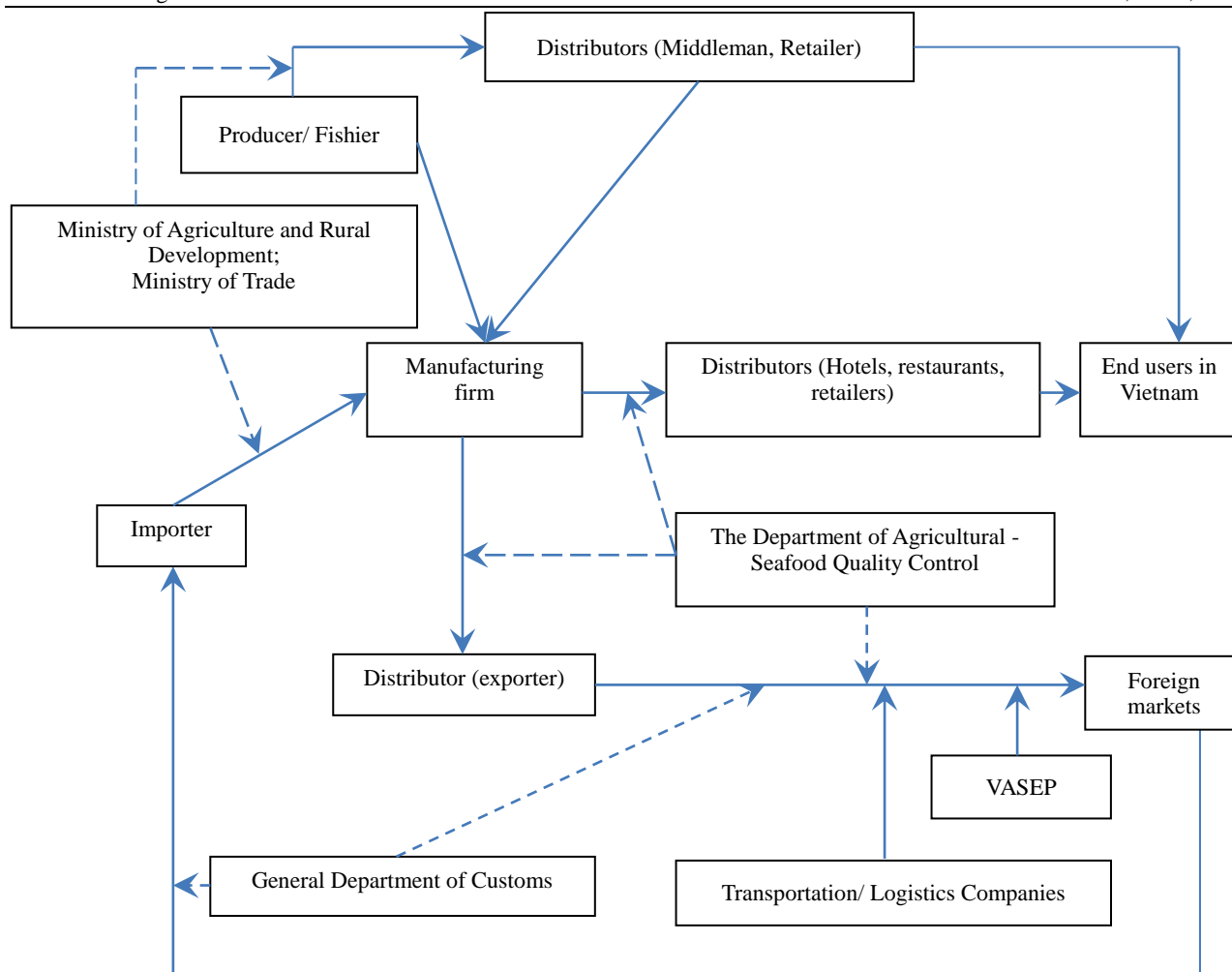


Figure 4. Vietnamese seafood supply chain

Source: Nguyen Anh Duong (Institute for Economic Management Central), *ASEAN Economic Community and the formulation consistent strategy during regional economic integration, Training course, 20th - 21st Aug, 2015.*

Second, information sharing and technology are the two fields which VPESMEs lack. VPESMEs do not care much about information sharing and technology and they operate and manage their firm and supply chain mostly through feelings and perception. This is very dangerous because feeling and perceptibility may be wrong, and they depend on many factors. If VPESMEs do not change their way of thinking, it can make their firm and supply chain damage or even go out of business; this has happened to many Vietnamese enterprises recently. Obviously, seafood is one of the key exporting products of Vietnam, with VPESMEs accounting for the largest percentage; therefore, if VPESMEs do not work well, it will be harmful to Vietnam's economy.

Third, although all above solutions configure a high percentage in supply chain activities, they represent only less than 80 percent of the performance. This reveals that there must be some other factors which can affect supply chain performance of VPESMEs. Those factors may be the roles of VASEP, Customs procedures, Governmental policies, social culture, environment, etc.. But they are not tested in this research.

Competiveness is increasingly tricky, but, Vietnamese enterprises are till conservative, not receptive, how can they survive? And how can they compete against their giant competitors in global market? Hence, we would like to suggest some solutions as well as advice to VPESMEs to help them build sustainable development.

6. Suggestion

Firstly, VPESMEs should make efforts in building strong partnership with all supply chain members. In order to produce high quality products, the firm should have a close link with all suppliers. The firms should see their suppliers as an indispensable part of their activities as well as success by trying to achieve front-end agreements with suppliers and to have joint business plan with suppliers.

As for customers, because trust and loyalty of customers are key elements to determine the exist of a firm, VPESMEs should see their customers as themselves, which means firms should try to provide customers with as good and high

quality as possible products. To be able to reap good results of this, the firms should win front-end agreements with customers and have joint business plans with customers, especially main ones, who help firms to find consumption markets.

Secondly, VPESMEs should establish good management culture and undertake commitments. Firms need to share within their supply chain all the benefits from problem solving and regularly engage information with key suppliers is also another way to help firms build up a strong consolidation with alliances. In this way, VPESMEs can assure that all supply chain partners keep promise made to the firms and protect firms' right.

Thirdly, VPESMEs should pay much attention to investing in information technology and innovative technology by buying new technology or update the current one, so that the firms can proceed and manage information accurately. The firms should update all information regularly so that all partners in a supply chain can check and the chain's staff, suppliers, distributors, retailers can access information system easily, by which they can reflect and apply to match each other concerning changes, trends, and feedback,... from the market so that firms and conduct on time adjusting plans.

Last but not least, VPESMEs should share all necessary information with supply chain members as sharing information among members in a supply chain will help save cost than applying any other methods. This can push managers with managerial insights to improve supply chain performance through information sharing integration partnerships (Cho & Lee, 2013).

References

- Agarwal, A., Shankar, R., & Tiwari, M. (2006). Modeling the metrics of lean, agile and leagile supply chain: An ANP-based approach. *European Journal of Operational Research*, 173, 211–225. <http://dx.doi.org/10.1016/j.ejor.2004.12.005>
- Bian, J., Guo, X., Lai, K. K., & Hua, Z. (2014). The strategic peril of information sharing in a vertical-Nash supply chain: A note. *Int. J. Production Economics*, 158, 37–43.
- Can Tho Promotion (2015). *Exports of agricultural, forestry and fisheries in 2015: group staples fell, a secondary rise*. Retrieved from canthopromotion.vn: <http://canthopromotion.vn/home/index.php/gi%E1%BB%9Bi-thi%E1%BB%87u/tt-x%C3%BAc-ti%E1%BA%BFn-%C4%91t-tm-dl/11-xuat-nhap-khau/3603-xu%E1%BA%A5t-kh%E1%BA%A9u-n%C3%B4ng,-l%C3%A2m,-th%E1%BB%A7y-s%E1%BA%A3n-2015-nh%C3%B3m-h%C3%A0ng-ch%E1%BB%A7-l%E1%BB%B1c-gi%E>
- Cho, D. W., & Lee, Y. H. (2013). The value of information sharing in a supply chain with a seasonal demand process. *Computers & Industrial Engineering*, 65, 97–108.
- Christopher, M. (2000). The Agile Supply Chain: Competing in Volatile Markets. *Industrial Marketing Management*, 29(1), 37–44. [http://dx.doi.org/10.1016/S0019-8501\(99\)00110-8](http://dx.doi.org/10.1016/S0019-8501(99)00110-8)
- DeGroot, S. E., & Marx, T. G. (2013). The impact of IT on supply chain agility and firm performance: An empirical investigation. *International Journal of Information Management*, 33, 909–916. <http://dx.doi.org/10.1016/j.ijinfomgt.2013.09.001>
- Ellram, L. M., & Cooper, M. C. (1990). Supply Chain Management, Partnership, and the Shipper - Third Party Relationship. *The International Journal of Logistics Management*, 1(2), 1-10. <http://dx.doi.org/10.1108/95740939080001276>
- Estampe, D., Lamouri, S., Paris, J. L., & Brahim-Djelloul, S. (2013). A framework for analysing supply chain performance evaluation models. *Int. J. Production Economics*, 142, 247–258. <http://dx.doi.org/10.1016/j.ijpe.2010.11.024>
- Exportersportal.com.vn. (2015). *Exporting opportunity of sea food in Suncom*. Retrieved from exportersportal.com.vn: <https://exportersportal.com.vn/xuat-khau-thuy-san.htm>
- Gligor, D. M., Esmark, C. L., & Holcomb, M. C. (2015). Performance outcomes of supply chain agility: When should you be agile? *Journal of Operations Management*, 33–34, 71–82. <http://dx.doi.org/10.1016/j.jom.2014.10.008>
- Gunasekaran, A., Patel, C., & McGaughey, R. E. (2004). A framework for supply chain performance measurement. *International Journal of Production Economics*, 87(3), 333–347.
- Hill, L. D. (2000). *Basics of Supply Chain Management*. USA: St. Lucie Press.
- Investorwords.com. (2015). *supply chain*. Retrieved Sep 24, 2015, from investorwords.com: http://www.investorwords.com/4823/supply_chain.html?nl=iwtod
- Kee, H. L., & Hoekman, B. (2007). Imports, entry and competition law as market disciplines. *European Economic Review*, 51(4), 831–858.

- Khalili-Damghani, K., & Tavana, M. (2013). A new fuzzy network data envelopment analysis model for measuring the performance of agility in supply chains. *Int J Adv Manuf Technol*, 69, 291–318.
<http://dx.doi.org/10.1007/s00170-013-5021-y>
- Li, T., & Zhang, H. (2015). Information sharing in a supply chain with a make-to-stock manufacturer. *Omega*, 50, 115–125.
- Liu, H., Ke, W., Wei, K. K., & Hua, Z. (2013). The impact of IT capabilities on firm performance: The mediating roles of absorptive capacity and supply chain agility. *Decision Support Systems*, 54, 1452–1462.
<http://dx.doi.org/10.1016/j.dss.2012.12.016>
- Longest, K., & Vaisey, S. (2008). Fuzzy: A Program for Performing Qualitative Comparative Analyses (QCA) in Stata. *Stata Journal*, 8(1), 79-104.
- Naylor, J. B., Naim, M. M., & Berry, D. (1999). Leagility: Integrating the lean and agile manufacturing paradigms in the total supply chain. *Int. J. Production Economics*, 62, 107-118.
- Nguyen, D. A. (2015a). *Developing value chain in Asean area*. HoChiMinh City: WTO Center in HoChiMinh City.
- Nguyen, N. D. (2015b). Synthesis report significant issues in Government Regular Press Conference. Ha Noi: Ministry Office.
- Ragin, C. C. (2000). *Fuzzy-set social science*. Chicago: Chicago: University of Chicago Press.
- Stoneburner, G., Goguen, A. Y., & Fering, A. (2002). *Risk Management Guide for Information Technology Systems*. Gaithersburg, MD: National Institute of Standards and Technology.
- Supply chain management institute (n.d.). Retrieved 9 20, 2015, from Supply chain management institute: <http://scm-institute.org/Partnership-in-the-supply-chain.htm>
- Thomas, D. J. (1996). Coordinated supply chain management. *European Journal of Operational Research*, 94(1), 1–15.
- Thomas, H. D. (1993). Chapter 1: The Nature of process innovation. In Davenport, *process innovation* (p. 1). USA: Ernst & Young.
- Thompson, G., Frances, J., Levacic, R., & Mitchell, J. (1998). *Market hierarchies and networks-The coordination of social life*. London: The SAGE Publications Ltd.
- Voigt, G., & Inderfurth, K. (2012). Supply chain coordination with information sharing in the presence of trust and trustworthiness. *IIE Transactions*, 44, 637–654. <http://dx.doi.org/10.1080/0740817X.2011.635179>
- Woodside, A. G., & Zhang, M. (2012). Identifying X-Consumers Using Causal Recipes: “Whales” and “Jumbo Shrimps” Casino Gamblers. *Journal of Gambling Studies*, 28(1), 13-26.
- Wu, F., Yeniyurt, S., Kim, D., & Cavusgil, S. T. (2006). The impact of information technology on supply chain capabilities and firm performance: A resource-based view. *Industrial Marketing Management*, 35, 493–504.
<http://dx.doi.org/10.1016/j.indmarman.2005.05.003>
- Wu, I. L., Chuang, C. H., & Hsu, C. H. (2014). Information sharing and collaborative behaviors in enabling supply chain performance: A social exchange perspective. *Int. J. Production Economics*, 148, 122–132.
- Yu, Z., Yan, H., & Cheng, T. E. (2001). Benefits of information sharing with supply chain partnerships. *Industrial Management & Data Systems*, 101(3), 114 -121.
- Yusuf, Y., Gunasekaran, A., Adeleye, E., & Sivayoganathan, K. (2004). Agile supply chain capabilities: Determinants of competitive objectives. *European Journal of Operational Research*, 159, 379–392.
<http://dx.doi.org/10.1016/j.ejor.2003.08.022>
- Zhou, H., Shou, Y., Zhai, X., Li, L., Wood, C., & Wu, X. (2014). Supply chain practice and information quality: A supply chain strategy study. *Int. J. Production Economics*, 147, 624–633.
<http://dx.doi.org/10.1016/j.ijpe.2013.08.025>

Copyrights

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/3.0/>).