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PROCUREMENT IN SAUSAGE SUPPLY CHAIN – A CASE STUDY FROM MAVIN FOODS

Luc Thi Thu Huong
Thuongmai University
Email: huong.ltt@tmu.edu.vn
Nguyen Thi Bich Loan
Thuongmai University
Email: bichloandhtm@tmu.edu.vn
Pham Thu Trang
Thuongmai University
Email: trangtp24@tmu.edu.vn

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As a result of a rise in disposable incomes, population growth, and urbanization, sausage consumption in Vietnam has increased significantly over the last decade. To meet the higher demand from the local market, meat processors must establish an appropriate supply chain with identified sources to ensure food safety and good quality at a reasonable cost. This paper tries to assess the purchasing activities in the sausage supply chain in Vietnam in general and at a specific company such as Mavin Foods in particular. An in-depth interview method was applied by authors to get data for insight procurement practice of Mavin Foods' sausage supply chain. The paper reveals the company's self-contained production chain (3F) that helps to control all stages of Mavin's sausage supply chain with many opportunities and challenges.

Keywords: *Supply chain, Procurement, Sausage, Mavin Foods*

JEL Classifications: *M19, O13, Q21*

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1. Introduction

Sausage is usually a finely chopped and seasoned meat that is mixed with other ingredients and stuffed into an intestinal casing (Essien, 2003). The use of sausages as a processed meat product and a food component has been identified by different and diverse cultures around the world dating back many centuries. The FAO (FAO, 1985) views sausages as one of the oldest forms of meat processing in which meats go through various modification processes to acquire desirable flavors and properties. Sausage making was also one of the earliest methods of food preservation. The process of stuffing, salting, and smoking meats kept them from going bad. Sausages emerged independently in many different parts of the world because they are an exceptionally good way of using up small scraps of meat and offer a means to preserve perishable flesh from rot and decay.

Nowadays, several hundreds of sausage varieties are created all over the world. Each region develops its distinctive style of sausage influenced by the availability of local ingredients, spices, casings and climate conditions. According to the processing method employed, sausages are basically classified into 3 broad groups: fresh (not cooked or cured); cooked; and dry sausages (FAO, 1985). The sausage has remained a popular part of the European and American diet for thousands of years as this highly nutritious product is very convenient for cooking

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and consumption with a good flavor (Hugo Ferrer-Pérez, O. Guadarrama, and José Maria Gil, 2019).

This meat-based Western sausage has increased the demand and has high potential opportunities comes from the increased concern of Vietnamese young consumers for the Westernization of diet, the increasing awareness of convenient and ready-to-eat food with good protein sources. The rapid urbanization, and higher incomes in the context of a highly integrated economy are among the important reasons that fuel the development of the sausage supply chain in Vietnam.

The sausage market in Vietnam is witnessing increasingly fierce competition between manufacturers, both domestic and foreign. In order to stay and prosper in this competitive and yet promising sausage market, the companies should pay much attention to quality, safety, and hygiene from the very beginning stage of the supply chain, from the procurement perspective. Thus, this paper tries to assess the purchasing activities in the sausage supply chain in Vietnam in general and at a specific company named Mavin Foods.

The article applied in-depth interview method with the Purchasing Manager and Deputy Director at Mavin Foods to get data for insight procurement activities of the company's sausage supply chain. Several direct talks and email exchanges were taken during June 2022 to get information for further analysis of specific issues in the input stages at Mavin Foods. This qualitative approach was chosen because of its high flexibility for a problem exploration and interpretation of underlying mechanisms. These primary data combined with the secondary information from Mavin's internal and external sources helped to build a comprehensive case study on the procurement issues of the identified company.

The paper is organized into 5 parts. The beginning section presents an introduction of the paper, including the background, objective, and research method. The second part provides a review of the market's potentials for sausage in Vietnam, both from supply and demand sides. Part 3 describes and analyses the typical sausage supply chain among the food manufacturers in the country from input to output stages. Part 4 focuses on a detailed discussions and explanations of Mavin Foods' purchasing functions and activities in the supply chain. Final part draws out the conclusions as well as directions for further research.

2. Market's potentials for sausage in Vietnam

Actually, the sausage is not a new food product in the Vietnamese cuisine. Traditionally, the common type of sausage in our country is GIO LUA, which made of lean pork, potato starch, garlic, ground black pepper and fish sauce. It is often wrapped tightly in banana leaves into a cylindrical shape of 1 kg and boiled into water for about an hour. This handcrafted sausage is usually produced in small batches from very fresh meat.

Western style sausage is familiar to Vietnamese customers only for nearly 30 years. It becomes more and more popular along with our country's industrialization and globalization processes. This paper is focused only on the industrial sausage that produces in mass production at the factories since this kind of product can confirm its originality and food safety that is important choice criteria for consumers.

The Vietnamese sausage market has expanded rapidly with the participation of many famous brand names like Vissan, Duc Viet, CP, Le Gourmet, and Chip Bon. For the last ten years, more and more players are involved in producing and trading sausages, some of them are very big firms such as Masan, Dabaco, Ba Huan, Nova Foods, etc. who have ambitious plans to launch their new business. Some giant guys entered the sausage market by taking control of the smaller food companies through M&A deals (Table 1).

Vissan is now the leading company in providing packaged sterilized sausages, holding 65% of the domestic market in this style. With 50 years of food development, 25 years engaged in the sausage production and nearly 10 years of adopting a closed "from farm to fork" model, Vissan has created a great reputation and marked its success in carrying out the market access strategy with quality and food safety for consumers. Another pioneer of sausages who has long since captured the loyalty of customers is Duc Viet company. If Vissan is famous for packaging sterilized sausages, Duc Viet is known as a powerful trademark of fresh sausages, a type of sausage that local customers are much in favor of.

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Table 1: *Some sausage producers and their supply chain in Vietnam*

No	**Company** *(M&A deal)*	**Origin** and *Website*	**Brands** *(Time engaged in sausage business)*	**Supply chain's features**
1	Vissan	HCMC, Vietnam *vissan.com.vn*	Vissan, Bong Mai, Dzui Dzui *(1997)*	The closed supply chain (3F), linking slaughtering, processing, packaging, and storage.
2	Daesang Duc Viet *(Acquired Duc Viet 2016)*	Hanoi, Vietnam *ducvietfoods.vn*	Duc Viet, Dong que, Kielbasa, Handy *(2000)*	Conventional supply chain for German's style pork sausage, made from collaborative farms' meat
3	CPV food	Thailand *cp.com.vn*	CP, Butcher *(2002)*	The self-contained production chain (3F), control all stages of SC
4	San Miguel Pure Foods	Philipines *sanmiguelpurefoods.vn*	Le Gourmet *(2006)*	Identified source region, produced in Binh Duong, distributed at restaurants and supermarkets
5	Mavin Foods	Hanoi, Vietnam *mavinfood.com.vn*	Mavinia, Berliner, Vealino *(2015)*	The self-contained production chain (3F), control all stages of SC
6	Masan food *(Acquired Saigon Nutri Food 2015)*	HCMC, Vietnam *saigonnutrifood.com*	Saigon Nutri Food, Heo cao boi *(2012)*, O'Lala, Ponnies *(2021)*	The self-contained production chain (3F), control all stages of supply chain
7	Ha Long Canfoco	QuangNinh, VN *canfoco.com.vn*	Chip Bon, Everyday, Bee Bee *(2006)*	Imported materials, mass market, track and trace practice
8	NH foods VN *(Acquired Con heo vang 2011)*	Japan *nhfoods-vietnam.com.vn*	Con heo vang *(2000)*, Nippon Ham, Chipo *(2014)*	Selective and premium input ingredients, distribution at high end resraurants and hotels
9	CJ Cau Tre *(Acquired Cau Tre 2017)*	Korea *cjvietnam.vn*	Real *(2014)*	Conventional supply chain for Mexican style pork sausage made from collaborative farms' meat
10	Ba Huan	HCMC, Vietnam *bahuan.vn*	Oliba *(2019)*	The self-contained production chain (3F), control all stages of SC
11	Hoa Sen Viet	HCMC, Vietnam *lotusgroup.com.vn*	Shinshu NT *(2020)*	Use clear, high-quality meat that are slaughtered in modern lines. The cover is made from high quality sheep's gut.
12	Dabaco	BacNinh, Vietnam *dbcfood.com*	Dixie, Lizza, Banger, Chicky cheese *(2013)*	The self-contained production chain (3F), control all stages of SC
13	Nova Food *(Acquired Anco 2022)*	HCMC, Vietnam *ancofamilyfood.com*	Xuxifarm *(2010)*	On the way to build the self-contained production chain (3F)
Other companies		GreenFeed, Viet Sin, Viet Huong, Gia Phat, The Old Ika, ChenLin Foods, Sfood, Life Food, Highfood etc.		

Source: Synthesized from companies' websites and annual reports

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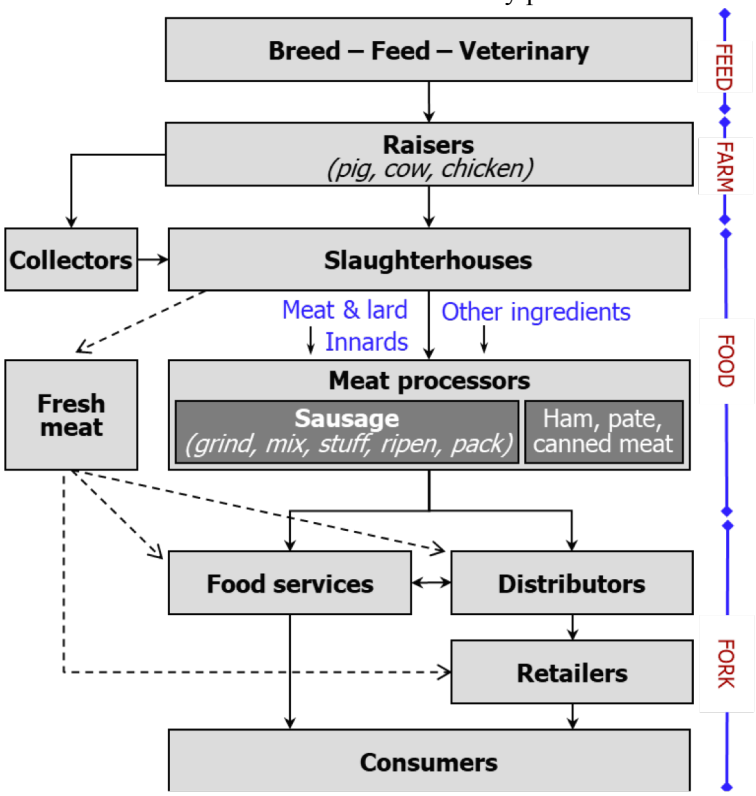
These local companies are now facing stiff competition from other FDI heavyweight opponents, including the CPV from Thailand, San Miguel Pure Foods from Philippines, CJ from Korea and NH foods from Japan. The famous name CPV is proud to be the pioneer in researching and successfully applying the self-contained production chain called the **Feed-Farm-Food** or 3F model. It means that the business covers all the production processes, from producing animal feed to building farms, and processing food output those farms. Following the 3F model of CPV, domestic companies like Vissan, Masan, Mavin, and Dabaco can strictly control all stages of production to ensure nutrient security and food safety for people's health, the most important issues for both food producers and consumers. The model assists companies to ensure the product quality from raw material to final output, to minimize production expenditure and protect reputation.

3. General sausage supply chain

The sausage supply chain is the result of a process that integrates various players at feeding industry, farming, processing, and distributing levels. The basic structure of industrial sausage supply chain is shown in the Figure 1. The upstream levels are comprised of feeding and farming stages. The feed industry plays an important role in improving productivity, efficiency, and food safety of the livestock farming. Since the feed costs often represent the biggest position of the variable costs with 65% to 70% for farmers in Vietnam (Nguyen Thi Thuy, M., Dorny, P., Lebailly, P., 2020).

In the country, the feed industry is characterized by the concentration of few large manufacturers which occupies large market shares such as Cargill, CP, De Heus, Proconco, Japfa, Mavin, Dabaco and GreenFeed. This market structure limits small farmers' ability to significantly affect feed markets, particularly prices.



Source: Developed and Modified from ILRI and CIAT, 2014; Nguyen et al, 2020; Ferrer-Pérez et al, 2019

Figure 1: *Typical industrial sausage supply chain*

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Livestock and poultry (pig, cow, chicken) production systems in Vietnam range from smallholder farms over semi-industrial farms to industrial farms. It is estimated that small-scale pig producers provided at least 80% of total pork production in 2014 (Nga, N.T.D., Ninh, H.N., Hung, P.V. and Lapar, M.L, 2014). However, the landscape is changing radically now as more big companies such as Masan, Dabaco, Ba Huan, Mavin, and Nova Food are following the model that helped Thailand based CP Group develop strongly (Nguyen Thi Thuy, M., Dorny, P., Lebailly, P., 2020). These feeding firms are investing heavily in the farming areas through the vertical downward integration strategy. Conversely, processors are also experimenting with vertical integration in order to control stable and certain inputs for quality and quantity.

Vertical integration, both upstream and downstream, in the sausage supply chain in Vietnam, is typically done for reasons that tie back to consistent supply, quality control, reduced costs through economies of scale and increased market share due to the high barriers of entry. One of the things that sausage companies in Vietnam are doing is aiming to build a 3F model to ensure the reliable source of raw materials, in terms of quality, quantity and price. However, developing the 3F model requires firms to have strong financial capacity, good infrastructure, and an extensive distribution system that all players have to consider carefully.

Following the farming stage is the slaughter practices that remain predominated by traditional houses in Vietnam, where meat hygiene safety as well as environmental pollution are always a huge public concern. As in the year 2020, Hanoi had 738 animal slaughterhouses, of which 673 were traditional family-sized houses, 58 are semi-industrial-scaled units, and only 7 are industrial-scaled units (Son, 2022).

The modern industrial-scale cattle slaughterhouses are also opened and controlled by the 3F model companies, eg. Vissan and Masan. These slaughterhouses are often located in the industrial complexes that allow operating with high capacity in right cold context to ensure hygiene standards, meat quality and longer time for storage. Some other meat processing companies (eg. Mavin and Hoa Sen Viet) outsource the slaughtering activities to third parties with their direct and close control.

Some share of meat from slaughterhouses are sold fresh to food services units and to the distributors/retailers that pass through various channels to the final consumers since Vietnamese people still prefer fresh meat over processed products. Some other parts are gone for ham and canned meat production. The right meat parts stay for sausage preparation.

Some parts of pork and beef (such as belly, loins, collar and firm lard) are going to cold storage for sausage processing activities. The meat processors undertake functions to transform these parts into sausages. The meat parts and the lard are minced by the machine into 4–6 mm particles, and then the spices and the salt are added. The resulting paste (that has a temperature of 0°C to –4°C) is filled by machine into casings of pigs' (or sheep's) small intestines or artificial casings and the sausages are then clipped at the end. The filled sausages are subsequently cooked or dried. This is the node where processes add more value to meat. Manufacturing operations depend on rapid, relatively steady turnover. On average sausage products spend about 2 weeks being processed and held as a finished product by the processors. The products spend roughly two more weeks under the ownership of distributors and retailers.

Vietnam's sausage market is full of potential. There are optimistic signals for the meat processing industry of the country which has rising income levels and changing lifestyles, particularly in urban areas. The young and affluent Vietnamese consumers are interested in high-quality and high-value food products accompanied with convenience and nutritious items Current busy lifestyles and longer working hours are expected to drive long-term growth for the processed meat industry in general and the sausage market in particular (Quach, V.D., Yabe, M., Nomura, H. and Takahashi, Y. , 2022). Recent M&A deals have further demonstrated the development potential of the sausage market. But at the same time, the appearance of large corporations from abroad will increase the competitiveness of the market, and force domestic enterprises to innovate if they do not want to be left behind.

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4. Procurement at Mavin Foods' sausage supply chain

4.1. Mavin Foods' profile

In 2012, Mavin Foods is established as a subsidiary of Mavin Group - one of Vietnam's top ten agribusinesses (Mavin Group, 2022) for the purpose of completing the "From Farm to Table" production model to supply "Clean and fully traceable" products.

Mavin Group is a fully integrated farm-to-table company founded in 2004, with operations in feed mills, veterinary medicine, and food manufacturing plants and farms throughout Vietnam. After nearly 20 years of expansion, Mavin Group is well-known as one of the top 10 animal feed companies. Moreover, the company has been listed on the VNR500 every year since 2014 (Vietnam Report, 2021).

About the "Farm to Table" supply chain in Mavin Group, each stage is carried out by one subsidiary. In which, Mavin Farms is the first link of the supply chain that specializes in providing high-quality breeds and raising animals with advanced farming technology. The following members are Mavin Austfeed (currently owns 5 feed mills with an annual capacity of 1.2 million tons/year) (Mavin Group, 2022).Mavin Animal Health (Mavin Vet) and Mekovet, which provide veterinary pharmaceuticals not only for internal members but also for the whole domestic market. And lastly, Mavin Foods is known as the final link of Mavin Group's supply chain. A short company profile is presented in Table 2.

Table 2: *Mavin Foods Snapshot*

Full name: Mavin Foods Joint Venture Company (Subsidiary of Mavin Group)	
Year founded: 2012 **CEO:** Nguyen Anh Tuan	**Headquarter:** Located in Hanoi **Factory:** Located in Hanam (60km from Hanoi)
Business Vision:	Clean food from the source Ensure from farm to table value chain
Major products:	- Sausage (80%): under brands Mavinia, Berliner, Vealino Plus, Smoked - Fish ball (12%): under brands Beef flavored, Traditional flavored, Shrimp flavored, Vegetable flavored - Others (3%): Gio lua, pate, pepperoni, salami
Major markets:	Hanoi and cities in the Northern and Central regions
Initial investors:	Mavin Group
Primary competitors:	Vissan, Duc Viet, CP Food, San Miguel Pure Foods
Major milestones:	- 2013: Establishment and investing in a food processing factory in Ha Nam, specializes in pork products. - 8/2014: The factory officially put into operation in Hanam, capacity of 10.000 tons/year. - 4.11.2020: Applying ERP SAP S/4HANA in management.
Employees:	111 people, 62.2% are female

Source: Developed from interviews and Mavin Foods' Internal Records

Currently, Mavin Foods operates a factory located at Dong Van II Industrial Zone, Duy Tien district, Ha Nam province with a 10,000 m^2 area. Thanks to

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the synchronously and modernly investment with a new production system made in Germany, this plant has a capacity of up to 10.000 tons of products a year with high quality, food safety, and hygiene.

There are 3 main types of products provided by Mavin Foods: sausage (pork and chicken), fish ball, and others. In which, sausage is self-produced completely by Mavin Foods and constitutes 85% of the total revenue, making it is the most important product of the company. Meanwhile, the production of fish balls is completely outsourced to a company in Binh Duong industrial park named Huynh Nguyen, and other products are only made to order. That two product groups contribute about 12% and 3% of Mavin Foods' income respectively.

According to the survey of supermarket chain Bach Hoa Xanh (Bach Hoa Xanh, 2022), Mavin is in the top 10 most popular sausage brands in Vietnam. Its products are popularly served at many famous hotels in Hanoi, such as Intercontinental Hanoi Westlake Hotel, Crowne Plaza West Hanoi Hotel, Sheraton Hanoi Hotel, Jaspas Hanoi restaurant's system, Papa Joe Hanoi restaurant's system. Mavin's sausages are also distributed among supermarket networks and through the traditional channels to the end consumers.

4.2. Mavin Foods' sausage supply chain

Sausage is self-produced by Mavin Foods and contributes a significant portion of Mavin Foods's revenue. Analyzing Mavin Foods's sausage supply chain help to provide useful information for further detailed discussions and explanations about the purchasing functions and activities at Mavin Foods. As shown in Figure 2, the sausage supply chain in Mavin Foods has a similar structure to the typical industrial sausage supply chain presented in Figure 1. However, as a self - contained supply chain, the participants of Mavin's members are outstanding and extremely important.

The upstream levels are comprised of feeding and farming stages, all breeding pigs and chicken are provided by Mavin Farms and then raised by Mavin itself or its contracting partners. With the founding stock imported from a reputable pig breeder in the United Kingdom, Mavin has created high-quality breeds that adapt well to the climate environment of Vietnam. Currently, the company owns 4 hi-tech swine breeding and farming centers (total area 120ha) and cooperates with nearly 100 farmers nationwide. Each contracting farmer is required to have land of at least 5ha with a herd of 3000 to 5000 pigs to be qualified. Totally, both Mavin's farm and private one can provide over 40,000 breeding sows and 500,000 pigs of high quality (Mavin Foods, 2022). In which, 90% of the pigs come from contracting farmers and the remaining belong to Mavin's farm.

The cooperation between Mavin and farmers household help to utilize the advantages of all parties and improve the efficiency of breeding. Farmers take responsibility for farm construction and facility management, while Mavin oversees input, management of the main production process as well as output. Therefore, by engaging in a close collaborative relationship, farmers got their output and input covered, as well as technical support, resulting in the stable income. At the same time, Mavin can expand its operations in all sectors, especially in breeding, feeding, and veterinary.

The next stage is slaughtering, which has been outsourced to an outside company called Vinh Anh Technology JSC (Vinh Anh Foods, 2022), which operates the modern industrial slaughterhouse and has the huge cold storage that can ensure the meat quality and safety at the right cost for the company. According to Mavin Foods purchasing manager, Vinh Anh Food is the only slaughterhouse that has been cooperating with Main Foods for many years. As the one of 7 industrial-scaled slaughterhouses in Hanoi (Son, 2022), Vinh Anh ensures the high-quality food and services.

Besides, the geographical advantage of Vinh Anh Food is also considerable. The company located in Thanh Xuan, Hanoi where is convenient to connect with Mavin Food's factory and varieties farms placed in Hung Yen, Phu Tho (distance under 60 km) which has major contracting farmers of Mavin. Animals from farms in the Northern region are moved to Vinh Anh slaughterhouse by trucks. The output of slaughtering can be classified into 2 groups: usable in processing sausage or for other purposes. For sausage production, the popular usable fresh meat parts are belly, loins, collars firm lard and innards… Mavin Food makes purchase

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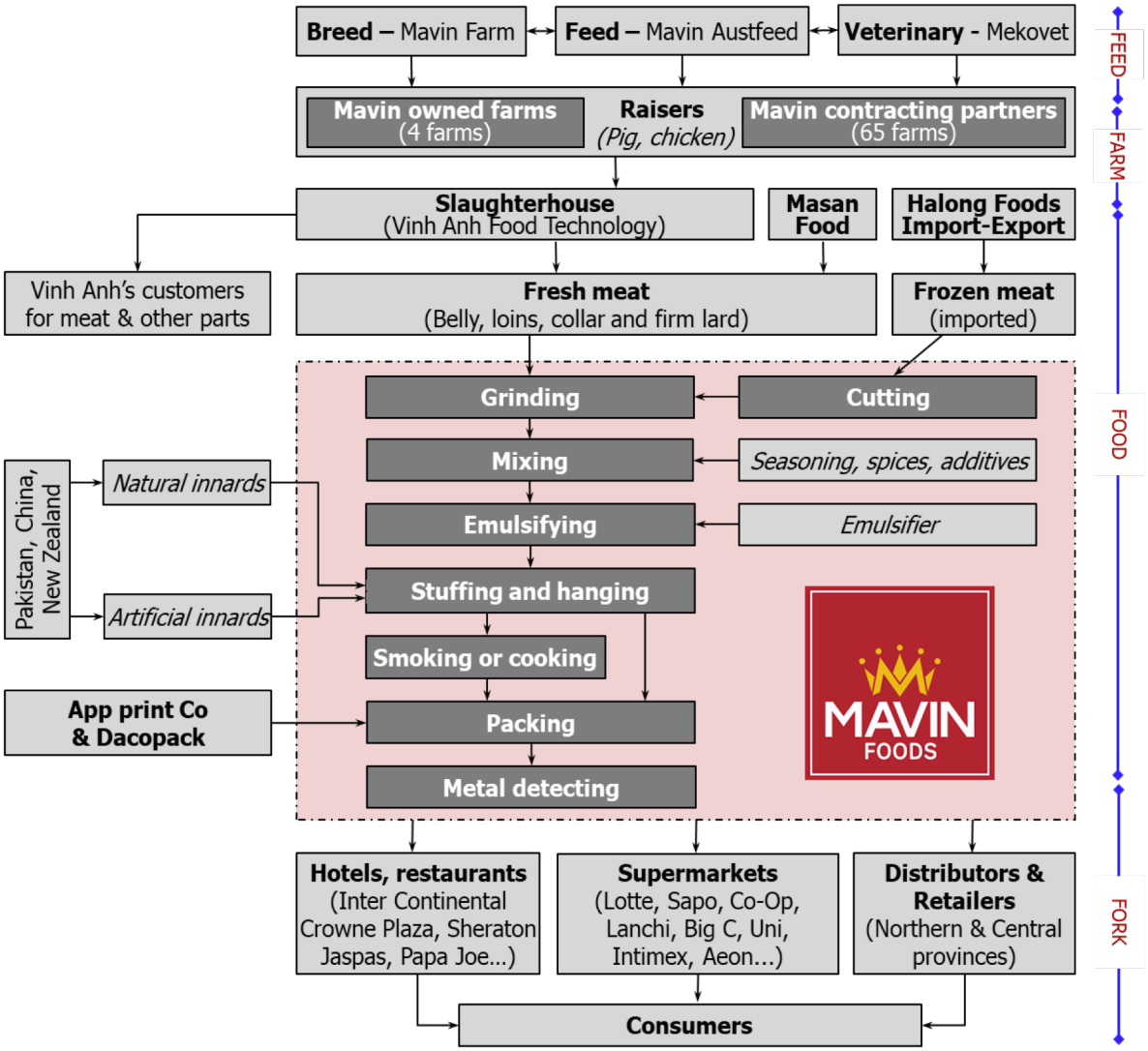

Source: Developed from interviews and Mavin Foods' Internal Records

Figure 2: *Mavin Foods' sausage supply chain*

orders base on the requirement of company's production plan. The remaining parts of animal, such as bone, livers, organs… are distributed to customers of Vinh Anh Food, eg. Big C, Vinmart, Samsung (Vinh Anh Foods, 2022).

In some cases, the demand of Mavin Foods for fresh meat is higher than the consuming abilities of Vinh Anh's partners, that leads to the shortage of raw meat for Mavin's sausage production. To solve this problem, in addition to fresh meat provided by its own company's system, Mavin Foods buy fresh meat from Masan (the largest slaughterhouse in Vietnam) and frozen meat from Halong Foods Import-Export company (www.halongfoods.com.vn, a leading firm in meat importing field). Thanks to the collaborative relationship with Masan, Halong, Mavin can avoid the situations of meat shortage in production. Applying the selective suppliers' strategy for the meat, the main ingredient, can help Mavin ensure the eco-

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nomic benefits of scale while still can reduce the risks occurred of supply chain disruption, that can be happen in the food industry by disease and other accidental crisis.

As the sausage is completely produced by Mavin itself, the sausage processing happens inside Mavin Foods' factory. All fresh meat (belly, loins, collar, and firm lard) is grinded with cut frozen meat before seasoning and mixing with spices and additives. The combination must be emulsified by using innards (natural or artificial) and then stuffed. The semi-products are hung up to dry before going into smoking/cooking steps (for cooked sausage) or packing steps (for fresh sausage). All stages are performed by the modern machines imported from Germany and operated by experience experts (Appendix 1). At the final stage, all packed products will be diagnosed by a metal detecting machine to ensure that there are no harmful metal remains inside sausage which violate the food safety. After that, finished product must be stored at temperature between $0^{O}C$ and $4^{O}C$ in maximum 2 weeks at Mavin Foods warehouse. Actually, all the finished goods are distributed within one week after production.

Following the producing stage is the distribution. Currently, Mavin distributes its products through 3 different channels to the final consumers: hotel and restaurants, supermarkets, distributors and retailer. With the first group, the main customer of Mavin are famous hotel and restaurant's system in Hanoi, like Inter Continental, Crowne Plaza, Sheraton or Jaspas's and Papa Joe's. The majority products for those places are fresh high-quality sausages which suitable for cooking and serving high-class customers. While cooked sausages and smoked sausages make up the significance in supermarket, distributors and retailers as the target customer are low- and average-income people. Currently, the distribution network of Mavin Food is mainly concentrated in Northern area only and planning to expand in upcoming years.

4.3. Procurement in Mavin's sausage supply chain

4.3.1. Ingredients

Sausage is usually made with fresh or frozen meat or poultry. Besides, there are non-meat additives used in sausage preparation as well. To be specific, an additive is "any safe ingredient added to a meat or poultry food product other than meat, poultry, or meat and poultry by products for a specific purpose" (U.S. Department of Agriculture, 2020). Other materials could be mentioned are water or cooking spices like salt, sugar, etc. In short, the number and portion of ingredients to make a delicious sausage are very diverse and different between various types of sausages and brands.

In the case of Mavin, there are 4 main ingredients that should be mentioned when evaluating its sausage by the value. The most important material is meat, which accounts for 80% of the sausage's value. Meanwhile, all additives (including salt, coriander, color stabilizer, preservative, and antioxidant) take only 10%. And the 8% belongs to sausage casing (natural innards and artificial innards), packages and stamps hold the remaining 2% respectively.

4.3.2. Suppliers

Supplier selection is an important process that sets a background for a long-term business-to-business partnership with suppliers who can greatly affect the success or failure of an enterprise. Choosing a good supplier cannot only help contribute the most value for a business but add to the company's resources and efficiently operate to optimize profitably.

Understanding the importance of selecting suppliers, Mavin Foods built a set of supplier selection criteria as illustrated in Table 3. Based on the sales plan, the production department calculates the demand for materials and then transfers data to the purchasing department. After checking the estimated amount of required ingredients with the inventory, purchasing staff builds the ordering plan and sends it to the board of directors for approval by the 25^{th} of every month. After that, the purchasing staff is responsible for finding at least 3 potential suppliers for each material for evaluation.

There are 4 factors that Mavin Foods believes are significant in assessing potential and present suppliers. Purchasing department uses those criteria to assess potential suppliers to get the most suitable supplier. Like many other companies working in food processing field, quality is the most important criteria of Mavin Food when considering supplier and account the largest portion (40%) in the total

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Table 3: *Supplier selection criteria*

No	Criteria	Importance weight (%)
1	Quality of materials The suppliers have to provide - Certificate of Origin (for imported materials) - Certificate of Analysis for quality and nutritions (all materials) - Annual Sanitary and Phytosanitary test document (all materials) - Zero Defect shipment profile (all materials)	40
2	Purchasing cost and payment term	25
3	Supply capacity and delivery	20
4	**Reliability**	15
	Total	**100%**

Source: Mavin Foods purchasing department

mark of a potential supplier. As sausage is a highly sensitive product and even a small incident where the quality of products has been compromised could tarnish the brand image. Quality control principles for food manufacturers are crucial not only in producing or storing finished product but it starts with the quality of input materials. Should be mentioned for imported materials, Mavin requires that at the time of good receiving, the remaining usage time must be at least 2/3 of total due date. Purchasing department need to ensure that suppliers have proper information and strictly follow the requirements. If the quality of goods is not meet the standards, quality control staff will require PIC in purchasing department and warehousing staff will process the returning and request replacement accordingly. All defect material will be marked and located in a separate area while waiting to be returned.

The second criteria are purchasing cost and payment term. As expenditure is always a major problem which attracts a lot of interest of company, Mavin Foods needs to ensure that supplier's cost is within budget of the firm. Moreover, there should be a type of payment arrangement that's ideal or take advantages to Mavin.

With regard to supply capacity and delivery, it is also reasonable for Mavin Foods to expects received goods in the right quantities on time. That criteria take 20% out of 100% as total. According to the Purchasing and supplier management processes published by Mavin, the delivery time for domestic supplier is 10-15 days, for imported goods is 50-60 days since the date of ordering plan was approved.

Finally, to become a long-time partner, supplier should be reliable that can contribute to the success of Mavin Foods instead of creating trouble. This factor is considered as necessary but not too important, takes only 15% respectively.

Besides 4 factors mentioned above, Mavin should give special attention when choosing suppliers for meat and innards - the two main ingredients of sausage. Based on the evaluation ingredient by value of Mavin, meat and innards are the most expensive ingredients in producing sausage. On the other hand, the preservation of meat and innards is more difficult than most other foods due to nearly neutral pH, high moisture content and rich nutrients, it is highly prone to contamination by microorganisms (Pal M., Devrani M., 2018). Therefore, along with the meat procurement assurance in quality and quantity at right cost, the process of purchasing meat and innards also should be noticed for proper sausage production plan to ensure the total time of storing meat and innards is reasonable.

According to FAO (FAO, 1985), meat fat and other meat raw material must be stored at a temperature between 0° and 3°C, if unfrozen. And for frozen meat, they must be stored at minus temperatures corresponding to the degree of meat freezing required ranging from -8° to -20°C. And as men-

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tioned above, the short time of storing meat at Mavin is only 2 months. Therefore, the purchasing department must work effectively with the relevant departments and suppliers to ensure that there is no overdue meat in storage.

Innards or casings, also known as sausage skin, is the key element that encloses the filling of a sausage. The natural innards can be made from the small intestines that are collected, flushed, scraped and cleaned carefully after slaughtering of pigs or sheep. Artificial innards/casings are often made of collagen (derived from cattle skin) or cellulose which are less expensive to use, give better weight and size control, and are easier to run when compared to natural casings. Meanwhile, the natural casings have the better elasticity, water retention, smoky ingress, adhesion to meat, outstanding resistance to firmness, and higher nutritional value (Essien, 2003). Mavin Foods usually purchases natural innards from Pakistan or New Zealand and artificial innards from China.

4.3.3. Supplier relationship management

Any organization who provides goods or services for Mavin Foods will be added in the Mavin's supplier list. Then, Mavin Foods conducts a formal assessment of suppliers to measure their performance against various criteria and determine if they should be replaced or continue building a long-term relationship with company.

In particular, person in charge at purchasing department take responsibilities to cooperate with other relevant departments, like warehouse managers, security guards, production's staff to carefully double examine how 4 key criteria mentioned in the table 3 implemented in practice.

Meanwhile, the quality control staff takes responsibilities for post-shipment inspection to ensure that suppliers comply with the terms and conditions of the original purchase. The post-shipment inspection also helps to verify the quantity or quality of the received product, identify of any damage not discovered from the beginning. If there are any quality problems, not in accordance with the agreed requirements and standards, Mavin Foods will require to undo the receiving process. Depending on the degree of defect as well as the specific problem, it is possible to return a part of or the whole shipment (in case of infectious or contagious). The consequences of the post-shipment inspection are unacceptable for most of short-term suppliers and new suppliers because of the large economic loss. In the meantime, the long-term partners are already familiar with the working process of Mavin Foods and totally comply with Mavin's strict requirements. It explains for the fact that Mavin still prefer long-term partners than others.

According to the manager of purchasing department, food processing is highly sensitive and requires strong reliability, sometimes they accept high prices to ensure consistent quality. Relationships with trusted suppliers who have long - time relationships can enable organizations to achieve sustainable development.

Another way to decrease the supplier risk to grow up steadily is by using multiple suppliers. Partnering with multiple companies helps Mavin improve its ability to deal with supply disruptions. As can be seen from 65 suppliers of Mavin Foods that classified by a group of ingredients, there is only a few suppliers who have a long-term relation-

Table 4: *Number of suppliers for main ingredients*

Main ingredient	Number of suppliers
Meat	3
Additives	51
Sausage innards/casings	5
Stamp and packages	6
Total	**65**

Source: Mavin Foods purchasing department

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ship with Mavin, like Vinh Anh Food, Halong import, and export, Masan, Dacopack or AppPrint. The others can be considered as contingency plans of Mavin Foods which are only used in situations of great need.

4.3.4. Problems and Supply risks at Mavin Foods

Supply problems and risks in the sausage supply chain at Mavin Foods are hard to avoid, both from internal and external factors. The combination of various characteristics of agricultural production and products, such as perishability, seasonal supply, dependence on natural conditions and possibility of contamination creates a unique set of challenges for sausage supply chain in general and for Mavin Food particularly. The sausage supply chain risks are also result from external uncertainties such as natural catastrophes (Covid-19 pandemic) or political crises (Russo-Ukrainian War) that may impact on the products' cost and quality or even disruption of the chain.

Firstly, although Mavin is making efforts to build a 3F model with a closed loop supply chain from farm to fork to ensure synchronization, connectivity, and transparency, but the connection between livestock farming-slaughter-sausage processing is still quite fragmented in Mavin's supply chain. Meanwhile the collaborative relationship between the breeding stage (Mavin Farm) and the animal feed production stage (Mavin Ausfeed) with the contracting farms is highly integrated and directly connected, the downstream flow from the farms to the processing stage is quite loose. Mavin Foods is completely relied on third party slaughterhouse Vinh Anh Company, for fresh meat required in sausage production.

Its indirect procurement procedure of live pigs and chickens from farms, combined with the indirect monitoring of raw material flow, may create certain problems related to the quality and safety of the Mavin Foods sausages. Perhaps, Mavin Foods needs to have a stricter control mechanism for the flow of materials from farms to slaughterhouses, to ensure closure and reactiveness against risks that may arise in the chain. In spite of the insignificant rate of defective and returned input (less than 1% of total receiving materials), the company should have more control efforts for raw meat, the most important material, in order to prevent the hidden risks that can be harmful to the company in the long run.

Secondly, the purchasing process (includes material requirement planning, inventory checking and building order request) is largely performed through manual calculations and staffs' experiences of with some support from basic Excel spreadsheets. There is a serious lack of professional software and integrated information technology system. In December 2021, Mavin Foods started applying ERP SAP/4 HANA in the management system, but the application level is still insignificant as almost procurement operations are unchanged. Mavin Foods still use social network as Zalo to exchange information with suppliers which might lead to the risk of data leakage and missed figures/facts. The synchronization among Mavin's subsidiaries is rather weak as there is still no integrated information management system.

As the digital transformation in the Vietnam's food industry is becoming more popular with active participants from FDI sector (CPV and CJ Cau Tre), Mavin Foods should have a master plan to keep up with its foreign competitors for higher traceability and transparency in the supply chain, as well as to ensure the higher trust for consumers with commitment to product quality. Data synchronization is necessary and urgent for a true 3F supply chain at Mavin.

Finally, due to the Covid 19 pandemic and global political instability, Mavin Foods' business has recently been severely affected by external factors. These events are causing food and fuel crisis, as in Vietnam fuel price hit the highest point since 2014. After being seriously damaged by the Covid 19 disease and continuing to be challenged by the Russo-Ukrainian War, the average prices of all ingredients making sausage are increased consequently. In which, meat price grows slightly, meanwhile the price of additives is raised remarkably, nearly 30% in comparison with the same previous season in last year. To overcome these problems and challenges, Mavin Foods should have a better prevention plan and resources for better risks handling and higher sustainable development.

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5. Conclusions and future research

The paper collects data from secondary sources and several in-depth interviews with Mavin Foods' managers to get valuable insights about the Mavin's sausage supply chain and its procurement activities. Consequently, the article presents a comprehensive case study and procurement practice of the Mavin Foods' sausage supply chain to make a referral for other food processors.

Mavin own a strong self-contained supply chain with abundant internal resources but Mavin Foods products account for a modest market share when comparing with other firms, e.g. CP, Duc Viet or Vissan. It can be explained by the fact that Mavin is a new player in the food processing industry. However, it is undeniable that Mavin Foods should improve its effectiveness by implementing technology and supporting tools. The existing procurement process at Mavin is still fulfilled all present requirements of the company but it should be leveraged to upper level for sustainable development in the long run. The purchasing activities should be systematized by using professional software and supporting tools to achieve maximum efficiency with minimum cost and lowest risk.

As demonstrated a case study done by the qualitative methods, the authors hope this article will provide some useful and interesting information about the purchasing functions and activities at a particular company in Vietnam and its developing 3F sausage supply chain. Future studies may be expanded for quantitative research to investigate the detailed impacts of procurement practices to the company's production costs as well as the business revenue and profit, in order to have more evidence to confirm the effectiveness and efficiency of the sourcing function within a specified company.◆

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Summary

Cùng với quá trình đô thị hóa, gia tăng dân số và mức thu nhập, lượng tiêu thụ xúc xích ở Việt Nam đã và đang tăng đáng kể trong thập kỷ qua. Để đáp ứng nhu cầu ngày càng cao từ thị trường nội địa, các công ty chế biến thịt đã và đang phát triển chuỗi cung ứng với các nguồn cung tin cậy và ổn định, để đảm bảo chất lượng tốt, an toàn thực phẩm và chi phí hợp lý. Bài viết này đánh giá hoạt động mua trong chuỗi cung ứng xúc xích tại Việt Nam nói chung và tại một công ty cụ thể là Mavin Foods nói riêng. Phương pháp phỏng vấn chuyên sâu được áp dụng để thu thập và phân tích dữ liệu nhằm tìm hiểu thực tiễn quản trị mua của chuỗi cung ứng xúc xích Mavin Foods. Kết quả cho thấy chuỗi sản xuất khép kín (3F) của công ty giúp kiểm soát tất cả các khâu trong chuỗi cung ứng xúc xích của Mavin với nhiều cơ hội và thách thức khác nhau.

Appendix 1: Interview guide about Mavin Foods and its procurement practice

Interviewees: Ms. Nguyen Thi N., Purchasing manager
Mr. Nguyen Anh T., Deputy Director

Mavin Foods profile

History and establishment
Major products and major markets/customers
Major competitors and investors
Future direction (strategy/objectives)
The role of Mavin Foods in "farm to table" supply chain

Purchasing and procurement practice

Sausage supply chain structure
Main ingredients: number, the proportion?
Internal suppliers for the main raw material?
External suppliers? For meat, casings, packages, flavors, services et.?
Equipment using in sausage supply chain
Criteria for suppliers' selections?
Partnership with suppliers
Traceability /Food safety and other risks…
Transportation
Cold storage and cold supply chain
Problems related to procurement practice
Diseases/ Price fluctuation/ disruption/ supply shortage et…
How to overcome these challenges during past few years?
Information technology system applied in Mavin

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Appendix 2: *The sausage production line of Mavin Foods*

(Source: Mavin Food website, https://mavinfood.com)

LUC THI THU HUONG

1. Personal Profile:
- Name: ***Luc Thi Thu Huong***
- Date of birth: 8th November 1968
- Title: Doctor

Workplace:
Logistics and Supply Chain Department
International Business Faculty
ThuongMai University
- Position: Senior lecturer

2. Major research directions:
- Logistics
- Supply chain
- Marketing

3. Publications the author has published his works:
- Journal of Trade Science
- Journal of Economics and Development
- Journal of Korean Academy of Marketing Science
- Industry and Trade Magazine
- Industry and Trade Research Review
- VNU Journal of Science
- Vietnam Logistics Review