

The Challenges in Indonesia Poultry Industry Business

Puti Retno Ali, Machfud Machfud, Sukardi Sukardi, and Erliza Noor

Doctoral Program of Agroindustrial Engineering Department

IPB University

Bogor, Indonesia

putiforindonesia@gmail.com, machfud21@gmail.com, sukardi_ri@yahoo.com,
erlizanoor@yahoo.com

Dwi Purnomo

Department of Agroindustrial Engineering

Padjadjaran University

Bandung, Indonesia

dwi.purnomo@unpad.ac.id

Abstract

Agroindustry is a key component of Indonesia's economic system which has been experiencing "VUCA (Volatile, Uncertain, Complex, Ambiguous)" as the most critical set of challenges recently. This study is the first to provide an overview of the agroindustry with a framework focused on the Indonesia Poultry Industry. Apart from playing an important role in the national economy, the poultry industry also provides a protein source for Indonesian people, with a 7.8 kg consumption per capita per year in 2019. This study aims to describe the challenges of the Indonesian poultry industry under VUCA conditions. The exploratory method was used to identify the potential factors through literature reviews and in-depth interviews with poultry industry practitioners. Furthermore, results were based on data obtained from primary and secondary sources. This research identified the various VUCA factors affecting businesses across Indonesia's poultry industry. These include volatile conditions due to fluctuations in live bird prices, uncertain conditions due to chicken meat imports, and the unavailability of food chain facilities. The complex and ambiguous conditions occurred due to chicken meat oversupply and cartel practices. Finally, the research results were incorporated in a conceptual model for future reference.

Keywords

Agility, Business, Indonesia Agroindustry, Poultry, VUCA

1. Introduction

Agroindustry is a key component of the Indonesia economic system. The agroindustry refers to a subset of the "farm to fork" activities in the value-chain (FAO-UNIDO, 2015). According to Sukardi (2011), agroindustry manufactures products whose main components come from animals or plants. Furthermore, agro-industry also creates conditions that support advanced industries with resilient agriculture. Its significance ranges from creating jobs, improving income distribution, increasing marketed products' competitiveness and increasing added value, to developing agribusiness. It is considered a prospective approach to improving people's welfare, as agroindustry development can generate significant added value (Nurhayati & Yandi, 2019).

In recent worldwide developments, the agroindustry shows that its existence is becoming very strategic. Nevertheless, it is facing challenges within the business environment, referred to as VUCA (Indonesian Ministry of Industry, 2021). According to Horney, Pasmore, & O'Shea, (2010), VUCA is a common acronym which stands for Volatile, Uncertain, Complex, and Ambiguous. Volatility refers to how quickly an industry, market, or the world evolves. Uncertainty is related to the degree to which one can confidently predict the future. The more uncertain the world becomes, the hardest it is to predict. Complexity signifies the number of drivers which are required to take into consideration their variety and relationship. In a highly complex context, it is not possible to analyze the environment and make rational conclusions. The more complicated the world becomes, the more difficult it is to study. The ambiguity involves unclear information in the interpretation of something. A situation is ambiguous, such

as when information is incomplete, contradicted, or too inaccurate to make clear conclusions. The more ambiguity in the world, the more difficult the interpretation.

According to the Indonesian Ministry of Industry (2021), volatility in agroindustry is the scale and type of changes in export marketing, import control, and supply of raw materials. During epidemics, they may be unpredictable, dramatic, and rapid, thereby changing the supply chain system formed over the years. Uncertainty: increasingly difficult to make forecasts for exports, procure raw materials, and support materials to meet domestic industry needs. Complexity: the complexity of agro-industrial business expansion is increasingly complex. It poses difficulties in managing industrial, agricultural companies from upstream to downstream. They are mainly related to the selection and development of increasingly complex technologies in agro-industrial companies. Ambiguity involves an increasingly unclear understanding of the problems and solutions to managing the company, and in realizing the objective of developing the agro-industry.

This research comprehensively examines and focuses on the VUCA in the agroindustry and its impact. It was conducted through exploratory study in the Indonesia poultry industry regarding the regulations, business processes, supply and demand mechanism, customer preferences, and the agroindustry business environment. Like other agroindustries, the poultry industry also faces the VUCA. The poultry industry's supply chain is a complex activity because it has to go through many actors before it reaches the end. These many actors involved in the supply chain result in lengthy communication from upstream to downstream, including the lack of synchronization of supply-demand. The supply chain of broilers in Indonesia are shown in Figure 1.

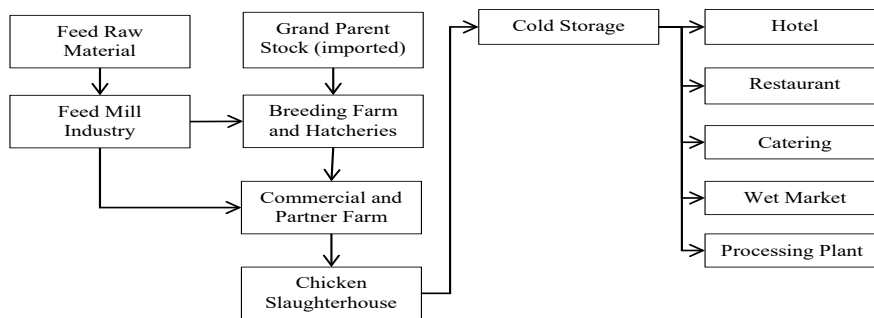


Figure 1. Supply Chain of The Chicken Meat Industry Integrator in Indonesia
Source: USAID (2013)

There are many sub-sectors within the poultry industry, including feed, breeding, commercial broiler, layer, and slaughterhouse, provided by smallholder farmers and enterprises. This industry is supported by corn and other plant producers, raw material suppliers, equipment suppliers, the pharmaceutical industry, logistics, the processing industry, traders, retailers and customers, investors, community, media, academics, and the government. According to (BPS, 2020b), there were 401 active establishments in 2019, consisting of 148 poultry breeding establishments and 253 farming establishments. The majority of establishments were Ltd./Ltd.-partnership/firm (97.75%), the foundations (1.00%), state-owned enterprises (0.75%), and cooperative (0.50%). Furthermore, the number of workers during the year 2019 was 18,835 consisting of 13,582 permanent, and 5,253 non-permanent workers. Indonesia's poultry establishment's cost structure in 2019 was 66.22% for feeds, labor 10.96%, with other costs at 7.07%, and DOC purchase 6.06%. In addition, costs for electricity and water constituted 4.40%, medicines 4.19%, fuel and lubricants 1.10%.

Large corporations played a major role in enabling Indonesia reach an increased technological upgrading and independence supply. 60% of poultry production is estimated to come from industrial farms (closed housing system), whereas 40% stay in the hands of small and mid-sized players (open housing system) (Nugroho, 2020). The largest companies are mainly located in Java, where about 60% of the population live. Meanwhile, many of them live around the greater Jakarta area with its 30 million inhabitants. According to (AHK Indonesia, 2019), 10% of industrial companies are large conglomerates with mostly integrated process lines, from breeding to slaughter and transport. The other 70% are contractors, while 20% are independent.

The downstream sector of the poultry industry, i.e., the supply chain closest to the end-user/consumer, such as processing and sales, is comparatively well developed. However, there are deficits in the upstream steps of production, where generation is considered to be insufficiently engineered. Rupiah's depreciation for years has also made imports more difficult.

The breeding and fattening industry is not only dependent on technology imports. It also requires imported breeding chickens, which are necessary to raise broilers for meat and egg production. These are mainly supplied from the USA and, to a lesser extent, France, the Netherlands, New Zealand, and Germany. According to the Indonesian statistics bureau, BPS, the import value in 2019 was just under US\$31 million (Rp 448.2 billion), which was a peak of the strongly fluctuating imports every year (AHK Indonesia, 2019). Only market participants with special import licenses may introduce the so-called grandparent stock of breeding chickens, from which the parent stock and finally the broiler chickens (final stock) are obtained.

This study begins by discussing the VUCA definition and what it refers to. Furthermore, VUCA's mapping on Indonesia's poultry industry and its effect on the business is studied, with recommendations. Having a clear picture of the Indonesian's poultry current is highly necessary.

1.1 Objectives

This study aimed to describe the challenges of Indonesia's agroindustry. It involved an exploratory study of the VUCA condition of the poultry industry and a literature review to identify potential causative factors. Furthermore, an in-depth interview with practitioners were also conducted.

2. Methods

This is an exploratory study, and qualitative data were obtained from various primary and secondary sources. A comprehensive literature review was carried out. The research work included journals, research papers, organisational, government and media reports, and web-based articles that contributed to the study's direction. The literature review involved an overview of the processes and steps, as described by Templier & Paré (2015). There are six generic stages to writing a review article: formulating the research question and objectives, searching the extant literature, screening for inclusion, assessing the quality of primary studies, extracting and analyzing data. The subject area was the poultry industry which was used to define the scope of journals as the literature material. This formulated the research question, *What are the challenges of VUCA conditions faced by the poultry industry?*. Google Scholar and Indonesian Statistic Bureau (BPS) were the databases where information were sourced for. The journal search used keywords such as "poultry," "VUCA," "VUCA World," and "Indonesia." These keywords were used both individually and, in combination, to capture as many relevant articles as possible. The inclusion criteria established for selecting articles included the type of scholarly journal, publication date (within the last five years), and the thematic area (agroindustry and poultry industry). Furthermore, each article was screened to assess whether its content was fundamentally relevant regarding challenges in the poultry business. In-depth interviews were also conducted during this study, where experts i.e business practitioners from the poultry industry were involved. The framework of this study is shown in Figure 2.

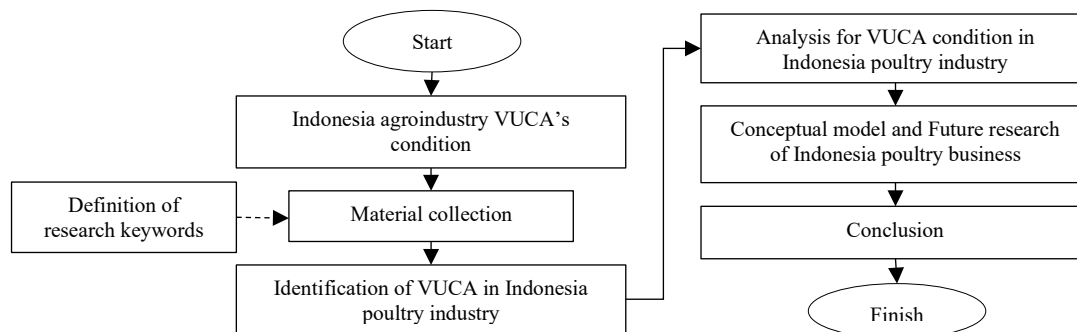


Figure 2. The Study Framework

3. Data Collection

The data relating to VUCA in Indonesia's poultry industry was collected from reports and articles through verified government and non-government organisations in the last five years, from 2016 to 2020.

4. Results and Discussion

VUCA is an acronym which appears in business glossaries. These components - volatility, uncertainty, complexity, and ambiguity - are used in several ways to describe an environment that defies convincing diagnoses and confuses senior managers. In the VUCA world, experts and leaders have emphasized that core activities critical to driving organisational performance - such as strategic planning - are seen as trivial exercises. The VUCA requirements stipulate that all efforts to understand the future and plan a response unnecessary (Raghuramapatruni & Kosuri, 2017). The following constitute the problems and challenges in Indonesia's poultry industry.

4.1 Regulation of Poultry in Indonesia

In Indonesia, most of the population are Muslims, and they have an obligation to their citizens to ensure the halal product (halal) is used for consumption, enforced and implemented as a constitutional obligation. The constitutional obligation includes the halalness of all products that the public could use, consume, and utilize legally. This is guaranteed by the enactment and promulgation Act of the Republic of Indonesia Number 33 in 2014, regarding halal products. Furthermore, this law enables people to consume products safely, comfortably, and healthily. This also increases the value-added trading entities to produce and sell halal products, while the legal regulation helps in dealing with the threat of imported chicken meat.

4.2 Volatility

Agri-industrial markets are vulnerable to price volatility and unpredictable fluctuations due to seasonality, inelastic demand, and uncertainty in production. Research on the agroindustry market volatility was performed by Balanay (2013), on the price of eggs and meat in the Philippines. Furthermore, Dewia, Nurmawati, Adhi, & Brümmer, 2017; Komalawati, Asmarantaka, Nurmawati, & Hakim, 2018) studied beef price volatility. The fluctuation of livebirds represent the volatility of the poultry industry. According to (USAID, 2013), DOC prices for broiler chickens may be volatile, while DOC prices for laying hens are more stable.

In BPPP 2020, the Indonesian government placed a reference price for the purchase and sale of broiled chicken and through the Minister of Trade Regulation (Permendag) Number 7 of 2020 concerning Reference Purchase Prices for Farmers' Level and Reference Sales on the Consumer Level. According to the Minister of Trade Regulation No. 7 of 2020, the reference price for purchasing broiler chicken at the farm level is set at around IDR 19,000 to 21,000 per kilogram, with various costs of manufactured related goods at (HPP) IDR18,000-IDR19,000. Meanwhile, the live bird price (broiler) in Indonesia is often below the reference price, as shown in Figure 3.

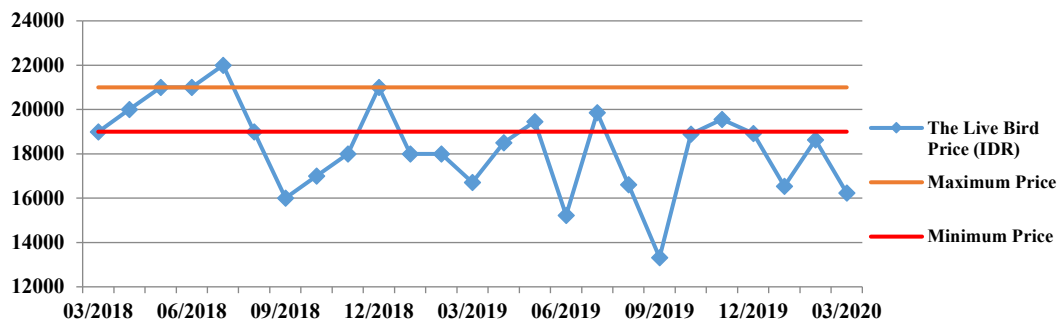


Figure 3. The live chicken prices (live bird) at the farmer level
Source: (BPPP, 2019; BPPP, 2020)

In Figure 3, the live bird price at the farmer level was below the minimum price. Furthermore, in March 2020, the national price of live chickens (live bird) was IDR 16,231 / kg and experienced a significant decrease of 12.87% compared to the previous month's price of 18,628 / kg. This is still below the lower limit of the government's

reference price of IDR 19,000 / kg for chicken, as stated in MOT No.7 of 2020 concerning Reference Purchase Prices for Farmers' Level and Reference Sales Prices on Consumer Level.

The reference price as stated in MOT No.7 of 2020 for selling chicken meat to consumers is IDR 35,000 per kilogram. In contrast to that of live birds, chicken meat price trends could change rapidly and become higher than reference prices. Furthermore, the fluctuating chicken meat price could also rise or fall considerably over a period, and the direction of a trend may change suddenly, as shown in Figure 4.

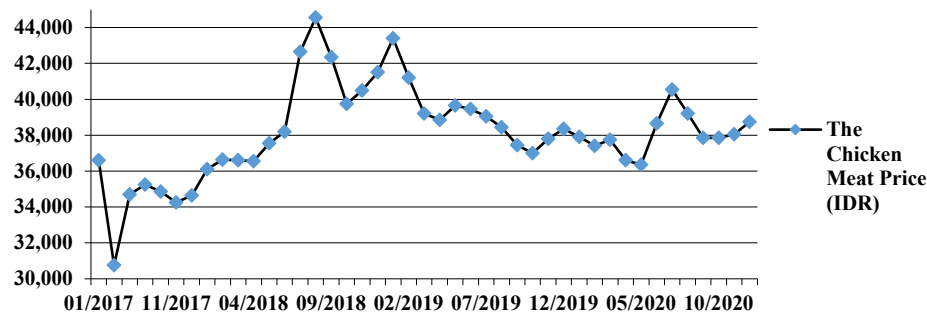


Figure 4. The Indonesia Chicken Meat Price Trend 2017-2020
Source: Indonesia Strategic Food Price Information Center (2020).

Figure 4 shows the price of chicken meat increase in every religious holiday (Eid al-Fitr) from June to July 2018 which decreased afterwards. The price increase occurred due to high demand at Eid al-Fitr, and post-Eid al-Fitr, and there was excess supply. This causes the product to become abundant, following a decrease in prices.

4.3 Uncertainty

The uncertainty conditions involve the threat of frozen chicken influx from Brazil. When the demand for chicken meat is still low, Indonesia faces competition with Brazil. Therefore, this poses the question: Does Indonesia's poultry business possess competitiveness?

The vertically integrated business in Indonesia's poultry has not been optimally developed. Many actors involved along the supply chain cause lengthy communication from upstream to downstream, including the lack of synchronization of supply-demand. This occurs due to uncertainty in information, causing the condition of chicken meat to be ambiguous and uncertain.

Another uncertain condition is Indonesia's consumption of chicken meat. The per capita consumption is still low compared to other countries. Indonesia lags far behind regional countries at 7.8 kg per capita per year in 2019, significantly trailing Malaysia and the global average at 48.7 Kg and 14.7 kg per capita per year, respectively (OECD, 2021). From January 2019 to May 2020, the demand for broilers decreased. Furthermore, April to May is Ramadhan and Eid al-Fitr's month, where there is usually an increase in demand for chicken meat. These situations cause poultry companies, especially broiler chickens, to reduce production capacity in April and May. However, in June, the chicken meat demand increases sharply. Due to the reduced production capacity in the previous month, the available livebird stock in the cage reduces, causing higher chicken meat prices compared to references prices. In June 2020, this situation caused a 0.18% inflation. The biggest contribution came from broiler chicken meat by 0.14% (BPS, 2020a).

4.4 Complexity

The oversupply of day-old chicken (DOC) which occurs continuously during this period makes the situation more complex and ambiguous. It is complex because the trend projection of consumption increases each year, but the culling program exists which means that data accuracy has not been achieved. It is also ambiguous because it is not possible to predict the demand due to the complex situation. Based on the national projection of broiler chicken meat production and consumption in Indonesia in 2018-2022 (Kementrian Pertanian, 2019), in 2018, production was estimated at a surplus of 218 thousand tons. Furthermore, in 2022 with meat production reaching 4.34 million tons, national consumption reached 3.62 million tons. After being reduced to 5%, there was still a surplus of 503,000 tons.

In 2023 chicken meat production is estimated at 4.23 million tons, subtracting the national consumption of 3.76 million tons, 215 thousand tons scattered, and a surplus of 322 thousand tons. The estimated consumption of broiler chicken meat in 2019 was 11.96 kg / capita / year, in 2020 consumption is estimated at 12.38 kg / capita / year, and 2021 it is estimated to reach 12.78 kg / capita / year. The projections of production and consumption of broiler chicken meat are shown in Figure 5.

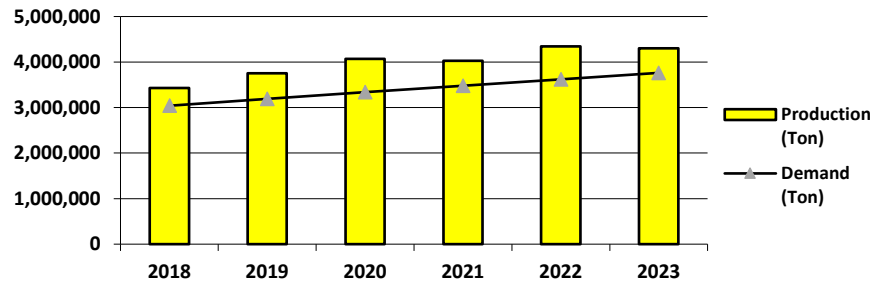


Figure 5. The Indonesia Projection of Production and Consumption of Broiler Chicken Meat
Source: Kementrian Pertanian (2019)

The oversupply of chicken has been a recurring problem in Indonesia. To solve the problem, the government published a policy in the circular letter from the Director-General of Livestock Farming and Animal Health (PKH Director-General) No. 09246/SE/PK.230/F/08/2020 to control DOC supply. The Parent Stock is intended to stabilize the price of live bird chicken. Furthermore, in these circular letters, there were several points: (1) obligation to absorb live birds in Java by Parent Stock (PS) breeding companies, where this absorption will be carried out throughout August 2020 with total absorption reaching around 41 million heads in 5 weeks (~ 8 million Head per week), (2) reducing DOC FS through cutting hatching eggs (HE) aged 18 days by 7 million eggs per week specifically in Java, (3) adjusting the HE setting to achieve DOC production target of 35 million Head per week in Java with reduction of HE egg setting in the setter, (4) early adoption of PS of 4 million with age ≥ 50 weeks, specifically in Java from August 26 to September 13, 2020, and (5) regular PS rejections with age ≥ 60 weeks to be implemented until December 31, 2020 (POST, 2020).

4.5 Ambiguity

The ambiguous condition is involved with regulations, specifically based on Law Number 18 of 2009 concerning Animal Husbandry, Animal Health and its amendments to Law No. 41 of 2014 Article 6. This regulation requires the slaughter of animals whose meat is circulated through slaughterhouses to follow slaughter methods that imbibe veterinary public health rules and animal welfare. The Law's implementation is elaborated through Government Regulation of the Republic of Indonesia Number 95 of 2012 concerning Public Health Veterinary and Animal Welfare, which regulates slaughterhouse operation (Sidabalok, 2019). According to (Horne, Emous, Joosten, Tacke, & Leenstra, 2018) about 75% of the total Indonesian poultry production is slaughtered manually in small-scale slaughter locations. Generally, these slaughterhouses do not have chilling facilities, and the market is based on trust between vendor and buyer, that only poultry meat is offered from birds slaughtered a few hours before. During the night, they slaughter to sell the warm carcasses at the traditional market in the next day's early morning. Furthermore, due to traffic problems, there is a serious risk that the time between slaughter and cooking of poultry meat is too long (exceeding 4 to 5 hours) to guarantee meat safety. About 10% of the production is slaughtered in medium-sized slaughter plants or at governmental slaughter locations. In most of these locations, chilling of slaughtered poultry is possible. However, this is, in general, only done with carcasses destined to be deep-frozen. Only a few slaughter locations produce chilled, fresh poultry meat. About 15% of the production is slaughtered in modern, fully certified slaughter plants. Chilling is a standard procedure in these plants, according to HACCP standards (Horne, Emous, Joosten, Tacke, & Leenstra, 2018).

Even in the regulation state, chilling/cold storage is required to guarantee poultry meat safety. Furthermore, all of the raw materials in the cold chain are still imported. The Indonesian government has not yet accepted a waiver of facility duties and tax holidays to enable the construction of cold storage assembly plants. According to information from ARPI (The Indonesian Cold Chain Association) in (Capricorn Indonesia Consult, 2019), the growth of the

Indonesian food industry sector has not yet been equalled by the growth of the cold food chain industry, where the installed capacity represents only 50% of national requirements. According to (Capricorn Indonesia Consult, 2019), the demand for cold storage in the Indonesian cold chain remains very high. This is reflected in almost all cold storage facilities that are still fully occupied. Over the next five years, demand for cold storage is projected to increase, automatically increasing the existing installed capacity. Consistent with trends in large cold storage facilities, this demand will grow by an average of 10% to 20% per year over the next few years (Capricorn Indonesia Consult, 2019). The projection of the potential demand for cold storage in Indonesia is shown in Table 1.

Table 1. Projection Potential Cold Storage Demand in Indonesia, 2019–2024

Year	Forecast Production Capacity (tons)	Additional Production Capacity (000 tons)
2019	462,750	92,550
2020	548,359	85,609
2021	631,161	82,802
2022	692,384	61,223
2023	765,084	72,700
2024	824,760	59,677

Source: (Capricorn Indonesia Consult, 2019)

Jakarta consumers prefer uncooled, freshly slaughtered poultry meat sold in wet markets and by street vendors (Horne et al., 2018). The perception of cold poultry meat needs to shift and the demand from warm to cold poultry meat. Changing the consumer image of cooled poultry meat can only be reached by positioning cooled poultry meat as equally good or better than the regular poultry meat sold in the wet market. Until the campaign developed, poultry meat from the wet market was perceived as the freshest, affordable, and the only halal product. Therefore, consumers need to be aware of cold poultry meat's qualifications and be convinced that cooled meat is not old meat or more expensive and of lower quality. A communication campaign was also developed to enhance consumer awareness and emphasize cooled meat's positive characteristics. This was performed to enable them to buy cooled poultry meat. The measurements for the consumer campaign's effect was performed by Horne et al. (2018). Furthermore, the results are a big increase in the consumption of cooled chicken and a small increase in frozen and warm chicken consumption.

Another ambiguous condition involves the threat of influx of frozen chicken from Brazil. This condition makes the national industry a must-watch because their selling price is lower than in Indonesia at only IDR. 14.500 per kg. Therefore, farmers must be able to produce COGS approaching IDR. 9.800 per kg live bird weight, and if possible, between IDR. 9.000-IDR. 9.500. As a country, it is also necessary to possess strong competitiveness as a stronghold of imported meat.

Increased competitiveness also needs to be enhanced to face domestic competition. The competition from upstream to downstream is controlled by big players, which control more than 50% of Indonesia's market share. KPPURI (2016) and Nuharja et al. (2018) mentioned several cartel practice indications in Indonesia's broiler chicken meat industry. The existence of an alleged violation of Business Competition Law in the broiler meat industry is born from the KPPU initiative, based on its authority as regulated in Law no. 5 the Year of 1999. KPPU discontinues this alleged case as a prohibited agreement (cartel) which caused integrated production arrangements by 12 business actors proven to violate Article 11 of Law no. 5 of 1999 as contained in the decision of KPPU Number: 02 / KPPU-I / 2016. The cartel practice was due to 12 enterprises making early parent stock estimation to increase chicken price within a very short period. Breeders violated Article 11 of Law Number 5 the Year 1999, which states: "Businessmen are prohibited from making agreements with competitors, intending to influence prices by regulating the production and or marketing of goods and or services, which may result in monopolistic practices and or unfair business competition.

4.6 Future Research

This 'VUCA' (volatility, uncertainty, complexity, ambiguity) faced by the poultry industry has put them under huge pressure from market demand and the customer's mandate to increase the variety of products and customize them at lower prices. Consequently, the poultry industry is undertaking a critical review of its existing internal processes to make revolutionary improvements for changes in management. These unpredictable changes can drive the poultry industry to the breaking point, making it more vulnerable to failure. The poultry industry needs to be more agile in terms of its adaptability and responsiveness. Agility as an adjective refers to organizations, specifically their bureaucratic ability to become more flexible, adaptable, and timely in their behavior. This mainly involves their ability to respond to external social, economic, and business threats, and adopting new technologies or systems (Mergel, Gong, & Bertot, 2018). Furthermore, the poultry industry needs to be more resource-based, allowing its dynamic capacities to become more responsive. The term agility appears as a more popular characteristic of businesses operating in these times of economic turbulence. Agility denotes the capability of sensing (sensitivity), securing (unity), and shifting (fluidity) (Prats, Siota, Gillespie, & Singleton, 2018).

The researcher believes the poultry business is now seeking greater resilience, as they are over-exposed to challenges in form of more frequent, intense competition and operational disturbances. The researcher designed the big picture denoting all VUCA conditions, as shown in Figure 6. This big picture was modified from the Behavior Over Time Graph (BOT Graph). BOT graphs encourage dynamic rather than static thinking, shifting focus from single events to changing behavioral patterns.

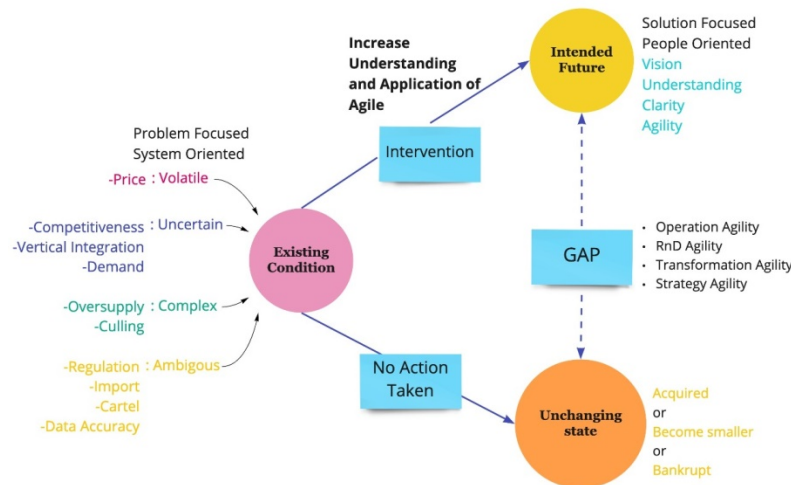


Figure 6. Adaptation Urgency of The Poultry Business

As previously discussed, the poultry business is currently facing VUCA conditions. If these conditions do not improve, the poultry industry may be acquired, become smaller, or bankrupt. According to Gagnon and Hadaya (2018), this condition is caused by lack of agility. Goldman defines agility as: “a comprehensive response to the business challenges of profiting from rapidly changing, continually fragmenting, global markets for high-quality, high-performance, customer-configured goods, and services. It is dynamic, context-specific, aggressively change-embracing, and growth-oriented. It does not involve improving efficiency, cutting costs, or battening down the business hatches to ride out fearsome competitive “storms.” It is about succeeding and winning: succeeding in emerging competitive arenas, winning profits, market share, and customers in the very center of the competitive storms many companies now fear” (Laanti, Simila, & Abrahamsson, 2013). When the poultry industry fails to cope with the business situation, they lose their market share progressively due to their inability to maintain their products relevant to current market demand. Finally, financial difficulties may occur in the poultry industry due to their inability to quickly reduce costs during difficult times. The organisation with no business agility may then be forced to either get acquired or downsize until they become shadows of their former self.

Indonesian agribusinesses should focus not on scale and efficiency, but also on creativity, lifelong learning, responsiveness, and adaptability, which have become the rarest resources that fuel current value production. The

agribusiness industry must have responsiveness and adaptability, as these constitute how companies tap into their employee's creative and learning potential, while maintaining an alignment objective in a VUCA business environment. Furthermore, organisational and management approaches must be innovative, reduce bureaucracy, and change leadership styles and cultures. These are the defining features of business agility. Hirzalla (2010) defined business agility as the ability to adapt quickly and profitably in response to changes in the business environment. According to Gagnon and Hadaya (2018), there are four dimensions of business agility: operations, research & development, transformation, and strategy. In the future, further research on the business agility model in the agroindustry is necessary.

Through business agility, a business can better understand its customers and rapidly refocus its product marketing strategy to meet their evolving needs. Business agility in the poultry industry manages the system for facing VUCA challenges from both business and people perspectives. People or individual interactions will be more involved in the activity of businesses over processes and tools. Furthermore, agility helps a business to detect changes in the market and react quickly to competing product offers. This enables the business to be more competitive because it can change direction at a glance to transform its product offering and take advantage of market opportunities or counter potential threats. Implementing agile strategies also require an increased understanding and application of agile manifesto and principles. The agile manifesto describes an engaged and contributing customer throughout the development process. It also makes it far easier for developers to meet customer needs. Therefore, *agile principles* promote teams' flexibility, and agile manifestos and principles will create an agile mindset in each individual.

5. Conclusion

This research discussed the Indonesian poultry business which currently faces challenges of VUCA conditions. Furthermore, it examines how the poultry business reacts to address the VUCA challenges. It was observed that they will lose their market share progressively due to their inability to maintain their products relevant to current market demand. Financial difficulties may also occur due to their inability to quickly reduce costs during difficult times. If this condition does not change, the poultry industry may be acquired, become smaller, or even bankrupt.

References

- AHK Indonesia. Indonesia's poultry industry is growing rapidly, *GTAI*, 2019. [Online]. Available: <https://indonesien.ahk.de/id/infocenter/translate-to-bahasa-indonesia-indonesias-poultry-industry-is-growing-rapidly-1>. [Accessed: 02-Mar-2021].
- Balanay, R. M. Spillover effects of price volatility in the egg and meat markets in the Philippines, *Int. J. Dev. Sustain.*, vol. 2, no. 3, pp. 1953–1969, 2013.
- BPPP. Analisis Perkembangan Harga Bahan Pangan Pokok di Pasar Domestik dan Internasional, 2019.
- BPPP. Analisis Perkembangan Harga Bahan Pangan Pokok di Pasar Domestik dan Internasional, 2020.
- BPS. Laporan Bulanan Data Sosial Ekonomi Edisi Juli 2020, 2020.
- BPS. Poultry Establishment Statistics 2019, 2020.
- Capricorn Indonesia Consult. "A Cold Chain Study of Indonesia," in *The Cold Chain for Agri-food Products in ASEAN*, no. 11, E. Kusano, Ed. Jakarta: ERIA, 2019, pp. 101–147.
- Dewia, I., et al. "Price Volatility Analysis in Indonesian Beef Market," *KnE Life Sci.*, vol. 2, no. 6, p. 403, 2017.
- FAO-UNIDO. FAO-UNIDO Expert Group Meeting on Agro-Industry Measurement (AIM) Report, 2015.
- Gagnon, B., & Hadaya, P. The Four Dimensions of Business Agility, *ASATE*, 2018.
- Hirzalla, M. Realizing business agility requirements through SOA and cloud computing, *Proc. 2010 18th IEEE Int. Requir. Eng. Conf.*, no. June, pp. 379–380, 2010.
- Horne, P. Van, et al. Dutch-Indonesian programme on Food Security in the livestock sector (DIFS-live): poultry meat, 2018.
- Horney, N., Pasmore, B., & O'Shea, T. Leadership Agility: A Business Imperative for a VUCA World.,” *People Strateg.*, vol. 33, no. 4, p. 34, 2010.
- Indonesian Ministry of Industry. Ditjen Industri Agro,” *Industry Information*, 2021. [Online]. Available: <https://agro.kemenperin.go.id/artikel/6418-kebijakan-pemerintah-dalam-pengembangan-agro-industri-nasional-di-era-vuca>. [Accessed: 12-Jan-2021].
- Kementrian Pertanian. *Outlook Komoditas Peternakan Daging Ayam Ras Pedaging*, vol. 53, no. 9. 2019.
- Komalawati, K., et al. Dampak Volatilitas Harga Daging Sapi terhadap Industri Pengolahan Daging Sapi Skala Mikro di Indonesia,” *Pangan*, vol. 27, no. 1 April 2018, pp. 9–22, 2018.

- KPPURI. *Putusan Perkara nomor 02/KPPU-I/2016 Pelanggaran Pasal 11 Undang-undang Nomor 5 tahun 1999 terkait Pengaturan Produksi Bibit Ayam Pedaging (Broiler) di Indonesia*. 2016
- Mergel, I., et al. Agile government: Systematic literature review and future research, *Gov. Inf. Q.*, vol. 35, no. 2, pp. 291–298, 2018.
- Nugroho, B. A. Indonesia's Broilers Business Facing Oversupply Difficulties, *IOP Conf. Ser. Earth Environ. Sci.*, vol. 478, no. 1, 2020.
- Nuharja, R., et al. Praktik Kartel dalam Industri Daging Ayam Broiler di Indonesia," *Pactum Law J.*, vol. 1, no. 3, 2018.
- Nurhayati, L., & Yandi. Keterkaitan Agribisnis dan Agroindustri, *Kementrian Pertanian*, 2019. [Online]. Available: <http://cybex.pertanian.go.id/mobile/artikel/83767/Keterkaitan-Agribisnis-dan-Agroindustri/>. [Accessed: 22-Jan-2021].
- OECD. Meat consumption (indicator), 2021.
- POST. Poultry : Still in survival mode, 2020.
- Prats, M. J., et al. Organizational Agility Why Large Corporations Often Struggle to Adopt The Inventions Created by Their Innovation Units and How to Improve Success Rates in A Rapidly Changing Environment, *IESE Bus. Sch. Univ. Navarra*, 2018.
- Raghuramapatruni, R., & Kosuri, S. R. The Straits of Success in a VUCA World, *IOSR J. Bus. Manag.*, no. 2015, pp. 16–22, 2017.
- Sidabalok, H. Slaughterhouses Sustainability Analysis in Special Capital Region of Jakarta Province, Indonesia, *Vet. World*, vol. 12, no. 6, pp. 748–757, 2019.
- Strategic Food Price Information Center. Tabel Harga Berdasarkan Daerah, 2020. [Online]. Available: <https://www.hargapangan.id/tabel-harga/pasar-tradisional/daerah>. [Accessed: 21-Aug-2020].
- Sukardi. Formulasi Definisi Agroindustri dengan Pendekatan Backward Tracking, *J. Pangan*, vol. 20, no. 3, pp. 269–282, 2011.
- Templier, M., & Paré, G. A Framework for Guiding and Evaluating Literature Reviews, *Commun. Assoc. Inf. Syst.*, vol. 37, no. September 2015, pp. 112–137, 2015.
- USAID. Indonesia's Poultry Value Chain: Costs, Margins, Prices, and Other Issues, 2013.

Biographies

Puti Retno Ali is a student in the Doctoral program of Agroindustrial Engineering at IPB University. She is an Agile Coach. She is passionate about corporate image, organisational behavior, and Business Process; System Thinking, and Innovative Mindset Supported By Empirical And Study Case Experiences; Being an Agilist Brought Benefits For Employers And Partners.—more than 20 years of practical business and professional ecosystem experience.

Machfud is a Professor of Agricultural Industrial Technology at IPB University. His research interest is in agro-industrial production systems (Lean, Agile, and Green), logistics systems and supply chains for sustainable agroindustry, agro-industrial development systems, green productivity, agroindustry production systems, agroindustry supply chain systems, and agroindustry development systems. His research has been published in several reputable international journals, including the Journal of Cleaner Production, International Journal on Advanced Science, Engineering and Information Technology, Journal of Logistics & Supply Chain Management, Gadjah Mada International Journal of Business, International Journal of Supply Chain Management, International Journal on Advanced Science Engineering Information Technology, and Indonesian Journal of Business and Entrepreneurship.

Sukardi is a Professor of Agricultural Industrial Technology at IPB University. He completed his bachelor's degree in 1984 in the field of Agricultural Industrial Technology of IPB and master's education in 1995 in Agribusiness Management of IPB. He completed his Doctoral education in 2003 in Industrial Engineering at Wichita State University, Kansas. His research interests include refutation based research and agroindustry financing.

Erliza Noor is a Professor of Agricultural Industrial Technology at IPB University. Her research interests in process and bioprocess engineering, agricultural product downstream process technology, nanotechnology for quality improvement of agroindustry products, agro-industrial product development engineering, and membrane technology for separation and purification agro-industrial products. Her research has been published in several reputable international journals, including research Journal of Pharmaceutical, Biological and Chemical Sciences,

Encapsulation Prot. Bioact. Compd, IOP Conference Series: Earth and Environmental Science, IOP Conference Series: Materials Science and Engineering, and International Journal of Bio-Science and Bio-Technology.

Dwi Purnomo is a Lecturer of Agroindustrial Engineering at Padjadjaran University. His research interests include social entrepreneurship, agroindustrial technology, and social engineering. His research has been published in several reputable international journals, including Bee World, Agriculture and Agricultural Science Procedia, Indonesian Journal of Halal Research, International Conference on Operations and Supply Chain Management, Internasional Conference of Business Administration, KnE Life Sciences, IOP Conference Series: Earth and Environmental Science, IOP Conference Series: Materials Science and Engineering.