

# Servitization in Malaysian Poultry Contract Farming: A Critical Overview

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**Abstract** - The old dichotomy between product and service has been replaced by a service-product continuum. In the management literature this is referred to as the 'Servitization of Products'. This shift in business model is important because it means the interests of clients and providers are much more closely aligned. Broiler meat is the primary and most popular source of dietary protein in Malaysia. Malaysian Broiler poultry meat production in 2015 was 1,520,000 tons, primarily through contract farming. Though the broiler industry has attained high level of productivity and growth with efficient and innovative ways at their credit; the general, mainstream, servitization concept is highly skewed in industry's favour, with minimal attention given to the negative health effects on consumers. In fact, the servitization concept has turned into inimical servitization – term contrived by the author. This paper explains the concept of servitization, inimical servitization, and Product Service System (PSS); elaborates on the Malaysian broiler industry production practices; and highlights the health and environmental issues pertaining to broiler meat birds' welfare and consumers. Finally the paper concludes that the excessive growth speed creates numerous health and environmental problems for the meat birds and consumers alike. There is a dire need to establish guidelines and mechanism to monitor the production process of the broiler industry in order to safeguard the consumers' and meat birds' welfare and prevent environmental degradation. Broiler industry should earnestly apply PSS criterion on the broiler supply chain.

**Keywords** - *Servitization, Inimical Servitization, Product-Service System, Broiler Poultry Meat*

## 1. Introduction

The old dichotomy between product and service has been replaced by a service-product continuum.

Products today have a higher service component than in previous decades. Virtually every product today has a service component to it and many products are being transformed into services. In the management literature this is referred to as the 'Servitization of Products'; it is the trend to create value by adding services to products or even replacement by a service. Selling maintenance contracts for capital goods would be an example of a service being added to a product. Selling tires by the kilometers to haulage companies is a service replacing a product. Productization of Services is the evolution of services to include a product or a new service marketed as a product. For example in the logistics sector, transport contracts have so well defined their service that is effectively sold as a product. This shift in business model is important because it means the interests of clients and providers are much more closely aligned. Product-Service System PSS, an off shoot of servitization, is an integrated product and service offering that delivers value in use. Though the broiler industry has embraced the servitization concept to improve their production and marketing efficiencies, they haven't paid adequate attention to the consumers' requirements and meat birds' welfare.

## 2. Servitization

Baines et al., [1] define servitization as 'the innovation of an organization's capabilities and processes to shift from selling products to selling integrated products and services that deliver value in use'. This definition shares basic principles with the work on product-service systems – PSS [2] and is broadly in agreement with how the term was first used by Vandermerwe & Rada [3]; it states as the process of creating value by adding services to products. The literature indicates a growing interest in this topic by academia, business and government [4]; much of which is based on a belief that a move towards servitization is a means to create additional

value adding capabilities for traditional manufacturers. These integrated product-service offerings are distinctive, long-lived, and easier to defend from competition based in lower cost economies.

In essence servitization is a transformation journey; it involves firms, often manufacturing firms, developing the capabilities they need to provide services and solutions that supplement their traditional product offerings. Servitization is also defined as "the innovation of organization's capabilities and processes to better create mutual value through a shift from selling product to selling Product-Service Systems. Two other definitions accompany this: (i) the idea of a product-service system, an integrated product and service offering that delivers value in use; and (ii) a servitized organization which designs, builds and delivers an integrated product and service offering that delivers value in use. To make this transformation, to sell services and solutions, requires significant change inside many traditional manufacturers. They have to recognize that the product is a platform to deliver a service. Neely [5] suggests that to survive in developed economies manufacturing firms have to move up the value chain, innovating and creating ever more sophisticated products and services, so they do not have to compete on the basis of cost. A recent high-profile example is UK Government's Foresight Report (2013) on the Future of Manufacturing - which identifies servitization as a core element in its vision for the future of manufacturing.

### 3. Product-Service Systems (PSS)

PSS is a Scandinavian concept which is closely coupled to the debates on sustainability and the reduction of environmental impact; it is the integration of products and services to deliver value to the customer. An example of an integrated approach is guaranteeing a level of performance of a product, if an OEM maintenance contract is also purchased.

PSS is a potentially valuable concept for manufacturers based in developed economies; manufacturing directly underpins exports, strengthens the service-based economy, and complements the science and engineering research base. Many traditional producers are increasingly challenged by countries with a low-cost labour base; thus, the popular advice to manufacturers is that, to sustain competitiveness, they should 'move up the value chain' and focus on delivering

knowledge intensive products and services. PSS-based competitive strategy uses deep product, process, and customer knowledge to reduce the total cost of a product. A PSS business model fulfils client needs in an integrated and customized way, hence allowing clients to concentrate on core activities, can build unique relationships with clients, enhancing customer loyalty, and can probably innovate faster since they follow their client needs better.

PSS also embraces sustainability; will have a lower environmental impact than traditional transaction where an enterprise manufactures products but then transfers responsibilities of ownership and use to the customer. While not all product service systems result in the reduction of material consumption, they are more widely being recognized as an important part of a firm's environmental strategy. Some researchers have redefined PSS as necessarily including environmental improvement [6]. The fundamental business benefit of a PSS is an improvement in total value for the customer through increasing service elements; competitive edge is enhanced as, for example, a service element that is not easy to copy and facilitate, and communicates information about the product-service package. The environment also benefits from PSS since a producer becomes more responsible for its products-services through take-back, recycling, and refurbishment – reducing waste through the product's life. The next section examines the Malaysian poultry industry and critically analyses the application of 'servitization – PSS' concept in the broiler poultry sector.

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### 4. The Malaysian Poultry Industry

Malaysian Broiler poultry meat production in 2015 was 1,520,000 tones, primarily through contract farming. Of all livestock products sold in Peninsula Malaysia, broiler poultry meat is the main type that is consumed for cultural and religious reasons. According to the latest available data (up to end-of-year 2014), annual consumption of broiler meat (with the exception of 2006) have increased steadily from about 37 kilogram (kg) per capita per

year in 2010 to 46.6 Kg in 2014 [7]. About 70 per cent of all broilers are sold as live or dressed chickens in wet markets, and the rest are supplied to processing plants that in turn supply poultry products to hyper- and supermarkets, restaurants and take-away food outlets [8].

The structure of the present-day broiler market is very different from the one that existed in the nineties, due largely to agribusiness consolidation and integration over the last decade or so. It is now common for broilers to be raised by growers who contract independently with integrators who in turn retain ownership of the birds over their entire life cycle. The broiler industry in Malaysia has two types of producers; it comprises of commercial farms and conventional farms. Commercial farms that run business on contract farming basis with integrator and conventional farms belong to independent entrepreneurs. The contracting scheme is therefore more likely to be sustained by its ability to support entrepreneurs than it is by its ability to produce highly competitive poultry products. The main challenge facing the industry is its competitiveness, where prior to WTO and AFTA, the broiler industry was highly protected through import bans and quantitative restrictions [9].

#### 4.2 Contract farming

The term “contract farming” generally refers to situations in which a farmer raises or grows an agricultural product for a vertically integrated corporation. There are two parties in a typical contract farming arrangement: the grower and the company (Integrator). Broiler contracts consist of outsourcing the growing stage. Integrators recruit large farms (growers) to rear broiler chickens for meat according to contractual guidelines. Farming contracts can also help growers mitigate risks posed by fluctuations of input prices and provide a secure market outlet for their product. The latter is especially important because of the limited facilities that process chickens raised by independent farmers. While current trends are moving producers toward vertical integration, there remain many farms currently under contract or with unused infrastructure from past contracts. Most integrators in Malaysia participate in contract farming with growers for broiler production.

Coordinating mechanisms along a vertical supply chain include contracts and integrated

ownership and operation. Main players normally have a vertically integrated supply chain, operating as integrated producer, owning the majority of all breeding, feed, slaughtering and processing facilities as well as operate with a wide variety of distribution channels, ranging from super and hyper markets to distributors restaurants, wet markets and groceries. Vertical production chains consist of a single company controlling all aspects of each stage of production. Hatcheries, farms, feed companies processing plants, harvesting team, distribution, and markets can all be integrated into a single corresponding supply system. In response to shifting conditions in both export and domestic markets, many producers are shifting their production further into these types of vertical systems. Moreover, a select number of firms control the majority of the market. There are some dangers of a few large integrated systems controlling the broiler sector. Vertical agreements may either foster competition by generating efficiency gains, or they may inhibit competition through vertical market foreclosure or by facilitating collusive activities at any level of the supply chain [10].

## 5. Discussion

### 5.2 Broiler production efficiencies – industry perspective

A developed broiler industry is very important to sustain food security for the people. The National Agro-food Policy (2011-2020) stated several strategies to ensure that the broiler industry be sustained as a competitive industry. Among the strategies are to strengthen broiler production activities by encouraging modern technology in line with good farming practices, such as closed house system and automation. The industry also promotes the use of effective microorganisms as natural control agents. Broiler production is increasing every year due to higher demand by local consumers and export markets; production of broiler increased from 471.56 million birds in 2007 to more than 720.11 million birds in 2013.

On average, production cycle for broilers in Malaysia is 5.33 times a year, 9.75 weeks/cycle; only a few operators, especially the multinational companies, produce six times a year, 8.67 weeks /cycle - though, in some cases, 6 weeks production cycle has been achieved. However, the modern broiler industry has developed a hybrid that is

unlike any other breed. The initial breeds used in modern broiler hybrids were Cornish and Plymouth Rocks. Today's broiler can achieve a 5-pound market weight in five weeks. Forty years ago, it took 10 weeks to achieve a 4-pound market weight. These advances are the result of scientific progress in genetic, nutritional, and environmental research [11]. In Malaysia, the harvesting day is when the bird reaches a minimum weight of 2.2 kg. On average, the chicken is ready to be sold after 30 - 33 days. Around 65.3% of broiler operators sell their birds to those engaged in contract farming to supermarkets and processing industries, while the balances are sold as live birds on open markets. Broiler industry in this regard is doing well.

### 5.3 The consumer perspective - inimical servitization

Though the broiler industry has attained high level of productivity and growth with efficient and innovative ways at their credit; the general, mainstream, servitization concept is highly skewed in industry's favour. All the stake holders in the industry are overly concerned about the growth and ever increasing profits in the industry; but at what cost? However, applying PSS criterion it becomes apparent that the industry gets failing grades when it comes to addressing consumers' concerns, meat birds' welfare, and environmental issues. The top priority of farmers and chicken companies is to raise healthy chickens, because healthy chickens are directly related to a safe food supply; but in practice it does not happen regularly. The Servitization concept is actually turned into INIMICAL Servitization – termed by this author and explained in the following section highlighting broiler meat birds' welfare issues; hence the use of term 'inimical servitization'. Animal health management, feed management and bio security elements are the major concerns of farm operators because they reflect on profits and loss achievements; not due to health concerns affecting consumers. As the saying goes; 'You are what you eat', the article would consider the, ubiquitous, global meat birds' welfare animal and environmental issues of the broiler industry impacting consumers and apply them to Malaysian broiler contract farming as similar Malaysian stats are hard to get. Because of space constraints, several, and equally important, aspects of animal welfare have not been taken into account in this article. In addition, broiler industry could also

benefit from the 'knowledge space concept and value co-creation model in manufacturing industry [12].

### 5.4 Welfare Issues in Broiler Meat Birds

Artificial selection has led to a great increase in the speed with which broilers develop and reach slaughter-weight. Selection for fast early growth-rate, and feeding and management procedures to support such growth, have led to various welfare problems in modern broiler strains [13]. Welfare of broiler meat birds is of particular concern given their large number produced in Malaysia. Following is a partial list of abnormalities that emanate from the selected growth rate.

#### 5.4.1 Cardiovascular dysfunction

Selection and husbandry for very fast growth means there is a genetically induced mismatch between the energy-supplying organs of the broiler and its energy-consuming organs [14]. Rapid growth can lead to metabolic disorders such as sudden death syndrome (SDS - an acute heart failure disease that affects mainly male fast-growing broilers, in 2000, SDS has a, reported, death rate of up to 3% in Europe) and ascites (a gastroenterological term for an accumulation of fluid in the peritoneal cavity that exceeds 25 mL) (Bessei, 2006). Ascites is characterised by hypertrophy and dilatation of the heart, changes in liver function, pulmonary insufficiency, hypoxaemia and accumulation of large amounts of fluid in the abdominal cavity. Ascites develops gradually and the birds suffer for an extended period before they die. In the UK, up to 19 million broilers die in their sheds from heart failure each year [15].

#### 5.4.2 Skeletal dysfunction

Breeding for increased breast muscle means that the broilers' centre of gravity has moved forward and their breasts are broader compared with their ancestors, which affects the way they walk and puts additional stresses on their hips and legs. There is a high frequency of skeletal problems in broilers, mainly in the locomotory system, including varus and valgus deformities, osteodystrophy, dyschondroplasia and femoral head necrosis. These leg abnormalities impair the locomotor abilities of the birds, and lame birds spend more time lying and

sleeping. The behavioural activities of broilers decrease rapidly from 14 days of age onwards. Reduced locomotion also decreases ossification of the bones and results in skeletal abnormalities [14].

#### 5.4.3 *Integument lesions*

Sitting and lying behaviors in fast growing strains increase with age from 75% in the first seven days to 90% at 35 days of age. This increased inactivity is linked with an increase in dermatitis - an inflammation of the skin. It is characterized by itchy, erythematous, vesicular, weeping, and crusting patches.

#### 5.4.4 *Ocular dysfunction*

In attempts to improve or maintain fast growth, broilers are kept under a range of lighting conditions. These include continuous light (fluorescent and incandescent), continuous darkness, or under dim light; chickens kept under these light conditions develop eye abnormalities such as macrophthalmos, avian glaucoma (Glaucoma is the second most common cause of vision loss worldwide behind cataracts), ocular enlargement and shallow anterior chambers [16].

#### 5.4.5 *Ammonia*

The litter in broiler pens can become highly polluted from the nitrogenous faeces of the birds and produce ammonia. Ammonia has been shown to cause increased susceptibility to disease and other health-related problems such as Newcastle disease, airsacculitis and keratoconjunctivitis. The respiratory epithelium in birds is damaged by ammonia concentrations in the air exceeding 75 parts per million (ppm). Ammonia concentrations at 25 to 50 ppm induce eye lesions in broiler chicks after seven days of exposure [16].

### 5.5 **Some other broiler industry facts**

Per capita Poultry meat consumption in Malaysia is one of the highest in the world. Excessive consumption over supply of proteins to the individual and can lead several health complications including: Wait Gain; Reduced Liver and Brain Function - a condition marked by a decline in brain and nervous system function; and High Cholesterol

51.4 billion Chickens are artificially hatched, fattened up and slaughtered as 42-day-old babies every year globally. A chicken's normal

lifespan is 10–15 years. Chickens bred for meat are arguably the most genetically manipulated of all animals, forced to grow 65 times faster than their bodies normally would, and the industry continually seeks to increase their growth rate. Chickens are housed in giant, overcrowded sheds, where they are packed in by the thousands and forced to stand and sit on filthy, manure-laden flooring, which is typically cleaned out only every 2 to 4 years.

Heart failure afflicts chickens at a rate of at least 4.7% and is attributed to genetic manipulation, but this figure only covers birds within their first 42 days of life. Their baby hearts cannot keep up with their adult-sized bodies. Every year globally, at least 12.5 billion chickens experience painful leg problems, including lameness, due to their breeding for rapid growth. "Ammonia burn" and respiratory diseases and fatalities are also common from exposure to high concentrations of ammonia emanating from large accumulations of faeces.

Jammed inside these crates, chickens may travel up to 12 hours to the slaughterhouse through extreme temperatures and weather conditions without food or water. Upon arrival, chickens may languish in these crates for an additional 12 hours before being unloaded. Chickens and turkeys go to slaughter lame, sick, and in pain. They are infected with Salmonella, Campylobacter, E coli, and other bacteria that make people sick with foodborne poisons. Since poultry products are the main source of foodborne illness in people, due to the filthy conditions in which they are raised, slaughtered chickens are soaked in toxic chemicals which are consumed along with their flesh.

Broiler meat birds' health issues affect the consumer but the industry does not have any program in place to inform the regulating bodies of the amount of casualties that go un-reported; question is where does the meat of these birds end up? Ignorance of law is no excuse; broiler contract farmers, perhaps prepensely, let the sick birds' meat move into the food chain. Though, Malaysia has adequate laws to safeguard and regulate meat and food supply through accreditation and regulating bodies such as: Sijil Amalan Ladang Ternakan (SALT), HALAL certification, Veterinary Health Mark (VHM), Good Animal Husbandry Practices (GAHP) and many more; their implementation leaves a lot to be desired. There is no mechanism to document these infractions.

Research on meat bird health issues that can potentially tarnish broiler industry's goodwill is not encouraged or funded. Academia's integrity as independent knowledge creating bodies is, somewhat, compromised as the institutions of higher learning are turning into tools to promote corporate interests; newer model for financing the higher leaning institutions is based on commodification and commercialization – even the public institutions are being coerced to join this 'bandwagon'. It comes as no surprise that there is hardly any worthwhile research being done, globally, to safeguard the meat bird's welfare and, ultimately, the consumer's health.

## 6. Conclusion

Broiler meat is important to every household in Malaysia as it is included, almost daily, in the people's diets. It is the most competitive industry in the poultry sub-sector. The development of broiler industry in Malaysia is guided by the application of modern production technologies. The application of technologies in the production system has enabled the industry to be developed efficiently and achieve the objectives as stated in the National Agro-Food Policy (2011-2020). However, meat birds' welfare and consumers' health concerns are not the motive behind all the efficiency and growth of broiler industry; it is the profit, embedded in greed, that drives the race to get the chicken faster to the slaughter - in lesser and lesser weeks per cycle. This excessive growth speed creates numerous health and environmental problems for the meat birds and consumers alike. There is a dire need to establish guidelines and mechanism to monitor the production process of the broiler industry to safeguard the consumers' and meat birds' welfare and prevent environmental degradation. Broiler industry should earnestly apply PSS criterion on the broiler supply chain. The appearance and prevalence of Product-Service Systems is obvious in modern knowledge-based and service-based economy. PSS helps solve many problems connected with product ownership while retaining its functionalities; and customers, manufacturers, the society and environment can benefit from the proper use of PSS. There is a need for incentives and initiatives aimed at promoting PSS and preferring companies offering it; particularly in the broiler supply chain.

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