

FROM LOCAL TO GLOBAL – GLOBALIZATION OF AGRIBUSINESS

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ABSTRACT

Commercial agreements between merchants, agricultural farmers, and customers are completed on time because to the perishable nature of commodities. They need more efficiency in the distribution system, which may imply an additional cost, which is mostly funded by the customer. These tradeoffs are also limited by the geographical location of used arable land, transportation infrastructure, and population distribution. In order to emphasize the links between retailers, agricultural producers, and clients, the connections and competitive advantage that is developed through technological progress must be designed. The technological progress made possible by the use of transportation infrastructure, innovative agricultural systems, and the distribution path used for real-time delivery to clients, to which we can also add the optimal development of production facilities and the avoidance of continuous exogenous or endogenous production cycles.

KEYWORDS: *agribusiness, globalization, operations management, innovation.*

1. INTRODUCTION

The agricultural industry, which is based on the distribution to retailer and client (a business to business and business to client model) from the agricultural producer over time, is based on streamlined scale economic processes that include three evolutionary factors: creating work standards, implementing at scale, and optimizing downtime. (Rădulescu et al., 2022) As an example, consider the evolution of a tomato, which, despite being a natural process, can be controlled and manipulated by humans. A factory that manufactures tomato-based products (tomato sauce, ketchup, canned whole tomatoes, and so on) requires a technical flow that is optimized for low costs and minimal downtime (Gâf-Deac et al., 2022). The harvesting process - consumer framework must also be optimized via the on-time distribution system (Burlacu et al., 2020). For the image to be full, environmental and health criteria on the crop must be satisfied (whether the harvested veggies are bio, eco, or gmo's - genetically modified organisms), and these are now elements that are appreciated by the customer, not only by the responsible authorities (Low & Vogel, 2011). If we use the large retailers as an evaluation pool, the first three being in 2011: Wal-Mart, Tesco, and Carrefour, we can see that they prioritize providing "greener" products to customers by creating spaces that are addressed to the client based on their preferences and the product's geographic origin. These new product qualities have resulted in new distribution chain demands, decreasing the completion route while raising the work tempo. The work and development strategy were sourced to the carrier to increase the efficiency of distribution to the retailer (also to the final consumer), because they can optimize downtime by calculating production, harvesting, processing, and transportation time

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intervals to the retailer and to whom it can offer a life cycle for the product large enough not to create losses due to the expiration date of the products (also known as shelf date).

We may introduce the concept of a retailer as a sign of operational efficiency here since large retailers originate from developed nations with access to worldwide distribution and development, resulting in a scale model for optimum productivity (understood as volume and time). To get access to the high "shelf" date, large retailers work with local producers who are autonomous in their production choices but not in their distribution and volume decisions. To save expenses for the producer, the agricultural conglomerate's subcontractors, and the retailer's acquisition costs, the producer specializes in just one agricultural product or agricultural class. This approach was partly enforced since relevant research reveals that there are quality losses due to industrial production techniques, both nutritionally and from a nutritional standpoint, as well as from the minimum reached norms (USDA). Crops had a nutritional loss of 6% in proteins and 38% in riboflavin between 1950 and 2000 (Davis et al. 2004, Ata et al. 2012), but an increase in the level of used pesticides (Ata et al. 2012 and Environmental Working Group, 2011) and chemical fertilizers, which are found in groundwater from agricultural areas through nature's cycle (Beman et al., 2005). Why are these outcomes discovered that have an impact on product quality, the environment, and consumer health? Because of the extended shelf life, production is higher than usual, and the items seem "healthy" and constantly fresh. These are the features of mass manufacturing, which has poor nutritional quality and spends a significant portion of its life cycle in the distribution flow (Rădulescu & Burlacu, 2019). The manufacturing process may be seen as a horizontal development component in the agricultural process, which is part of the vertical distribution chain to the end customer, who supports other complimentary sectors by his payment. Local production becomes the first step toward agricultural recovery, but it is pitted against over-industrialized or over-chemically processed global output (Alpopi et al., 2018).

It is one of the few long-term outsourcing methods that may be regarded viable. In the case of a corporation, the outsourcing process has the potential to erode organizational culture and slow down the company in the long term, generating a cancerous reliance by the possibility of developing a rival from the subcontracted company. The equilibrium formed by an agricultural conglomerate via the production outsourcing process is unusual since it offers a win-win scenario in the long term. To outsource a local process of a global conglomerate, it must be synchronized with the retailer's distribution system by shifting the distribution network's work structure, in practice by optimizing the relationship between the agricultural producer/processor and the retailer's store chain, or by creating deposits with continuous flow, from where to supply the retailer's stores (here, extra-storage costs and new distribution costs on the deposes are created). Wal-Mart created the Heritage Agriculture Program to value both distribution structures while emphasizing the local uniqueness and keeping up with the competition's pricing.

There is also a requirement to incorporate the agricultural cycle, which involves crop efficiency via external variables, in the production and development cycle for the subcontracted producer (the outsourced) (weather and pests). The "Three Sisters" model in agricultural production models is based on alternated crops: corn, beans, and pumpkins grown at the same time on the same arable land (corn provides vertical structure for beans to grow, beans provide nitrogen for corn to grow, and pumpkins prevent pests from accessing the roots of the corn plants and covering the soil (Ata et al., 2012). This practical equilibrium is a fundamental paradigm for agricultural hedging.

The development of product and brand standards according to the conglomerate or retailer that contracted the crops has major implications for the outsourcing model. Here we can include especially processed products, but in the case of non-processed products (for example, tomatoes delivered to retailers), those must have the specs as asked by the USDA or the European Commission, but those specs do not cover taste quality or nutritional factors.

2. REVIEW OF THE LITERATURE

Other writers' approaches to perishable product management may be found in the specialist literature. In 2009, Blackburn and Scudder published an essay on the concept of constructing a distribution chain beginning with the harvest. Ferguson and Koenigsberg approached the idea of selling products based on their shelf date in 2007, lowering their prices based on the time remaining until the expiration date, with the client having the option to buy the product based on its freshness, on the same path as Li et al. in 2009, but from the perspective of the market developed price and the retailer's inventory flow. On the operational linkages between industrial and local production, but from the standpoint of developing a mathematical model that should highlight the competitive pressure on the producer/agricultural conglomerate/retailer, they published research working paper in 2012: Ata et al.

Cohen and Lee (1988) and Zuo et al. (2011) were the pioneers in these research domains on optimizing production, inventories, systems for distribution to other sites, and establishing scaled production systems. We have the research of Guide and Wassenhove (2009) for the continuous flow distribution chain, Calvin and Cook (2001), Cook (2005), and King et al. (2010) for a 360-degree method that would have an emphasis on environmental protection. The papers mentioned above form the foundation of the horizontal and vertical development of 360-degree approaches on the subject of this paper, the optimum for agricultural product globalization, the local model or the global model (industrial), based on valuing specialization (scale economies) versus transportation costs (long distances created through global production).

3. THE CONVENTIONAL MODEL FOR AGRICULTURAL PRODUCTION, PROCESSING, AND DISTRIBUTION OF PERISHABLE FOODSTUFFS

Any model that is based on a distribution procedure for perishable items begins with the producer who harvests the product; the producer is subcontracted or has his products reserved via contracts by the retailer who provides the product to the customer (Rădulescu et al., 2022). Tomatoes were used as a product example in this article's introduction, and it will be based on them that the structure will be developed. The anticipated aggregate demand for the provided product is the only variable that can be predicted with a high level of accuracy. Due to the short shelf life of the product, the anticipated demand is simple to estimate because it is met in the short term. As a result, retailers will place fixed orders with the producers, with whom they develop long-term commercial relationships and to whom, depending on the order, new producers can be added, but only for unprocessed products that they can purchase on the spot market. After certain transitory excesses in consumer demand and because of some producers' surplus, agricultural producers and retailers might create short-term relationships (Tropp et al. 2008).

If we consider as an example the existence of three geographical locations, in each of which there is an agricultural producer (tomatoes) and a store, and if in each location there is an agricultural producer (tomatoes), then we have the following (any retailer owns many stores). In each shop, the demand for tomatoes is continuous; hence, the probability of having a demand forecast that is accurate may be connected exactly. A retailer owns all three stores from all three locations, but he also integrates the distributor (large retailers integrate distribution companies). When the retailer wants to distribute the contracted product from the local producer, he begins distribution from the store closest to the local producer, and if there is a surplus on the order, it is delivered to the store closest to the retailer's headquarters (with a higher price because of the longer distance for transportation). A factor that must be considered is the storage variable, through which the retailer creates its own storage unit where he delivers the distributed agricultural products (tomatoes) and from where they are distributed in the store chain, this approached model by the retailers that have continuous store development (the corporate governance policy is expansionary) and that is not based on hypermarkets, but on supermarkets (that need frequent delivery of perishable goods in low volumes). This concept with a

centralized storage unit system incurs considerable expenditures for the store and diminishes its profit margin (Bodislav et al., 2021).

4. GEOGRAPHICAL DISTRIBUTION AND THE GROWTH OF AGRICULTURAL PRODUCERS

Important is the agricultural producer's geographic location. It is better to locate arable land near metropolitan areas, however in the vicinity of urban centers, only Brownfield investments may be made, which are often incompatible with agriculture. It is possible to build a direct relationship between the arable land of a producer and the distance to the next town or urban center; in this manner, producers must choose between being small and local or huge and global. Here, the decision may be made by weighing production capacity and proximity to the closest town (Sarbu et al., 2021).

Due to the perishable nature of agricultural products, they cannot be conveyed to a shop located in a distant location; hence, there is insufficient demand to support the production of a big amount. If transportation expenses are very high, the merchant will use the deposit unit for store deliveries. Because the worldwide expansion strategy of large consumer retail companies (Wal-Mart, Tesco, Carrefour, etc.) is based on population density, population growth will result in an increase in the number of shops or their size, as well as a rise in consumption. Population increase empowers the agricultural producer's scale economy, whether via widespread or intense development (so long as environmental and healthcare criteria are not violated) (Radulescu et al., 2020). If this system is not kept in balance, the agricultural producer may potentially go bankrupt (Nestle, 2002).

The solution that tips the scales in favor of the local production approach is not the specialization of production, but rather the distribution of production, the cost of distribution being the key to success if it is incorporated by the producer or retailer and still maintains a lower total cost than the competition while allowing for an optimal profit margin (Profiroiu et al., 2020). If it establishes an integrated system of agricultural producers, distribution system, and deposit chain with their supplied shops, transportation may be regarded as a secondary cost (with little impact on the final cost) (Radulescu et al., 2020). The most efficient integrated system is Wal-Heritage Mart's Agriculture Program, which is based on the proximity distribution of all transportation units to their greatest capacity (used trucks).

Following profits leads to valuing vertical differentiation, empowering the local agricultural producer by building new brands based on their features, such as eco-friendly or bio-based crops as opposed to conventional agricultural goods (Radulescu et al., 2018).

5. CONCLUSIONS

To reach a conclusion about selecting between a global retailer and geographically dispersed production or the use of agricultural conglomerates that, through subcontracting, could produce exclusively for the retailer, we must consider the issue of approaching the market at a global, regional, or local level and the costs associated with the offered agricultural products.

In addition to the two methodologies, the perishability of the items, which necessitated a distribution timing calculation, is introduced (that are based on the environment, producer and processing for distribution and retailer). establishing an ideal framework between process scheduling, harvest output, and regional distribution (be it distances, be it population density). Reducing costs with transportation and product diversification increases profit margins for both agricultural producers and retailers, but the balance tends to favor the retailer because of its capacity to monetize client-specific marketing (profit margins are bigger in the relations business to consumer, then in the relations business to business). Developing distribution strategies can be the model to attract a larger retail group as a future client for agricultural producers, all of which is detrimental to another supplier (agricultural producer) because the transportation cost incorporated by the producer results in securing a supplier contract. Regarding the diversification on the same perishable good (tomatoes in

our case), we must deal with the creation of different brands based on the method for obtaining the final product, be it bio, eco, or mainstream, and this differentiation could be profitable for the producer because he would receive a higher price for the differentiated products offered, but profitability is on the retailer's side because it can monetize that product through the marketing of its c-store brand (bio and eco products are obtained from non-chemical spoiled soils, treated with natural products and that do not damage the environment on the long run). These two traits produce extra value for the product and the merchant that cannot be directly quantified for certain items, but may be calculated indirectly; as a result, the profit margin is increased.

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