TRANSITARE
REVISTA DE TURISMO, ECONOMÍA Y NEGOCIOS
ISSN: 2395-9835
Vol. 6(1) Enero - Junio
transitare.anahuacoaxaca.edu.mx
Transitare 2020 6(1): 20-44

Artículo de investigación

Managing business models based on analysis of the marketplace: the case of the beef meat industry

Gestión de modelos de negocio con base en el análisis del mercado: el caso de la industria cárnica

Miguel Ángel Vargas del Ángel[1], Vinicio Horacio Santoyo Cortés[2], Manrrubio Muñoz Rodríguez[3].

[1]Doctor en Problemas Económico-Agroindustriales por el Centro de Investigaciones Económicas Sociales y Tecnológicas de la Agroindustria y la Agricultura Mundial. Universidad Autónoma Chapingo, México.

[2]Profesor Investigador en el Centro de Investigaciones Económicas Sociales y Tecnológicas de la Agroindustria y la Agricultura Mundial.
Universidad Autónoma de Chapingo, México.

[3]Doctor en Problemas Económico-Agroindustriales por el Centro de Investigaciones Económicas Sociales y Tecnológicas de la Agroindustria y la Agricultura Mundial.
Universidad Autónoma Chapingo, México.

Historia del artículo. *Recibido: 23 de marzo 2020; aceptado: 06 de junio 2020.*

Correo electrónico de autor para correspondencia: *hsantoyo@ciestaam.edu.mx* , *miguelvargas70@yahoo.com.mx* , *manrrubio@ciestaam.edu.mx*

Para Citar este artículo (estilo APA): Vargas Del Ángel M.Á., Santoyo C. & Muñoz M. (2020) Managing business models based on analysis of marketplace: The case of the beef meat industry. *Transitare* 6(1) 20-44.

Abstract

This case characterizes business models and dominant actors involved in the beef value network, based on the components and trends that best illustrates the market environment in which they operate, to identify the key factors that allow Mexican companies to compete in this market. International beef trade is dominated by companies whose business models leads towards a more vertical integration of the supply chain, a horizontal integration to expand production capacity, geographic market expansion and diversification of its supply. Based on this, Mexican companies desiring to remain competitive in the international market must implement innovative strategies in diversifying their supply, geographical reaches and horizontal integration to expand production capacity through acquisitions and fusions, which requires more financial commitments.

Keywords: vertical integration, horizontal integration, geographic scope.

JEL: F12, L1, Q11

Resumen

Este caso caracteriza los modelos de negocio de los actores dominantes en la red de valor de carne bovina, en función de los componentes y tendencias que caracterizan el ambiente de sus mercados, para identificar factores clave que permitan a las empresas mexicanas permanecer competitivas. El comercio internacional de carne bovina está dominado por empresas que tienden a la integración vertical e integración horizontal para ensanchar capacidades productivas, expansión geográfica y diversificación de su oferta. Las empresas mexicanas que deseen competir en el mercado internacional deben implementar innovaciones en diversificación de su oferta, alcance geográfico e integración horizontal para ensanchar la capacidad de producción a través de adquisiciones y fusiones, las cuales requieren un alto grado de apalancamiento financiero.

Palabras clave: integración vertical, integración horizontal, expansion geográfica.

JEL: F12, L1, Q11

1. Introduction

The idea of business model is a concept that in recent years has become increasingly important in both scientific papers and on an academic level. This is made possible because it is a new element of analysis. It also emphasizes on the explanation of a holistic system through which companies prepare for business, while trying to clarify how to create and capture value (Massa, Zott, & Amit, 2010). This business model concept is embedded in economic science and there are three main theories in which it is based:

1. The theory of business, published as "*The nature of the firm*", based on the concept of "*transaction costs*" (Coase, 1937), which states that the activities of any company are given by the comparison between two types of costs. Firstly, the costs of coordinating resources through market transactions, also known as transaction costs, highlighting the importance of negotiating and signing contracts, searching for information, and selecting prices and quality of products. Secondly, the costs of coordinating internal resources, including the cost of production, but also the cost of organizing production, searching and negotiating with suppliers. Generally, it is assumed that transaction costs decrease with increasing process integration within the same company, while internal coordination costs increase with the integration process within the organization (Coase, 1937).

2. The theory of innovation and business management in which Schumpeter (1939) laid out the foundations of innovation in the business model "*Business cycles*", which states that the evolution of economic development is based on economic cycles also known as industrial revolutions, in which the "*creative destruction*" becomes the "*modus operandi*" of capitalism and its companies. Later in the publication entitled "*Capitalism, Socialism* and *Democracy*", Schumpeter (1943) introduced some terms that become relevant in the business model concept, and these were: adaptability to change, innovation, new raw materials, innovative ways of signing, new organization forms, opening new markets, entrepreneurship and business strategy.

3. The theory of game, introduced by Nash (1951) has been successfully applied to the so-called business management, in markets where more than two participating companies, which have market information but each operates under its own "*pure strategy*" where each company seeks to minimize losses (costs) and maximize profits. The market reaches an equilibrium in which these companies do not necessarily get or equitable distribution of profits or the expected optimal benefit. This theory is directly the forerunner of the concept of network value developed by Nalebuff & Brandenburguer (2005) in which the existence of four major actors (such as suppliers, customers, competitors and well-wishers) that establishes a relationship of "coo existence"[1] to create and capture value.

[1]Co-opetition is the formulation of a special and original management strategy in a market, which is to cooperate with competitors with the intention of creating one common benefit (Nalebuf & Brandenburguer, 1997).

2. Theoretical framework

A business model is defined as a conceptual tool that, through a set of elements and their relationships, can express the logic of a company and describes the value offered to one or more customer segments. This explains the layout of the company and its capital power to create new market and provide value while generating profitable and sustainable sources of income (Osterwalder & Pigneur, 2005).

On the other hand, business management is necessary in order to set goals, outline plans, motivate and organize efforts, coordinate and control activities, accumulate and allocate resources to acquire and apply knowledge, establish and build relationships, identify and develop talent, understand and balance demands from outside groups (Hamel, 2006). While the goal of management in business models, is the configuration of organizational structures to achieve better economic results with the resources that are available.

Organizational structures in no way can be static, since the conditions of the society and markets are dynamic and constantly changing. Over the past 100 years, innovation management, more than any other innovation has allowed companies to cross over to new thresholds (Hamel, 2006).

Innovation management can be defined as a marked separation from the principles, processes and traditional practices or as a separation from the usual organizational methods, which significantly alters the way management is carried out and creates a lasting advantage when a least one of the following condition occurs. 1. Novel principles that challenges the orthodoxies of management. 2. Systemic, surrounded by a range of processes and methods, and 3. Part of an ongoing invention program, where the process is increased with time (Hamel, 2006).

Innovation in the business model that consist of creating strategies based on the recombination of existing resources of a company, emphasizing the importance of systemic and creative thinking to generate new revenues and increase margins, especially in times of economic changes (Zott & Amit, 2009).

Also, the success of the growth strategy of a company depends on how well the risks of the environment and the characteristics that defines the ecosystem of the target market is being assessed; the first step is to specify the different risk categories that the ecosystems may present and understand their relationship to the expected target markets (Ander, 2006).

The environment can be defined as the set of factors and tendencies occurring in the surroundings of an organization. These factors can influence performance in a manner in which, depending on the core competencies and attitude in such circumstances, can affect threats or opportunities. Three fundamental types of risk characterize innovation in ecosystems: the risks of the project, which are the usual uncertainties of project management; interdependence risks, that are coordinated with complementary innovators; and integration risks, which are the uncertainties raised by the adoption process within the value network. The

magnitude of these risks is closely related to the target market in which the company hopes to compete (Ander, 2006).

Strategic orchestration is the way that companies make and coordinate management nodes in order to facilitate and exploit new opportunities in relation to the value network (Ruelas_ Gossi & Donald, 2006).

3. Case Study

This case, applies the concepts of innovation management, innovation in the business model and strategic orchestration, from the analysis of environment perspective of bovine meat network on a worldwide level. This network over the past 50 years increased its production by 136%, from 28 million tons in 1961 to 66 million tons in 2011 (FAO, 2015). The dynamism is expected to continue because in the coming years meat consumption will increase at an annual rate of 0.66%, against an annual growth rate of 8% in developing countries (National Research Council, 2015).

These trends are associated with factors related to the processes of globalization and increased purchasing power due to the growth of the (Hocquette & Chatellier, 2011) emerging economies, as well as the incorporation of agrifood industries to global value networks (Humprey & Memedovic, 2006: Reardon, Codron, Busch, & Bingen, 2001; Humprey & Memedovic, 2006).

In the extent that the value network of global beef production is integrated, a business model will be orchestrating where production frames will be designed in a global context: the raw materials are produced in a space, transform into another, and eventually sold in a third party under the logistics of a very efficient supply chain (Bisang, Robert, Santangelo, & Albornoz, 2008; Torrescano, Sánchez, Gustavo, & Palma, 2010; Jie & Parton, 2009; Jie & Ferryjie-utseduau, 2010; Taylor, 2006). Thus, according to data from FAOSTAT, 40% of the world's soybean production and 12% of total maize production, which are the main inputs for the meat production, recorded some exportation process. With respect to beef, only 8% crosses any border; and this proportion, 19% comes from Brazil, 18% India, 16% Australia, 12% USA, 9% Mercosur, 6% New Zealand, 3.4% Canada and 17% comes from other countries (FAOSTAT, 2015). However, the low rate of production enters the international market; this defines the global dynamics of the industry because of the ubiquity and few actors who dominate production and global trade.

Mexico is the eighth largest producer of beef and due to the signing of trade agreements with various countries, its value network of beef is increasingly involved in the dynamics of the international market. This tends to be led by international corporations that try to integrate all links of the supply chain dynamics of global value networks (Childerhouse, Aitken, & Towill, 2002). In fact, only four global companies control 83.5% of international trade in beef (Schwartz, 2013); these companies are, in order of importance: Brazil's JBS-Friboi whose

market share amounts of up to 37.2%, the American companies Cargill and Tyson Foods with 18.5% and 16.2%, respectively, and the Brazilian Marfrig Foods company which holds 11.6% in the market. Under these circumstances, local companies must fight the battle on two fronts: against domestic competitors in the lower segment and against multinationals in the upper segment (Ruelas_Gossi & Donald, 2006).

The incursion of Mexico as a supplier of beef in the global market, which exports 8% of its production and imports 9% of apparent domestic consumption, requires an analysis of the main changes and trends occurring in the business models of these leader companies. This article aims to characterize the business models of the dominant actors on the value network of beef, depending on the factors and trends that characterize the environment of the markets in which they operate. This in order to identify the key factors that allow Mexican companies to set up a basic strategy to participate in a market, whether local, regional or globally. This article aims to answer the following questions: What are the characteristics do business models of the dominant players possess in the global agribusiness of beef? What are the implications of changes and trends in the business models of the dominant players for the Mexican agribusiness of beef? What are the necessary decisions to be taken by local actors in the beef value network in order to achieve better production and economic performance with the resources available?

4. Methodology and sources of information

Several studies that address changes and trends in the beef value network was revised, in order to study the interdependencies between actors in their environment, which was made up by customers, suppliers, competitors and business completers (Nalebuff & Brandenburguer, 2005). Furthermore, web pages were consulted of the six companies studied (JBS-Friboi, Cargill, Tyson Foods, Marfrig Foods, Bigard Group and Vion Foods), available documentation (studies, reports, interviews, etc.) were also reviewed. Each company was considered a case study (Yin, 2003). With the information gathered, the core competencies of each of the companies studied were analyzed by a combination of the framework proposed by Osterwalder and Pigneur (2005) about business model and the model of core competencies that give rise to the competitiveness of companies proposed by Hamel & Prahalad (1990). The information was grouped by each of the three regions of origin of the company (North America, Brazil and Europe) in order to demonstrate the context in which the global models was originally developed. Therefore, in the description of the general characteristics of the business models in the two leading companies in each region and then the specificities of each of them were mentioned.

Subsequently, the concentration of the companies studied was estimated using the Herfindahl-Hirschman Index to measure the degree of competition in a market (HHI), which consists of the sum of the squares of the percentage shares of the largest companies (Parkin

& Loria, 2010). When the HHI is less than 1000 this corresponds to a competitive market, when it is between 1000 and 1800, it is considered a moderately competitive market, while HHI is more than 1800 it is considered noncompetitive, because few companies have power to influence the market.

The trends towards vertical integration of activities that make up the supply chain, horizontal integration and geographic expansion of these companies, their geographic scope and diversification of its offer were discussed.

From these results, the challenges for Mexican beef industry were defined; pointing scenarios that the companies will face when competing in different markets. Finally, through the matrix of four actions proposed by Kim & Mauborgne, (2004 and 2015) observations was made towards the action that need to be taken by the actors in the beef value network to improve the competitiveness of the sector.

5. Results and discussion

Business models of US companies

US and Brazilian companies are large scale producers in the beef industry, they have large processing plants and high utilization of installed capacity. In 2013, the North American beef market was dominated by 75% with four large corporatives; Tyson with 23%, JBS-Friboi with 21% (local production and imports), Cargill 20%, National Beef 11% (Cattle Buyer´s Weekly, 2014).

In 2013, the United States achieved a production of 11.6 million tons of beef, which summed exports of 10% (FAO, 2015). US beef exports recorded 20% to Japan, 18.5% in Mexico, 15% in Canada, 12.5% to the Middle East, 11% to Hong Kong and China, 9% in South Korea and 14% are distributed to other countries (USMEF, 2015).

Hence, US companies are oriented towards 90% of the local market and export of certain products, which are not valued in the domestic market. This is a central component of their business model, as their competitive strategy of placing their cuts at increasing demands in the domestic market thus increasing purchasing power and exports of lower valued cuts in this market, but most appreciated in other external markets due to the preferences and habits of customers. This model differs from established companies in less developed countries, whose principal strategy is to place the cuts with higher quality or better paid in foreign markets a commodity appreciated by customers outside the domestic market, this due to lower purchasing power of the local population.

Another important component of the American business model is the availability raw material such as grains and oilseeds for feeding the animals. This despite the growing challenge to this model because at least 35% of global production of these raw material is intended to feed animals than to use them with lower production efficiency of protein for human con-

sumption (Foley et al., 2011).

The US-based international corporate **Cargill** ranks second in world meat production; it is the longest existing company and the largest producer of ground beef in the sector. Their value proposition is "to provide clean, fresh and cold (not cooked) meat, in a timely manner and available to costumer whenever it is required". Basically they operates under three major marketing strategies: selling primal cuts for foodservice operators and manufacturers, to the wholesale ground beef industry; and ground beef sold in friendly packages, which are sold through supermarkets readily available to customers.

The Cargill's company is dated from 1865 and now has more than 143 thousand employees in 67 countries. This company is involved in the production of beef since 1936, and in 2014 processed approx. eight million head of cattle, which were sold as cuts in over 13 brands. The supply chain covers 750 thousand US cattle producers with an average of 42 gestations, and has very a close relation with them to ensure the monitoring of operations and good production practices, ensuring through the practice of constant audits to suppliers.

With the dynamics of globalization, Cargill has had to implement a major geographic expansion across five continents. At the same time, they have been covering the complementary sectors to agricultural production (sugar, soya, cocoa, canola, sorghum, corn, salt, biofuels, financial services and steel, among others). Also, through the diversification of its supply and through vertical integration processes in certain links of the food chain, such as the collection of grains and oilseeds, providing supplies with livestock, preparation of rations, fattening, slaughtering and butchering, packaging, provisioning and branding techniques ("Cargill," 2015).

As for horizontal integration, the company has eight plants for meat production in the US and Canada, while its offer in terms of animal protein sector has diversified in the following products: beef, pork, poultry, milk, egg and fish farming.

Meanwhile, the transnational Tyson Foods a US based, occupies third place overall in meat sales, and produces approx. 1 in 5 processed products that are sold in the United States. They accomplished sales of 34.4 billion dollars in 2013, with 13 slaughtering and processing plants with over 7 million head of cattle per year, 9 plants with over 20 million pigs per year, 57 plants for two thousand million poultry annually, and 27 food-processing factories. They product offered are 41% beef, 32% of poultry meat, 13% pork and 14% of other processed foods, among which includes a significant range of *fastfood*.

The value proposition of **Tyson Foods** is to "provide good and safe food, under a strategy of continuous improvement, every day and in every bite that the customers consume". This company handles the distribution of products through the following channels: 43% direct sales to final consumers through supermarkets, 34% to restaurants, 17% on the international market and 6% by other means. Suppliers involving 115,000 family farms for all species, while in cattle has a network of 4,000 family farms, to which applies permanently program monitoring and audits to ensure compliance with the ethics code for suppliers and animal welfare requirements. This company also has 5,000 500 shareholders ("Tyson Foods Inc.," 2015).

Business models of Brazilian companies

The most important Brazilian companies are: JBS-Friboi which ranks first in the world, and Marfrig in fourth position in the world ranking; these companies have had a rapid growth in the recent period, mainly through mergers and acquisitions, first in Brazil, then with an expansion strategy that started in the Mercosur countries and later on a global scale. These companies have managed to establish and exploit economies of scale, and have made significant bargaining power in marketing their products. In part, these developments are the result of great strategic and financial support from the Brazilian Development Bank (BNDES), which holds 20% equity of JBS-Friboi and 14% of Marfrig, but also to the existence of certain comparative advantages of lowering production costs, because 90% of Brazilian beef production is performed under grazing conditions. However, this business model has not escaped criticism from environmental groups because agriculture and livestock have invaded 80% of the original area of the Amazon rainforest (Nepstad, Stickler, & Almeida, 2006). To address this criticism, companies have had to implement policies of exclusion of the herds of indigenous reserves of the Amazon rainforest in its supply chain.

Of the total cattle slaughtering in Brazil, 62% corresponds to fattening of 36 months, 24% are cows, 13% are young bulls (between 24 and 36 months) and 15 corresponds to calves.

JBS-Friboi is a multinational company with current supremacy in the production and meat sales in the world. The first Non-American company that entered the club of the four giants of beef exceeding 4 million tons per year. They control more than 10% of the production of all meats in the world, the largest meatpacking different species in the US (32% market share) and in Australia (with 21% market share). They are also the largest processor sheep coming out of Australia, one of the largest processors of poultry meat in the United States and Mexico, and the third largest pig producer in the United States.

Briefly, the value proposition of JBS are described as follows: through the latest technology, JBS "supplies in bulk of a wide variety of practical and economical products (fresh and processed) that meet the strict nutritionist's demands. Including feeding programs in school, industrial kitchens, butchers, supermarkets, restaurants, hotels, distributors and also provides the largest markets in the world with the guarantee of the best ranking in animal welfare".

Unlike Tyson, which began operations in 1930, JBS began in the 50´s with a minimum scale of operation under the name Friboi, becoming one of the leading producers of beef in Brazil in 2000. They undertook expansion on a global scale, starting with the purchase of plants in Argentina, which allowed them to be the leader in South America in 2006. In 2007, JBS-Friboi began trading on the stock exchange, and then purchased companies in Europe, Australia, United States (including Pilgrim's Pride, the largest company in the US poultry industry) and managed to acquire its main competitor in Brazil (Bertin). This company has integrated various links of the supply chain, such as primary production by the joint venture partners, the formulation of balanced food, fattening cattle, slaughter, cutting, packing and meat processing. In 2008, they created the JBS bank, which finances the *Feedlots* operation of 4,000 livestock producers that supply raw materials in Brazil. JBS revenues come from the fol-

lowing regions: Middle East 31%, Asia-Oceania 14%, Japan 12%, Africa 11%, North America 10%, Europe 10%, Latin America 8% and Balkans 4% ("JBS-USA," 2015).

JBS has especially implemented a series of policies to penetrate and compete in the European market the most demanding in the world in terms of quality, safety, animal welfare and respect towards the environment. Thus, one of the policies implemented is the "ox in point" that began in 2013 and involved the selection of lots of castrated, genetically mated cattle, in accordance with the classification requirements for meat of that market. They were credited with two reals per arroba (25 pounds) on the current price of whole fat cattle, that as established in the Hilton quota[2] . Important to mentioned that the European market preferred cuts such as the filet mignon and Contre-filet (Mesquita, 2014).

On the other hand, JBS announced their commitment to guarantee the sustainable origin of their raw material and therefore doesn't acquire cattle from suppliers involved in deforestation, invasion of indigenous lands or conservation units, rural violence, land disputes and slavery.

On the other hand, the Brazilian company **Marfrig** comprises of three large corporations: Marfrig Beef, Moy Park and Keystone Foods. This company ranks fourth worldwide in the production and sales of beef with market presence in 110 countries. It has 90,000 employees and has 34 units for slaughtering cattle (24 in Brazil, five in Argentina, four in Uruguay, and in Chile), 46% of its production is destined for export from the Mercosur markets in Europe, Russia, Asia and the Middle East. Between its production lines they generally include thin slices, hamburgers and jerk beef or cooked meat, but being specific they have a production line of meat with Halal certification (which means legal for the Muslim community), and another Wagyu beef destined for the Japanese market. In addition, the company has 21 chicken processing plants in different countries, of which 14 are in Europe (Northern Ireland, Republic of Ireland, United Kingdom and the Netherlands, through the brand Moy Park) with this production platform they have has established themselves as the leader in the market of the continent.

The value proposition of Marfrig is focused on "satisfy and exceed the expectations of its customers and partners, offering fresh and processed products quality, distinguished by modern technologies and high qualification of its employees, working with social and environmental responsibility, and with the intention to create value for customers, partners, employees, shareholders and the society".

Marfrig, has 48 factories to process products on five continents, four processing pork plants in Brazil and two turkey processing plants (one in Brazil and the other in Europe). They also have installed capacity to process 5 million head of cattle annually, 31 million pigs, 32 million sheep, 100 million turkeys and a billion chickens, they also have experimented field for fish farming. This company has an installed capacity to produce 126 thousand tons

[2] The Hilton Quota is an export quota of beef quality and high value that the European Union assigns to other nations to introduce such kind of products in their market.

of other processed products, and more than 178 thousand skins per month. In June 2010, the company bought Keystone Foods, the leading supplier of processed meat for the restaurant chain McDonald's and other companies. To ensure the quality of their products, Marfrig has a manual of best practices with ethical, social, environmental and technical standards of production ("Marfrig Global Foods," 2015).

This company has been recognized by The Business Benchmark on Farm Animal Welfare (BBFAW) and the World Society for the Protection of Animals (WSPA, for its acronym in English) as one of the most complete companies in animal welfare in the world, classified in the second place by BBFAW (Bem-estar_Animal_MARFRIG, 2014).

Within their strategy of vertical integration, Marfrig is engaged in production activities of genetic material and, like JBS in breeding cattle owned by the partners and through partnerships with 120 farmers through various forms. These comprises of sharecropping, where 160 thousand animals were confined and the producer's deposits to the company for its completion, and the purchase of cattle and contract term known in Brazil as ox-term; through the latter mode 15% of the total volume of slaughtered cattle (Marfrig, 2014a) is supplied. By this means, in 2013 the company created a tool called business table, with the aim of consolidating the purchase of cattle, offering different contract options to livestock producers, with the support of the Brazilian stock exchange BM&FBOVESPA for futures contracts referenced by the price indicator the Center for Advanced Studies in Applied Economics (CEPEA, for its acronym in Portuguese) (Marfrig, 2014b).

An important feature of the Brazilian business model has been innovation in the supply chain of young bulls (to make more attractive the intention of producers to deliver a commodity in exchange for a safer or more profitable to pay). This is given through various forms (see Table 1.) ranging from livestock farming by partners companies, the purchase of animals for fattening, the acquisition of fattened cattle (ox-term) with support from the stock markets (De_Oliveira, Grossi, & Santana, 2009). A mechanism that allows properly manage risks by setting different prices according to production protocols; through this mechanism of future trade 15% of the Brazilian demand for fattening cattle (8.7 million head in 2013), ten years after being implemented by JBS-Friboi (Franco, 2014).

Sharecropping contracts are another mechanism by which companies provide animals and raw material to the butchers who are responsible for the loss and weigh gaining of the animal.

Table 1. Mechanisms of cattle supply in the food chain of the agribusiness model of Brazilian of beef

Variable	Breeding and fattening of cattle owned or associated by the company	Boi a termo	Sharecropping	Confinement in association with livestock fattening unit
Livestock ownership	Company	Grower	Company	Livestock
Tool description	The company owns fattened animals and can be the provider of animals raised by members of the company or other livestock animals purchased in the physical market.	The marketing of future livestock with the stock market backup against management risks: signed agreements by the grower and company. The place, date and number of animals to be delivered and future alternatives to defined price. It allows setting differentiated by the protocol of production. Animals export quality, are priced in dollars.	The company provides the animals and inputs to the grower, while the grower takes up responsibility for the fattening process. There are mechanisms to pay for efficiency in weight gain.	The growers hosts there livestock in the company, and when they are sacrificed is when the farer are paid and production costs are discounted at the end of the operation.

Source: Prepared using data from Franco (2014), www.jbs.com.br and www.marfrig.com.br

Another method is the confinement of animals by associating the company with farmers who put their animals in fattening units, which allows farmers to rotate pastures for its recovery. This mode has three variants: the first known as daily fixed price, in this embodiment farmers pay a daily fee set based on the characteristics of animals as weight, race and age. The second variant is known as ration per kilo and housing, in which the farmer pays the daily consumption of food and a fee corresponding to the fixed cost and accommodation of the animal. The third variant is known as a fixed value where there is an initial tabulation of weight gained (Kgs) of the animal subtracted from fixed and variable costs of operation ("Marfrig Global Foods," 2015).

Business models of European companies

In accordance with data from FAOSTAT (2015), the European Union produced 7.9 million tons of beef in 2012, representing 12.5% of world production, highlighting three countries as major producers: France 25.1%, Germany with 17.5, UK 13.2 and the rest amounts to 44.2 is distributed among the other member states.

In Europe, two basic modes of production are practiced: The first involves extensive livestock on the western edge of the continent (Ireland, Britain and the Atlantic arc) and moun-

tainous areas throughout Europe. The second mode due to feeding animals with grain and described as intensive or semi-intensive (Comisión_Europea, 2004).

A constant concern of consumers of beef in Europe is confidence regarding how to produce food; therefore the European Union, through its institutional framework, has established a list of 18 European standards in the areas of environment, food safety, health and animal welfare. Producers who violate these rules becomes creditors and sanctions are made to a cut of any direct in direct assistance. Also measures have been established to ensure traceability and traceability of meat, such as: labeling of meat, animal identification, improved rules on ingredients for animal feed, strict controls of imported meat and promotion measures of beef of European origin, with Community funding (Comisión_Europea, 2004).

European companies in the meat industry are much smaller than those of US and Brazil, because it is traditionally fragmented. It is noteworthy that only two European firms (Vion Foods and Bigard Group) are on the list of the 10 largest in the world, when considering whole sale meat. Although their business models are designed to meet the demands of the strictest consumers worldwide, these models are characterized by lower global projection, and a greater presence in the region, but especially presumed as business models based on respect for the environment, animal welfare, food safety and product traceability.

Vion Foods is a privately held company of German origin, which originates from the association between a major shareholder and an agricultural background of southern Europe. Its value proposition is to "provide healthy and safe meat products, meet the highest quality standards and maximum security, based on detailed diagnosis of the evolution of European consumer behavior".

In fact, Vion Foods is internationally recognized for its leadership in the application of knowledge in the areas of quality and food safety, two aspects that distinguish the meat market. Vion has specifically proposed the anticipation of advances in quality systems for the primary sector (IFS, for its acronym in English) linked to the processing sector.

During 2013, Vion Foods obtained pork and beef sales of 9.7 billion euros, this through 11 registered brands in the Netherlands and Germany, where it has 600 thousand employees. The purpose of this enterprise market is 89% of the European market and is composed as follows: Germany 39%, Netherlands 11.5%, with exports of 9% mainly in bacon to the UK and 8% in ham to Italy, 18% export to other European countries, Asia 7%, 2% EE. UU, 0.17% to Canada, 0.1% to 5% to Mexico and other countries.

The operations of Vion Foods started with the purchase of cattle from 16 500 small producers, slaughtering and processing to sale fresh retail meat; however, it also has an important infrastructure for industrialization of convenience products (Vionfoods, 2015).

As for horizontal integration, Vion Foods has nine processing plants in Germany and the Netherlands, on the side of the diversification of production, this company processes and sells beef, pork and seafood.

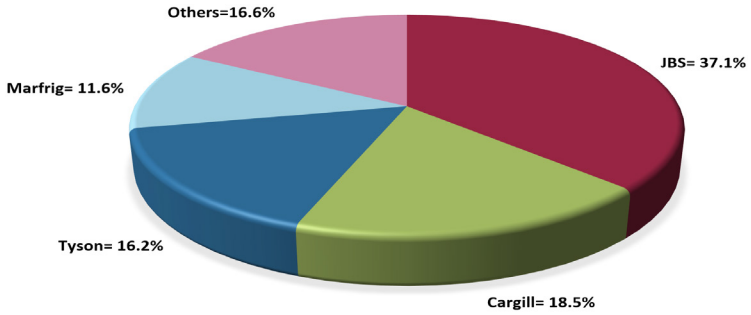
On the other hand, **Bigard Group** is a company of French origin with 59 processing plants in Britain and France; it has 16,000 employees and annual operation of one million tonnes of beef from 1.5 million culled heads. Their sales are set as follows: 53% beef, 43% pork, chicken 3% and 1% sheepmeat. The marketing channels are formed as follows: 83% of total sales are to the market in France and the UK, distributed through supermarkets (54%), 7% at restaurants, 6% to industry, 6% to butchers, 10% wholesalers and finally 17% through exports are mainly to other countries in Europe. During 2013, Bigard Group posted sales of 4.3 billion euros, through six registered for the sale of ground beef, sausage, carpaccio, prepared foods, cuts and vegetables stuffed with meat (Bigardgroup, 2015).

The value proposition of Bigard is "to provide high quality nutritional and tasty products through a short distribution chain, which boast the characteristics of ultra-freshness of traditional butchery and also ensure traceability, through a strategy full traceability from field to costumer, with the seal of French or British origin".

Concentration grade of the meat industry

A characteristic of this food industry is its high concentration of only four companies, two from Brazil (Marfrig and JBS-Friboi) and two American (Cargill, Tyson). The concentration ratio of international trade in the four companies is 83.5% (see Figure 1.), while this ratio for the US market is 75%; this situation creates a condition of increased competition for beef companies, compared to the international market.

Figure 1. Percentage share of international trade in beef of the four major companies, which account for 83.5% of the international market



Source: prepared with information available at: jbs.com.br, cargill.com/company/index.jsp, tysonfoods.com, and marfrig.com.br, www.bigard.fr, www.vionfoodgroup.com, and (Schwartz, 2013).

Another way to measure the degree of competition in the market is by estimating the Herfindahl-Hirschman Index (HHI). For the North American market, the estimated HHI index was equal to 1,491 which places this country market in the category of moderately com-

petitive, while for the international market the HHI index was 2,115 which means it's a very concentrated and uncompetitive market. For reference, a perfectly competitive market has a rate of almost zero and its monopolies something close to 10,000.

For Mexico, the estimated HHI value was 373, characteristic of a competitive market. While the concentration ratio of the four major network companies of Mexican value (Su-Karne, Grupo Gusi, Dipcen and Laguna Meat) was estimated at 19%, reflecting the Mexican beef sector, unlike the US, it is less concentrated. In fact, the business sector of Mexican beef agribusiness produced under conditions of greater safety consists of 15 companies affiliated with the Mexican Association of Feedlot Cattle (AMEG), but 14 of them have an average size ten times less than the dominant actor.

While it is true that the global market is highly concentrated in four large companies, in local markets consumption of beef is closely linked to consumer preferences and purchasing power of local economies, so that there are niches market in which you can place different primal cuts. That was precisely the basis of competitiveness of various companies in Latin markets, which has allowed them to remain in local markets and penetrate export markets.

Comparative analysis of central competencies in business models

The central competencies are defined as the capacity of that company holds in which its competitors cannot match or imitate (Hamel & Prahalad, 1990). Then these skills to business models studied are analyzed.

Vertical integration: which is the incorporation of various stages of the food chain (from production and processing to distribution) by a firm in order to reduce costs and strengthen the defensive power of the company in the market.

Downwards vertical integration occurs when a supplier assumes an activity, meanwhile Forward vertical integration is when the company becomes its own client or closer to final consumers (Victoria, 2011).

In the case of America, both Brazilian firms as the US are characterized by greater vertical integration, through partnerships with producers and in some cases owned livestock farms. In the case of Brazilian companies, it is common that large firms also extend backward (breeding stage) and forward: processing cooked products and use of products such as leather, collagen and biodiesel.

European companies partially have a forward vertical integration, because they start from the purchase of livestock, slaughtering and processing cuts through processing of cooked products, however they have monitoring programs and audit their suppliers to ensure quality of its raw materials.

Horizontal integration: this is defined as the expansion of the productive capacity of a company in different geographical locations, including the acquisition or merger of companies for the same product or service offered (Romero, 2009).

Often you can see the integration of other processing plants through mergers or acquisitions that allow broaden the productive capacity of enterprises.

As for beef production platforms, one can distinguish the main producing countries: US (11 855 million tons), Brazil (9 307 million tons), European Union (7 765 million tons), China (5 540 million tons), India (3 460 million tons), Australia (2 152 million tons) and Mexico (1 820 million tons), according to AMEG (2014). In this regard, companies of American and European capital tend to concentrate their production platform in the regions or countries of origin, while Brazilian companies have embarked on an aggressive expansion in a global context, covering the major producing countries and consumers. Thus, JBS has managed to expand through mergers and acquisitions of production facilities in seven producing countries (Brazil, USA, Argentina, Uruguay, Paraguay, Italy and Australia), while Marfrig expands in the area of Mercosur influence (Brazil, Argentina, Uruguay and Chile).

It important to mention that an important characteristic in the evolution in this sector, given by the emerging leadership of firms from developing countries, largely explained by the fall in US exports in 2004 due to an outbreak of bovine spongiform encephalopathy (BSE). A phenomenon, which opened unprecedented opportunities for Latin exports, and by innovations in business model emerging companies (Vargas_Del_Angel, Muñoz, & Lopez, 2014). According to Ruelas-Gossi, (2004), these innovations occur in area of poorly differentiated products, long technology cycles, from under develop economies and basically driven by innovative ideas in all areas of the business.

Geographic Scope: defined as regions, countries or groups of countries where a company competes by applying a coordinated strategy (Porter, 2012).

Both US and European companies, are focused on supplying the local and regional market, while Brazilian, particularly JBS, are geared to supplying the markets of emerging countries endlessly in its pretensions to venture into the European market.

Key Resources: Brazilian companies seek economies of scale and scope through the purchase of plants in areas of production and consumption: JBS consolidates a global production platform and acquires producing plants in seven countries, including the US and Australia; while Marfrig ventures in purchasing processing plants in producer countries of Mercosur. This contrasts with the production platforms concentrated in the regions and countries of origin in the case of US and European companies.

Diversification of supply of animal protein: general global companies tend to diversify their offer, covering various species (see Table 2.); in the case of US and Brazilian companies they incorporate cattle, poultry, pigs, while European tend to incorporate only cattle and pigs.

Table 2. Structure percentage share in sales value networks of companies surveyed

Company	Cattle	Pigs	Poultry	Sheep	Sea food	Fresh fish	Others
Vion	32	48	-	-	03	-	17
Bigard	44	28	-	05	-	-	23
Marfrig	23	01	73	-	-	02	01
Tyson	42	14	30	-	-	-	14
Cargill	23	12	10	-	-	01	54
JBS	49	07	17	05	-	-	22

Source: prepared with information available at: jbs.com.br, cargill.com/company/index.jsp, tysonfoods.com, and marfrig.com.br, bigard.fr, www.vionfoodgroup.com

Alliances with suppliers: given the large volume of cattle demands, Brazilian companies have had to innovate in the mechanisms of supply of raw materials, (sharecropping arrangements, confinement and "boi a termo"); meanwhile US and European companies are supplied by a "more conventional" mechanisms such as buying cattle from frequent suppliers.

Financing mechanisms: besides the share sale through the stock market, Brazilian companies have managed to establish a financial partnership with the Brazilian Development Bank (BANDES) while Vion Foods establishes an alliance between the principal shareholder and an agricultural background south of Europe; the rest of the companies analyzed are public equity.

Value proposition: European companies place greater emphasis to the establishment of short supply chains and traceability, given the demand and distrust of consumers to know the origin of food (*Confiance des consummateurs*). While the Americans focus on the production on tender and juicy meat based on cereal (Flavor to palate); meanwhile Brazilian emphasize on the supply of accessible protein for the whole world (disponivel protein for world).

Challenges for Mexican industry

The analysis of the business models of the dominant players in the global agribusiness of beef is fundamental for a country like Mexico given the deep international integration of national meat agribusiness, particularly the US market and increasingly in Asia. Thus, on the side of the inputs needed for animal feed, Mexico imports 87% of oilseeds, 76% of oilseeds pastes and 75% of yellow corn (SIAP_SAGARPA, 2015). With regard to meat products, 40% of pork, 22% of poultry meat and 16% of beef (CNOG, 2015) it is imported. On the side of exports, Mexico sends to the outside calves standing for a value of more than US $ 700 million, plus meat and offal of bovine worth US $ 942 million (MEXICANBEEF, 2014).

Although the trade balance of beef is still a deficit for Mexico, there has been a significant tendency to reduce dependence on foreign markets to supply the domestic market, seven billion pesos that cost imports in 2010 only 1.2 billion pesos in 2014.

While traditionally Mexican exports were made in the form of cattle, in recent years it has taken a turn for exports of meat and offal, which have registered a growth of 47% over the last ten years (from 2004-2014), achieving even exceed the value of exports of calves. This dynamic growth of the industry, along with asymmetries generated by a model of trade in livestock highly segmented and droughts in Mexico between 2010 and 2013 have created a shortage of cattle and have increased the demand for raw materials for Mexican packing plants. So in 2013 they had to import 300 000 calves from Central America and in 2015 there have been skinny cattle prices exceed four percentage points on average livestock primed and ready for sacrifice.

Per the Mexican Beef, cattle export results in incomes equivalent to US $ 757 / ton, while export meat involves capturing US $ 6.945 / ton. Therefore, the fact that now dominate exports of meat, means that the network of cattle meat value of Mexico radical innovations have occurred in the business models that have made possible a situation of this nature, which is being passed to export raw materials to products with added value.

Although there are 23 Mexican companies with capacity to export beef, only one of them, *SuKarne*, is responsible for 73% of total exports, which means that this company acts as a pillar company, which has managed to strengthen the value network. On average, it is ten times superior to the rest of the packing plants; with the capacity for sacrifice one million thousand head of cattle per year, allocating 27% of its production to the export market and the rest to the domestic market, which has a share of 17%. Their sales volume records, SuKarne is among the 15 large international companies of animal protein.

It is important to state that according to the type of slaughter that is made in Mexico two major business models are distinguished, with several variants:

The first model corresponds to slaughter hubs known as municipal abattoirs, with 46% of national slaughter value. These are managed by local governments, they have little or no infrastructure for processing meat, they practice primarily the sale of carnal meat and the majority of the times hot meat (uncooled or matured), basically offers slaughtering service and eventually the cutting of channels and then distribute raw materials to small commercial establishments such as butchers, taco shops, restaurants and soup kitchens, among others. The dynamics of this slaughter system depends on the implementation of public policies that consider the use of incentives towards good manufacturing practices and safety procedures, but also to castigate unfair practices of production.

The second model corresponds to the Federal Type Inspection (TIF) slaughtering establishments with, which in 2014 participated with 57% of national slaughter. The characteristics of this model implies a partial backward vertical integration through medium and large feedlots, which are supplied with raw materials through collection centers and complemented with food processing plants to elaborate balanced, which are mostly imported grains. Because there is strict regulation and supervision, they have facilities and hygienic processes. Similarly, these business models partially achieved upwards vertical integration through slaughtering,

freezing, cutting, processing and packaging of primal cuts, which are sold through different sales channels, mostly in supermarkets, restaurants and butcher shops.

Due to consumer preferences and buying habits of a society that has become dependent on purchasing in supermarkets, the TIF slaughtering system has gained market shares as up to 47 to 57% in 2010 to 2014. Meanwhile SuKarne packing has substantially increased investment in infrastructure for development of value-added processed products, which went from annual sales of two thousand five hundred tons in 2000 to just over one hundred and seventy-five thousand tons in 2014. This means an important step in the modernization and growth of the Mexican beef agribusiness with encouraging hopes for the protagonists of this value network.

According to SIAP-SGARPA, domestic production of beef for 2014 was estimated at 1.82 million metric tons with a value of 74 billion pesos, which showed growth of 7% annual average over the past ten years, while meat exports have grown on average 47% a year. These indicators suggest that growth in demand for meat in emerging markets, was attached with the crisis that led to the emergence of an outbreak of bovine spongiform encephalopathy in 2003 in the US offer, which boosted the Mexican agribusiness beef.

As for processing costs (slaughtering, bone removing and packaging), the Mexican agribusiness has a significant competitive advantage over the US: while in Mexico to process an animal costs between 70 and 90 dollars in the United States the same process costs between 150 and $ 180 (Su_Karne, 2014). However, one of the weaknesses of the Mexican sector is the dependence on imports of grains and oilseeds, which are used as inputs in the feedlot. In this case, SuKarne has managed to offset the costs of cereal imports (in the order of US $ 200 million), with the low cost of Mexican labor, which means an advantage of approximately US $ 60 million vs slaughtering and processing in the USA, destination of 83% of its exports. Thus, by exporting high-value cuts maximize profits, and obtained exchanges for US $ 600 million in 2014.

From innovations that SuKarne has implemented in its business model, as well as the leaders in the world market companies, great lessons and opportunities for innovation in this agribusiness can be identified considering the structure of the prevailing market in each target market (see table 3).

Table 3. Innovation opportunities for local packaging plants interested in improving their competitive position in the global, US and Mexican markets

Target market	Structure and characteristics of the market	Opportunities to innovate in the business model
Global Market IHH=2,115 Four companies account for 83.5% of the market, two of which have grown through mergers, acquisitions, and equity that have the support of national development banks. The entry barriers are given by their ability to achieve economies of scale and scope.	Oligopoly IHH ≥ 1000 Few companies in the industry Identical or differentiated product Moderate barriers to entry Considerable control towards overpricing High concentration ratio	Competing with innovations in the diversification of supply, geographical scope and horizontal integration to expand production capacity through acquisitions and mergers, which requires a high degree of financial leverage.
US market IHH=1,491 Four companies account for 75% of the market, three of which are of national origin and are geared primarily to supply the domestic market. This market prefers the consumption of primary cuts from animals with greater value.	Oligopolio IHH ≥ 1000 Few companies in the industry Identical or differentiated product Moderate barriers to entry Considerable control towards overpricing High concentration ratio	Packaging which holds 75% of Mexican exports (SuKarne), has managed to penetrate that market with innovations: Added value on cuts including packaged and processed - distribution centers and own agreements with retail chains and supermarkets for marketing products; USDA and HACCP certifications and brand presence. Implementation of integrated production units and a large network of supply of raw materials (cattle fattening).
Mercado mexicano IHH=373 Four companies account for 19% of this market, there are 16 TIF companies totaling 57%, and there is a dominant player on average is ten times bigger than the rest of the packing stations. For its part, 884 municipal slaughterhouses participate with 43% of this market.	Monopolistic competition IHH = (101 – 999) Many companies in the industry Differentiated product No barrier to entry? Moderate control of overpricing Low concentration coefficient	The opportunities for innovation lies in: communicating to consumers the elimination of substances not allowed in the feedlot, investment in infrastructure to generate value-added products. Establish cooperation with other companies to implement a traceability system and increase brand awareness. Encourage the development of suppliers and reduce asymmetries between industry and the primary producer; generating schemes for the development of suppliers, such as buying cattle for fattening on credit and future hostelry schemes and distribution service.

Source: Self prepared.

6. Discussion questions

How could the Mexican Government, along with the companies of the sector, reconcile interests that allow the design of public policies that promote the competitiveness of the value network?

What are the strategies that should implement them livestock Mexican for face to them actors dominant in the markets local?

How encouraging to them actors of the network to follow protocols that ensure the safety, welfare animal and traceability?

Of what way is could update the frame institutional Mexican for increase the confidence of them consumers on the good management of waste?

7. Final reflection

In the value network of Mexican of beef, the main characteristics is growth in local the business, in exception for SuKarne that has implemented a regional expansion between Mexico and Central America, where there has established hundreds of collection livestock centers and various integrals units, treats including a processing plant in Nicaragua.

However, it is desirable to increase the participation of TIF slaughterhouses and eliminate prejudicial practices of production and use of prohibited substances; so, it is recommended to encourage cooperation between Mexican packaging centers for greater horizontal integration of the industry, which will provide more productive and export capacity.

Global companies in the beef agribusiness are immersed in the market for the animal protein, an important product diversification observed with other types of meat (pork, poultry, sheep, aquaculture and seafood). This aspect should not be neglected by Mexican companies to keep up with international competitors.

The supply of raw material turns out to be more complicated in developing countries, for which Brazilian companies have seen the need to innovate in the supply chain by implementing marketing schemes for cattle that give them greater certainty to primary producers.

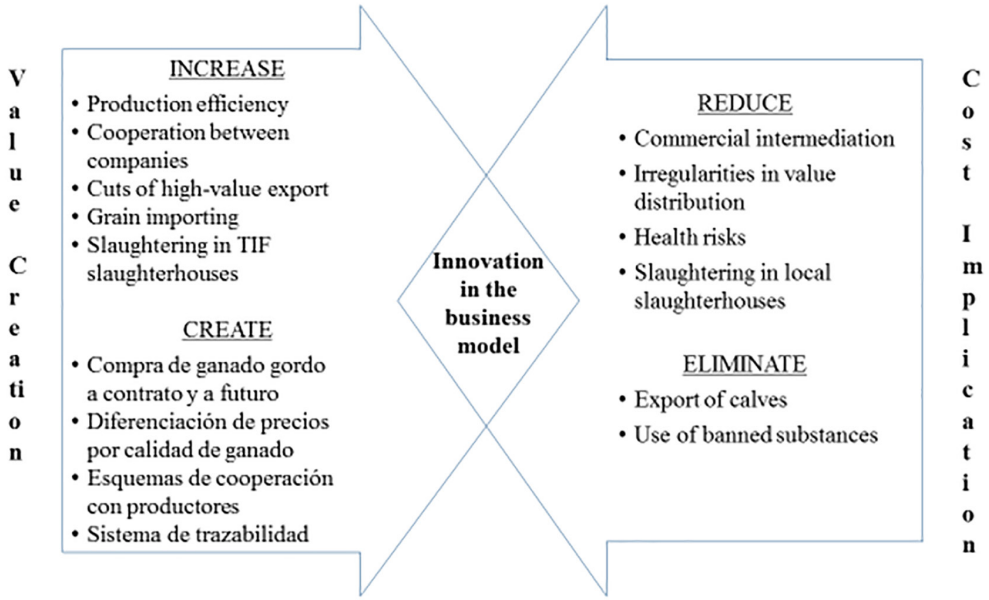
Although dominant firms expand their production facilities and its market presence in several consuming countries, there is significant differentiation in standards requirements of different markets, the European market is placed for example is at the forefront by raising their exacting standards to standards of harmlessness, environmental and animal welfare.

Changes and trends in the institutional framework in countries and regions, especially in the European Union, tend to change the business models of agribusiness beef, so that more companies are forced to implement strategies to earn consumer confidence and make the processing of organic wastes are converted into bio-fertilizers and bio-fuels, primarily.

Among the most important innovation strategies that have implemented companies in the sector, includes the placement of various primal cuts in certain markets, this in line with consumer preferences. A tendency to segment the market niche consumption, which may be governed by certain practices of production or processing which makes beef a differentiated product with high market value is also observed.

In Figure 2, presented in summary form, through an array of four actions proposed by Kim and Mauborgne (2004 and 2015) which is to eliminate, reduce, increase and make the decisions that could be implemented in the beef value network, by the Mexican government and business sectors, to increase the competitiveness of this sector.

Figure 2. Matrix of the four actions to be implemented in the Mexican beef network value (the concepts on the right hand side involves costs, while those on the left hand create value)



Source: Self-elaboration based on a proposal by Kim and Bauborgne (2004 and 2015).

8. References

AMEG. (2014). *Estadísticas de la Asociación mexicana de Engordadores de Ganado.* Retrieved from http://www.ameg.org.mx/estadisticas/nacional/

Ander, R. (2006). Ajuste su estrategia de innovación con su ecosistema de innovación. *Harvard Business Review,* (Abril), 108–118.

Bem-estar_Animal_MARFRIG. (2014). *marfrig é uma das empresas mais completas em bem-estar animal do mundo, segundo BBFAW.* Marfrig a Campo, 7. Retrieved from www.marfrig.com.br/fomento

Bigardgroup. (2015). *Bigard Group.* Retrieved from www.bigardgroup.com

Bisang, R., Robert, S., Santangelo, F., & Albornoz, I. (2008). *Estructura de la oferta de carnes bovinas en Argentina.* Actualidad y evolución reciente. Cuadernillo Técnico 6, 22–27.

Cargill. (2015). Retrieved February 6, 2015, from http://www.cargill.com/company/index.jsp

Cattle Buyer´s Weekly. (2014). *Top 30 packers 2013.* Retrieved from http://www.themarketworks.org/sites/default/files/uploads/charts/Top-30-Beef-Packers-2013.pdf

Childerhouse, P., Aitken, J., & Towill, D. R. (2002). Analysis and design of focused demand chains. *Journal of Operation Management,* 20, 675–689.

Coase, R. (1937). *The nature of the firm.* Económica, (November), 386–405.

Comisión_Europea, D. G. de A. (2004). *El sector cárnico de la Unión Europea.* Retrieved from http://www.cfnavarra.es/agricultura/COYUNTURA/anteriores/2004/2004_noviembre/9.pdf

De_Oliveira, neto O. J., Grossi, M. A., & Santana, F. R. (2009). *Comportamento da base e análise do risco de base na comercializacao do boi gordo no estado de Goiás, Brasil.* Pesq. Agropec. Trop., Goiania, 39(3), 207–217. Retrieved from https://www.revistas.ufg.br/pat/article/view/4422/5269. Agropec. Trop., Goiânia

FAO. (2015). FAOSTAT. Retrieved from http://faostat.fao.org/site/342/default.aspx

FAOSTAT. (2015). Food and Agriculture Organization of the United Nations/ Statistics Division. Retrieved from http://faostat3.fao.org/home/E

Foley, J. A., Ramankutty, N., Brauman, K. A., Cassidy, E. S., Gerber, J. S., Johnson, M., … Zaks, D. M. (2011). Solutions for a cultivated planet. *Nature, 478* (Macmillan Publishers Limited.), 337–342. http://doi.org/10.1038/nature10452

Franco, M. (2014). *Dez anos de boi a termo no Brasil.* DBO Negocios. Retrieved from http://www.jbs.com.br/sites/jbs.com.br/files/dbo.pdf

Hamel, G. (2006). El porqué, el qué y el cómo de innovación de gestión. *Harvard Business Review,* (Febrero).

Hamel, G., & Prahalad, C. K. (1990). The core competenece of the corporation. *Harvard Business Review.* May-June. Retrieved from http://www.personal.psu.edu/kkm11/files/HandP_Core%20Competence%20of%20the%20organization.pdf

Hocquette, J. F., & Chatellier, V. (2011). Prospects for the european beef sector over the next 30 years. *Animal Frontiers,* 1(2), 20. http://doi.org/10.2527/af2011-0014

Humprey, J., & Memedovic, O. (2006). *Global Value chains in the agrifood sector.*

JBS-USA. (2015). Retrieved February 6, 2015, from http://www.jbssa.com/

Jie, F., & Ferryjie-utseduau, E. (2010). *Supply Chain Performance Indicators for Australian Beef Industry : An Empirical Analysis*. 1–14.

Jie, F., & Parton, K. A. (2009). *Analysing beef supply chain strategy in Australia, the United States and the United Kingdom.* In A. and N. Z. M. Academy (Ed.), Australian and New Zealand Marketing Conference (pp. 1–6). Melbourne, Autralia: University of Wollongong, Research Online.

Kim, W. C., & Mauborgne, R. (2004). *Blue Ocean Strategy.*

Kim, W. C., & Mauborgne, R. (2015). Blue ocean leadership. *Harvard Business Review,* (November), 66–74.

Marfrig, G. F. (2014a). *Confinamento: uma parceria estratégica. Marfrig a Campo.* Retrieved from www.marfrig.com.br/fomento

Marfrig, G. F. (2014b). *Mesa de negocios para compra de ganado.* Marfrig a Campo, 3. Retrieved from www.marfrig.com.br/fomento

Marfrig Global Foods. (2015). Retrieved February 6, 2015, from http://www.marfrig.com.br/

Massa, L., Zott, C., & Amit, R. (2010). *The business model: theoretical roots, recent developments, and future research* (Vol. 3). IESE Business School- Univesity of Navarra.

Mesquita, A. (2014, April). *JBS amplia boi "No Pronto" de olho no mercado europeo.* DBO Negocios Frigoríficos, 38 –40. Retrieved September 14, 2014, from www.assinedbo.com.br

MEXICANBEEF. (2014). *Estadisticas*, MEXICANBEEF. Retrieved from www.mexicanbeef.org/es/estadisticas

Nalebuff, & Brandenburguer. (1997). *Coopetencia.* (Carrera, Ed.) (3a. reimpr.). Bogotá Colombia: Carrera.

Nalebuff, B. J., & Brandenburguer, A. M. (2005). *Coo–petencia.* (Grupo editorial Norma, Ed.). Bogotá Colombia.

Nash, J. (1951). Non-cooperative games. The Annals of Mathematics, Second ser(2), 286–295. Retrieved from http://links.jstor.org/sici?sici=0003-486X%28195109%292%3A54%3A2%3C286%3ANG%3E2.0.CO%3B2-G

National Research Council. (2015). *Critical role of animal science research in food security and sustainability.* (The_National_Academies_Press, Ed.) (Paperback). Washington, D. C. Retrieved from http://www.nap.edu/catalog.php?record_id=19000

Nepstad, D. C., Stickler, C. M., & Almeida, O. T. (2006). Globalization of the Amazon soy and beef industries: Opportunities for conservation. *Conservation Biology, 20*(6), 1595–1603. http://doi.org/10.1111/j.1523-1739.2006.00510.x

Osterwalder, A., & Pigneur, Y. (2005). Clarifying business models: origins, present, and future of the concept. *Communications of the Association for Information System, 15*(May).

Parkin, M., & Loria, E. (2010). *Microeconomía,* versión para Latinoamérica. (Perason, Ed.). México.

Porter, M. E. (2012). *Ventaja competitiva.* (Grupo_Editorial_Patria, Ed.) (segunda). México.

Reardon, T., Codron, M. J., Busch, L., & Bingen, H. J. (2001). Global change in agrifood grades and standards: agribusiness strategic responses in developing countries. *International Food and Agribusiness Mangement Rev., 2*, (3–4). Retrieved from http://www.unido.org/fileadmin/user_media/Publications/Pub_free/Global_value_chains_in_the_agrifood_sector.pdf

Romero, R. B. (2009). Las formas asociativas en la agricultura y las cooperativas. *Estudios Agrarios,* 37–66. Retrieved from http://pa.gob.mx/publica/rev_41/ANALISIS/5%20Roxana%20Beatriz%20Romero.pdf

Ruelas_Gossi, A., & Donald, N. S. (2006). Orquestación estratégica: la clave para la agilidad en el escenario global. *Harvard Business Review,* (Noviembre), 2–10.

Ruelas-Gossi, A. (2004). El paradigma de la T grande. *Harvard Business Review.*

Schumpeter, J. A. (1939). *Business cycles.* NBER Books, 1950(1939), 1883–1950. http://doi.org/10.1016/j.socscimed.2006.11.007

Schumpeter, J. A. (1943). *Capitalism, socialism, and democracy.* Routledge. Retrieved from http://www.tandfonline.com/doi/abs/10.1080/10286630902807278

Schwartz, S. A. (2013). The transformation of the American food system, and its effects on wellness. *Explore: The Journal of Science and Healing, 9*(4), 206–210. http://doi.org/10.1016/j.explore.2013.04.008

SIAP_SAGARPA. (2015). *Servicio de información agroalimentaria y pesquera/ganadería/producción anual.* Retrieved from http://www.siap.gob.mx/ganaderia/

Su_Karne. *Su Karne, lider mexicano en el mercado global de proteína animal* (2014). Retrieved from http://www.revistaganadero.com/files/doctos/ponen2014/Ing.EfranResendizSuKarne.pdf

Taylor, David H. (2006). Demand management in agri-food supply chains. *International Journal of Logistics Management*, 17, 163. http://doi.org/http://dx.doi.org/10.1108/09574090610689943

Torrescano, G. R., Sánchez, A., Gustavo, M., & Palma, V. (2010). Caracterización de canales y de carne de bovino de animales engordados en la zona centro de Sonora. *Revista Mexicana de Ciencias Pecuarias,* 1(2), 157–168.

Tyson Foods Inc. (2015). Retrieved February 6, 2015, from www.tysonfoods.com

USMEF. (2015). *U. S. Meat export Federation.* Retrieved from http://www.usmef.org/news-statistics/statistics/

Vargas_Del_Angel, M. Á., Muñoz, R. M., & Lopez, T. Q. (2014). *Modelos de negocio disruptivos de dos empresas latinas que emergen desde la red de valor bovinos carne. Custos E Agronegocio on Line, 9*(1), 269–296. Retrieved from http://www.custoseagronegocioonline.com.br/vinte e sete.html

Victoria, M. A. (2011). Integración vertical para la cadena de valor en los agronegocios. *Estudios Agrarios,* 71–95. Retrieved from http://www.pa.gob.mx/publica/rev_49/An%C3%A1lisis/integracion_vertical_-_Mar%C3%ADa_Adriana_Victoria.pdf

Vionfoods. (2015). *Vion Foods.* Retrieved from www.vionfoods.com

Yin, R. K. (2003). *Case Study Research: design and methods.* (S. U. Press, Ed.) (3th ed.).

Zott, C., & Amit, R. (2009). *Innovación del modelo de negocio : creación de valor en tiempos de cambio.*

