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**Supply Chain Practice, Supply Chain Performance Indicators and
Competitive Advantage of Australian Beef Enterprises: A Conceptual Framework**

Conference	: Australian Agricultural and Resource Economics Society (AARES 51 st Annual Conference)
Place	: Rydges Lakeland Resort Queenstown, New Zealand
Date	: 13-16 February 2007
Topic Area of the submission	: Agribusiness Supply Chain Management
Presentation format	: Full Paper
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Supply Chain Practice, Supply Chain Performance Indicators and Competitive Advantage of Australian Beef Enterprises: A Conceptual Framework

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Abstract

This research focuses on an Australian agribusiness supply chain, the Australian Beef Supply Chain. The definition of the Australian Beef Supply Chain is the chain or sequence of all activities from the breeding property to the domestic or overseas consumers.

The beef sector in Australia is undergoing rapid change because of globalisation, a highly competitive beef market (local and export), quicker production cycle and delivery times and consequently reduced inventories, a general speed-up of the rate of change in the business environment, the trend toward more outsourcing of activities, and the rapid development of IT. In this business environment, advanced supply chain systems have the potential to provide significant contributions to Australian beef industry performance.

A conceptual framework of the research project has been proposed. There are three elements of conceptual framework. Firstly, supply chain practice of Australian beef industry consists of five sub-elements such as strategic supplier partnerships, customer relationships, information sharing, information quality and a lean system. Moreover, there is an antecedent of cooperative behaviour such as trust and commitment influencing supply chain practice and supply chain performance indicators. Secondly, supply chain performance indicators include four sub-elements such as flexibility, efficiency, food quality and responsiveness. Finally, the competitive advantage framework of the Australian beef enterprises consists of price, quality, export sales growth and time to market.

As a further step of the research after developing the conceptual framework, the research project focuses the analysis on how the antecedents of the sub-elements of supply chain practice affect supply chain performance in Australian beef enterprises, how trust and commitment in trading partners affect supply chain performance, how attributes such as flexibility, efficiency, food quality and responsiveness influence the sub-elements of competitive advantage.

The research project leads on to further work on how Australian beef enterprises measure their supply chain performance and what the major difficulties are arising when implementing supply chain management in the Australian beef industry and what kind of changes can be made to beef supply chains to enhance their performance.

1. The role of supply chain in the Australian beef industry

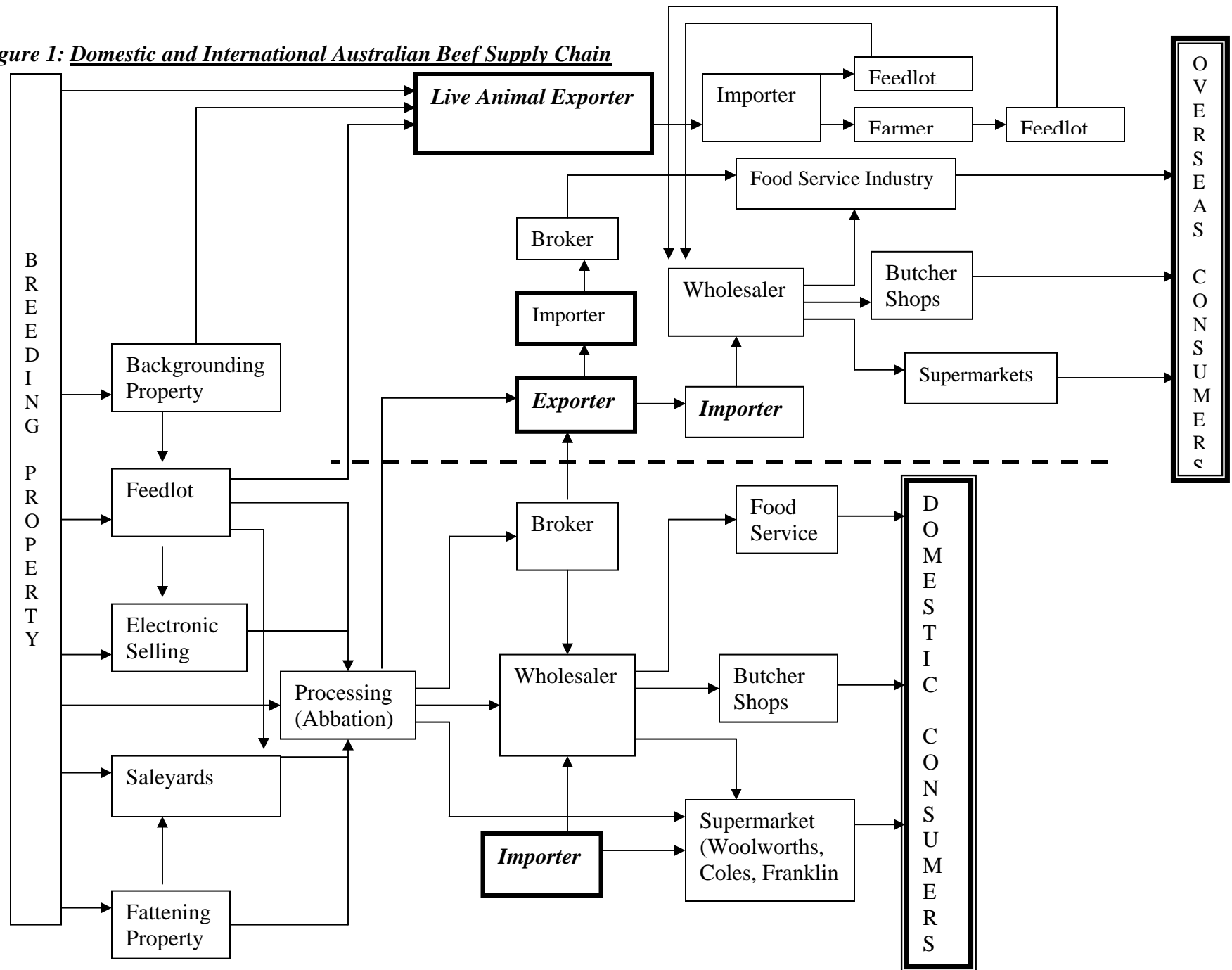
The theory of supply chain management is the integration of suppliers, manufacturing, distribution and customers in which raw materials run from suppliers to manufacturers who assemble them into finished product and organise delivery into the hands of customers.

Recently, the development of supply chain system is until the Integrated Supply Chain Management which may give several advantages for industries particularly beef industry, such as improved delivery performance, reduction of lead time, and reduction of inventory (work in progress and finished products), improved flexibility, efficiency and utility, improved capacity realization and improved asset usage.

This paper will describe the Australian beef supply chain and a conceptual framework of supply chain practice, supply chain performance and competitive advantage for Australian beef enterprises.

The definition of the Australian Beef Supply Chain is the chain or sequence of all activities from the breeding property to the domestic or overseas consumers (see Figure 1)

Figure 1: Domestic and International Australian Beef Supply Chain



2. Literature Review

2.1 What is Supply Chain Management and What are their objectives?

Supply Chain Management is a network of facilities that produce raw materials, transform them into intermediate goods and then final products, and deliver the products to customers through a distribution system. It spans procurement, manufacturing and distribution (Lee & Billington 1995)

The basic objective of supply chain management is to “optimize performance of the chain to add as much value as possible for the least cost possible”. In other words, it aims to link all the supply chain agents to jointly cooperate within the firm as a way to maximize productivity in the supply chain and deliver the most benefits to all related parties (Finch 2006). Furthermore, (Mentzer 2001) the significant importance of SCM as “the systematic, strategic coordination of the traditional business functions within a particular company and across businesses within the supply chain, for the purposes of improving the long term performance of the individual companies and the supply chain as a whole”.

Supply Chain Management has many advantages in beef sector such as improved delivery performance for instance from feedlot to abbatation then to wholesaler and from broker or wholesaler to butcher shops or supermarkets, inventory reduction for beef or veal products in supermarkets or food services, increased forecast accuracy for beef customer demand, beef consumption or beef export, overall increased productivity for the whole beef industry, lower supply chain costs, higher fill rates, improved capacity realization, improved flexibility, improved reliability and improved responsiveness and awareness of food safety and animal welfare.

2.2 SCM practices

SCM practices is defined as a set of activities undertaken in an organization to promote effective management of its supply chain.

Table 1. Supply Chain Practice

Author	Description
(Donlon 1996)	Supply chain practice includes supplier partnership, outsourcing, cycle time compression, continuous process flow and information sharing
(Tan <i>et al.</i> 1998)	Supply chain practice includes purchasing, quality, and customer relations
(Alvarado & Kotzab 2001)	Using inter-organizational systems in supply chain practice such as EDI, and elimination of excess stock levels by postponing customization toward the end of the supply chain
(Tan <i>et al.</i> 2002)	Six elements of supply chain practice (using factor analysis): supply chain integration, information sharing, supply chain characteristics, customer service management, geographical proximity and JIT capability
(Chen & Paulraj 2004)	Using supplier base reduction, long-term relationship, communication, cross-functional teams and supplier involvement to measure buyer-supplier relationships
(Min & Mentzer 2004)	There are seven elements of supply chain practice such as agreed vision and goals, information sharing, risk and award sharing, cooperation, process integration, long-term relationship and agreed supply chain leadership

2.3 Antecedent of Cooperative Behavior

This research framework describes two antecedent of cooperative behavior (trust and commitment) on supply chain practice and supply chain performance (Spekman *et al.* 1998; Tan *et al.* 1998; Handsfield & Nichols 1999).

Trust in trading partners is the willingness to rely on a trading partner in whom one has confidence (Ganesan 1994; Monczka *et al.* 1998; Wilson & Volsky 1998; Spekman *et al.* 1998; Mariotti 1999).

Commitment of trading partners is the willingness of each partner to exert effort on behalf of the relationship (Hamel & Prahalad 1989; Balsmeiere & Voisin 1996; Burnell 1999; Dale 1999; Lee & Kim 1999; Tompkins *et al.* 2002)

2.4 Supply Chain Performance

This section will review the literature of supply chain performance measure.

The following parameters can be used to evaluate the performance of the supply chain (Krajewski & Ritzman 2002)

1. Lead Time

We could measure the time since ordering beef from wholesaler until the beef arriving to the butcher shops or supermarkets.

2. Cost (farm costs, abbatation/processing cost etc)

3. Capacity (truck or shipment delivery, capacity of the machine)

4. Quality

Harl& (1996) consider that there are three determinants in choosing suppliers. Three determinants applying in beef sector including to improve the quality performance from breeding property (saleyards, auction plus, feedlot) as beef suppliers. In addition to this, we consider the ability to meet quality standard for meat including food safety & beef quality & ability to deliver beef or veal products on time without delay.

The importance of quality in purchasing is further emphasised by (Chapman & Carter 1990; Freeman & Cavinato 1990; Willis 1998; Burt *et al.* 2003; Ballou 2004; Vollmann *et al.* 2005; Heizer & Render 2005)

5. Delivery

There are three delivery dimensions including delivery speed, production lead time & delivery reliability (Coyle *et al.* 2003)

6. Flexibility

Chopra & Meindl (2004) agreed that the flexibility has four dimensions:

- Customer service flexibility. This refers to the ability to provide the special customer requests or inquiries
- Order flexibility. That means the ability to adjust order size, volume or composition during logistics operation
- Location flexibility. That refers the ability to service customers from alternative wholesaler locations or supermarket outlets

- Delivery time flexibility. The ability to provide delivery times for customers.

Supply Chain performance can also be viewed in terms of qualitative & quantitative measures (Benita 1998; Viswanadham 2000).

1. Qualitative measures

It needs the questionnaire or survey.

- Customer satisfaction

Customer should be satisfied with the product or service which are received. There are three elements of customer satisfaction such as pre-transaction satisfaction, transaction satisfaction & post transaction satisfaction (Christopher & Martin 1994)

Customer is an important role in the performance of supply chain (Lummus *et al.* 2001)

- Flexibility

Definition of flexibility is ability to adapt to their changing environment (Muhlemann *et al.* 2000)

The supply chain may able to respond to random fluctuations in the demand pattern (variability of demand of beef products either domestic or international markets).

- Information & Material Flow Integration (Nicol & Andrew 1994)

The extent to which all functions within the supply chain communicate information & transport materials. Mohr & Spekman (1994) stated that the information sharing/flow refers to the extent to which critical & proprietary information is communicated to one's supply chain partner. There are some elements of quality of information sharing such as the accuracy, timeliness, adequacy & credibility of information exchanged.

- Effective Risk Management (Johnson & Scott 1995)

The degree to which the effects of these risks is minimized. All relationships within the supply chain contain inherent risk.

- Supplier Performance

2. Quantitative Measures

They could be either non financial or financial measures.

- Non Financial Performance Measures (Viswanadham 2000):

- Cycle time or lead time is the end-to-end delay in a business process for every organisation.
- Customer service level.

There are four types of customer service level in manufacturing such as order fill rate, stock out rate, back order level & delivery probability.

- Inventory Levels.
- Resource Utilization.

- Financial Measures

There are two kinds of cost in a supply chain system such as fixed & variable costs. The objective of financial measure performance is to maximize the revenue & minimize the cost.

According to ABARE data there are some expenses or costs for beef industry:

1. Farm costs including the crop & pasture chemicals, fertiliser, fodder, fuel, oil & lubricants, land rent, water charges, seed, shearing & crutching, payment to sharefarmers,
2. Processing costs including the machines, repairs & maintenance, material handling equipments, wages paid to hired labour
3. Livestock materials (drenches, dips etc)
4. Administration expenses including accountancy fees, banking & legal expenses, postage & stationery, telephone, subscriptions etc
5. Handling & Marketing costs
6. Distribution costs including the freight
7. Slaughtering, beef cattle purchases, the other livestock purchases and livestock transfers-inwards
8. Total cash costs & other cash costs

Beamon explored some supply chain performance or metrics measures from many references (see Table 2)

Table 2. Supply Chain Performance Measure: (Beamon 1999)

Metrics	References
Cost	Cohen & Lee (1989) Cohen & Moon (1990) Pyke & Cohen (1994) Lee & Feitzinger (1995)
Cost & Activity Time	Arntzen <i>et al.</i> (1995)
Cost & Customer Responsiveness	Ishii <i>et al.</i> (1988) Towil (1991) Towill, Naim & Wikner (1992) Newhart, Stott & Vasko (1993)
Customer Responsiveness	Lee & Billington (1993)
Flexibility Range & Response Flexibility	Slack (1991) Voudouris (1996)

Beef supply chain performance may consider those elements above including cost, time, customer responsiveness & flexibility.

2.5 Competitive Advantage

Competitive advantage is the extent to which an organization is able to create a defensible position over its competitors (Porter 1985; Mc Ginnis *et al.* 1999).

It comprises capabilities that allow an organization to differentiate itself from its competitors & is an outcome of critical management decisions (Tracey *et al.* 1999)

Table 3. Previous research on competitive advantage

Author	Description
(Skinner 1985; Roth & Miller 1990; Vickery <i>et al.</i> 1997; Tracy <i>et al.</i> 1999)	To identify price/cost, quality, delivery, & flexibility as significant competitive capabilities by using exploratory study/survey
(Stalk 1988; Vesey 1991; Handfield & Panneesi 1995; Kessler & Chakrabarti 1996; Zhang 2001)	Time-based competition as a main competitive priority Time is the next source of competitive advantage
(Cleveland <i>et al.</i> 1989; Roth & Miller 1990; Safizadeh 1996; Koufteros 1997; Vickery <i>et al.</i> 1997; Tracy <i>et al.</i> 1999; Vickery <i>et al.</i> 1999; Rondeau <i>et al.</i> 2000)	A research framework for competitive capabilities & classify the following five dimensions such as competitive pricing, premium pricing, value-to-customer quality, dependable delivery, & production innovation.

2.6 Factors affecting meat supply chain

This section describes the factors affecting meat supply chain with different categories.

Table 4. Factor affecting meat supply chain

Author	Factors
(Australian Business Limited 2001)	Logistics, Manufacturing, Quality, Information Flow, Technology & Organisation, Safety & Animal Welfare
(Spekman, Kamauff & Myhr 1998)	Partnership & Collaboration
(Hepner, Wilcock & Aung 2004)	Manufacturing & Quality System
(Palmer 1996)	Partnership & Collaboration, Information Flow & Technology
(Zylbersztajn & Filho 2003)	Strategic Partnership & Collaboration
(Verbeke 2000)	Customer Relationship Management (CRM)
(Yu, Yan & Cheng 2001)	Partnership & Collaboration, Information flow & technology
(Bindon & Jones 2001)	Manufacturing & Quality System
(McNeil & Wilson 1997)	Partnership & Collaboration & CRM
(MLA, 2002; 2004)	Partnership & Collaboration & Feeding methods
(Sadler & Hines 2002)	Strategic Partnership & Collaboration, Logistics, Manufacturing & Quality System
(Calder & Marr 1998)	Traceability
(Viaene & Verveke 1998)	Traceability
(West, Lauuee, Touil & Scott 2001)	Appearance, Age & Sex
(Peterson, Eenoo, McGuiirk & Preckel, 2001)	Society perceptions

3. A Conceptual Framework of Supply Chain Practice, Supply Chain Performance indicators & Competitive Advantage of Australian beef enterprises

There are three elements of conceptual framework. First, supply chain practice of Australian beef industry consists of five sub-elements such as strategic supplier partnerships, customer relationships, information sharing, information quality & a lean system. Moreover, there is an antecedent of cooperative behaviour such as trust &

commitment influencing supply chain practice & supply chain performance indicators. Second, supply chain performance indicators include four sub-elements such as flexibility, efficiency, food quality & responsiveness. Finally, the competitive advantage framework of the Australian beef enterprises consists of price, quality, export sales growth & time to market. (Beamon 1999; Li 2002; Luning *et al.* 2002; Gunasekaran, *et al.* 2004; Aramyan *et al.* 2006)

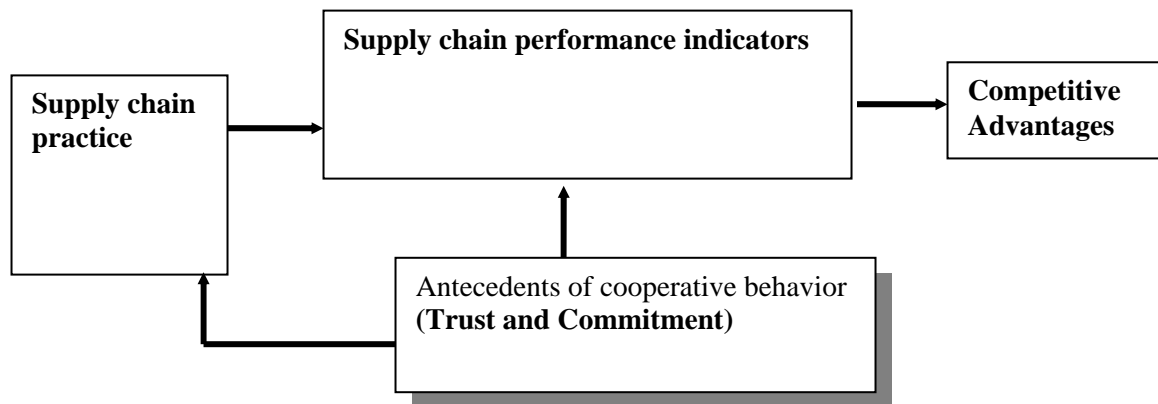


Figure 2. A conceptual framework in general

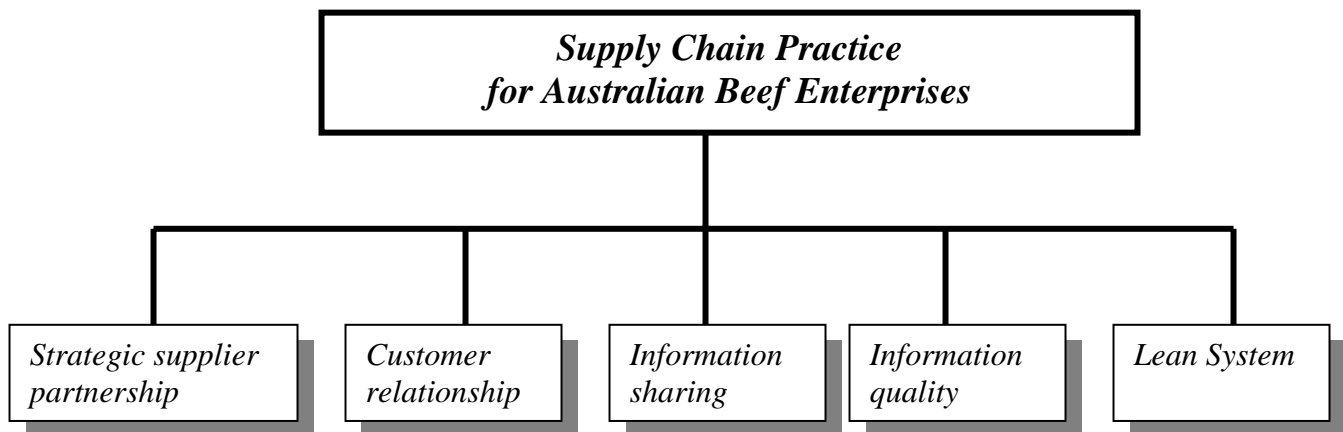


Figure 3. A Conceptual framework of Supply chain practice (Li 2002)

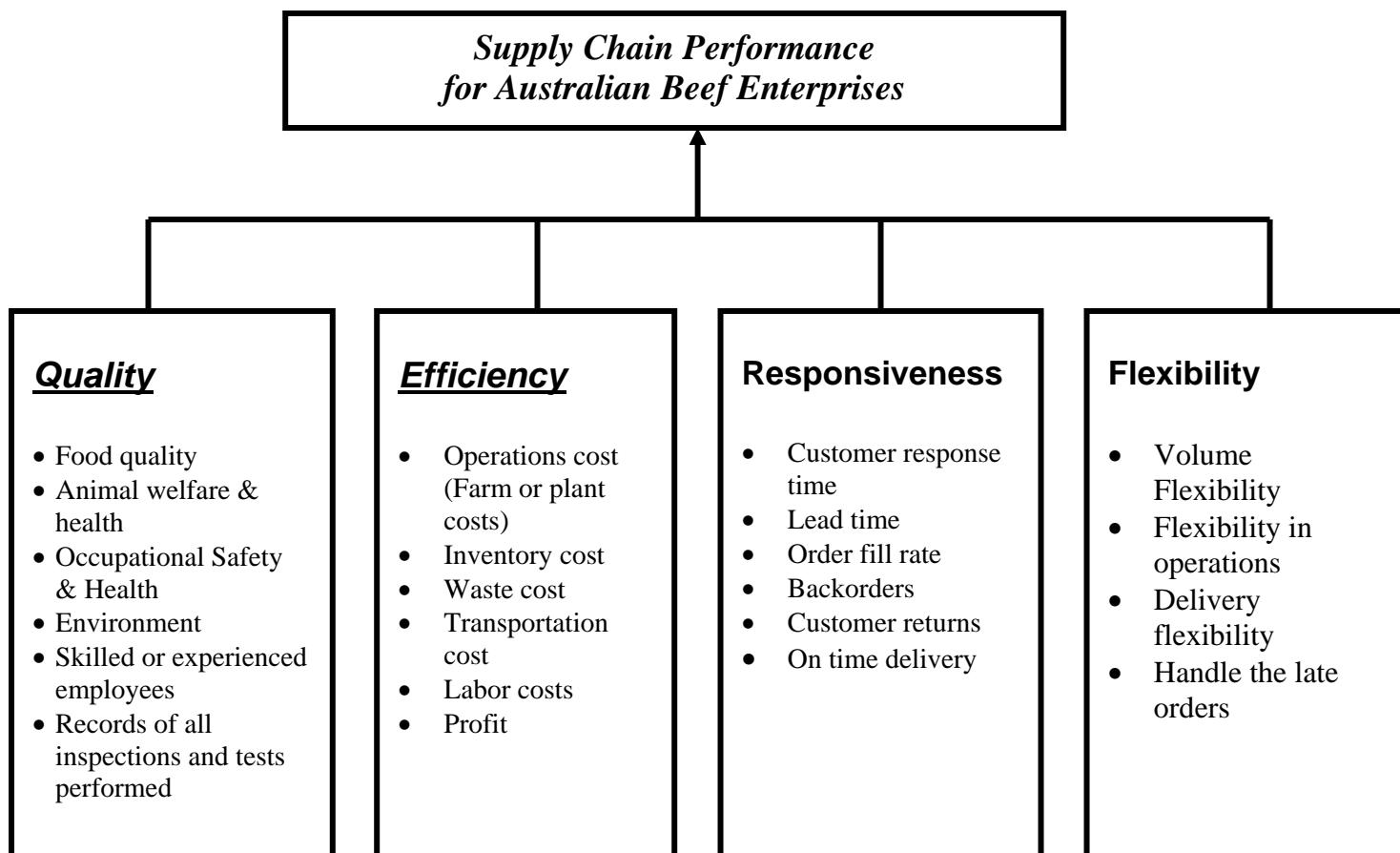


Figure 4. A conceptual framework of supply chain performance indicator (Beamon 1999; Li 2002; Luning *et al.* 2002; Gunasekaran, *et al.* 2004; Aramyan *et al.* 2006)

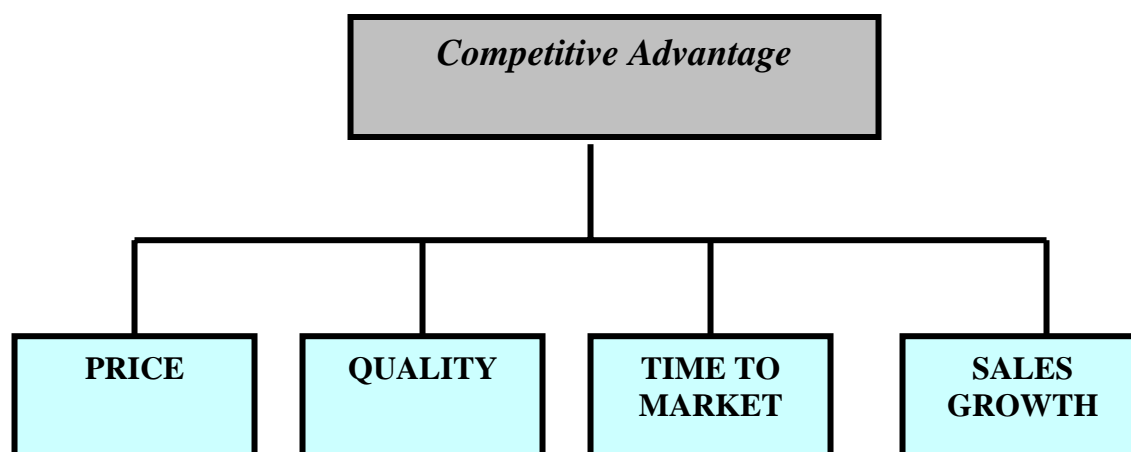


Figure 5. Competitive Advantage Model

Supply chain practice as the first domain (see figure 2) is a set of intra or inter-organization practices between beef producers & beef processors or beef processors & beef retailers which intended to improve the supply chain performance.

There are five (5) dimensions of supply chain practice (Li 2002) such as *strategic supplier partnership*, *customer relationship*, *information sharing*, *information quality* & *lean system*.

3.1 Strategic supplier partnerships

Strategic supplier partnerships are defined as those long-term relationships between beef processors & beef producers or beef processors & beef retailers (McNeil & Wilson 1997, Spekman, Kamauff & Myhr 1998; Zylbersztajn & Filho 2003)

They are designed to control the strategic, tactical & operational capabilities of individual participating organizations to help them achieve major ongoing mutual benefits (Noble 1997; Stuart 1997; Narasimhan 1998; Monczka 1998; Sheridan 1998).

Strategic supplier partnerships highlight a direct, long-term relationships & encourages reciprocal plan & difficulty or problems solving efforts (Gunasekaran 2001). Such strategic partnerships are entered into to support shared benefits among the parties & ongoing participation in one of more key strategic areas such as technology, products, & markets (Yoshino *et al.* 1995).

Strategic supplier partnerships usually occur with a few major suppliers who are willing to contribute responsibility for the success of the product. Strategically aligned organisations can work closely together & eliminate wasteful time & effort (Balsmeier *et al.* 1996). An effective supplier partnership can be a critical component of a leading edge supply chain (Noble 1997).

3.2 Customer relationships

The customer relationships include the complete range of practices that are employed for the purpose of managing customer complaints, building long-term relationships with customers & improving customer satisfaction (Tan *et al.* 1998; Claycomb *et al.* 1999).

Based on the element of supply chain practice, the customer relationships might be a fundamental element of supply chain practice for Australian beef industry. The reason is that this supply chain practice might be good idea to analyse for improving the supply chain performance in beef sector.

Customer relationship management (CRM) is a key element of supply chain practices (Noble 1997; Tan *et al.* 1998). Committed relationships are the majority sustainable advantage because of their inherent obstacles to competition (Day 2000). The growth of mass customization & personalised service is leading to an era in which relationship management with customers is becoming crucial for corporate survival (Wines 1996). Strong relationships with supply chain members, including customers, are needed for successful implementation of SCM programs (Moberg *et al.* 2002). Chose customer relationship allows an organisation to differentiate its product from competitors, sustain customer loyalty, & dramatically extend the value it provides to its customer (Magretta 1998).

3.3 Level of information sharing

Information sharing has two aspects: quantity & quality. Both aspects are fundamental for the practices of supply chain & have been treated as independently constructed in the past supply chain management studied (Choi *et al.* 1996). Level of information sharing refers to the extent to which critical & proprietary information is communicated to one's supply chain partner (Monczka *et al.* 1998) for instance between beef producers & beef processors.

This aspect will probably be important in the analysis of Australian agribusiness supply chains particularly Australian beef industry. It will considerably enhance the information flows about beef/veal from the production process to the broker/wholesaler and then to the food services/butcher shops and supermarkets such as Woolworths, Coles, Bilo and Franklins

Information sharing can vary from strategic to tactical included the operational in nature & from information about logistics activities to general market & customer information (Mentzer *et al.* 2000). Many researchers have suggested that the key to the seamless supply chain is making available undistorted & up-to-date marketing data at every node

within the supply chain (Turner 1993; Balsmeier *et al.* 1996; Towill 1997; Childhouse *et al.* 2003). By taking the data available & sharing it with other parties within the supply chain, information can be used as a source of competitive advantage (Novack *et al.* 1995; Jones 1998). Sharing of information is one of five building blocks that characterize a solid supply chain relationship (Lalonde, 1998). Supply chain partners who exchange information regularly are able to work as a single entity (Stein *et al.* 1998). Together they can understand the needs of the end customer better & hence can respond to market change quicker. Moreover, the effective use of relevant & timely information by all functional elements within the supply chain as a key competitive & disguising factor (Tompkins *et al.* 1999). Another empirical research about the simplified material flow, including streaming & making highly visible all information flow throughout the chain, is the key to an integrated & effective supply chain (Childhouse *et al.* 2003).

3.4 Quality of information sharing

Quality of information sharing includes such aspects as the accuracy, timelines, adequacy, & credibility of information exchanged (Monczka *et al.* 1998; Moberg *et al.* 2002). For instance, the information sharing between beef producers and processors are such as the number of livestock, inventory levels, demand etc.

While information sharing is vital, the major of its impact on supply chain management depends on what information is shared, when & how it is shared, & with whom (Chizzo 1998; Holmberg 2000).

The literature is replete with example of the functional effects of inaccurate/delayed information, as information moves along the supply chain (Lee *et al.* 1997; Mason Jones 1997; Metters 1997; McAdam *et al.* 2001). Divergent interests & opportunities of supply chain participants affect the quality of information (Feldmann *et al.* 2003). It has been suggested that organisations will deliberately distort information that can potentially reach not only their competitors, but also their own suppliers & customers (Mason Jones 1997). It appears that there is a built in reluctance within organization to give away more than minimal information (Berry *et al.* 1994) since information disclosure is perceived as a loss of power. Given these predispositions, ensuring the quality of the shared information becomes a critical aspect of effective supply chain practice (Feldmann *et al.* 2003).

Organisations need to view their information as a strategic asset & ensure that it flows with minimum delay & distortion.

3.5 Lean Thinking

The principle of lean operations refers to “moving towards the elimination of all waste in order to develop an operations that is faster, more dependable, produces higher quality products & services &, operates at low cost,” (Slack *et al.* 2004, p. 519). Lean systems focus on elimination of all kinds of waste (Finch 2006). The types of waste are defined as below. Waste is any activity that is not value producing for the business. The types of waste below form the core philosophy behind lean systems, as identification of the problem is the first step in solving it (Finch 2006).

Types of waste

There are seven key types of waste, as identified by Shingo during the development of the Toyota Production System, Taiichi Ohno (Bell 2006) (see Table 5).

Table 5. Types of waste

No	Types of waste	Definition
1	Overproduction wastage	Seen when produced excess of demand
2	Waiting time wastage	Waste that results from customer orders, inventory, or completed products waiting in queue for a process to begin
3	Transportation waste	Waste that results from excessive materials handling & movement
4	Processing waste	Waste that results from steps in production processes that do not contribute value or that create costs that are greater than the value they create
5	Inventory waste	Waste that consists of excess inventory over & above that which is necessary
6	Unnecessary motion waste	Waste of human resources caused by unnecessary labour due to ineffective job design
7	Product defect waste	Waste of capacity, inventory & labour, resulting from products that do not meet customer specifications.

These types of waste represent the areas that Toyota focused on reducing, in order to move towards a leaner system.

Waste reduction

For the purposes of this research is it unrealistic for our case study to adopt ERP, JIT systems in order to move towards leaner productions. Kaizen total quality management Systems however maybe be further looked into as an option, as it is the most realistic & cost effective option for our case (Hemmant 2006).

“A typical Kaizen implementation involves a multidisciplinary team of a trained facilitator, managers, engineers, & line workers coming together for a number of days to focus on improving an area of the plant” (Askin & Goldberg 2002, p.89). The team’s focus is on questioning of the current methods used in the supply chain. The “golden rule of Kaizen is to utilize everyone’s knowledge to identify & implement improvements quickly & without significant cost,” (Askin & Goldberg 2002, p.90).

3.6 Supply chain performance indicators

Supply chain performance indicator is the second domain of the conceptual framework of this research project.

Supply chain performance (see figure 4) is a two dimensional definition which consists of effectiveness & efficiency (David *et al.* 2006). Effectiveness is about ‘doing the right things’ & efficiency is about ‘doing things right’. Supply chain effectiveness relates to the preference of the end-consumer & the sole indicator is consumer satisfaction. Conversely, supply chain efficiency relates to the objective performance of processes. Efficiency indicators measure an output level against an input level (Wang & William 2007).

The four (4) indicators used in the supply chain performance such as *food quality*, *responsiveness*, *efficiency* & *flexibility* (Beamon 1999; Li 2002; Luning *et al.* 2002; Gunasekaran, *et al.* 2004; Aramyan *et al.* 2006).

1. Beef quality has many different definitions (Loxton 2005) including:

- Quality refers to aspects of the carcass such as weight, fat cover & distribution, muscling/conformation & bruising.

- Quality refers to aspects of chiller assessment attributes such as meat colour, intermuscular fat colour & marbling.
- Quality refers to beef processors', wholesalers' & retailers' assessments such as primal cut shape, size, weight, success of vacuum packaging, amount of drip loss in vacuum bags, ultimate pH, meat colour & fat colour in the display case.
- Quality refers to the end consumers' assessments such as food safety, price, tenderness, visual attributes (i.e appearance, meat colour & fat colour, fat content (perceived marbling & external fat cover of meat), wholesomeness & nutrition.

2. Flexibility

Flexibility means the agility of a supply chain in responding to marketplace changes to gain or maintain competitive advantage (SCOR 2006). Another definition is the ability to respond to changes in the environment such as customer demand (volume flexibility).

There are several types of flexibility:

- Volume flexibility is 'the ability to effectively increase or decrease aggregate production in response to customer demand' (Cleveland *et al.* 1989, p.103). Volume flexibility may require close coordination between a manufacturer & its suppliers, especially in the face of increasing demand. Volume flexibility directly impacts on the performance of the supply chain by preventing out-of-stock conditions of products that are suddenly in high demand or by preventing high inventory levels (obsolete stock).
- Flexibility in dynamic operations
- Delivery flexibility is the company's capability to adapt lead times to the customer requirements. An example of high delivery flexibility is just in time, when suppliers deliver the products to the customer at the right quantity, place & time

3. Responsiveness

Responsiveness is the velocity at which a supply chain provides products to the customer (SCOR 2006).

Responsiveness indicators in the beef supply chain are customer response time, lead time, delivery time, customer returns, order fill rate

4. Efficiency

Efficiency consists of six indicators such as farm cost/plant cost, inventory cost, waste cost, transportation cost, labour cost, profit

3.7 Antecedents of cooperative behavior (Trust & Commitment)

The two fundamental components of improving the relationship are trust & commitment (De Ruyter *et al.* 2001). In terms of the implementation time, a relationship of a strategic nature will take time to evolve (Crotts *et al.* 2001).

Trust & commitment for beef enterprises in Australia will improve the relationship with future value to both parties (i.e. between producers & processors). For example, in order for the relationship to be sustained the supplier of Australian beef enterprises must deliver the correct stock, in the correct quantity, at a price that is reasonable to both parties. This will increase the trust & commitment levels of the supplier relationship (Crotts *et al.* 2001).

The relationship will be one which is collaborative in nature. It will allow Australian beef enterprises & the regional supplier to maximise the efficiency of their capabilities & resources & lower their cost (Achim & Ritter 2003).

The cooperation arises directly from both relationship trust & commitment (Morgan & Hunt 1994). According to past research, trust has two dimensions: “honesty” & “benevolence” (Kumar *et al.* 1995). There are several dimensions of trust in fresh produce supply chain performance such as confidence in preferred trading partner,

always keeps promises, always honest, good reputation, trust in preferred trading partner, believe information provided, close personal friendship, trading partner always consider best interests (Batt 2003).

Trust is the belief that the partners will act in ways that will bring positive outcomes for the firms & does not want to take unexpected actions that may bring a negative outcome (Anderson & Narus 1990). Trust (Moorman *et al.* 1993) is the willingness to rely on an exchange partner in whom one has confidence. Or trust as a belief, a sentiment or an expectation about an exchange partner and results from the partner's expertise, reliability & intentionality. Trust is the extent to which the buyer believes that the supplier has the necessary expertise to perform the activity effectively & reliably (Ganeshan 1994)

3.8 Competitive Advantages

Supply chain management also serves as a basic foundation to achieving competitive advantage through accelerating the sourcing, delivery process & logistic functions across all participants (Nathan *et al.* 2005).

Competitive advantage means that the extent to which an industry is capable to construct a *defensible* position over its competitors.

Figure 5 shows the competitive advantage framework.

Four dimensions in competitive advantages such as price, quality, (domestic or export) sales growth & time to market.

- Price is the extent to which an organisation is capable of competing against major competitors based on low prices (Koufteros 1995, Miller *et al.* 1992, Hall *et al.* 1993, Rondeau *et al.* 2000).
- Quality is the extent to which an organisation is capable of offering product quality & performance that creates higher value for customers (Rondeau *et al.* 2000).
- Time to market is the extent to which an organisation is capable of introducing new products faster than major competitors (Stalk 1988; Vesey 1991; Handfield & Pannesi 1995; Kessler & Chakrobarti 1996).
- Sales growth

4. Conclusion & Further Recommendation

A conceptual framework of Australian beef supply chain based on literature study needs to be tested & analysed by using empirical or statistical approach.

There are three elements of conceptual framework. Firstly, supply chain practice of Australian beef industry consists of five sub elements such as strategic supplier partnership, customer relationship, information sharing, information quality & a lean system. Moreover, there is antecedent of cooperative behaviour such as trust & commitment influencing supply chain practice & supply chain performance indicators. Secondly, supply chain performance indicators include 4 sub elements such as flexibility, efficiency, food quality & responsiveness. Finally, competitive advantage framework of Australian beef enterprises consists of price, quality, export sales growth & time to market.

Further step of the research after developing the conceptual framework, the research project may focus on the analysis how the antecedents of the sub elements of supply chain practice do affect supply chain performance in Australian beef enterprises, how trust & commitment in trading partners affect supply chain performance, how attributes such as flexibility, efficiency, food quality & responsiveness influence the sub elements of competitive advantage.

In addition, the recommendation of further research project would be on how Australian beef enterprises measure their supply chain performance & what the major difficulties are arising when implementing supply chain management in the Australian beef industry & what kind of changes can be made to beef supply chains to enhance their performance.

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