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Balanced Scorecard for Australian cattle producers: an application

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Contents

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Introduction

The Australian meat industry is the country's fourth highest commodity export earner. The inclusion of overseas customers (more than 100 countries around the world) in an analysis of the supply chain is necessary given that Australia typically exports about 65 percent of its production. The value of the production of the Australian red meat industry increased by $2.4 billion in five years to reach about $8.1 billion in 2007. Also, the Australian red meat industry employs more than 50,000 people (Commonwealth of Australia 2006).

The beef sector in Australia is undergoing rapid change because of globalisation, a highly competitive beef market (local and export), increased production efficiencies, a quicker production cycle and delivery times and consequently reduced inventories, advanced quality assurance, an increased rate of change in the business environment, a trend toward more outsourcing of activities, and the rapid development of IT (MLA 2004b). In this type of business environment, advanced supply chain systems can have dramatic impacts (Donlon 1996; Finch 2006; Min and Mentzer 2004). Hence such systems have the potential to provide significant contributions to the performance of the Australian beef industry. After reviewing various systems, the research reported focused on the application of the Balanced Scorecard (as a supply chain performance measure) for Australian cattle producers.

Key questions guiding the research were:

- Is there any established system of measuring the performance of beef supply chains in Australia?
- Can they be improved to develop a best method of measuring performance for beef producers?

Australian beef supply chain

Beef supply chain management is the integration of beef producers, beef processors, retailers and end customers. The cattle move from feedlots and farms to processors who transform them into beef products and organise delivery into the hands of end customers. Smith (2001) indicates that this supply chain includes: seedstock generators, cow/calf producers, stockers/backgrounders, feedlot operators, packers, processors, supermarket operators and food-service providers. In this paper we look at one section of the supply chain, the interaction between a generic supplier and processor.

Four stages of the Australian beef supply chain framework can be defined: Breeding, backgrounding, fattening and feedlot; Processing; Retailing; and Customer.

Within this framework, significant processes include transport (transport specification, quality systems and price), product storage (storage specifications, quality systems, storage management practices), preparation and packaging (grading and packaging standards, such as AUS MEAT language specifications, quality systems and receival standards and procedures), and market access (statutory export regulations, market access issues, quarantine) (Peterson et al. 2000). Large beef retail enterprises, such as Woolworths and Coles, have fully integrated supply chains. In contrast, partially integrated supply chains have supply chain activities only from slaughtering to end

customers or from producing to slaughtering. Small and medium beef enterprises mainly contribute to these partially integrated supply chains.

Stage 1: Breeding, backgrounding, fattening properties and feedlots

Cattle breeding is the first section of the beef supply chain. In 2005, there were about 68,500 farms with meat cattle in Australia (ABS 2006). They produced about 25 million head of cattle with a gross value of production of about $5.7 billion. Additionally, about 65 percent of production is typically exported. The contribution of the feedlot sector is about 27 percent of total beef production. There are 680 accredited feedlots in Australia, with a total capacity of about 850,000 cattle (ALFA and MLA 2004).

Stage 2: Processing

This stage transforms the cattle into carcase and primal beef and veal products. The most valuable product from beef cattle production is meat. There are 240 to 300 abattoirs in Australia. About 25 large processors, located across Australia, process 61 percent of production.

The many internal operations in beef processing facilities include: holding cattle, slaughter, hide removal, removing internal organs, trimming, weighing, chilling, boning, meat inspection service, and packaging.

Stage 3: Beef wholesaling and retailing

There are two sections of distribution in beef retailing. The first is to the domestic market. After processing, beef or veal products may be distributed to the wholesaler or broker. They then might go to the food services sector, butchers' shops or supermarkets, such as Coles, Woolworths, BILO, IGA, and Franklins. Transportation is a key element in this stage of both the domestic and international supply chain. Red meat is transported in refrigerated trucks, and the surface temperature of the hanging carcase must not exceed 7°c.

The domestic beef market consumes about 35 percent of the processed beef and veal. About 68 percent of this is sold through supermarkets and retail butchers, while 27 percent is marketed through the food service sector (92 percent of which is through commercial food service outlets and 8 percent is distributed through institutional food service providers). The remaining 5 percent is marketed to the processing sector to be further transformed into other food products.

Australia was the second largest exporter of beef and veal in the world during 2006-07. The top five beef exporters were: Brazil (more than 2 million tonnes), Australia (nearly 1.5 million tonnes), India (0.75 million tonnes), Argentina (nearly 0.6 million tonnes) and New Zealand (0.55 million tonnes) (MLA 2007). Australia is expected to be a major exporter of beef and veal, with the largest trade volumes (more than 70 percent) directed to the Asia-Pacific region and the United States (ABS 2005a; b; MLA 2004a). The largest markets for Australian processed beef are Japan, the US and Korea. Australia also exports to Canada, Taiwan, South East Asia, Europe and the Middle East.

Stage 4: End customer

The final products (beef or veal) from food services, butchers' shops and supermarkets go to the end customers, who consume them.

In a sense the international market for Australian meat is even more complex. The requirements of customers in Korea are different from those even in its near neighbour, Japan. Even among the dozen or so major customers the products demanded range from low quality manufactured beef to primal beef cuts to whole lamb carcases.

Beef is the most popular meat in Australia. On average, most people in Australia consume beef or lamb as a main meal about three times a week. Australia has the second highest beef consumption level in the world at 36 kg/capita/year. Meat and Livestock Australia (MLA) has estimated that the Australian red meat industry has a value of more than $15 billion per year, with about 34,000 livestock producers (MLA 2007). The supply chain is complex, with many producers, processors, and customers. This complexity has two dimensions. There is combinatorial complexity, and dynamic complexity. The level of combinatorial complexity is indicated by the range of agents that can be found in the supply chain, as shown in Figure 1. There have been some changes that will reduce the combinatorial complexity in the supply chain in that the MLA has sponsored some aggregation at the producer level, and the continued expansion of key supermarket chains will lead to aggregation at the consumer level. Internally, however, there is still a large number of agents, each of which potentially has different perceptions and motivations toward their role in the supply chain. The rapid

changes in the industry produce dynamic complexity.

Balanced Scorecard (BSC)

The BSC, which was developed by Kaplan and Norton (1992), is designed to measure and evaluate a business' overall performance. A balanced scorecard is viewed as "a set of measures that gives top managers a fast but comprehensive view of the business" (Kaplan and Norton 1992, p.1). Another definition of a balanced scorecard is "a performance measurement system that combines financial and non-financial measures of business performance" (Finch 2006, p.57). The BSC is designed to provide managers with a formal framework for achieving a balance between non-financial and financial results across both short-term and long-term planning horizons. Furthermore, it provides managers with the answers to primary questions as the business is viewed from the following four perspectives:

- Customer perspective - How do customers see us?
- Financial perspective - How do we look to shareholders?
- Process perspective - What must we excel at?
- Learning and growth perspective - Can we continue to improve and create value?

The BSC is a management system that examines past performance and future plans so that efforts can be aligned with needed improvement. When the BSC is combined with productivity and performance measures, organisations can keep up with changing markets and changing environments (Finch 2006). It provides feedback relating to both internal business processes and external outcomes in order to continuously improve strategic performance and results.

An overview of each of the four perspectives (Amaratunga et al. 2001) can be seen in Table 1.

There are six steps to develop the BSC (Evans 2004). First, top management will identify objectives for the four perspectives of the BSC, based on vision and mission statements of the firm. Second, after setting objectives, strategies are also identified to ensure achievement of the objectives. Subsequently, the objectives and strategies would be announced to all departments within the organisation. Third, tasks and responsibilities would be then divided between different departments. Fourth, performance indicator measures need to be established to monitor achievement of the objectives. Next, a target will be set for each measure, providing figures and percentages the company aims to achieve for each objective set in step one. Lastly, there could be deployment within the organisation (depending on the situation) and execution of strategies.

Australian beef industry survey

A supply chain management survey for the Australian beef industry was conducted by distributing a mail questionnaire to beef industry participants. The survey sought participants' views on how Australian beef enterprises measure their supply chain performance. The effective response rate was 23 percent.

The supply chain performance measures used in Australian beef enterprises can be seen in Table 2. The results show that about 94 percent of the sample of Australian beef enterprises are not using any supply chain performance measures. About 4 percent of the sample use Activity Based Costing. Other methods in use were SCOR and BSC. A brief comparison of the three methods in use reveals their different attributes (see Table 3). Balanced scorecard is an extremely flexible method compared with the other two, and it incorporates both financial and non-financial objectives. Also, it has a consumer perspective, unlike ABC. However, balanced scorecard has no standard procedures, but it is simple enough for even the smallest beef enterprises to apply, unlike SCOR.

A balanced scorecard application for Australian cattle producers

There are several reasons why this research study proposes the balanced scorecard:

- BSC is used to develop business vision and goals by combining goals of finance, customers, learning and growth, and internal business processes;
- BSC translates an organisation's strategy into measurable and attainable goals;
- BSC measures in a balanced way the performance criteria;
- BSC is equally suitable for small-medium producers, family farms, and the corporate sector (Shadbolt and Rawlings 2000);
- Implementation of BSC by small-medium producers or family farms is simpler than many other approaches and there is likely to be less inertia to change.

The BSC is a set of financial and non-financial (operational) measures that reflect the key factors considered critical to the success of

the business. Kaplan and Norton (1996) suggested that a good set of criteria for the BSC in any businesses should have a mix of core outcome measures (lag indicators) and performance drivers (leading indicators). A chain of cause and effect between indicators should encompass all four perspectives of a BSC.

Four perspectives in the BSC are demonstrated using a leading cattle producer, the North Australian Pastoral Company Pty. Limited (NAPCO) as an example. The four perspectives are: customers; financial; internal business processes; and learning, innovation and growth (see Tables 4 to 7). The steps necessary to build a BSC for NAPCO are: to have a better understanding of business strategy, have a clear vision and mission and identify critical factors for each of the four perspectives of the BSC; to identify goals relating to the four perspectives; to see whether there is a balance between the goals; and to identify, from the four perspectives, key performance indicators to measure.

A scenario involving the application of the BSC in cattle production is described below. It shows NAPCO's perspective and the perspective of a small to medium-size beef producer new to the balanced scorecard approach.

NAPCO is a leader in Australia's cattle industry and is one of Australia's largest beef producers, with a herd of more than 180,000 cattle. NAPCO operates 14 cattle stations across the outback in Queensland and the Northern Territory, as well as Wainui Feedlot and Farm, on the Darling Downs in southern Queensland.

Mission and vision statement

To be an innovative Australian company which:

- aims for excellence in all areas of its operations,
- strives to satisfy its customers by producing safe, high-quality beef,
- is committed to the well-being of its staff and their ongoing development,
- practices the highest standards of environmental responsibility,
- is dedicated to the welfare of its cattle, and
- delivers sustainable returns to its shareholders.

(NAPCO 2007, www.napco.com.au)

1. The customer perspective. This perspective focuses on how current and potential customers view and value the business. In other words, the businesses are looking at how they deliver value attributes to their customers in order to achieve customer satisfaction. To do this, cattle producers need to apply several suggested activities, including the development of quality assurance systems on-farm and the development of some contractual arrangements and spending time exploring strategic alliances (to maintain customer relationships).

   The small to medium-size beef enterprise new to balanced scorecard would commence in a simple way to gauge customers' value by word-of-mouth enquiries about how their customers perceive the quality of the animals supplied. Then appropriate steps could be taken on farm to achieve the 75 percent satisfied target (see Table 4).

2. The financial perspective. This perspective focuses on how well the businesses manage financially, including profitability, growth, and shareholder or owner values. In other words, examining how the business strategy can affect the bottom-line.

   A small to medium-size enterprise would use the same measurement instruments, but would probably be focussing on them more closely than in the past, and would likely have lower targets because other family/lifestyle objectives could also be important (see Table 5).

3. The internal business processes perspective. This perspective focuses on how well the business excels in its processes (efficiency and effectiveness). Also, the internal business perspective focuses on the skills, competencies and technology of the business and its ability to meet the needs of customers as well as the potential to add value to customers' businesses. This area would generally be more than adequately covered in many farm business plans. It covers the ability of the business to deliver and produce to specification, thus concentrating on the production process (feed, cows, resources, staffing, etc.).

   Even for small beef producers, long-term profitability depends on a customer perspective driving the on-farm operations. Improving the quality of the herd is central to this. In turn, such improvement requires a good understanding of the overall production system, sustainable use of pastures and

regular monitoring of the condition of livestock (see Table 6).

4. The learning, innovation and growth perspective. This perspective focuses on how the business sustains its ability to achieve the vision and business strategy. In other words, what improvements (including being able to change and adapt products and processes) will be implemented in order to achieve the vision and business strategy (Kaplan and Norton 1992).

   For a sole enterprise beef farm the objectives of learning, innovation and growth (see Table 7) would apply not to employees but to the owner-farmer themselves. Learning and applying new skills, like rotational grazing or more-accurate assessment of the condition of animals can be extremely satisfying even to a farmer who has been in the industry for many years.

Conclusion

The Australian beef industry currently only uses three supply chain performance measures:

- Supply Chain Operations Reference Model (SCOR 2006);
- Balanced Scorecard (BSC) (Kaplan and Norton 1992; Kaplan and Norton 1996);
- Activity Based Costing (ABC).

This study considered each of these, and concluded that the BSC would be the most appropriate for many beef producers. Consequently a case study of its use was presented for a particular beef producer and suggestions were made for its use on small and medium-size beef farms.

This showed that many beef farms should be able to apply the BSC approach using the four perspectives: customers; financial; internal business processes; and learning, innovation and growth.

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Appendix

Table 1. Four perspectives – Balanced Scorecard

Perspective	**Description**
Customer	This aspect captures the ability of the business to provide quality goods and services and overall customer service and satisfaction.
Financial	Financial performance measures indicate the results of the strategic decisions made in the other perspectives and whether the business' strategy and implementation are contributing to bottom-line improvement.
Internal	This part is mainly about the analysis of the business' internal processes that contribute to financial success and satisfied customer expectations.
Learning and growth	This perspective looks at the aptitude of employees, the quality of information systems and the outcomes of organisational alignment in supporting achievement of goals.

Table 2. Supply chain performance measure

Supply chain performance measure	Frequency
Supply Chain Operations Reference Model (SCOR)	1
Activity Based Costing (ABC)	6
Balance Scorecard	2
Economic Value Added	0
Life Cycle Analysis	0
Multi Criteria Analysis	0
Data Envelopment Analysis	0
Other	0
Not used any	131

Table 3. A brief comparison of the three methods (Balanced Scorecard (BSC), Activity Based Costing (ABC), and Supply Chain Operations Reference (SCOR))

Description	BSC	ABC	SCOR
Focus	Financial perspectives and non-financial perspectives.	Financial perspectives	Non-financial perspectives
Strengths	• It provides a balanced view of performance. • It has vertical integration (communication and connection) between top management and middle management. • It is based on management concepts such as value attributes, customer defined quality, employee empowerment, continuous improvement and Total Quality Management (Arveson 1988).	• Able to identify the changing cost behaviour of different processes of a supply chain system. Thus it is able to reconfigure the supply chain activities more efficiently by eliminating redundant or unnecessary tasks, and also optimising resource utilisation and add more value to the customers. • Able to manage the planning of more efficient collaborative relationships among the businesses in the supply chain. • It focuses more on financial performance by providing useful information about labour and other resources including supplying channels. • It leads to better management and control of the overheads of the businesses (Bartolacci 2004).	• It is based on a balancing approach by measuring supply chain performance indicators in multiple links concurrently (Aramyan et al. 2006). • It is suitable for any kind of businesses. • It measures the performance of the overall supply chain management processes (plan, source, make, deliver and return). • It is able to describe, measure, apply benchmarking of supply chain performance and evaluate supply chain configurations by supporting continuous improvement and strategic planning (Supply Chain Council 2007).
Weaknesses	• It is not as flexible as the SCOR model, • There are no standard procedures in implementation of the BSC method.	• ABC is not good for non-financial measurement. • It is more expensive, time consuming and collecting the financial data is difficult, leading to imperfect cost data, the reluctance of businesses to share their data and the disruption of management decision making. • It is not a flexible method as it is more difficult to examine the appropriate and acceptable costs drivers (Aramyan et al. 2006). • It does not focus on a customer perspective directly. • ABC "*does not always allow allocation to*	• It does not try to describe and measure every business activity, for instance marketing, research and development (R&D), innovation and product development and some domains of post-delivery customer support are omitted. • "*SCOR assumes but does not explicitly address training, quality, IT and administration*" (Supply Chain Council 2007, p.3). • It seems to be complicated to apply if the businesses only have simple management processes. For example, it is not suitable for small beef firms or family-owned beef producers/ processors, however, it is suitable for large beef enterprises or fully integrated

every activity or every cost concerning the resources employed" (Bartolacci 2004, p.6).

beef supply chain firms.

Table 4. Customer perspective

Objectives	Measurement	Target	Initiatives
To improve customers' overall value.	Feedback from surveys and questionnaires. No. of complaints.	> 75 percent customers satisfied.	Customer relationships strategy: to understand customers' needs and provide customers with what they want in terms of consistent quality, pricing, consistency in supply and market specifications.
To further improve customer retention.	Number of customers who are purchasing (percent retention), annual sales per customer (business customers or individual customers).	> 40 percent increase in customer retention rate.	Customer relationships strategy.

Table 5. Financial perspective

Objectives	Measurement	Target	Initiatives
To increase company's growth.	Rate of return on equity. Rate of return on asset. Operation profit margin. Net income. Free cash flow.	Increase rate of return on equity and asset at least 5 percent annually. Increase net income by at least 8 percent annually. Increase free cash flow by at least 10 percent annually.	Increase sales and cost reduction (pasture costs, repairs and maintenance (shed, yards, fences and land), labour costs).
To reduce cost of production (including labour cost and overhead costs for whole farm business).	Calculating cost of production (MLA 2005). Cost benefit analysis. Breakeven analysis.	Lowest cost of production $0.52 liveweight (MLA 2005). Reduce total cost by 20-25 percent annually.	Benchmarking (MLA 2005) for improving the profitability. Eliminate unnecessary miscellaneous expenses/utilities expenses.
To expand into global markets for livestock.	Ratio of domestic to international markets.	Increase by 10-15 percent of export or global markets.	QA accredited, to improve farm management and CRM strategy, to achieve livestock performance.
To enhance owner and creditors' value.	Increase return on investment (ROI).	Achieve 20 percent ROI by the next financial year.	Strive to increase net operating profit (NOP) in the next financial year. Close relationship with creditors.

Table 6. Internal business process perspective

Objectives	Measurement	Target	Initiatives
Improve quality, herd health, food safety and animal welfare.	Audit and observation. Live animal assessment. Statistical process control. Seven traditional quality tools.	Accredited (LPA, Cattlecare, animal welfare guidelines and codes of practice in Australia, NFAS, NSQA, MSA and EU).	To develop quality assurance systems on farms.
To evaluate the level of fatness so the condition of the livestock can be examined.	Muscle, dressing percentage and fat scoring.	Better meet fat and weight specifications (domestic or export markets). Example: levels of fat scoring (around 4-8 mm P8 fat).	To enhance the skills in live animal appraisal.
To understand the cattle producers' production system and specifications.	Evaluate the target market specifications and customer requirements.	Do not have more than 10 percent of animals fall outside the target market specifications for age, sex, dentition, weight, muscle and fat.	Manage the grazing system, the nutrition, health and welfare of sale stock and husbandry system to achieve livestock performance.
Resource/pasture utilisation.	Productivity indicator. Pasture utilisation rate.	To maintain the resource or pasture utilisation above 80 percent per year.	Efficiency use of resources, maintain low cost base and reduced inventory level.

Table 7. Learning, innovation and growth perspective

Objectives	Measurement	Target	Initiatives
To improve employees' knowledge and skills.	Skill set ratio.	There are no unskilled and inexperience staff.	To provide training, knowledge and skills development (range and pasture management, marketing and livestock production, accounting and animal handling and behaviour).
To foster a culture that supports innovation and growth.	Annual assessment or continuous review.	There are no sustained protests or conflicts.	Ensure creativity, loyalty and productivity of employee.
To ensure employees' satisfaction, motivation through a recognition mechanism.	Employee survey indexes or performance appraisal.	More than 75 percent of employees are satisfied in their job.	Create good working environment, knowing problems occur within organisations and solving the problems.

Figure 1. Australian Beef Supply Chain