



# SHEEP GENETICS



## Review of Business Model

November 2009

SED CENTRAL & WESTERN

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## Disclaimer

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## Acknowledgements

Many people, the majority of whom are listed at the back of the report, contributed their time and expertise to the conduct of this review. Their contribution is gratefully acknowledged.

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## Executive summary

### Background and approach

This report presents the findings of a project to review the business model of Sheep Genetics and to propose a range of possible alternative models. The project involved a desktop review of documents pertaining to the establishment and ongoing operation of SG, as well as consultation with a wide range of stakeholders – including staff, members of various committees, clients and non-clients, service providers, managers of similar organisations (including genetic providers in other industries) and other interested parties (such as the Sheep CRC).

The current business model was analysed by reference to a generic business model template from one of the world's leading business strategy thinkers, Gary Hamel (2002). Based on the analysis of SG and business models in comparable situations, a series of five alternative models was developed. These models were referred to the SG Advisory Committee for review and advice.

### Aims of MLA and AWI

The charter of both MLA and AWI is to invest levies collected from the respective membership bases – sheep meat and wool producers – for the collective benefit of the levy payers. SG is the vehicle by which genetics research, development and extension, accumulated over many years and still being developed, is delivered to the sheep industry. Its purpose is to maximise returns to levy payers through genetic improvement.

The targeted beneficiaries of MLA and AWI investment are levy payers – that is, commercial breeders, not stud breeders or service providers except insofar as individuals in these groups are also commercial producers of sheep meat or wool. Sales of stud stock incur the normal per head transaction levy paid to MLA, but there is no levy on stud sales *per se*. Thus it is important to distinguish the owners of SG (the commercial producers) from the clients (the stud breeders) and to ensure the respective roles are protected by the business model.

### Distinctive attributes of the Sheep Genetics business

SG does not operate in a typical for-profit business environment. Several distinctive attributes of the SG business are proposed that must be recognised in order to design an appropriate business model. These include:

- Pricing models should seek to optimise returns to commercial levy payers rather than profit *per se*. Operating surpluses are important to SG (as they are to any business) to fund growth and to provide a cash reserve, but they are not required to deliver a cash return to the owners.
- The SG value proposition increases with the size of the database. Thus, all participants (including commercial producers) benefit from the recruitment of a new client.



- There needs to be as much transparency as possible around the workings of SG because the benefits of the SG product are intangible and derived from complex 'black-box' processes. There is considerable faith required in the workings of the black box. Any erosion of this faith would be very damaging to the business.
- The problem of intangibility of value is compounded by the lack of coordination along lamb and wool value chains, with the result that market signals may be diluted and confused. This is particularly true for wool.
- SG participates in a business-to-business market, but one that is heavily influenced by social, cultural and other factors. Any proposed business model must be tested against validity criteria consistent with the way livestock producers see the world.
- Quantitative genetics plays a critical role in the progress of any livestock industry, so caution should be exercised in any consideration of a preferred business model.

#### Dimensions of the current business model

The term 'business model' refers to the way an individual or organisation creates value, whether in economic, social or other forms.

Key findings from the analysis were:

- SG is generally considered to be delivering a good service to its clients, particularly in the terminal and maternal segments, although there are complaints about accessibility of staff and responsiveness to customer concerns. The Merino segment is showing much greater acceptance of SG as a valuable tool for genetic improvement than it was several years ago, but the current economics of Merino stud flocks with an oversupply of rams and the business environment for the segment in general, among other factors, have inhibited uptake.
- An ongoing area of uncertainty is the extent to which SG should intervene in the value chain in which it participates. SG takes a justified, pragmatic stance towards assisting clients with advice and support. It could opt to take a more interventionist approach in service provision but would probably lose clients if it enforced a strict 'no-compete' policy with data managers and genetic advisers.
- The positioning of SG around its key differentiating features – technical robustness, independence from commercial interests, and international best practice – is very strong and should be defended.
- A weakness of the business model is the lack of scale in the organisation. This makes it difficult for SG to employ specialist skills and to make best use of existing staff. This shows itself, for example, in



the lack of a marketing manager. The housing of SG within MLA and outsourcing of technical skills and IT capacity reduces this problem. Expanding the service offer to sheep producers here and overseas is the only obvious way to overcome the lack of scale. Some opportunities in both areas are identified.

- Relationships with well-established clients are generally very good. This gives SG great capacity to extend R&D outcomes. Reaching a broader audience is difficult given the geographic scope of the business but it is managed as well as can be expected. The committee structures are well regarded but could benefit from the inclusion of a member from WA.
- The pricing structure is generally appropriate, depending on what view is taken on the activities that deliver private vs industry-good benefits. If the operational costs of SG are considered to generate purely private benefits then the prices paid by breeders could be increased, although this would likely have a detrimental effect on uptake of the service, especially by Merino breeders. An alternative argument, and the one preferred by this review, is that the participation of any breeder in SG delivers value beyond that immediate client.
- A potential weakness of the current model is the susceptibility of SG to industry political influences. Because SG is an unincorporated joint program of MLA and AWI there is a constant risk of asymmetry in the objectives of the two partners and this will flow through in a way that would not occur if SG had an independent board. However, the cost of independence would need to be weighed against the additional costs and increased pressure on scale as described above.

#### Business models in comparable situations

The business models behind a range of organisations with similar attributes to SG were examined. These organisations included genetic providers for other livestock industries in Australia and New Zealand and other 'industry-good' bodies from the red meat and wool industries.

The limited review showed that there is no single right way to set up an organisation with primarily industry-good objectives. It appears that in many such examples parent organisations have opted to establish independent bodies in preference to operating the businesses within the confines of the parent(s). The preferred structure in the sheep industry seems to be a company limited by guarantee, a structure adopted by the National Livestock Identification Scheme (NLIS), AUS-MEAT, Australian Wool Testing Authority (AWTA) and the Australian Wool Exchange (AWEX). The dairy industry service Australian Dairy Herd Improvement Scheme (ADHIS) is structured as a company limited by shares ('Pty Ltd'), probably because ADHIS has a single shareholder.





There are several advantages to establishing a company that is independent from its owners. For Sheep Genetics, there would be greater freedom to operate than is available to MLA and AWI (for example, the export of consulting services to breeders in South America). However, the detail of the corporate structure – membership, directors and so on – would have a critical influence on the success or otherwise of the organisation.

It appears, though, that the decisions made in establishing SG are very defensible and there are no obvious superior alternatives for the unique situation in which SG is placed.

#### Alternative business models for Sheep Genetics

A series of five alternative business models was developed for consideration. The models were based on varying combinations of ownership structure (independent, RDC-managed or private) and scope of service (data processor, status quo or full service). The models are intended to be examples of possible models rather than fixed options, as the guiding principles behind them are not mutually exclusive, and the features of two or models could be combined.

The five models are summarised as follows:

#### The 'Black box' model

<b>Guiding principle</b>	The core business of SG is facilitating the transformation of phenotypic data into ASBVs. SG possesses a unique asset in this regard, the database / OVIS engine, and its prime responsibility is to protect its integrity and further develop it using the outcomes of R&D. Whether a breeder chooses to participate or not in SG is a business decision for which the individual breeder is responsible, and likewise the decision to use any service providers to assist in the transaction. It is not the role of SG to be involved in these parts of the value chain.
<b>Key features</b>	<ul style="list-style-type: none"> <li>SG provides data processing and reporting only (in addition to its current R&amp;D role)</li> <li>Data of poor quality is simply rejected</li> <li>SG provides no advice to clients except to publish a list of service providers on the web site for those clients who want assistance</li> <li>SG undertakes no marketing activities – MLA and AWI do these separately as they see fit</li> <li>Staff comprise a project manager and database manager only – or the service is simply subcontracted to AGBU or a similar provider</li> </ul>
<b>Pros</b>	<ul style="list-style-type: none"> <li>Transparent, user-pays model</li> <li>Potentially cheaper for experienced clients who need no assistance</li> <li>Low-cost model for MLA and AWI unless related activities are undertaken outside the SG umbrella</li> <li>Service provider sector is given the maximum opportunity to develop</li> </ul>
<b>Cons</b>	<ul style="list-style-type: none"> <li>Risk of new participation rate dropping off because of lack of hand-holding</li> <li>Risk of upsetting existing clients whose data are rejected where they may previously have been 'massaged'</li> <li>SG staff lose the benefits of direct client contact</li> <li>Service provider sector may not fill the gap, leaving clients under-utilising their data and ASBVs</li> <li>Potentially confusing and conflicting marketing from MLA and AWI as separate parties</li> <li>Potential criticism of MLA and AWI for not collaborating more closely</li> </ul>



### The 'Licensed network' model

<b>Guiding principle</b>	Clients will not gain the most from, and in some cases will choose not to participate in, SG where they have incomplete understanding or ability to use the service. SG does not have the scale or geographic reach to adequately support all clients and the independent service provider network is incomplete. The best option for SG is to create a national network of licensed service providers who can ensure data quality is good and thereby leave SG to focus on data processing, marketing and education.
<b>Key features</b>	<p>SG retains more or less the same functions as it has now, but it does not assist clients with data quality or advice, thereby freeing up this resource – unacceptable data is simply rejected</p> <p>SG accepts data only from accredited data managers, as in the SIL and ADHIS models, perhaps developing an alliance with a large pastoral house or other organisation to ensure geographic gaps are filled</p> <p>Training and accreditation is conducted by SG or MLA/AWI</p> <p>The SG service is fully user-pays, with the minimised service offering making it easier to establish precisely what it costs to deliver</p> <p>Centralised marketing may or may not be a part of SG – it could be left to the separate parties</p> <p>Staff comprise the database managers, a project/marketing manager, a marketing manager and an administrator, employed by MLA as under the current agreement</p>
<b>Pros</b>	<p>Greater influence over the service provider sector</p> <p>Potentially national reach (alliance model)</p> <p>Opportunity to have credible, influential intermediaries involved</p> <p>Service provider sector is given the maximum opportunity to develop</p>
<b>Cons</b>	<p>SG staff lose the benefits of direct client contact</p> <p>Need to identify and recruit alliance partner, if that option adopted</p> <p>Alliance model could upset existing service providers</p> <p>May not be able to find service providers in all places</p> <p>Not clear that a margin currently exists for the intermediary – the cost to the breeder may end up higher</p> <p>Is likely to upset some existing clients who are used to making direct data submissions</p>

### The 'AUS-MEAT/AWTA' model

<b>Guiding principle</b>	Business decisions regarding the delivery of genetic services to the industry will be made most efficiently by an appropriately constituted and incentivised organisation that is free to operate independently of industry politics and the constraints of its parent organisations – MLA and AWI are not commercial bodies.
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<b>Key features</b>	<p>Company limited by guarantee, not allowed to distribute profits to members and therefore eligible for income tax exemption</p> <p>Member guarantors are organisations, not individuals, identified for their commitment to Sheep Genetics – MLA and AWI, possibly WoolProducers Australia, Sheepmeat Council of Australia, stud breeder organisations?</p> <p>Each member has the right to appoint one director and there are two or more independent directors, one of which is the chair</p> <p>Initial capitalisation to be determined with expert advice, but perhaps sufficient to cover one year's operating costs</p> <p>Contracts in place with MLA and AWI for the provision of R&amp;D services</p> <p>Charges to users and other operational decisions, including the scope of services delivered, are made by the board</p>
<b>Pros</b>	<p>Some degree of removal of SG from politics of meat and wool industries</p> <p>Greater real and perceived independence from both MLA and AWI, and opportunity for greater ownership by stud and producer bodies, potentially making participation more attractive to some studs</p> <p>MLA and AWI retain influence through right to appoint directors and member rights</p> <p>Rigour imposed by obligations of Corporations Law – e.g. Executive Committee is replaced by a board, where directors must act in the interests of the company rather than the body which made the appointment</p> <p>Greater clarity of costing structures and transparency of decision-making</p> <p>Freedom to pursue commercial opportunities or decisions that may be difficult for MLA and AWI to justify politically or under their charters (e.g. export of services, decisions to compete with service providers)</p>
<b>Cons</b>	<p>Some loss of control by MLA and AWI</p> <p>Risk of mistakes in the design – e.g. the wrong mix of members, voting rights leading to perverse outcomes</p> <p>Establishment costs and higher ongoing costs of running a separate business due to duplication of resources (payroll, legal, board etc) and compliance requirements – which are the same as for a public company</p> <p>Disruption to current staff through transfer of employment contracts, reduced security of working for a smaller company</p>

### The 'One-stop shop' model

<b>Guiding principle</b>	<p>The advent of new technologies for the advancement of sheep genetics – notably genomic and software tools – provides an opportunity to drive rapid genetic gain by the industry. SG is well placed to integrate these technologies with its current capability and to become a 'one-stop genetics shop' for the industry. This would increase the business scale of SG, increasing its efficiency, and give MLA/AWI greater capacity to drive genetic improvement. Furthermore, there is an opportunity to access Commonwealth Government funding through a partnership with the Sheep CRC that will allow the model to become established.</p>
<b>Key features</b>	<p>Existing structuring as joint program of MLA/AWI or independently constituted</p> <p>SG delivers a broad range of genetic services to breeder and commercial producer members – including DNA testing, decision support tools such as TGRM and specialised consultancy services</p> <p>If the CRC bid is successful, for the first 3 years members pay an annual fee (proposed to be \$1,500 for the first 3 years for breeders, \$600 for producers) but gain a total of \$21,800 and \$8,400 worth of services respectively, with leverage from CRC funds; this is reviewed at the end of the 3 years</p> <p>If the bid is not successful, clients are charged on a fee-for-service or annual fee basis</p> <p>Consultancy services are delivered by staff of SG or by subcontractors</p>



<b>Pros</b>	<p>Increased scale provides dilution of fixed costs such as administration</p> <p>Annual membership fee reduces risk for SG and allows reduced-cost service delivery</p> <p>Arguably, greater ability of MLA/AWI/SG to influence the rate of genetic gain in the sheep industry from gaining closer control over the whole value chain</p> <p>Annulment of the problem of market failure in the genetics service sector – by directly participating in it (SG staff as consultants) or assisting it (services are subcontracted)</p> <p>Increased opportunity to export services because a complete ‘solution’ can be offered</p>
<b>Cons</b>	<p>Reduced likelihood of a viable independent service sector emerging, depending which approach is taken</p> <p>Assumption that stud breeders and commercial producers are willing to pay the membership fees</p> <p>In the case of the CRC bid, assumption that MLA and AWI are able to contribute \$1m of additional funding over the first three years; and that useful DNA tools will be available from the start of the service being offered</p>

### The ‘Sell-off’ model

<b>Guiding principle</b>	<p>Industry bodies do not have skills in product commercialisation or marketing and should use commercial agribusiness to take its products to market. Market forces will determine the value of the SG services but MLA/AWI can maintain some control over the future of Sheep Genetics services through appropriate licensing arrangements.</p>
<b>Key features</b>	<p>The services currently delivered by SG are licensed to a commercial partner – which may be a large multinational input supplier company such as Pfizer, or a livestock company such as Elders or Landmark, or ABRI, or some other group</p> <p>Performance clauses in the licence agreement allow MLA and AWI to retain some control over the commercialisation process, including the right to terminate the agreement in the case of unsatisfactory performance</p> <p>The commercialising party enters into agreements with MLA / AWI for the provision of R&amp;D services as required</p>
<b>Pros</b>	<p>Marketing skills, sales and distribution networks of the commercial partner are brought to bear on the effort to increase uptake of SG technology</p> <p>MLA and AWI are freed up to concentrate on their traditional R&amp;D roles</p> <p>MLA and AWI earn licence revenues</p>
<b>Cons</b>	<p>Commercial profit motives and industry good motives are rarely aligned – the partner will set prices to maximise profit rather than overall genetic gain and will be handed a monopoly position</p> <p>In practice, it is very difficult to control commercial partners once licence agreements have been entered into – and cancellation of licenses can be very difficult even with performance clauses</p> <p>A privatised SG may be a less attractive commercial partner for the R&amp;D outputs of Sheep Genomics and Sheep CRC given a perceived loss of independence</p> <p>If clients are not happy with the sale, they may opt to withdraw their data and thereby reduce the value of the ‘asset’</p>

The various models were reviewed by a meeting of the SG Advisory Committee during the project. The results of its deliberations are presented below in the ‘Conclusions’ section.



### Future needs of Sheep Genetics

While it is not part of the project brief to identify the most appropriate business model for Sheep Genetics, three significant shapers of the future operating environment for SG were considered in order to assist an informed view of a preferred model.

The first of these is the advent of genomic selection tools. Plans are being prepared for the commercialisation of products from the MLA/AWI SheepGenomics and the Sheep CRC's Information Nucleus Flock (INF) programs. Private companies have already entered the market with 'SNP-chips' and are expected to build their presence.

Genomics will create a very different business environment. SG could potentially be the commercialisation vehicle for genomic products. Whether it is or not, SG will need to have or to access new skills, notably in marketing and intellectual property management. The importance of SG as an independent body would also be emphasised because there will be a need to validate products that enter the market. SG is uniquely placed to do so provided it can maintain its positioning as independent, industry-controlled and trustworthy. A database in private hands may not have those attributes.

Another important shaper of SG's future business environment is the size of the sheep industry. The number of sheep in Australia has declined markedly over the last 20 years. Whether this trend will continue is a matter for conjecture. A shrinking sheep population will make it more difficult for SG to achieve business scale and increases the attractiveness of a business model with a wider service offer than the current one – for example, supplemented by genomic tools and/or export.

The third shaper discussed in this report is the sustainability of lamb and wool revenue. The New Zealand experience is a reminder that levy funds are not guaranteed in perpetuity. Preferably, SG would be structured to minimise the risk that a quarter (or half) of its revenue base could disappear.

### Conclusions

This review has found that the current business model for SG is generally sound and, notwithstanding some relatively minor recommendations for improvement, probably performs as well as can be expected. Some degree of dissatisfaction with customer service was expressed to this review, but this was almost certainly confined to the performance of one or two individuals rather than the organisation in its totality or the business model on which it operates.

In one sense the current model lends itself to sound staff performance management because MLA as the parent company has well-established human resources practices in place. On the other hand, SG suffers the constraints of small scale and the specialised nature of SG which might make recruitment more difficult. The position of



AWI as a lesser partner in the SG relationship may also mean that the voices of the various customer segments are not equally heard.

Again, however, there is nothing in the current business model that would make any of these limitations fatal. Nor would they necessarily be 'fixed' by another business model – with the exception of the problem of scale, which might be addressed by some version of the 'one-stop shop' model. There was no obvious business model template for SG among the range of similar organisations examined in this review.

The table below summarises the attributes of the models proposed in this review *against the existing model*. The criteria and scores were determined by the SG Advisory Committee and are qualitative only. They depend to a great extent on the precise form of the models under evaluation (for example, how an 'AUS-MEAT / AWTA' model would charge for its services).

**Summary of proposed models\***

	<b>Black box</b>	<b>Licensed network</b>	<b>AUS-MEAT/ AWTA</b>	<b>One-stop shop</b>	<b>Sell-off</b>
Direct control by MLA and AWI	√	√	X	√	X
Technical rigour and independence	–	–	–	–	X
Business scale	X	–	√	√	√
Capacity to deliver new products	X	√	√	√	X
Capacity to provide R&D services	√	√	√	√	X
Resilience of revenue base	–	–	√	√	X
Equitable charging for services	√	√	–	√	X
Flexibility in decision-making	–	–	√	–	√
Safe distance from industry politics	–	–	√	–	√

\* Ratings show X = negative, – = neutral or √ = positive influence compared with current model

After reviewing the various models described in this report, the SG Advisory Committee concluded that the current model remained the preferred one for the foreseeable future. It also recognised that SG faces some major challenges and risks in coming years and that the model may have to change after the next five-year cycle. In particular, the Committee noted some of the advantages offered by the 'AUS-MEAT/AWTA' and 'One-stop shop' models in taking SG into the future.

The 'One-stop shop' model has been difficult to describe with precision in this review because of the many unknowns associated with new genetic tools. There is undoubtedly a major opportunity for SG to expand its scale by becoming the commercialisation vehicle for SNP chips, other emerging technologies and even data



services such as livestock identification. Opportunities in these areas should be actively monitored and evaluated by MLA and AWI over the next few years as they emerge.

The advent of molecular genetic tools represents a major change in the sheep genetics business environment. SG is likely to be better placed to thrive in this new environment (and arguably in the current environment) if it is structured as an independent entity of the type described in the 'AUS-MEAT/AWTA' model. The key to success would be in carefully establishing the objects and structure of the company. An independent entity could make commercial decisions not constrained by the charters of MLA and AWI as R&D corporations. Even now there are challenges for SG in maintaining its revenue base, including the significant risk of at least one levy-derived revenue stream being cut. A business model that increases the resilience of SG to changes in the political and fiscal circumstances of MLA and AWI would be attractive.

A move to this type of structure will require careful consideration of the costs involved, a fact recognised by the Advisory Committee in its preference to retain the current model in the medium term. SG probably does not have the scale at this stage to justify the cost of becoming a company limited by guarantee. However, MLA and AWI should keep the model under consideration and should monitor the experience with NLIS Ltd, the industry's most recent example of the creation of such a company.

### Recommendations

This review makes three major recommendations relating to the objectives of the review, and three minor recommendations arising from observations of the current operation of the SG business.

#### Major recommendations

1. The management and Boards of MLA and AWI note the findings of this review, taking into account the recommendation of the Advisory Committee that the current business model remains the preferred one for the next five-year cycle of SG.
2. MLA and AWI consider a much more detailed examination of the opportunity to expand SG into a 'one-stop shop' provider of genetic and potentially other sheep data services, as more information becomes available and in active collaboration with SheepGenomics, the Sheep CRC and other potential partners such as NLIS.
3. MLA and AWI plan to revisit the idea of constituting SG as an independent company during the next five-year cycle. This might take the form of a milestone for the Executive Committee to meet with the manager responsible for NLIS Ltd to learn from the experience of its establishment.



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**Minor recommendations**

4. SG consider introducing a system to track the time spent by staff on various tasks in the business so that resource allocation can be more accurately tracked.
5. SG consider appointing a person from WA to the Advisory and/or Technical Committees.
6. SG consider the appointment of one or two service providers to the Advisory Committee.





## Background

This review was commissioned by Meat & Livestock Australia (MLA) and Australian Wool Innovation (AWI) as the partners in Sheep Genetics (SG), a joint program or project established to maximise the rate of genetic gain by the sheep industry in Australia.

SG has two arms: LAMBPLAN, which serves the terminal and maternal sire breeding segments, and MERINOSELECT, serving Merino breeders. LAMBPLAN has been in continuous existence since 1987. MERINOSELECT was formed specifically by SG, succeeding a number of related Merino-industry initiatives including Merino Benchmark, WOOLPLAN, RAMPOWER and Merino Genetic Services.

The establishment of SG in 2005 was a watershed because it provided, for the first time, an integrated service for genetic evaluation across Australian sheep flocks for both meat and wool breeding objectives. SG serves as the main vehicle for delivery of outcomes from genetics R&D and also facilitates ongoing R&D through its unique database and membership.

For the first four years of life SG has been managed under its *Business and operational plan 2005-2010*. The plan foreshadows a commercial review of SG in 2009 as a precursor to the development of a longer-term business model, the optimum form of which was difficult to foresee at the inception of the organisation. This report presents the findings from the commercial review. Specifically, the terms of reference of the project were to:

- *Confirm through consultation with MLA and AWI the industry goals for Sheep Genetics, and its role within the R&D through to implementation pipeline for the sheep industry.*
- *Review the current Sheep Genetics business model and develop potential alternate business model(s) that may be appropriate for wider industry consultation.*
- *Develop a discussion paper that explores the strengths and weaknesses of the business model(s), including their fit with MLA and AWI genetic and genomics R&D delivery goals, to enable the Sheep Genetics Executive and Advisory Committees to determine the most appropriate business and operational plan for post 2010.*
- *Present this information to both the Executive and Advisory Committees, and potentially other industry groups for consideration.*

## Approach

This review was conducted using a combination of desktop research and interviews with stakeholders and those involved in ventures comparable to SG.



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The key documents used in the review are listed in Appendix 2. They include organisational documents such as the *Business and operational plan 2005-2010*, the management agreement between MLA and AWI, background and discussion papers, and various reviews of SG operations.

A full list of the individuals interviewed during the review is presented in Appendix 3. These people included:

- SG staff;
- Members of the Executive, Advisory and Technical Committees of SG;
- Clients and non-clients of SG;
- Providers of services with relevance to sheep genetic evaluation (such as measurement providers);  
and
- Managers or ex-managers from organisations with similarities to SG or with an interest in SG (such as the Sheep CRC).

Interviewees were advised that their contributions were anonymous. Where specific comments or opinions have been included in the report they have not been attributed except where the author of the report was given explicit consent to do so.

The logic of the review process and the layout of the report is shown in Figure 1. In short, the review attempts to describe the distinctive attributes of the SG business and the environment in which it operates, to examine how SG is currently configured and what other models might be suitable for the purpose, to propose several alternative models and explore their strengths and weaknesses and finally to consider what changing conditions might need to be taken into account when selecting a preferred business model for SG.



**Figure 1 Review logic**



**Aims of MLA and AWI**

The charter of both MLA and AWI is to invest levies collected from the respective membership bases – sheep meat and wool producers – for the collective benefit of the levy payers. This investment must be made in innovation-related activities such as R&D and extension, although the definition of such activities is reasonably broad. The Commonwealth Government matches the total levy investment in R&D to the equivalent of a 0.5% levy.

SG is the vehicle by which genetics R, D & E, accumulated over many years and still being developed, is delivered to the sheep industry. Its purpose is to maximise returns to levy payers through genetic improvement. Government has its own priorities, communicated to the rural R&D corporations (RRDC) annually, but broadly



these correspond to those of the RRDCs because of the public good benefits deriving from rural and regional prosperity.

A critical observation here is that the targeted beneficiaries of MLA and AWI investment are levy payers – that is, commercial breeders, not stud breeders or service providers except insofar as individuals in these groups are also commercial producers of sheep meat or wool. Sales of stud stock incur the normal per head transaction levy paid to MLA, but there is no levy on stud sales *per se*.

This distinction is sometimes blurred in practice because all sheep producers pay the transaction levy to some extent (if only for cull animals) and all Merino stud breeders are wool producers. It is important, however, to distinguish the owners of SG (the commercial producers) from the clients (the stud breeders) and to ensure the respective roles are protected by the business model. That is, the important decisions about SG should be reserved for the owners but with the normal strong input that a business would seek from its clients.

### **Distinctive attributes of the Sheep Genetics business**

The most appropriate business model for Sheep Genetics will depend on the particular attributes of the business itself and the environment in which it operates. A number of these attributes are proposed here to establish the foundation logic on which the rest of this report is based.

#### **Sheep Genetics does not exist to make a profit**

Profit maximisation is not a current objective of SG as it is for most businesses in the long run. Maximising return to shareholders is the ultimate objective of the owners, but because the shareholders are direct beneficiaries of the services of SG, profit maximisation may not equate to maximum return on investment.

While this is true, SG must be able to access funds both to invest in growth and as a reserve against revenue fluctuations. These funds may come from operating surpluses of the business or from the investment of additional capital by the owners – in other words, by MLA and AWI holding the surpluses. If the former option, then there is an acknowledgment that clients (i.e. seedstock producers) should pay for business growth and reserves through the price they pay for services; if the latter, there is an assumption that commercial producers are gaining a disproportionately high share of benefits and that they should contribute to SG through levies. This issue is discussed in greater detail below ('Pricing structure and customer benefits').

Either way, the business model must recognise and accommodate the need for surpluses because they are a requirement of any business.



### The value proposition of Sheep Genetics increases with the number of clients

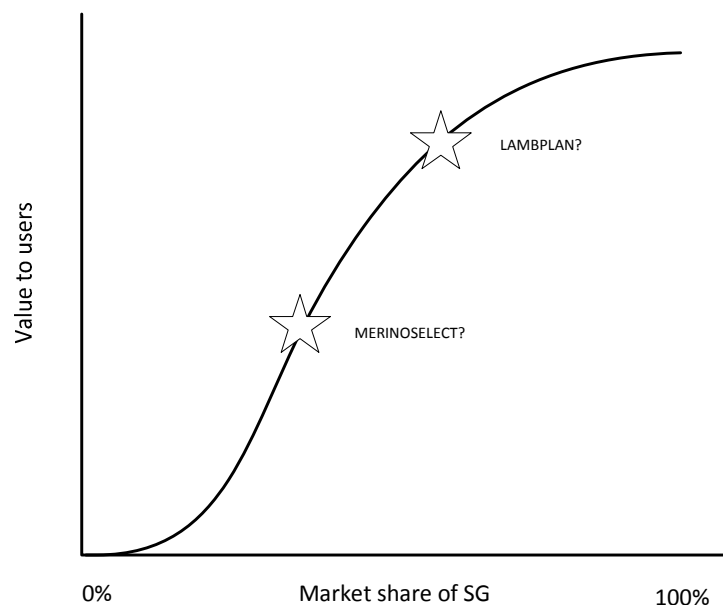
The value proposition offered by Sheep Genetics increases as more breeders submit their flocks' data, in at least three ways. First, there is the normal advantage of scale diluting the overhead costs of the business. The marginal cost of processing a new dataset is very small compared with the cost of having and maintaining the database, paying staff and so on.

Second, the benefit delivered by SG increases as the pool of measured genetics increases, because both accuracy and choice are greater. If a stud breeder buys a drum of sheep drench, it will be just as useful to him whether anyone else buys the same drench or not. If he enters his stud flock's data into SG and no one else does, the service is of little use to him.

Third, market acceptance of and demand for ASBVs and index values increases with the number of breeders participating. There comes a point in the maturity of the market at which the presence of ASBVs in sale catalogues becomes expected because that is normal practice.

This concept might be represented, in a purely conceptual fashion, as shown in Figure 2. The figure suggests the positions that might be currently occupied by LAMBPLAN and MERINOSELECT respectively. It attempts to capture the sentiment among interviewees for this review that the Merino industry is at a critical point in its relationship with SG, in that it requires greater participation by industry to realise the full value of the service, and without continued impetus could slip back to a lower-value position.

**Figure 2 Relationship between market share and value of SG service (conceptual)**





Anecdotally, there has been a marked shift during the last decade towards acceptance of ASBVs. There is an expectation among many commercial producers that their stud should be participating in SG because that is apparently best practice in genetics – even if the buyers have little idea what the ASBVs mean.

The implication of this concept is that there is an imperative for the SG client base to reach and remain at a threshold size if value is to be optimised. Also, the recruitment of a new client delivers benefits to all current participants, including both seedstock breeder clients and commercial producers.

#### The Sheep Genetics 'product' is knowledge

SG produces and markets knowledge – knowledge about which sheep are superior to others in the production of real, profit-determining meat and wool from the offspring of those sheep. Knowledge is intangible. The value of this knowledge is real and can be demonstrated but doing so requires abstract analysis, particularly in the short run. For the non-technical user there is considerable faith required in the 'black-box' SG production process and the demonstration of the product's value.

SG needs to be mindful of this, and must endeavour to make the 'black box' as transparent and open to scrutiny as possible. Any erosion in the faith of users in SG would be very damaging to the business and very difficult to undo.

There are differing views among stakeholders as to whether the SG product is complex and requires expert assistance for its optimal application. Many stakeholders argue that the complexity of applying quantitative genetics is inherently greater for Merino breeders. According to this line of reasoning, Merino breeders must contend with a broader range of market objectives and must take into account a longer list of traits. Lamb producers need only focus on the production of large, lean carcasses.

There are arguments for both sides. It is also true that LAMBPLAN has a longer history and has achieved greater market penetration than MERINOSELECT and its clients are undoubtedly better educated in its application.

The question of differences in complexity between Merino and maternal / terminal segments of the SG market has real significance. The value created by SG will only be realised if the client actually uses the product he or she is buying. If the product is not used – even through no fault of SG – clients will lose faith in the value proposition of SG. This raises the question as to what steps SG must take to protect the integrity of its product through to the user – that is, to ensure the client has access to any assistance needed to realise the value of their investment.



### There is little coordination along the value chain

It is a common feature of livestock industries that downstream players (such as supermarkets and consumers) do not pay for gains from genetic improvement made by producers. The quantum of benefit captured by each player depends on price elasticity at each transaction, but only a proportion is captured by those who pay for it.

In contrast with some other livestock industries, though, there is little vertical integration in the lamb and wool value chains and therefore capacity to optimise outcomes along the production segments of the chain. Value chains in which there is little cooperation and communication between players tend to be inefficient because each player acts to optimise outcomes for itself rather than the whole chain.

Chicken companies such as Bartter-Steggles, for example, control and own the chain from hatchery to wholesale. The company that is dealing direct with the supermarket is also making the breeding decisions. These decisions are optimised for the whole value chain because the benefits are captured by a single player.

Lamb and wool do not enjoy this capacity for unified decision-making. The situation is most pronounced for wool. A large part of LAMBPLAN's success is considered to be the part it has played in providing carcasses to meet the US market requirements. The opportunity to increase exports to the US, necessitating a large and secure supply of large, lean carcasses, was recognised in the late 1980s and early 1990s. The market signals were clear and the means to deliver against them were also clear.

Wool is a much more difficult industry in which to identify what the customer wants and to be rewarded for doing so. Farm lots of wool are blended with other lots at the first processing stage and lose their identity. There is no capacity for feedback on the performance of an individual lot, so rewards and penalties are averaged over all suppliers where raw wool specifications are inadequate (such as the case with contamination). The strength of various price signals must be 'decoded' from multiple regression analyses.

The net effect, from a ram breeder's and an SG perspective, is a compounding of the problem of intangible value. If it is difficult to know what you should be producing then it is difficult to know what to breed for. There is ample information about how to achieve rapid genetic gain, but relatively little information about what direction that gain should take. Making sound judgments about future markets is a key determinant of future success.

### Sheep Genetics sells business-to-business

SG operates in a business-to-business market, but one that is arguably different from many other business-to-business markets. The business and social lives of agricultural producers overlap more than they do in other businesses and the vast majority of clients are small businesses in the context of the broader economy. The same is true of the commercial producers, the clients of SG's own clients, who ultimately influence the seedstock breeder's use of the SG product.



These characteristics of the market mean that purchasing decisions may not be recognised as 'rational' in a purely business sense, but heavily influenced by social, cultural and other factors. SG must be cognisant of these factors and use them to advantage in the business model. So, for example, it must recognise that key staff can make a big difference to the credibility of the organisation if they can 'talk the talk' with breeders.

In evaluating any alternative business model SG should also seek to validate the proposed model using criteria consistent with the way farmers see the world.

#### The Sheep Genetics product underpins industry progress

It is not within the scope of this review to establish whether or not the SG product truly delivers value to the Australian sheep industry. There continues to be a debate about the value of quantitative genetics versus other approaches to genetic evaluation and breeding design (such as subjective classing). This review takes the position that the debate has been resolved in favour of quantitative genetics. Other approaches may have complementary value but real genetic progress in sheep, as it is in every other livestock industry, will be driven by quantitative genetics and probably molecular genetics in future years.

Genetic improvement itself is a key driver of productivity gain for livestock industries. Genetic gain is permanent and cumulative and costs nothing to maintain, in contrast to many other productivity drivers such as fertiliser or even the use of improved pasture species.

The implication of this attribute of the SG business environment is that caution should be exercised in any consideration of a preferred business model, because there is much at stake.

#### Summary

SG does not operate in a typical for-profit business environment. The section above proposes some distinctive attributes of SG and its environment whose implications must be considered when designing possible business models. These include:

- Pricing models should seek to optimise returns to commercial levy payers rather than profit *per se*. Operating surpluses are important (as they are to any business) to fund growth and to provide a cash reserve, but they are not required to deliver a direct cash return to the owners. The question of who pays for what proportion of SG services (clients vs levy payers) is a matter for debate over where the benefits accrue (see 'Pricing structure and customer benefits' below).
- Adding greater complexity to the matters of pricing and cost-sharing is the fact that the SG value proposition increases with the size of the database. Thus, all participants (including commercial producers) benefit from the recruitment of a new client.





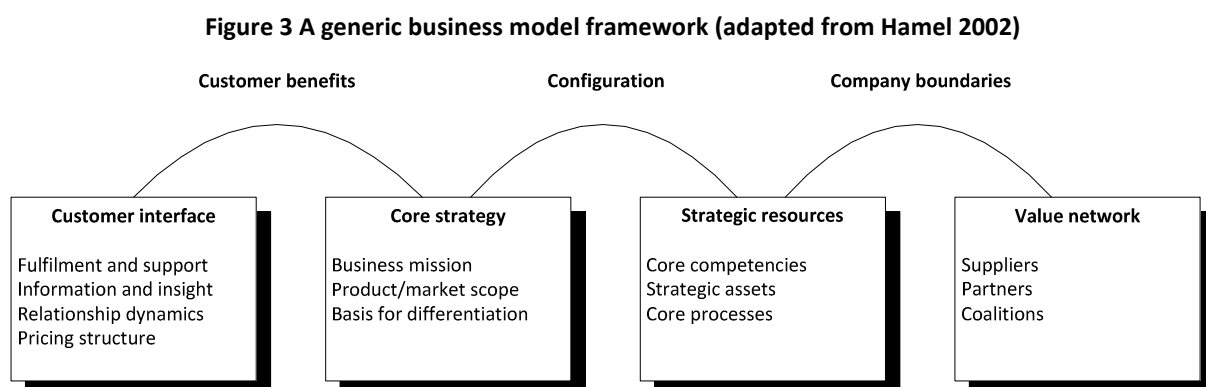
- There needs to be as much transparency as possible around the workings of SG because the benefits of the SG product are intangible and derived from complex 'black-box' processes. There is considerable faith required in the workings of the black box. Any erosion of this faith would be very damaging to the business.
- The problem of intangibility of value is compounded by the lack of coordination along lamb and wool value chains, with the result that market signals may be diluted and confused. This is particularly true for wool.
- SG participates in a business-to-business market, but one that is heavily influenced by social, cultural and other factors. Any proposed business model must be tested against validity criteria consistent with the way livestock producers see the world.
- Quantitative genetics plays a critical role in the progress of any livestock industry, so caution should be exercised in any consideration of a preferred business model.

### Dimensions of the current business model

The term business model simply refers to the way an individual or organisation creates value, whether in economic, social or other forms.

A generic framework for a business model is shown in Figure 3. It is taken from Hamel (2002) who looks specifically at how companies can innovate with their business model. There are a number of such frameworks available, but this one will suffice for the current purposes.

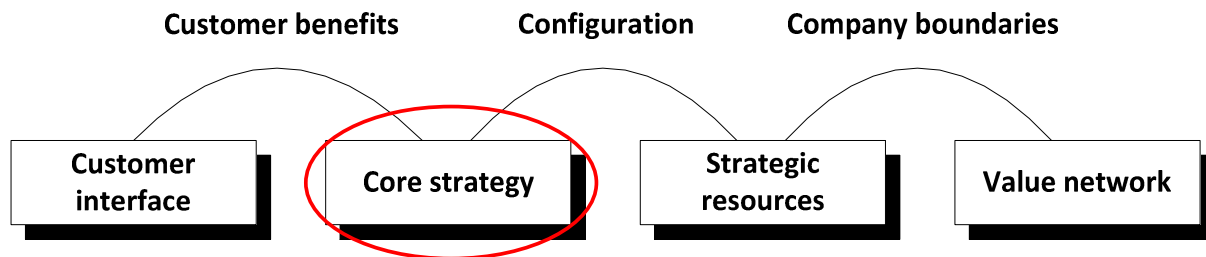
The approach of using a recognised template is a deliberate attempt to take an objective, business-based view of the SG business model that gets away from any traditional thought patterns that may have become entrenched about how a genetics service should be run.





Hamel's framework has four major components, each with several sub-components, and three linking or 'bridge' components. Each of these is described below for the current SG with the exception of the 'value network' and 'company boundaries', which is discussed under the 'customer interface' section.

### Core strategy



Hamel (2002) describes the *core strategy* as 'the essence of how the firm chooses to compete'. Core strategy comprises:

- Business mission;
- Product/market scope; and
- Basis for differentiation.

### Mission

The SG *Business and operational plan 2005-10* articulates the mission of SG to be:

*Genetic improvement for a sustainable and profitable Australian sheep industry facilitated by the world's best genetic improvement system.*

A mission statement can be constraining to an organisation's development if it narrows the thinking about what the organisation does and how it does it. For example, a zoo that fails to acknowledge that it is in the entertainment industry as distinct from the 'zoo' industry will not think broadly enough about how to compete for the attention of the public.

The SG mission statement is broad enough to recognise that the SG system, and even genetic improvement itself, are means to an end rather than ends in themselves. On the other hand, it makes it clear why SG exists. Interviews with staff and MLA/AWI managers associated with SG indicate that there is a very strong and shared sense of purpose for SG.

**Major findings:**

- The various stakeholders of SG, including the investing partners, have a strong sense of shared purpose.
- This is not always a given in organisations and should be viewed as a positive achievement.

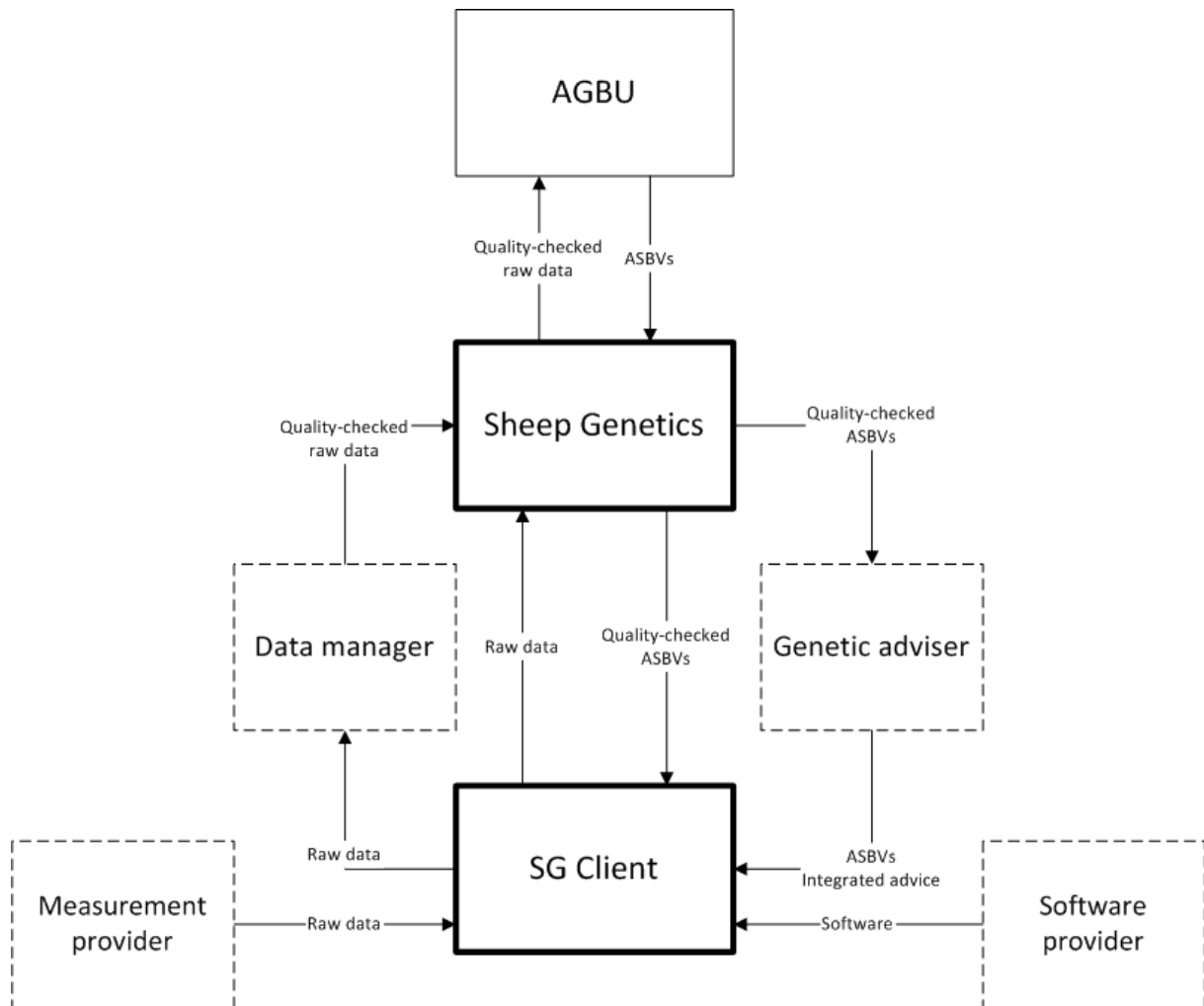
**Product / market scope**

Scope refers to the boundaries within which an organisation operates (and conversely, outside of which it does not operate): including the product categories, the client segments, the extent of reach along the value chain and the geographical areas. The scope of SG's business – in particular, the extent to which SG reaches down the value chain – is probably the single most difficult and contentious judgment for MLA and AWI to make and the element of the business model that is least well defined.

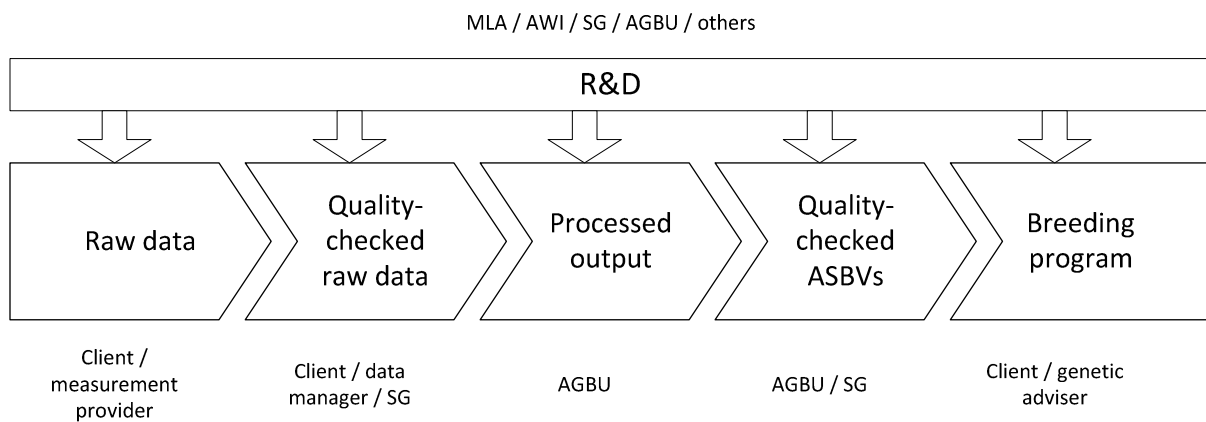
Figure 4 show the flow of information and product to and from SG. The value chain created by the players and processes in Figure 4 is shown in Figure 5.



**Figure 4 Information and product flows to and from Sheep Genetics**



**Figure 5 Value chain of Sheep Genetics activities**





SG has a direct relationship with clients. Invariably, though, one or more of four main groups of 'service providers' is also involved in the transaction:

1. Software providers, who provide packages for the collection and management of individual sheep data records, including the export of SG-ready files;
2. Measurement providers, including muscle scanners, fleece measurement services and worm egg count laboratories;
3. Data managers, who take responsibility for collating a client's data set and ensuring its suitability for submission to SG; and
4. Genetic advisers, who assist the client to make use of the breeding values generated by SG in their breeding program.

In practice, individual service providers may deliver one or more of these categories of service – for example, measurement and data management.

Measurement providers are the dominant service provider group. They require specialised skills and equipment, such as ultrasound scanners, that are difficult and expensive for an individual breeder to obtain for him- or herself. Because data quality is paramount, measurement providers are quality-assured by various mechanisms, depending on the measurement type. Ultrasound (muscle) scanners are accredited by SG itself. Recognised fleece testers are the Australian Wool Testing Authority (AWTA) or operators accredited under the on-farm fibre measurement quality assurance (OFFM-QA) scheme administered by the Australian Wool Exchange (AWEX) on behalf of AWI.

Currently there is no QA scheme in place for laboratories providing worm egg count (WEC) data. Providers are encouraged to follow the protocols set down by the CSIRO/AWI Nemesis program. A round trial program is under investigation.

As both Figure 4 and Figure 5 show, the principal role for SG staff is facilitating the conversion of raw data to ASBVs by AGBU and reporting the results. This is a more involved role than Figure 5 would suggest, as in practice, there may be several iterations of quality checking of the raw data in particular.

The services provided by SG overlap with those provided by data managers, genetic advisers and even software providers through SG's making available the Pedigree Wizard program<sup>1</sup>. Members of all three groups of service providers argue that SG should not provide these services at all, so that independent (public or private) providers can compete and develop their businesses. SG's position is that it provides only a limited service –

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<sup>1</sup> The extent to which SG has genuinely attempted to withdraw from the software market is not clear to this review – there are conflicting claims.



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mainly in data management – and that it does so because to simply reject some data sets for reasons of poor quality would cause some clients to withdraw.

Because SG exists only to address a market failure, and not to deliver a direct financial surplus to its owners, MLA and AWI have no commercial interest in playing roles along the value chain where existing players are already effective and efficient. Such roles are in any case outside the charter of RRDCs. However, where there is market failure, there is an argument for SG to intervene to ensure it achieves its objectives.

There have been various efforts to improve the service provision sector. An offer was made to subcontract the services of three genetic advisers, with incentives to recruit additional clients, but this did not eventuate for reasons that are not entirely clear. Until recently AWI has contracted two advisers to work with Merino breeders. These advisers have given only generic assistance to avoid competition with the existing service provider sector.

There is a question as to how important the various service providers are in the value chain. Undoubtedly, measurement providers are critical. Software providers also play an important role that extends beyond the management of breeding-related data. Data managers provide a useful service to those breeders who are unable or unwilling to manage their data, but this is only a subset of SG clients. Likewise specialist geneticist advisers. Some of the interviewees for this report argue that for many clients, and especially as time goes on and clients become better educated, genetic advisers in particular will have a limited role in the long term. Others would argue strongly against this claim.

What is clear is that it is difficult for data managers and genetic advisers to make a reasonable living from those roles. Those who do appear invariably to combine the role with other work – such as genetic services to other industries or as measurement providers. New Zealand contacts report a similar experience, noting that breeders are unwilling to pay much for data management.

There is a risk that if SG tolerates clients submitting poor data, and helps them to overcome problems, then those clients will never learn the value of good data management. Alternatively it may teach clients good data management and self-sufficiency. There is a greater risk that, instead of seeking the services of a data manager, the client will simply give up on the SG experience as being too difficult. There is a suggestion, based on interviews with clients, that the value of a data manager is more likely to be recognised as a client grows more confident with and involved in SG.

In our view, and at this stage of the market's development, there is a rationale for SG to be pragmatic in its service offer. It may be a somewhat ruthless position but the responsibility of MLA and AWI is to its



shareholders, not the service providers. An example is software. According to SG data<sup>2</sup>, 68% (by value) of data submitted to SG was provided in Pedigree Wizard. If this group of clients are happy with Pedigree Wizard (and a number of interviewees expressed strong support for it), then SG should not be withdrawing it simply to force people to use a commercial product.

If the service provider sector is unlikely ever to flourish, then SG may be better off intervening directly in it and possibly even 'owning' it. If the service sector can potentially be viable then SG should gradually withdraw from it as individual providers find their feet.

SG has recently moved to improve its communication with and support for the service provider sector. A series of webinars was hosted by SG and service providers were given the opportunity to express their views about the issues they face and their relationship with SG. The webinars and other activities have been well received by the service providers and should be continued. In fact, SG should consider recording the webinars (including the presentations, commentary and question sessions) so that people who miss the sessions can view them later. Only one of the webinars so far appears to be available in this way. The technology to record webinars is readily available and would add considerable value.

Nothing is more likely to create an atmosphere of mistrust or resentment than poor or absent communication.

**Major findings:**

- In determining the extent to which it should participate along the genetics value chain, SG must balance competing priorities if allowing independent providers to flourish and ensuring clients' needs are met.
- Where there is doubt, we believe the latter should prevail. This appears to be the current philosophy.

**Basis for differentiation**

This element refers to the way the business positions itself to stand apart from the competition. The concept of competition is an interesting one in the context of SG. In a narrow sense SG occupies a natural monopoly position because it holds the only whole-of-industry sheep genetic database in Australia. In reality, though, SG competes for attention against a range of other genetic evaluation services – including traditional sheep classing, measured phenotypic approaches (such as Stockscan), within-flock quantitative genetic evaluations and (potentially) even international providers such as Sheep Improvement Limited (SIL). There is no compulsion for clients to use SG.

<sup>2</sup> Spreadsheet, '2009 Sheep Genetics revenue x data source', supplied by SG.



Thus, while many of the elements of the generic business model described here refer to competitive behaviour by a typical for-profit business, they remain relevant to the case of SG.

It could be argued that the unique SG offer to the market comprises the following:

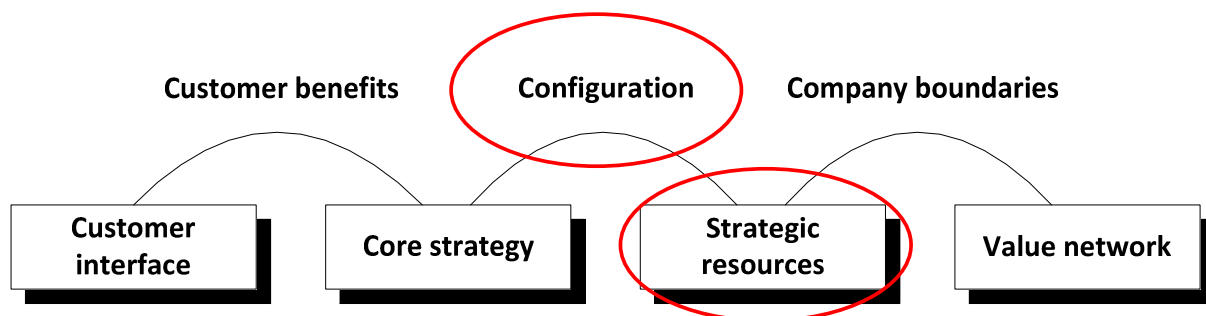
- Whole-of-national-flock scope of genetic comparison – genuine ‘across-flock’;
- Application of international best practice;
- Technical rigour;
- Proven performance; and
- Independence from commercial interests and MLA/AWI ‘imprimatur’.

These form a powerful positioning platform for those who accept that technology has an important role to play in industry progress. Certainly, it seems from interviews conducted for this review that the SG client base seeks this offer and believes that SG delivers it. Any future business model that may diminish the perception of this offer would need to be carefully considered.

#### Major findings:

- SG has a very strong positioning in the market centred on proven, scientific performance and independence.
- Such positions are not easily earned. Any future business model that compromised this positioning would need to be carefully considered.

#### Strategic resources and configuration



The *strategic resources* of an organisation are those tangible and intangible things employed by the organisation to create and market its product. They include core competencies (what the organisation knows and can do), strategic assets (what it owns) and core processes (what it does). Strategic resources are an important source of





advantage for organisations. *Configuration* refers to the way strategic resources are mobilised in support of the core strategy.

The only strategic assets of SG, and they are significant ones, are the database and the algorithms in the OVIS engine. Staff have a range of competencies but the central ones are a rare combination of quantitative genetics and IT skills, as well as a deep understanding of the sheep industry – including its business structures, environment and culture – and strong networks across the industry.

### Scale

The current SG business model appears to make good use of its assets and competencies within its scope of business. Its major constraint, though, is a lack of scale.

SG overcomes this limitation in various ways, primarily by being part of an organisation (MLA) that can provide generic functions such as accounting, IT and legal. It also co-opts technical expertise needed to develop its service in the form of an expert Technical Committee, which is described below. Having the Technical Committee provides both a source of technical expertise and a means of two-way communication with an important stakeholder group.

The outsourcing of data processing to AGBU also allows SG to partially overcome the scale problem, by taking advantage of AGBU's own scale in genetic analyses (it also delivers BREEDPLAN and PIGBLUP) as well as its physical proximity. It is very unlikely that bringing the services provided by AGBU into SG would be economic. There might be a case for periodically placing the data processing services on open tender to test the market for alternative suppliers and to 'sharpen the pencils' at AGBU. Having said that, though, AGBU's performance seems to be well regarded and any change in provider would incur significant transaction costs for perhaps little benefit.

Industry-good companies can create scale for themselves. A good example is the acquisition by the Australian Wool Testing Authority (AWTA) of the assets, people and brand of Agrifood Technology. Agrifood is a company providing analytical testing services to the grain, food and feed industries. Although AWTA essentially serves the wool industry, its core competencies (such as developing sampling protocols, calibrating instruments, ensuring quality control, measuring product attributes) are the same ones required to successfully manage a business like Agrifood.

It was emphasised during interviews for this review that expanding a company's target market to industries or countries outside the charter of the company is not an opportunity to earn 'superprofits' which can then be used to subsidise core services. Such superprofits are simply not available (or not available for long) in a competitive



market, unless there are high barriers to entry by competitors. Rather, the benefit of servicing non-core market segments is to allow greater utilisation of assets and dilution of overhead costs.

Lack of scale is not an immediate problem for SG because it has access to funding from MLA and AWI. However, greater scale would reduce the overhead per client, reduce the reliance on MLA/AWI funds and/or allow the organisation (for example) to appoint specialist staff who cannot currently be justified. Also, the present small staff numbers greatly increase the risk of discontinuity of service should a key staff member resign.

The two obvious opportunities for SG to expand its scale are to increase its service offer and/or to export. The potential for increasing the *service offer* is considered below under 'Alternative business models for Sheep Genetics'. Options might include:

- SG taking over the management of other industry genetic resources – such as Merino sire evaluation, currently managed by the Australian Merino Sire Evaluation Association (AMSEA). AMSEA has administration costs of the order of \$100,000 per annum including a part-time database manager and executive officer and a committee. There would be significant economies of scale created by allowing SG to deliver these functions through existing or even increased staffing and rationalisation of committee resources. Similarly, resource flocks such as the Sheep CRC Information Nucleus Flock could be managed under SG in the long run.
- The commercialisation of genomic tools such as SNP chips from Sheep Genomics and Sheep CRC research through SG (see 'The advent of genomic data' below).
- The delivery of software-based services such as total genetic resource management (TGRM) and others.

The availability of these options to SG is dependent to a large extent on the attitudes of those who currently own or control these products – for example, AMSEA and the Sheep CRC. However, MLA and AWI have significant influence in all cases.

The *export* path is one that has been followed by BREEDPLAN with apparent success. SG has looked at this option and continues to do so. However, overseas expansion would require some upfront investment in time, travel and the development of new processes such as those needed to handle foreign exchange, so the efficiency equation is not straightforward. The key issue will be the level of international demand for the service. Opportunities in the short to medium term include:

- **New Zealand.** The recent decision of New Zealand wool producers to no longer pay an industry services levy suggests an opportunity for SG to become involved in the NZ sheep genetic evaluation market. Although Sheep Improvement Ltd (SIL) in NZ will presumably continue to receive support



from sheepmeat levies, its funding base will be significantly reduced and there will be pressure for higher user charges to be levied on breeders supplying the wool market – with all of the complications that introduces.

- **China.** One of the LAMBPLAN clients interviewed for this project is one of a group of breeders active in the sale of genetics to China. There are significant cultural barriers to working in China, but the experience and contacts established by the LAMBPLAN client could be used as a means of gaining access for SG services. China is the largest producer of lamb and sheepmeat in the world, producing more than three times the volume of Australia<sup>3</sup>.
- **South America.** We have recent experience working in Chile and note a recent article in the Chilean press in which a consortium has announced plans to double lamb exports by 2010<sup>4</sup>. Chile is a small producer of sheepmeat by world standards (10,000 vs 683,000t from Australia) but we can confirm its aggressive stance towards growing its economy and the significant government support available to foreign suppliers. It may present the chance to gain a foothold on the continent. Brazil (78,000t), Argentina (52,000t) and Uruguay (27,000t) are also significant sheepmeat (and wool) producers in South America<sup>3</sup>.
- **The United States.** We understand that there may be an opportunity to deliver the SG services in the US and that this is currently under investigation by SG.

### Efficiency

Is SG operating efficiently, notwithstanding its constraints of scale?

It is difficult to come up with an objective response to this question given the niche role occupied by SG. There are no clear benchmarks and staffing changes in the organisation, such as the move of the LAMBPLAN client manager from SG to MLA, make a considerable difference to the manpower available in a small organisation. Banks<sup>5</sup> argues that ‘all the evidence from various genetic evaluation services operating here and overseas for which some/much data is available, strongly points to Sheep Genetics being equally or more cost-effective in...total operational cost, number of animals evaluated, number of traits analysed, rate of service innovation, and information delivery’.

The evidence from interviews is that SG generally fulfils its core roles promptly (but see ‘Client relationships’ below). Considering the small number of staff, SG also manages to be ‘seen’ quite regularly across a very broad geographic area. Whether this support activity is conducted at an optimal level, i.e. one that maximises

<sup>3</sup> FAO statistics 2007, <http://faostat.fao.org/site/339/default.aspx>.

<sup>4</sup> ‘Chilean sheep farming industry targets double lamb exports by 2010’ Santiago Times, 15 July 2009, <http://en.mercopress.com/2009/07/15/chilean-sheep-farming-industry-targets-double-lamb-exports-by-2010>.

<sup>5</sup> ‘Notes for consideration for the review of the Sheep Genetics business model’, August 2009.



efficiency, is a point for debate but it is undoubtedly expected by levy payers and clients. What is clear is that a lot of work is done after hours by the senior staff.

SG might consider the installation of a software system to track the activities of staff against general tasks and against specific clients. This would allow SG to identify where it is allocating its resources and to demonstrate how much time it is spending (or not spending) assisting clients and in general marketing. Any such system should be simple to use and broken down, say, by 30-minute blocks. A more acceptable alternative to staff might be to simply record any time spent assisting clients against the name of the client in a spreadsheet.

The benefit of such a system would be to quantify the true cost of servicing the range of SG clients and to allow better resource planning. Currently it is not known how much time is spent by staff on marketing, client assistance and other roles.

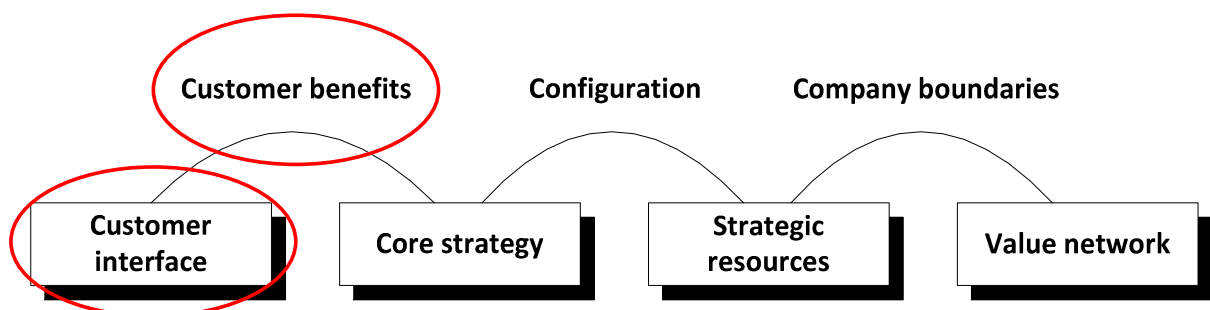
#### Major findings:

- SG suffers from limited scale. It is able to mitigate this problem through 'outsourcing' functions to MLA and AGBU. Scale might be increased by expanding the service offer and/or exporting.
- It is difficult to judge objectively whether SG is efficient but clients appear to believe that, with some exceptions, the core service is delivered in a timely way.

#### Recommendations:

- SG should consider introducing a system to track the time spent by staff on various tasks in the business so that resource allocation can be more accurately tracked.

#### Customer interface and customer benefits



*Customer interface* refers to:



- The ways in which the organisation gets both its product and its message to market;
- How it gains information from the customer base;
- The dynamics of the relationship between the organisation and its customers (such as frequency of contact, degree of loyalty); and
- The pricing structure.

#### Product distribution

Because it takes the form of information, delivery of SG product to clients is straightforward. Reports are posted and SG is making increasing use of the internet and e-mail, including recent upgrades to allow searching for sires on-line.

The *Business and operational plan 2005-2010* envisaged that the SG web site would have the capability to accept uploads of data files from clients. The plan appears to describe an automated system that would run a diagnostic routine and send an automatic error message if the data are of poor quality. This has not occurred, presumably because it is a much more complex task to automate such routines than was thought to be the case at the time the plan was written.

#### Major findings:

- There are opportunities to improve product distribution but these are not critical to the business model as it currently stands.

#### Client relationships: committee structures

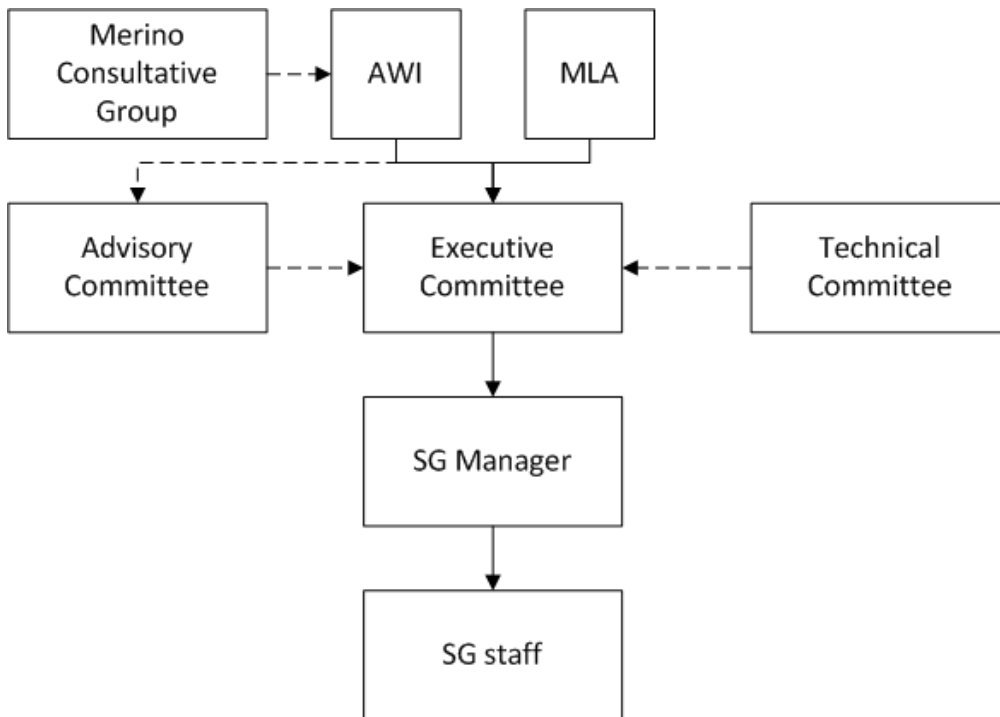
A much more significant issue for SG than product delivery is the maintenance of a relationship with the broader community of clients and also commercial producers, whom SG rightly regard as important in generating demand 'pull' for SG services by studs. This stakeholder base is widely distributed around Australia. Face-to-face contact at ram sales, field days, seminars and other events is an important means of marketing SG but it imposes heavy costs in management time and travel.

It is difficult to see how this situation could be changed. Sheep producers expect that staff from their industry bodies will make the effort to visit them where they live. Local service providers associated with SG can in some cases represent the organisation, and often do so, but few if any have the full understanding of what SG offers to reliably fill this role. In any case, it is important for SG managers to have regular on-the-ground contact with breeders and producers (and service providers) in order to understand the issues facing the business.



Apart from feedback at field days and other events, the major mechanism by which SG gathers input from the client base and from technical expertise is via a series of committees (Figure 6). The roles of these various committees is summarised in Table 1.

**Figure 6 Management and advisory structure for SG (adapted from the *Business and operational plan 2005-2010*)**



**Table 1 Summary of committees associated with SG**

	<b>Role</b>	<b>Terms of reference</b>	<b>Composition</b>	<b>Reports to</b>
<b>Advisory Committee<sup>7</sup></b>	Communicate and represent the views and requirements of SG clients, potential clients and the wider industry to SG, MLA and AWI, and to ensure that the business plan and operational performance of SG meets those needs.	Represent the views and requirements of SG clients, potential clients and the wider sheep industry in relation to the operations and future development needs of SG; Periodically review and advise on the business plan and operational plans; Review the performance of SG against its objectives; and Communicate the benefits of SG to the sheep industry, and support its increased adoption.	Chairperson 2 reps from each of MLA and AWI (Exec Committee) 7 industry reps – users of LAMBPLAN and MERINOSELECT	Exec C'ttee
<b>Technical Committee<sup>8</sup></b>	Guide and lead the development of the Sheep Genetics analytical engine, OVIS, to continually refine the analysis procedures and develop new ASBVs to meet industry demand.	Not available	Independent Chair Range of technical experts Rep from each of MLA and AWI SG Manager as observer	Exec C'ttee
<b>Merino Consultative Group<sup>9</sup></b>	Be the forum in which issues that impact on SG capacity to service Merino breeders can be highlighted and discussed. The MCG will provide advice to the Sheep Genetics Advisory Committee via AWI.	Advise on SG: - Business and operational plans; - Quality assurance manual and procedures; - Methods and timing for trait collection; - Development of new products and services; - Extension materials and training packages; - Needs and standards of service providers; and - Linkage between MERINOSELECT and other forms of genetic benchmarking.	6 members selected by AASMB <sup>10</sup> from state chapter nominations, one of whom is Chair 4 members selected by AWI Non-voting rep of AWI Non-voting rep of SG	AWI

<sup>7</sup> SGAC terms of reference, September 2008.

<sup>8</sup> SG web site; Steering Committee proposal March 2004.

<sup>9</sup> Draft MCG terms of reference, 25 March 2008.

<sup>10</sup> Australian Association of Stud Merino Breeders.

There seem to be few complaints about the various SG advisory structures. They are soundly constituted, provide a broad opportunity for stakeholder input and the personnel involved are well regarded. It might be argued that the Merino Consultative Group is surplus to requirements given the Merino presence on the Advisory Committee, but given the Merino industry's different stage of evolution in respect to quantitative genetics, its existence is well justified. AWI as its sponsor is best placed to manage its longevity.

The only negative observation about the Advisory Committee would be that the current members come from a narrow geographic spread – all are from NSW, Victoria or the south-east of SA (the Merino Consultative Group has Australia-wide coverage). The lack of input from WA into the Advisory Committee (and this is also the case for the Technical Committee) is of some concern and should be looked at, because WA has a significant sheep population and particular perspectives on sheep production. It has also been at the forefront of certain areas of sheep genetics research – for example, the breeding of 'easy-care' sheep.

There was some suggestion from the interviews for this review that an additional committee be formed to facilitate communication with the service provider sector. Creating an additional committee would impose undue bureaucracy on the SG structure and is not warranted, but the appointment of one or two service providers to the Advisory Committee would seem to be worthwhile. The Technical Committee does play some liaison role, and a surprising finding of the review was the apparent kudos among service providers associated with a 'seat at the table' of the Technical Committee.

#### **Direct client relationships**

In terms of the relationship dynamics with clients, interviews for this review have led to three broad observations.

First, with a few exceptions, personal relationships between key clients and SG staff are very strong. In some cases clients develop such a strong loyalty to a particular manager that they wish and expect to continue dealing with that manager even after he has moved onto other roles (and even out of SG).

Second, customer service, as defined by accessibility of staff, promptness of response and resolution of complaints or other issues is generally regarded as poor. Some clients appear not to be too concerned about this, and make allowances for the nature of the SG business: its non-commercial basis, the small number of staff, the intense travel demands of the Manager. These clients are distinguishing between the people in the business (almost all of whom who are highly regarded) and the system in which they operate. Others, however, do express some frustration with the time taken to have enquiries or complaints resolved.

This review did not include a quantitative survey of client satisfaction, so it is not possible to say how widespread this view is or whether it is more or less prominent in particular client segments. The perception of the author is





that the view is held across the board although the Merino segment may be the most negative. Very positive comments were made about the LAMBPLAN data manager.

Third, there is a perception of some arrogance and defensiveness in the SG culture. There is a broad view, however, that these traits have become less marked in recent months and that the organisation is becoming much better at listening to its stakeholders.

Thus there are both strengths and weaknesses in the client relationship component of the SG business model as it currently operates. The close relationship between major clients and SG managers means that SG is very well placed to identify and introduce new services to the marketplace, and has a strong capacity to recruit clients for R&D projects (for example, the development or validation of new breeding values). On the other hand, the lean staffing, frequent travel by the Manager and insistence by some clients on dealing only with individual senior managers make it difficult to provide prompt service support to clients. This seems not to cause great concern to some current clients but it may deter future ones. The attachment between clients and managers also presents succession problems and the risk of client loss if handover is not managed carefully.

The 'arrogant' tag is seen by some stakeholders as a positive for SG, or at least a completely understandable attitude given the success of LAMBPLAN – but these are generally the leading adopters of the genetics technology. Arrogance is unlikely to be a useful part of the organisation's image as it seeks to recruit more cautious clients and the softening of this approach is to be commended.

A system for recording complaints and their resolution has been implemented. Some interviewees specifically mentioned the introduction of this system and expressed their strong support for it. This is an important initiative and should be continued.

**Major findings:**

- The SG business requires intensive client interaction and this would appear to be an inevitable feature of the business model.
- Client relationships are generally strong. Customer service is regarded as poor although this is often forgiven; perceptions of organisational arrogance appear to be fading. Continuous effort to improve these two problems is important if the business is to attract and keep clients.
- The committee structures of SG are working well but could benefit from a slightly broader membership base.


**Recommendations:**

- SG should consider appointing a person from WA to the Advisory and/or Technical Committees.
- SG should consider the appointment of one or two service providers to the Advisory Committee.

**Pricing structure and customer benefits**

Sheep Genetics' revenue stream derives from two major sources: users of SG services and MLA/AWI. In principle, users pay where private benefit accrues, while MLA/AWI pay where benefits accrue to the sheep industry as a whole.

Table 2 shows that approximately 52% of SG revenue is from MLA and AWI, 48% from user charges.

**Table 2 Revenues for SG 2008/09<sup>11</sup>**

Item	Amount	% of total
MLA	\$255,276	28%
AWI	\$236,610	26%
LAMBPLAN subscriptions	\$137,326	15%
LAMBPLAN database charges	\$179,669	20%
MERINOSELECT subscriptions	\$37,780	4%
MERINOSELECT database charges	\$64,634	7%
Workshops	\$240	0%
<b>Total</b>	<b>\$911,535</b>	

Charges to clients for SG services have fixed (per flock subscription) and variable (per head database) components. Clients pay an annual membership fee of \$300 plus \$1.60 for every animal entered on the database. LAMBPLAN users have enjoyed a reduction in fees since June 2006, when the per-head charge was reduced from \$2.00 to \$1.60 to achieve parity with what was regarded as an acceptable charge to MERINOSELECT clients. The overall cost is capped at \$2,750 per business per year. There is a 'small flock' rate of \$8.25 per animal, with no flat fee, where less than 50 progeny are tested per year.

The final version of *Business and operational plan 2005-2010* foresees the current charges remaining fixed over the period of the plan.

The question of apportioning costs between users and MLA/AWI is one that receives ongoing attention. Fundamental to determining the most appropriate split is a perspective on who gains what benefit from the SG

<sup>11</sup> Year-to-date figures supplied by SG, dated 30 June 2009 – may not be final. They do not include salaries for MERINOSELECT field officers, which amount to an additional \$140,000 paid by AWI.



service. There are two ways of looking at this: first, by examining the aggregated costs and benefits of SG and their distribution among the players in the value chain; and second, by specifying *a priori* which activities are industry good and which ones deliver private benefits, and calculating the cost to deliver each of these activities.

Banks<sup>12</sup> takes the first approach. According to his analysis, the benefits of SG accrue in two ways:

1. All players in the value chain enjoy greater genetic gain than would otherwise be achieved. This gain is cumulative; and
2. The client of the breeder, the commercial producer, is able to identify the best rams for his or her purposes.

Banks cites 'observations over the last 20 years' that producers pay about half of the economic merit of rams sold with breeding values. He calculates that, of all of the costs associated with genetic improvement in the sheep industry, including R&D and SG operating and paid by farmers (i.e. excluding the contribution of taxpayers via government R&D contributions), 72% is paid by producers and 28% by breeders. These calculations are made on the current SG pricing and find that the benefits are realised in proportions of 80% and 20% respectively. Therefore, Banks argues, breeders are already shouldering a disproportionate burden of the cost and should not be expected to pay more.

We will have to take these figures somewhat on face value. The cost figures certainly appear robust; the estimates of benefits are much more difficult to confirm intuitively, especially the distribution of benefits along the value chain, but they are based on published economic research.

Lindon<sup>13</sup> takes the second, bottom-up approach. He splits all budget items according to whether they represent operating, extension or research expenses or revenues. According to his analysis of the 2009/2010 profit and loss budget, prices for LAMBPLAN and MERINOSELECT services would need to rise by \$0.59 and \$0.68 respectively to cover operational costs alone – considered the least amount payable if the system is to be considered 'user-pays'. Some would argue that extension costs should also be taken into account in this method of analysis because extension might be seen as marketing on behalf of clients in order to improve their commercial competitiveness over non-users.

This seems a reasonable approach. However, if we accept the premise that Sheep Genetics is world's best practice and will deliver a rate of genetic gain superior to any other method of evaluation, and further that the value delivered by SG increases as the overall number of participants in SG increases (Figure 2 on page 21), then

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<sup>12</sup> Rob Banks, Powerpoint presentation: 'The role and model for Sheep Genetics 6 March 2008', with comments from Philip Pogson; also 'Notes for consideration for the review of the Sheep Genetics business model', August 2009.

<sup>13</sup> Spreadsheet analysis supplied by AWI.



extension activities and even the operating costs of SG (including processing of individual flocks' data) must be considered to have some 'industry-good' component.

Neither analysis is perfect and both may be right or wrong. Ultimately, the market will determine what price it is prepared to pay. Banks<sup>12</sup> cites surveys suggesting that breeders' margins on their investment in SG are around \$25, \$15 and \$0 per ewe for terminal, maternal and Merino breeders respectively. The smaller benefit captured by maternal and Merino breeders is due to their lower yield of rams sold per animal tested and higher costs of measurement, which includes expensive-to-measure wool traits.

The limited number of clients spoken to for this review appear to accept current SG pricing as reasonable. If the estimates of margin given above are true, though, then any price rise for Merino clients in particular would impose a significant risk of client withdrawal and could not be recommended.

Alternative pricing models to the fixed / variable mix currently applied have been put forward in previous years. In 1999 Banks<sup>14</sup> proposed a system of value-based pricing in which 'LAMBPLAN charges 33% of the agreed farm-gate value-added as measured by genetic gain achieved'. In Banks' system, the genetic progress of a flock would be evaluated as an increase in average index value and an economic value ascribed to that increase.

Welsman explored the value-added concept in 2000<sup>15</sup> in her evaluation of LAMBPLAN's products and pricing. She concluded that such a system would be complex because of the factors other than LAMBPLAN that influence genetic gain; possible backlash from breeders over perceived charging for something already paid for through levies; and the limited precedents among professional service providers for such a model.

The value-based pricing model has not been pursued further, although LAMBPLAN did offer a two-tier (basic and enhanced) service prior to the formation of SG. Value-based pricing is an option that may be worth revisiting although it would raise some challenges. Notably, such a system would tend to penalise larger flocks (which are favoured by the current pricing structure) and those making rapid genetic gain. Budgeting, administration and determining the value of index changes would also be issues requiring careful thought.

**Major findings:**

- The pricing structure for SG services has fixed and variable components reflecting the cost of service delivery.
- Users pay approximately 48% of the costs of running SG while MLA and AWI pay 52%.
- The question of whether clients pay an equitable proportion of the costs of SG can, and has been,

<sup>14</sup> Rob Banks, Discussion paper: value-based pricing of LAMBPLAN services and products, March 1999.

<sup>15</sup> Sandra Welsman, LAMBPLAN: products and pricing evaluation, May 2000.



argued either way. Regardless of the stance taken on this issue, it appears that SG cannot afford to raise prices significantly without losing clients, especially Merino breeders, because the benefit/cost ratio to the individual Merino breeder of using SG is low.

## Governance

Governance structures do not form part of Hamel's generic framework but they deserve some attention here.

SG is an unincorporated joint venture (formally, a 'program' or 'project') between MLA and AWI and as such is ultimately the responsibility of the respective Boards of the two companies. The venture is governed by a management agreement with MLA as the managing partner. The management and governance structure is summarised in Figure 6 on page 38. The *de facto* board of management is the Executive Committee, comprising General Managers and Program Managers from MLA and AWI as well as the SG Manager.

This structure has limitations. There is no group of people acting specifically in the interests of SG – rather, members of the Executive Committee act, as they should, in their capacity as agents of MLA and AWI. Decision-making ultimately rests with two separate Boards. These Boards comprise Directors elected under two different political systems and with different challenges to contend with. The potential for the objectives of the partners in SG to fluctuate and become misaligned is greater than might be the case under an independent structure.

It is quite clear from an examination of organisational documents and from interviews that MLA is the dominant partner in SG. The dominance of MLA is reflected in its position as the managing partner, in the provisions of the management agreement and even in the co-location of SG with other MLA staff.

This is not at all surprising given that SG essentially grew from LAMBPLAN, and that LAMBPLAN has been highly successful in its market penetration and in the genetic gain it has demonstrably delivered to the lamb industry. The wool industry has been slower to embrace quantitative genetics, in particular the concept of across-flock evaluation, and there are far fewer wool than lamb producers participating in SG. Some might also argue that the lamb industry enjoys greater political stability and that MLA is therefore a lower-risk 'parent' for SG than AWI.

The dominance of one partner in the relationship presents some concern for the future of SG. The appointment of the current Manager was widely spoken of as a positive move because of his 'Merino background'. However, it would be preferable to have the equality of partnership embedded in the hard and soft systems of the organisation than to rely on individuals to bridge any perceived gaps.



As described above, there is general agreement among stakeholders that the management bodies associated with SG are appropriate and that they work effectively.

**Major findings:**

- Ultimate decision-making in SG resides with the respective Boards of MLA and AWI. The objectives of the partners are more susceptible to change and misalignment than they would be under an independent structure.
- MLA is the dominant partner in the SG relationship. This is unsurprising but does not provide an ideal basis for the future development of the organisation.

**Performance against business plan objectives 2005-2010**

In addition to the deconstruction analysis undertaken above, the business model can be assessed on whether it has actually delivered against the objectives of its business plan. This is a blunt tool – the business model may have performed as well as any alternative model could have yet still have failed to meet the objectives, due to ill-conceived objectives or external circumstances. Likewise the converse.

The objectives of the business plan, which carry a target date of June 2010, are listed in Table 3 with commentary on progress towards the targets as at mid-2009.

**Table 3 Performance of Sheep Genetics against business plan objectives**

Objective	Progress as at June 2009
SGA <sup>16</sup> will be an efficient and effective genetic evaluation program that will be recognised by industry as a key resource for ongoing genetic and business improvement.	This is difficult to measure, because no metric is specified. Interviews for this review suggest that it is quite well accepted – but who constitutes ‘industry’? How are efficiency and effectiveness measured?
At least 80% of Australian meat sheep rams will be evaluated through SGA. At least 50% of Australian Merino rams will be evaluated through SGA.	Figures from July 2007 (Banks and Ball) quote 100,000 terminal and 30,000 maternal sires per year or 67% and 45% of new flock rams respectively; 125,000 Merinos per year or 33% of new flock rams.
More than 50% of rams sold in the Australian market will be sold with ASBV information from the SGA.	Figures supplied by SG and derived from the Australian Association of Stud Merino Breeders for rams sold in 2006 suggest that 24% of rams had ASBVs – another 6% with ‘try before you buy’. This varies between 6% in Tas / 10% in Vic to 40% in NSW / 44% in Qld.
Wherever possible the research and development outcomes from AWI and MLA investment in genetic technologies will be delivered as products of SGA.	This appears to be happening, although the major test will be the commercialisation of genomics tools which is yet to occur.
Genetic trends in commercially relevant traits agreed by industry will be reported annually to measure and report the rate of improvement.	This is reported to be under development.

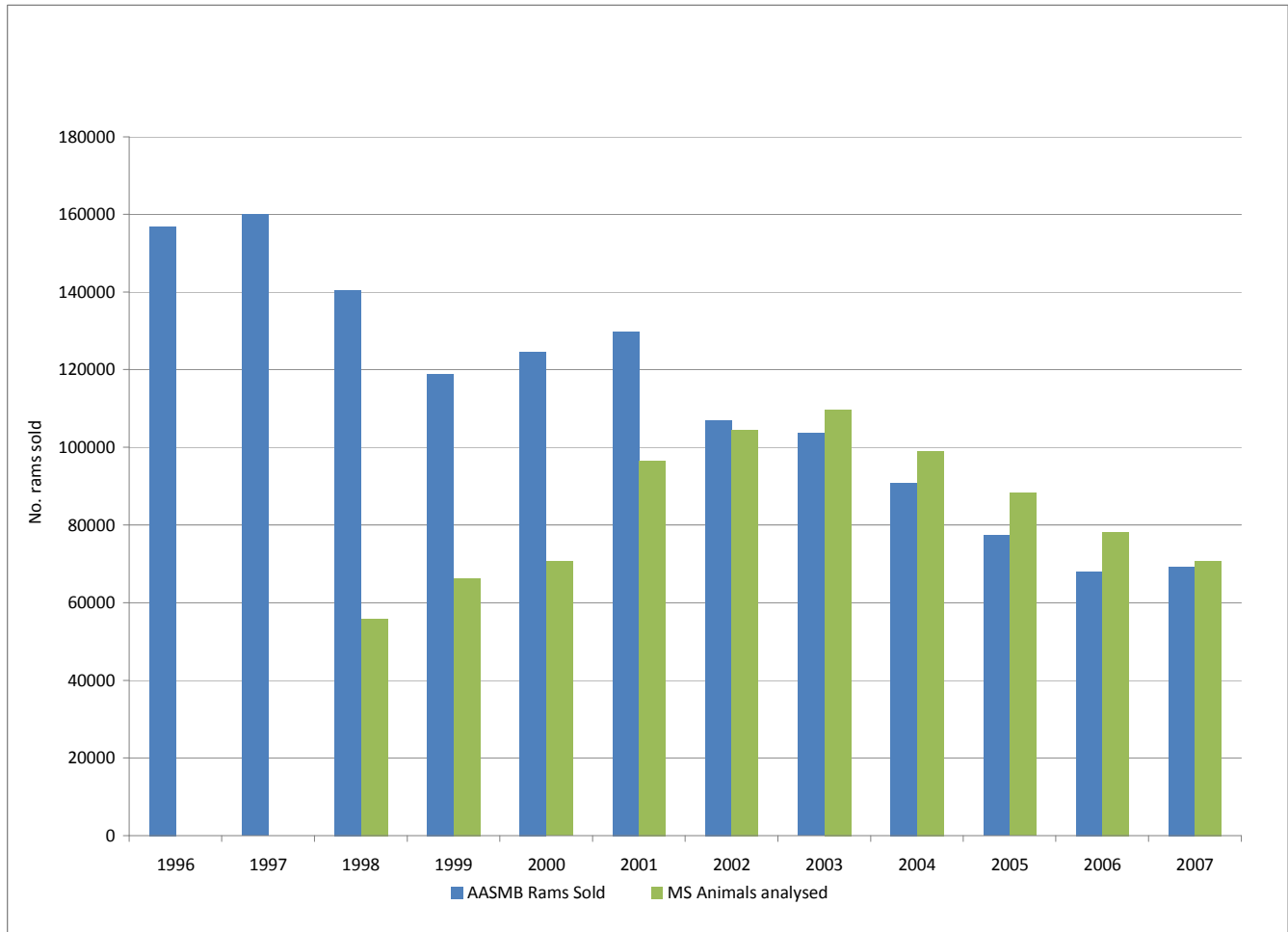
Against the two major quantifiable objectives, SG has not succeeded. Growth in the Merino segment in particular has been disappointing. However, business conditions for the Merino stud industry have been much poorer in recent years than could reasonably have been anticipated. According to one interviewee, there was half the number of Merino stud breeders in June 2009 compared with 18 months previously, and those remaining were selling a third of the number of rams.

This decline in the Merino ram sales up to 2007 is shown in an analysis of Merino stud book data by the SG Manager (Figure 7), which also demonstrates the trend in numbers of Merinos analysed by MERINOSELECT / SG.

<sup>16</sup> SG was ‘SGA’ – Sheep Genetics Australia.



Figure 7 Registered stud Merino rams sold in Australia vs Merinos analysed by SG<sup>17</sup>



## Summary

Based on the above, we can draw the following conclusions:

- SG is generally considered to be delivering a good service to its clients, particularly in the terminal and maternal segments, although there are complaints about accessibility of staff and responsiveness to customer concerns. The Merino segment is showing much greater acceptance of SG as a valuable tool for genetic improvement than it was several years ago, but the current economics of Merino stud flocks with an oversupply of rams and the business environment for the segment in general, among other factors, have inhibited uptake.
- An ongoing area of uncertainty is the extent to which SG should intervene in the value chain in which it participates. SG takes a justified, pragmatic stance towards assisting clients with advice and

<sup>17</sup> Graph supplied by SG.





support. It could opt to take a more interventionist approach in service provision but would probably lose clients if it enforced a strict 'no-compete' policy with data managers and genetic advisers.

- The positioning of SG around its key differentiating features – technical robustness, independence from commercial interests, and international best practice – is very strong and should be defended.
- A weakness of the business model is the lack of scale in the organisation. This makes it difficult for SG to employ specialist skills and to make best use of existing staff. This shows itself, for example, in the lack of a marketing manager. The housing of SG within MLA and outsourcing of technical skills and IT capacity reduces this problem. Expanding the service offer to sheep producers here and overseas is the only obvious way to overcome this.
- Relationships with well-established clients are generally very good. This gives SG great capacity to extend R&D outcomes. Reaching a broader audience is difficult given the geographic scope of the business but is managed as well as can be expected. The committee structures are well regarded but could benefit from the inclusion of a member from WA.
- The pricing structure is generally appropriate, depending on what view is taken on the activities that deliver private vs industry-good benefits. If the operational costs of SG are considered to generate purely private benefits then the prices paid by breeders could be increased, although this would likely have a detrimental effect on uptake of the service, especially by Merino breeders. An alternative argument, and the one preferred by this review, is that the participation of any breeder in SG delivers value beyond that immediate client.
- Another potential weakness of the model is the susceptibility of SG to industry political influences. Because SG is an unincorporated joint program of MLA and AWI there is a constant risk of asymmetry in the objectives of the two partners and this will flow through in a way that would not occur if SG had an independent board. However, the cost of independence would need to be weighed against the additional costs and increased pressure on scale as described above.

## Business models in comparable situations

### Other genetics providers

#### BREEDPLAN

BREEDPLAN is the equivalent to SG in the beef cattle industry. BREEDPLAN has been established for some decades and has been exported to a large number of countries including New Zealand, Thailand, the Philippines,



the US and the UK<sup>18</sup>. Like SG, the engine for BREEDPLAN is a BLUP<sup>19</sup> system, developed and maintained by AGBU under licence from MLA and its predecessors, that generates Estimated Breeding Values (EBVs).

There are important differences between the structures of SG and BREEDPLAN. BREEDPLAN is marketed under licence from MLA, the NSW Department of Primary Industries and the University of New England (UNE) by the Agricultural Business Research Institute (ABRI), a subsidiary company of UNE. ABRI in turn contracts to the various beef breed societies (such as the Angus Society) to supply BREEDPLAN as well as registration and database services.

The BREEDPLAN model has been suggested as an alternative for Sheep Genetics, with sheep breed societies taking an equivalent role to their beef counterparts, and the ABRI role being played either by ABRI itself or by the current SG, with modifications to its charter. However, several objections to this proposal have been mounted.

First, some argue that the BREEDPLAN structure is less conducive to innovation than the current SG structure (in particular, the development and introduction of new breeding values), because of the additional organisational layer and the absence of any incentive for ABRI to change. People working with both BREEDPLAN and SG report that the sheep system is much more responsive to new ideas and the introduction of new EBVs. Banks<sup>20</sup> cites the slower development and introduction of tools including DataAudit, TakeStock and Total Genetic Resource Management (TGRM) in beef compared with sheep as examples.

Second, the beef cattle breed societies are quite different culturally and functionally to their sheep equivalents (although there is significant variation between societies, as there is in the sheep industry). The sheep breeders' associations have apparently shown little interest in acting as the agents for SG.

Third, there is a total lack of transparency around and industry control over the operations of ABRI – even from the perspective of MLA, who are one of the licensors of BREEDPLAN. Banks<sup>20</sup> attributes this situation to 'generous IP arrangements including inadequate KPIs on licences which are very hard to change'. MLA and AWI would presumably not wish to see this situation replicated in the sheep industry and would seek more favourable licence conditions if they went down this path. However, experience shows that it can be difficult to control licensees once contracts are signed, particularly where monopolies are created.

Finally, ABRI is reported to claim that it makes no money from BREEDPLAN, only from herd society performance and breeding records. This would appear to make SG an unattractive commercial proposition given that these functions would not be on offer.

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<sup>18</sup> BREEDPLAN flyer, [http://breedplan.une.edu.au/brochures/BREEDPLAN\\_flyer.pdf](http://breedplan.une.edu.au/brochures/BREEDPLAN_flyer.pdf), accessed 16 July 2009.

<sup>19</sup> Best linear unbiased prediction – algorithms for estimating breeding values using information from the individual and its relatives.

<sup>20</sup> 'Notes for consideration for the review of the Sheep Genetics business model', August 2009



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So, while there are some attractions in a model in which the breeders have a key role in the delivery of genetic services, there are some practical obstacles to its translation to the sheep industry.

#### **Australian Dairy Herd Improvement Scheme**

The Australian Dairy Herd Improvement Scheme (ADHIS) is the Australian dairy industry's genetic services company. ADHIS has been in operation since 1983. It is a proprietary limited company with a single shareholder, Australian Dairy Farmers (ADF), and has income tax-exempt status. There are seven skills-based directors on the board. An industry panel makes recommendations to ADF on board appointments.

Data processing is done in-house, although staff are seconded from and co-located with the Victorian DPI. DPI has access to the database for research purposes as part of the staffing arrangement (as also occurs with LAMBPLAN, MERINOSELECT and BREEDPLAN). Computers are owned by ADHIS and are maintained by DPI on a contract basis.

The primary role of ADHIS is to generate Australian Breeding Values (ABVs) for dairy traits from phenotypic data on cows in herds undertaking herd testing, which includes approximately 50% of the dairy herd. Dairy farmers do not pay for the production of ABVs for their cows although they do separately incur herd testing charges. Approximately 60% of funding for ADHIS has come from Dairy Australia (milk levy and matching Government contributions) although this has increased recently with IT upgrades and the delivery of a genetics extension program.

The remaining 40% of revenues are from fees for services to bull breeding companies. These services include a one-off registration fee for bulls entered onto the system, confidential releases of preliminary breeding values on new generation bulls and other data requests. Charges for these services are broadly set on a cost-recovery basis but there is some cross-subsidisation from Dairy Australia funding because the IP of the database is not explicitly valued. The charges to users are being reviewed.

According to a recent advertisement for ADHIS Board members, the annual turnover of the company is around \$1m.

Herd testing is managed by herd improvement organisations (HIOs) which were, historically, farmer cooperatives, although many are now owned by breeding companies. HIOs provide services to farmers for the collection and management of phenotypic data which they submit to ADHIS. ADHIS updates its ABVs and these are delivered to the HIOs and onto the farmers.

Most commercial dairy farmers use herd testing to gain the phenotypic data which they use for management reasons (such as mastitis treatments and culling decisions). The genetic data are used by some elite breeding herds and by bull breeding companies whose bull ABVs are informed by the performance of pedigreed cows



across the national herd. When a bull is used for the first time, preliminary ABVs are gained from its use in designated progeny testing herds.

Clearly, there are some very important differences between the genetic evaluation environments of dairy and sheep industries. In the dairy industry, data collection is a much more routine and regular part of farming than it is for sheep producers – production data are generated twice per day using automated systems and they have a direct bearing on the price paid to the farmer. There is ready availability of inexpensive artificial insemination and strong pedigree linkage so that commercial herd data can be captured for seedstock evaluation. These conditions favour the development of a functional service provider sector. The unit price of cattle versus sheep is also a major factor.

Given the fundamental differences between the two industries it is difficult to draw any clear lessons for SG from the ADHIS model. In respect to structure, ADHIS enjoys the advantage of a single commodity focus, which is probably the reason for choosing to establish ADHIS as a proprietary limited company instead of a company limited by guarantee – there is only one shareholder. The scope of service offered by ADHIS can be tightly defined because of the strong service provider sector. Even pricing is more straightforward because bull breeding companies are distinctly different entities from levy-paying dairy farms, so that the principle of user pays can be more readily applied.

The dairy industry in Australia also uses only about 150 bulls per year to generate its female replacements (with an additional number used as back-up bulls to simply re-start the lactation cycle). With approximately 1.7 million cows in the national dairy herd, this equates to a joining rate of less than 0.01% – very different to the 1-2% rams used for the sheep flock.

### **Sheep Improvement Ltd NZ**

Sheep Improvement Limited (SIL) is a wholly-owned subsidiary of Meat & Wool New Zealand (MWNZ), the innovation and marketing body for sheep, beef cattle and goat industries in NZ.

SIL operates as a wholesaler to eight accredited bureaus. Each of the bureaus is an independent business with its own database and acts as a retailer of performance recording and genetic evaluation services to breeders. SIL does not deal directly with breeders<sup>21</sup>. Any breeder wishing to use its services is encouraged to 'shop around' among bureaus to find the service best suited to their needs. In this respect there are similarities between SIL and ADHIS.

Some bureaus allow their clients to enter data directly into their database. In such cases the quality of the data becomes the responsibility of the client.

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<sup>21</sup> Anecdotally, SIL does sometimes deal directly with breeders, but this was not confirmed.



Groups that run across-flock analyses, such as the Coopworth Society, select a bureau to provide this service and that bureau is granted read-only access to the data of flocks from that group held by other bureaus. SIL also has a product called SIL-ACE (Advanced Central Evaluation) in which across-flock and across- and between-breed genetic evaluations are made on a range of production traits. SIL-ACE is conducted on an opt-in basis with the top sires being published every two months in pdf format. A greater frequency of SIL-ACE runs and more flexible reporting formats are being considered.

According to interviewees for this report, the purpose of the SIL design is to encourage innovation in service delivery through competition between the bureaus. In practice, however, it seems that bureaus compete almost solely on price and margins are too low to allow product innovation. The essential issue is that clients are 'price conscious rather than value aware' in respect to data management.

SIL employs two fulltime staff and a further four part-time advisers (one day per week) around the country. These advisers combine their SIL role with a range of other occupations – farmer, ex-breeder, beef geneticist and farm consultant. The advisers have a general extension role but can also deal one-on-one with breeders. MWNZ are generally steering away from initiating and running workshops because of the poor attendance and low cost-effectiveness.

The SIL model has some advantages but also some clear disadvantages in comparison with SG. The licensed bureau model provides an organised, competitive service provider sector and appears to simplify client relationships for SIL. On the other hand, there is a dispersion of databases making centralised evaluations more complex (logistically if not technically). MWNZ also still see the need to deal directly with breeders which presumably means the bureaus are not playing an adequate marketing role.

Just prior to the preparation of this report, MWNZ announced that New Zealand wool (and goat) producers voted not to continue the levy paid to MWNZ<sup>22</sup>. Sheep meat producers opted to renew their levy by a narrow margin. The ramifications for SIL are not yet fully clear but there will presumably be a shortfall in funding and pressure for woolgrowers to receive services only a fully user-pays basis. How this will be managed given the overlap between wool and sheep meat production will be interesting to observe.

#### Other 'industry-good' bodies

##### **National Livestock Identification System Ltd**

NLIS Ltd was established only recently, in April 2009, after NLIS had operated as a business unit of MLA for about 10 years. Like AWTA and AWEX, NLIS is a company limited by guarantee. MLA is the sole shareholder. There is

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<sup>22</sup> [www.meatandwoolnz.com/main.cfm?id=31&nid=241](http://www.meatandwoolnz.com/main.cfm?id=31&nid=241), accessed 2 September 2009.



a five-member board comprising two MLA directors, MLA's Industry Systems General Manager and two external directors nominated by SAFEMEAT.

NLIS Ltd was reportedly established because MLA did not have the flexibility of structure and governance to allow NLIS to operate to its potential. MLA is an R&D and marketing body rather than a service provider. Perhaps more importantly, there are logical extensions of the identification system into species other than sheep, cattle and goats and presumably into overseas markets. Such diversification is not within the charter of MLA. An independent company structure allows new members to be brought into NLIS Ltd through straightforward changes to the company's Articles.

NLIS Ltd has a close association with SAFEMEAT and describes itself as 'operating the NLIS database on behalf of SAFEMEAT'<sup>23</sup>. However, this is a matter of endorsement rather than ownership or a licensing arrangement. SAFEMEAT is an unincorporated partnership between the red meat industry and governments, established under the Red Meat Industry Memorandum of Understanding, with a role to 'oversight and promote sound management systems to deliver safe and hygienic (meat) products to the market place'<sup>24</sup>. SAFEMEAT provides a forum for the parties involved in meat safety and hygiene including Commonwealth and State Governments.

The Articles of Association of NLIS Ltd were not available for examination as they are not public.

#### **AUS-MEAT Ltd**

AUS-MEAT Ltd is another example of an independently-constituted, industry-good body in red meat. In 1998 AUS-MEAT was established as a non-profit company limited by guarantee. Its charter is to manage red meat industry quality standards, and it is recognised as the Standards Body 'responsible for setting standards for meat for export under...the Australian Meat and Livestock Industry (Export Licensing) Regulations 1998'<sup>25</sup>. AUS-MEAT maintains a consistent industry language to describe meat products and offers quality management and accreditation programs from farm to retailer, including CATTLECARE and FLOCKCARE.

AUS-MEAT is owned by MLA and the Australian Meat Processor Corporation (AMPC), who appoint directors to the board. An Australian Meat Industry Standards and Language Committee advises the board. The Committee comprises representatives from a range of industry bodies such as the Australian Meat Industry Council, Cattle Council of Australia and the Australian Lot Feeders Association.

Like AWTA, AUS-MEAT is an example of an industry body that has diversified its operations to industries outside red meat, allowing it to achieve scale. The company has a wholly-owned subsidiary called AUS-QUAL Pty Ltd, which provides 'certification and conformity assessment services to the agriculture, horticulture and plant

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<sup>23</sup> MLA website, [www.mla.com.au/TopicHierarchy/IndustryPrograms/NationalLivestockIdentificationSystem/default.htm](http://www.mla.com.au/TopicHierarchy/IndustryPrograms/NationalLivestockIdentificationSystem/default.htm), accessed 27 July 2009.

<sup>24</sup> SAFEMEAT Annual Report 2007/08.

<sup>25</sup> AUS-MEAT corporate brochure, [www.ausmeat.com.au/media/2727/corporate-a4.pdf](http://www.ausmeat.com.au/media/2727/corporate-a4.pdf), accessed 27 July 2009.



production and processing industries'<sup>26</sup>. This diversification recognises that the parent company's core competencies in quality and food safety management are readily transferred to other industries. AUS-MEAT is also delivering accreditation services to companies in New Zealand and Brazil.

It would be very difficult, legally and politically, for MLA or AMPC to pursue opportunities such as these given their charters. The existence of a separate company that is owned and controlled by these organisations, however, allows AUS-MEAT to act in a manner that allows it to best deliver against its objectives.

#### Australian Wool Testing Authority

The Australian Wool Testing Authority Ltd (AWTA) shares some situational characteristics with SG. It was established by the wool industry to deliver a specialist function not readily available from the broader environment. Its purpose, in summary, is to provide an essential industry service at lowest sustainable cost to its members. Like SG, AWTA has a range of stakeholders along the value chain with common but not identical interests.

AWTA is a company limited by guarantee. There are five member guarantors:

- Australian Council of Wool Exporters Inc;
- Australian Wool Processors Council Inc;
- Australian Wool Innovation Ltd;
- Private Treaty Wool Merchants of Australia Inc; and
- WoolProducers Australia, the peak body for woolgrowers.

Each member guarantor is entitled to appoint one Director to the Board<sup>27</sup>. The Board also includes two independent Directors, one of whom is the Chair, appointed by all of the Members. The Chief Executive is also a Director. Each Director has an equal voting right.

Interviewees for this review argued the importance of establishing the framework and culture for independence and good governance for a company such as AWTA. Successive Chairmen have emphasised to Directors that they must behave as company directors (i.e. acting in the interests of AWTA) as distinct from committee members (acting in the interests of their constituents). The AWTA *Corporate governance charter and guide for Directors and Officers* is publicly available on the AWTA website<sup>28</sup> and comprehensive in its scope.

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<sup>26</sup> AUS-MEAT website, [www.ausmeat.com.au/about-us/history.aspx](http://www.ausmeat.com.au/about-us/history.aspx), accessed 27 July 2009.

<sup>27</sup> There is a slight variation to this rule since the merging of two of the member organisations.

<sup>28</sup> [www.awta.com.au/en/Home/About\\_AWTA/Corporate-Governance/AWTA-Ltd-Corporate-Government-Guidelines/](http://www.awta.com.au/en/Home/About_AWTA/Corporate-Governance/AWTA-Ltd-Corporate-Government-Guidelines/), accessed 27 July 2009.



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AWTA is widely regarded having successfully fulfilled its purpose and carries a strong technical and commercial reputation. It has been criticised for its considerable cash reserves during times of low wool prices, which some have taken to be hoarding of money rightfully belonging to wool producers, but AWTA has argued that these reserves are simply good business practice to allow the company to ride out poor trading conditions.

#### **Australian Wool Exchange**

Another example of an independent service company in the wool industry is the Australian Wool Exchange (AWEX). AWEX is widely regarded as not having succeeded to nearly the same extent as AWTA despite AWTA having been the model for its establishment. According to one interviewee, this is because of a fundamental difference between the constitutions of the two companies: AWEX members are individual exporters, brokers, growers, private treaty merchants, processors or associates (the six membership classes) – not the member organisations for each class. Entitlement to appoint Directors varies between the classes of members and a distinction is made between large and small broker members, membership of which varies over time. Changes to the Constitution of AWEX also require a 75% majority not only of all members but of each class of members, making change difficult.

Because the Board was appointed on a representational basis, decisions tend to be thwarted because they are based on the interests of the represented parties, not those of the company.

The result of these structural features and perhaps cultural factors, according to some, is extensive dissatisfaction with AWEX within the wool industry. There are anecdotes that AWEX management continue to be subject to political pressure from certain of the organisation's members.

Whether structure is to blame for the reputation of AWEX, or whether AWEX has simply had a difficult role to play in the industry or whether there are other reasons might be arguable. However, the lesson seems to be that independent industry bodies do not always succeed as hoped and careful planning is required to minimise the chances of poor outcomes.

#### **Pastures Australia and SheepGenomics**

Pastures Australia is similar to SG in that it is an unincorporated joint venture, the parties in this case being MLA, AWI, Grains Research and Development Corporation (GRDC), Dairy Australia (DA) and the Rural Industries Research and Development Corporation (RIRDC). The joint venture is governed by a management agreement. A governance and management structure very similar to that of SG is in place, the main difference being that Pastures Australia has a part-time coordinator as the only dedicated resource.





Pastures Australia was formed to address the issue of fragmented investment by the grazing industries in the 'genetic improvement, management and adoption of pasture plants across Australia'<sup>29</sup>. It manages joint R,D&E investments on behalf of the partners who contribute varying amounts to projects according to interest and share the resultant IP proportionally.

SheepGenomics, involving MLA and AWI and range of research providers, is structured very similarly to Pastures Australia.

The unincorporated joint venture model is a useful one for many RDC collaborations and may continue to be the best option for SG. SheepGenomics and Pastures Australia are, however, very much R&D-based; they do not operate a business in the same way that SG does.

## Others

### The NZ veterinary club model

A final model that is worth considering is the 'veterinary club' model used extensively in New Zealand. Vet clubs are practices or groups of practices that are owned by local farmers and are thus examples of farmer supply cooperatives.

Clutha Vets<sup>30</sup> provides one such example. It has been a farmer-owned vet club since 1947. Farmers are members of the company and elect its Directors, who are all local farmers. The Directors appoint the Chief Executive Officer, normally a senior vet. Vets are employed on normal salary arrangements.

Clutha Vets returns surplus earnings to its members at the end of the financial year at the discretion of the Board. The distribution to each member is proportional to expenditure during the year. Over the last nine years, this 'additional discount' has totalled around NZ\$1.9m.

The vet club model is interesting because, although there are many examples of cooperatives in Australian agriculture, most of those remaining after a wave of demutualisation are in dairy and they exist mainly to undertake collective product marketing. Murray Goulburn is the largest cooperative in Australia.

Cooperatives are subject to Corporations Law and state legislation governing cooperatives. Cooperatives have the following general characteristics:

- They can be 'trading' or 'non-trading'. The former allows the distribution of surplus funds through shares and can provide a return on capital if the company is wound up. Shares are issued in a trading cooperative and may or may not be issued in a non-trading cooperative.

<sup>29</sup> Pastures Australian Investment Strategy 2005-2015, [www.grdc.com.au/director/events/grdcpublications/pasturesaustralia#About\\_Us](http://www.grdc.com.au/director/events/grdcpublications/pasturesaustralia#About_Us), accessed 8 July 2009.

<sup>30</sup> [www.cluthavets.co.nz](http://www.cluthavets.co.nz), accessed 8 July 2009.



- Membership must be voluntary and there is a strong emphasis on members participating actively in the cooperative.
- Each member receives one vote regardless of shares held.
- Members, Directors and staff have no responsibility for debts of the cooperative unless those debts are caused recklessly, negligently or fraudulently.
- Other provisions – such as the election of a Board, responsibilities of Directors, changes to the rules and so on are similar to those for any other company structure.

A cooperative structure is one conceivable option for SG. Broadly, the model would be similar to that of AWTA except that there would be more direct control by the clients as members rather than producer organisations. Pricing of services would be on the basis of profit neutrality with any surpluses being returned to members proportional to their expenditure on SG services during the year.

The major argument against the cooperative model in this case is that the current owners of SG (commercial producers through MLA and AWI) are not the clients. The establishment of SG as a breeder cooperative structure would represent a loss of control by the commercial producers who currently own it. For this reason, and because there is limited sheep industry experience with cooperative models, this model has not been pursued here.

### Summary

This limited survey shows that there is no single right way to set up an organisation with primarily industry-good objectives. It appears that in many such examples parent organisations have opted to establish independent bodies in preference to operating the businesses within the confines of the parent(s).

The preferred independent structure in the sheep industry is a company limited by guarantee. This is a structure adopted by several organisations serving the meat and wool industries, including NLIS, AUS-MEAT, AWTA and AWEX. The dairy industry service ADHIS is structured as a company limited by shares ('Pty Ltd'). This is probably because ADHIS has a single shareholder and does not require the particular advantages offered by a company limited by guarantee, which comes with greater and therefore more expensive reporting obligations. However, this would need clarification by a legal expert.

There are several advantages to establishing a company that is independent from its owners. Primarily, the organisation is able to operate in a manner that aligns more directly with its objects than may otherwise be possible.

For example, a decision by SG to provide consulting services to breeders in South America might attract significant criticism from breeders in Australia. Under the current arrangement, this criticism would be directed



through the political process to MLA and AWI and might result in pressure being brought to bear on the relevant managers of one or both companies to change direction. This pressure might be much greater from one side of the partnership than the other leading to an asymmetric problem.

An independent SG could respond to this situation with its own interests, as defined by its objects, as the foremost consideration. It would be one step removed from the industry politics.

The experience of AWTA, AUS-MEAT and others suggests that an independently-constituted SG is one model that should be considered by AWI and MLA. However, the experience with AWEX shows clearly that the detail of the corporate structure is very important and can critically influence the success or otherwise of the organisation. This would be particularly true where, as in the case of SG, the body straddles two industries with differing cultures.

The organisations considered here also provide insights on components of the business model other than governance structures, notably pricing structure and scope of service. Some of these (such as the SIL bureau structure) are floated as ideas for alternative SG models in the next section of this report. It appears, though, that the decisions made in establishing SG are very defensible and there are no obvious superior alternatives for the unique situation in which SG is placed.

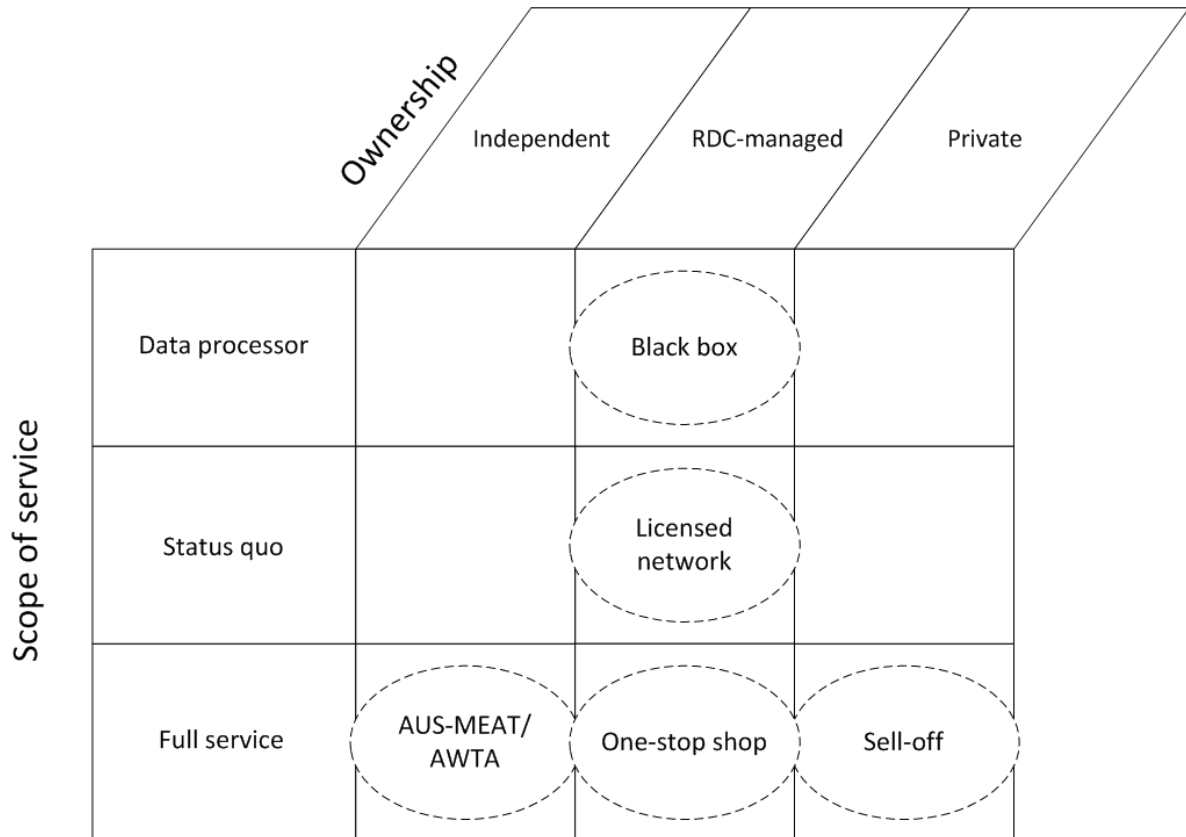
### **Alternative business models for Sheep Genetics**

This section of the report presents several business models for consideration as alternatives to the current SG model.

In developing this range of models, a matrix was created with the two major variables of the business model forming the axes. These have been identified as *scope of service* (varying the value proposition and consequently the resources and activities of the business), and the *ownership/governance structure*. Using three categories on each of these axes generates the matrix shown in Figure 8. Superimposed on the matrix are five suggested business models.



Figure 8 Matrix of business models for Sheep Genetics



In the matrix, the three categories of scope of service are:

- *Data processor.* In this variant, SG is stripped back to its core function of converting raw phenotypic data from sheep into breeding values that can be used by breeders. Any interpretation or assistance with data or outputs is provided by third parties, possibly under a licensing arrangement. This is equivalent to the SIL model.
- *Status quo.* This envisages SG providing more or less the same services as it currently offers. The core function of the business is facilitating the transformation of raw phenotypic data to ASBVs.
- *Full service.* In this variant the scope of the SG offer is expanded to include additional genetic services (data management, breeding program design, mate allocation etc). This is a model currently being proposed by the Sheep CRC as the means by which its activities might be continued and its outcomes captured upon its winding-up.

Unlike the scope of service categories, the three categories of ownership model are not intervals on a continuum, but rather are discrete options. They are:



- *Independent.* An independent SG would be one that is constituted as a company serving the Australian sheep industry and owned by the appropriate stakeholders. It would be part-governed by but independent of MLA and AWI.
- *RDC-managed.* This is the current ownership model – SG as a joint program of MLA and AWI.
- *Private.* The private model sees SG sold or licensed to a commercial partner such as an animal health or genetics company, in the same way that RDCs usually commercialise the outcomes of their investments.

Five business models are suggested from the various combinations of these variables. They are intended to be examples of possible models rather than fixed options, as the guiding principles behind them are not mutually exclusive and the features of two or more models can be combined.

#### The 'Black box' model

This model is so named because SG exists solely for its core function 'crunching numbers', including the capture and delivery of sheep genetics R&D outcomes through its analyses. 'Black box' is assumed to be RDC-owned. Both independent and private models could be envisaged but seem unlikely.

<b>Guiding principle</b>	The core business of SG is facilitating the transformation of phenotypic data into ASBVs. SG possesses a unique asset in this regard, the database / OVIS engine, and its prime responsibility is to protect its integrity and further develop it using the outcomes of R&D. Whether a breeder chooses to participate or not in SG is a business decision for which the individual breeder is responsible, and likewise the decision to use any service providers to assist in the transaction. It is not the role of SG to be involved in these parts of the value chain.
<b>Key features</b>	SG provides data processing and reporting only (in addition to its current R&D role) Data of poor quality is simply rejected SG provides no advice to clients except to publish a list of service providers on the web site for those clients who want assistance SG undertakes no marketing activities – MLA and AWI do these separately as they see fit Staff comprise a project manager and database manager only – or the service is simply subcontracted to AGBU or a similar provider
<b>Pros</b>	Transparent, user-pays model Potentially cheaper for experienced clients who need no assistance Low-cost model for MLA and AWI unless related activities are undertaken outside the SG umbrella Service provider sector is given the maximum opportunity to develop
<b>Cons</b>	Risk of new participation rate dropping off because of lack of hand-holding Risk of upsetting existing clients whose data are rejected where they may previously have been 'massaged' SG staff lose the benefits of direct client contact Service provider sector may not fill the gap, leaving clients under-utilising their data and ASBVs Potentially confusing and conflicting marketing from MLA and AWI as separate parties Potential criticism of MLA and AWI for not collaborating more closely



This is the free-market model – that is, it sits comfortably with the argument that the RDCs should not be paying for services that deliver a private benefit to SG users (which depends on a particular interpretation of private-good services, as discussed above). The model is transparent because the only costs are for operations and technical development. There are no marketing or advisory functions for SG.

Because SG is stripped back to a purely technical role, there would be little reason to maintain an entity separate to AGBU, which could be subcontracted to deliver the service. Probably only one staff member additional to those at AGBU would be required.

The advantage of the model from a user perspective is that the cost is as low as possible. For MLA and AWI there is maximum flexibility in investing in related activities such as extension, which can be tailored to the needs of the individual industry, without losing the advantages conferred by common management of the data processing function.

This model also presents significant risks. The main one is that new participants, who generally need support as they gradually gain confidence in the system, will be discouraged from entering SG. This would be particularly problematic for the Merino segment. Another major risk is that the service sector does not ‘step in’ to fill the gap left by the removal of SG advisory support.

#### The ‘Licensed network’ model

In the ‘Licensed network’ model SG outsources service provision to a network of licensed data managers, possibly through an alliance with a national pastoral house or similar organisation. ‘Licensed network’ SG remains in the hands of the RDCs. Its core roles are data processing, the licensing of service providers and a similar level of centralised marketing to that currently undertaken.

<b>Guiding principle</b>	Clients will not gain the most from, and in some cases will choose not to participate in, SG where they have incomplete understanding or ability to use the service. SG does not have the scale or geographic reach to adequately support all clients and the independent service provider network is incomplete. The best option for SG is to create a national network of licensed service providers who can ensure data quality is good and thereby leave SG to focus on data processing, marketing and education.
<b>Key features</b>	<p>SG retains more or less the same functions as it has now, but it does not assist clients with data quality or advice, thereby freeing up this resource – unacceptable data is simply rejected</p> <p>SG accepts data only from accredited data managers, as in the SIL and ADHIS models, perhaps developing an alliance with a large pastoral house or other organisation to ensure geographic gaps are filled</p> <p>Training and accreditation is conducted by SG or MLA/AWI</p> <p>The SG service is fully user-pays, with the minimised service offering making it easier to establish precisely what it costs to deliver</p> <p>Centralised marketing may or may not be a part of SG – it could be left to the separate parties</p> <p>Staff comprise the database managers, a project/marketing manager, a marketing manager and an administrator, employed by MLA as under the current agreement</p>



<b>Pros</b>	Greater influence over the service provider sector Potentially national reach (alliance model) Opportunity to have credible, influential intermediaries involved Service provider sector is given the maximum opportunity to develop
<b>Cons</b>	SG staff lose the benefits of direct client contact Need to identify and recruit alliance partner, if that option adopted Alliance model could upset existing service providers May not be able to find service providers in all places Not clear that a margin currently exists for the intermediary – the cost to the breeder may end up higher Is likely to upset some existing clients who are used to making direct data submissions

The 'Licensed network' model has similarities to SIL and to ADHIS. Data are accepted only from licensed or accredited data managers and no advice is given – the 'front person' in the field becomes the main contact. This frees up staff positions within SG, making the service cheaper and hopefully making room for a margin to be earned by the service provider.

A possibility under this model is to develop a formal alliance with a national organisation such as Elders. This company would be provided with software and training for staff who would become accredited as SG data managers. The advantage of this arrangement would be to create a national distribution network that does not currently exist and one in which the service could be a value-add to the providers rather than needing to be a viable stand-alone business. Accreditation would need to be open to data managers outside the alliance partner company as well. Alternatively, the accreditation process could be open to all interested parties with no formal alliance.

The hope with this model is that the requirement to go through accredited providers creates a reasonably competitive market for these intermediaries. Data can easily be e-mailed so geography need not be a barrier for clients who are confident in their data and simply need a 'no-frills' data submission service.

The major question associated with this model is the economics or, more specifically, where the margin can be found in the current pricing structure to allow intermediaries to be paid. The experience with the SIL model suggests that this margin is very thin or non-existent. On the other hand, there are service providers already in business (albeit on a part-time and probably underpaid basis). If a particular partner like Elders were to take this on there would need to be careful costing of the model by both SG and the partner to be sure of the business case and to ensure the price to clients did not increase.

There is also a question as to whether there is untapped market potential. For this model to offer any advantage beyond cannibalism of the services of existing providers, there would need to be an expansion of the market driven by the licensed providers.



A disadvantage of this model, even if successful, is that it removes SG staff from the 'coalface' to some extent – although general marketing activities including workshops and field days should minimise this problem. There are also the risks of not finding sufficient providers to ensure a competitive market, and of upsetting clients who do not want to lose their current ability to upload data without a service provider.

#### The 'AUS-MEAT/AWTA' model

This model is so named because it is based on the experience of AWTA and AUS-MEAT (and a number of other meat and wool industry service providers). In this model, SG becomes an independent company limited by guarantee with objects similar to its current ones.

<b>Guiding principle</b>	Business decisions regarding the delivery of genetic services to the industry will be made most efficiently by an appropriately constituted and incentivised organisation that is free to operate independently of industry politics and the constraints of its parent organisations – MLA and AWI are not commercial bodies.
<b>Key features</b>	<p>Company limited by guarantee, not allowed to distribute profits to members and therefore eligible for income tax exemption</p> <p>Member guarantors are organisations, not individuals, identified for their commitment to Sheep Genetics – MLA and AWI, possibly WoolProducers Australia, Sheepmeat Council of Australia, stud breeder organisations?</p> <p>Each member has the right to appoint one director and there are two or more independent directors, one of which is the chair</p> <p>Initial capitalisation to be determined with expert advice, but perhaps sufficient to cover one year's operating costs</p> <p>Contracts in place with MLA and AWI for the provision of R&amp;D services</p> <p>Charges to users and other operational decisions, including the scope of services delivered, are made by the board</p>
<b>Pros</b>	<p>Some degree of removal of SG from politics of meat and wool industries</p> <p>Greater real and perceived independence from both MLA and AWI, and opportunity for greater ownership by stud and producer bodies, potentially making participation more attractive to some studs</p> <p>MLA and AWI retain influence through right to appoint directors and member rights</p> <p>Rigour imposed by obligations of Corporations Law – e.g. Executive Committee is replaced by a board, where directors must act in the interests of the company rather than the body which made the appointment</p> <p>Greater clarity of costing structures and transparency of decision-making</p> <p>Freedom to pursue commercial opportunities or decisions that may be difficult for MLA and AWI to justify politically or under their charters (e.g. export of services, decisions to compete with service providers)</p>
<b>Cons</b>	<p>Some loss of control by MLA and AWI</p> <p>Risk of mistakes in the design – e.g. the wrong mix of members, voting rights leading to perverse outcomes</p> <p>Establishment costs and higher ongoing costs of running a separate business due to duplication of resources (payroll, legal, board etc) and compliance requirements – which are the same as for a public company</p> <p>Disruption to current staff through transfer of employment contracts, reduced security of working for a smaller company</p>

This model would need to be constituted very carefully, especially in the selection of members and allocation of voting rights. Corporations Law requires a 75% majority of members to effect changes to a company





constitution so it is desirable to have more than five members to ensure that any one member cannot stifle progress. A difficult question is how to manage stud breeder membership as there are too many breeder organisations to allow membership by each. One possibility is the Australian Sheep Breeders Association (ASBA). The ASBA has most of the breed societies in its membership, but its present charter is only to deliver the Sheep Show, so further discussion on this option would be required.

ADHIS is also an independent organisation but, in contrast to AWTA and AUS-MEAT, is a proprietary limited company. This is probably because ADHIS does not have the complication of more than one shareholder. The proprietary limited company structure is unlikely to work well for SG but this requires legal advice.

The major advantage of the 'AWTA/AUS-MEAT' model is to allow the business to focus on what it has been set up to do and not on the politics of the parent organisations. Directors must act in the interests of the company. So, for example, an MLA manager, director or other MLA-nominated appointment to the Board would be obliged to act in the interests of SG, not of MLA. Likewise appointees of AWI and any other body. Creating a strong corporate governance charter and culture from inception is essential to make this happen.

The other major advantage would be the freedom of the organisation to make decisions in its interests. For example, it might choose to compete directly against current service providers if it believes this to be necessary to achieving its objects. It would be able to do so without the criticism that might be directed at companies such as MLA or AWI.

The disadvantage of this model, even if it is carefully constituted, would be the higher cost of running the business, including the compliance costs and potential duplication of resources. However, these costs could be minimised through transparent outsourcing arrangements (to MLA for example) at least in the short term.

The 'AWTA/AUS-MEAT' model could be superimposed upon any model of service scope – the new board would ultimately make that judgment – but the benefit/cost will be greater for a larger business with sufficient scale to justify the higher fixed costs.

#### The 'One-stop shop' model

The Sheep CRC is developing an application for supplementary funding in 2010. The basis of the supplementary bid is an initiative designed to double genetic gain in the sheep industry by a strong interventionist approach from the Sheep CRC, MLA and AWI. This initiative is still under development and it has a three-year timeframe, during which time CRC funds would provide leverage to the fees paid by users of SG and by MLA/AWI.

Because the additional funds would not be available from the end of the three-year period – and because there is a high risk of it not materialising in the first place – the challenge is to establish a model that is viable without the funding leverage.



<b>Guiding principle</b>	The advent of new technologies for the advancement of sheep genetics – notably genomic and software tools – provides an opportunity to drive rapid genetic gain by the industry. SG is well placed to integrate these technologies with its current capability and to become a ‘one-stop genetics shop’ for the industry. This would increase the business scale of SG, increasing its efficiency, and give MLA/AWI greater capacity to drive genetic improvement. Furthermore, there is an opportunity to access Commonwealth Government funding through a partnership with the Sheep CRC that will allow the model to become established.
<b>Key features</b>	Existing structuring as joint program of MLA/AWI or independently constituted SG delivers a broad range of genetic services to breeder and commercial producer members – including DNA testing, decision support tools such as TGRM and specialised consultancy services If the CRC bid is successful, for the first 3 years members pay an annual fee (proposed to be \$1,500 for the first 3 years for breeders, \$600 for producers) but gain a total of \$21,800 and \$8,400 worth of services respectively, with leverage from CRC funds; this is reviewed at the end of the 3 years If the bid is not successful, clients are charged on a fee-for-service or annual fee basis Consultancy services are delivered by staff of SG or by subcontractors
<b>Pros</b>	Increased scale provides dilution of fixed costs such as administration Annual membership fee reduces risk for SG and allows reduced-cost service delivery Arguably, greater ability of MLA/AWI/SG to influence the rate of genetic gain in the sheep industry from gaining closer control over the whole value chain Annulment of the problem of market failure in the genetics service sector – by directly participating in it (SG staff as consultants) or assisting it (services are subcontracted) Increased opportunity to export services because a complete ‘solution’ can be offered
<b>Cons</b>	Reduced likelihood of a viable independent service sector emerging, depending which approach is taken Assumption that stud breeders and commercial producers are willing to pay the membership fees In the case of the CRC bid, assumption that MLA and AWI are able to contribute \$1m of additional funding over the first three years; and that useful DNA tools will be available from the start of the service being offered

This model offers the advantages of a wide service offer, notably business scale and the ability to integrate a range of complementary technologies and provide a single solution to clients. Small scale is one of the limitations of the current model for SG, as discussed above. The model also allows SG to drive genetic progress more actively than it is currently able to.

The ‘One-stop-shop’ model as presented by the Sheep CRC is an ambitious one because it relies on the willingness and capacity of sheep breeders to buy into it. It is not at all clear that these prerequisites are in place given the difficult state of the Merino industry in particular.

To address this problem, a variation of the model – and indeed, potentially, of the ‘AUS-MEAT/AWTA’ model – could be to offer incentives to members or clients in the form of privileged access to new products, at least for a period of time. For example, clients of SG might have exclusive access to a SNP chip for a period of 2-3 years on the basis that they have contributed financially towards its validation. Such an offer would require some very careful thought given the understandable political sensitivity around who has paid for MLA and AWI R&D, the



source of most new products. It would need to be justified on the basis that the R&D was not entirely funded through meat or wool levies but also by the private contributions of SG clients.

If we accept that the current pricing model more or less sees users of SG pay for services in equitable proportion to the benefit they receive (see 'Pricing structure and customer benefits', page 42) then the introduction of a model rewarding clients with privileged access would presumably require that prices be increased on current levels.

The membership pricing structure is not a necessary part of an SG offering a broader range of products. SG will be very well placed to commercialise the genomic tools arising not just from the CRC but also from SheepGenomics and other programs, as discussed in the final section of this report, because it is uniquely placed to integrate molecular breeding values with the existing ASBVs. Providing software tools would also be a logical extension to the SG service range.

Consideration could be given to combining the 'One-stop-shop' model with 'Licensed network' given that the commercialisation of specialised software tools might best be achieved using trained providers.

#### The 'Sell-off' model

The 'Sell-off' model sees SG licensed to a commercial partner in the same way that RDCs typically commercialise the outcomes of their R&D.

<b>Guiding principle</b>	Industry bodies do not have skills in product commercialisation or marketing and should use commercial agribusiness to take its products to market. Market forces will determine the value of the SG services but MLA/AWI can maintain some control over the future of Sheep Genetics services through appropriate licensing arrangements.
<b>Key features</b>	<p>The services currently delivered by SG are licensed to a commercial partner – which may be a large multinational input supplier company such as Pfizer, or a livestock company such as Elders or Landmark, or ABRI, or some other group</p> <p>Performance clauses in the licence agreement allow MLA and AWI to retain some control over the commercialisation process, including the right to terminate the agreement in the case of unsatisfactory performance</p> <p>The commercialising party enters into agreements with MLA / AWI for the provision of R&amp;D services as required</p>
<b>Pros</b>	<p>Marketing skills, sales and distribution networks of the commercial partner are brought to bear on the effort to increase uptake of SG technology</p> <p>MLA and AWI are freed up to concentrate on their traditional R&amp;D roles</p> <p>MLA and AWI earn licence revenues</p>



<b>Cons</b>	<p>Commercial profit motives and industry good motives are rarely aligned – the partner will set prices to maximise profit rather than overall genetic gain and will be handed a monopoly position</p> <p>In practice, it is very difficult to control commercial partners once licence agreements have been entered into – and cancellation of licenses can be very difficult even with performance clauses</p> <p>A privatised SG may be a less attractive commercial partner for the R&amp;D outputs of SheepGenomics and Sheep CRC given a perceived loss of independence</p> <p>If clients are not happy with the sale, they may opt to withdraw their data and thereby reduce the value of the ‘asset’</p>
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MLA, AWI and other RDCs typically commercialise the outcome of an R&D project (such as a new vaccine or pasture variety) by licensing it to a commercial player with an established presence in the particular market. The rationale is that RDCs are not marketing companies. This particular model argues that the same approach should be taken with SG.

A variety of potential commercial partners would be contenders for such a licence. ABRI could argue that its experience with BREEDPLAN would make it a logical choice to take SG to the market. It could also promise export opportunities given its success selling BREEDPLAN overseas. A pastoral house such as Elders may see synergies between SG and its sheep classing services. A company marketing genetic tests, such as Pfizer, may regard SG as an opportunity to provide an integrated genetic evaluation package to the industry.

The IP associated with SG is undoubtedly valuable and would be attractive to a commercial partner. A company with scale and with the ability to leverage existing resources (such as field staff) could probably deliver SG services at a lower cost than is currently possible provided that industry good services such as R&D are paid for by industry.

On the other hand, it must be borne in mind that the IP held by SG is only as good as the number of datasets it contains. Clients who were not satisfied with the transfer of ownership of SG from MLA/AWI to a private buyer could simply withdraw their data and thereby devalue the ‘asset’. The ‘sell-off’ model would only work with the agreement of a large majority of clients.

The major downside of this model is, of course, that of all the models presented here this one results in the greatest loss of control by MLA and AWI. SG could be taken back into industry hands if the licensing deal proved to be unsatisfactory but this is rarely straightforward where the licensee is reluctant to relinquish it.

### Future needs of Sheep Genetics

It is not part of the project brief to indicate a preferred business model for SG. This section of the report, however, considers the future operating environment for SG and therefore the factors that should be taken into consideration when selecting a preferred model.



### The advent of genomic data

It seems that the single biggest shaper of the genetic evaluation environment over the coming decade will be the increasing availability of genomic data – genes, gene markers and single nucleotide polymorphisms (SNPs). These data can be used independently or in combination with quantitative genetic information, depending on the specific trait, the ease with which it can be physically measured, the number of genes involved in its expression and the degree to which each approach is predictive for the animal's breeding value for that trait.

In one sense, genomic tools will simply supplement and improve the accuracy of ASBVs and could be seamlessly incorporated into the SG business. They would create the need for much greater data handling and analysis capacity and would require new skills in the value chain (DNA testing laboratories, some technical understanding of genomic technology).

In a broader sense, though, genomics is likely to change the game dramatically because of the very different commercial environment it will create. Gene markers and SNP-chips are discrete, patentable, 'brandable' items that lend themselves readily to marketing to farmers. Their application requires only the collection of a small quantity of blood or tissue rather than the laborious and expensive processes of (say) muscle scanning, fleece weighing or worm egg counting. For these reasons, major commercial players are starting to position themselves as genetic providers and are bringing markers or SNP-chips onto the market.

The concern for MLA and AWI in this development is that there is no requirement for companies marketing genomic tools to demonstrate the value of these tools through any independent mechanism. This stands in contrast to (say) the rigorous process required for a pharmaceutical product to gain registration, in which the efficacy of the product must be established through extensive field trials. One key issue is that the presence of a particular marker or panel of SNPs may correlate very highly with a particular trait but only explain a small proportion of its expression, meaning that the marker or chip has minor value as a predictor of the animal's genetic potential. Products developed in sheep populations other than those for which they are being marketed – for example, derived from research in NZ and marketed in Australia – require validation in the target population before their usefulness can be established. A commercial party will have limited incentive to conduct such trials, particularly if the results may be negative.

There are two major sheep genomics research initiatives underway in Australia. MLA and AWI have jointly funded and run SheepGenomics, a \$30m program over 5 years involving 11 research organisations in Australia and New Zealand. SheepGenomics has subprograms in wool quality, meat production, reproduction and internal parasites underpinned by a 'core technologies' platform subprogram. The second research program forms part of the CRC for Sheep Industry Innovation. The Sheep CRC's Information Nucleus Flock (INF) program



involves 5000 ewes in flocks on eight sites around Australia from which phenotypic and genomic data are being collected and analysed.

Both genomics initiatives are reaching a point where products are expected to be commercialised. The program partners for SheepGenomics are in the process of developing a commercialisation plan. Likewise, the Sheep CRC is planning for the future of the INF. The CRC will cease to exist in mid-2014 unless it receives supplementary Commonwealth funding so its beneficial outcomes will need to be placed with commercial partners before that time.

Many of the people interviewed for this review argued that the ramifications of genomics technology are far-reaching and we accept that view. There are two major considerations for SG.

First, SG may be the vehicle by which industry-developed genomics tools are commercialised. It makes undoubted sense to use the two genetic evaluation approaches – genomic and quantitative – together, not individually. If SG were to be the commercialising party, it would need to scale up its data handling capacity and to modify some of its processes. More significantly, SG would need new skills, in particular a strong marketing capability to manage the competition with large and powerful commercial players with competing products. SG has not yet had to manage a directly competitive environment. It would also need to have or have access to skills in IP management, to manage (for example) contracts with genetic laboratories to deliver testing services.

The capacity of SG to deal with these challenges needs to be considered in the selection of a business model. The additional skills may be supplied by MLA and/or AWI or, if SG were to become an independent company, it would need to be able to access those skills on its own account.

Alternatively, MLA, AWI and the Sheep CRC could follow normal RDC practice of licensing their genomics products to commercial partners and allowing market forces to determine their uptake by producers. The industry bodies might then focus their attention on providing independent evaluation of new products entering the market and communicating those research findings to members – notwithstanding the legal challenges for RDCs of commenting on commercial products.

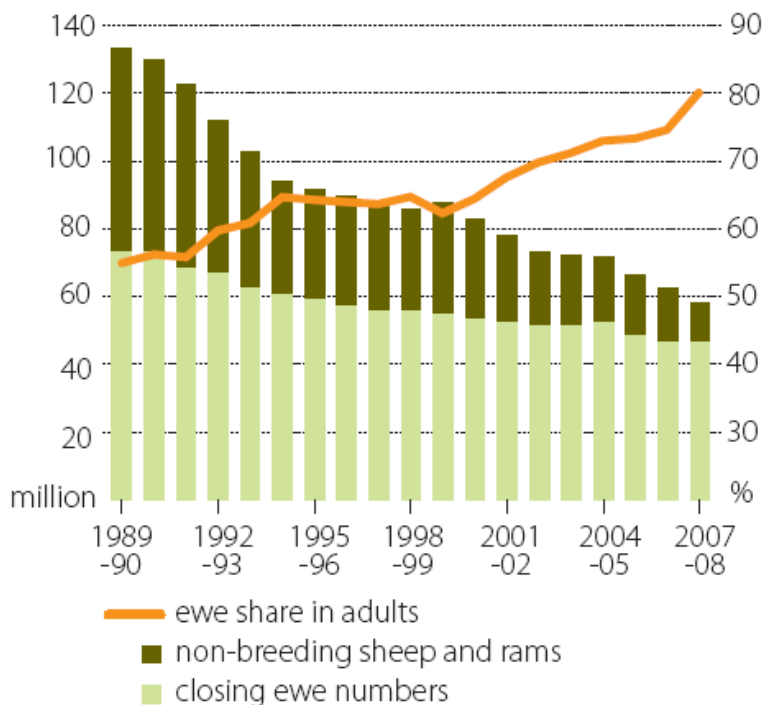
This raises the second major consideration for the SG business model which is that, regardless of whether or not SG becomes involved in the commercialisation of genomic tools, it is uniquely placed in the industry to provide verification of their value to producers. The SG database is essentially a huge resource flock in which a tool can be rapidly evaluated. For SG to be effective in this capacity it will need to retain its positioning as an independent, industry-controlled and trustworthy body. A database in private hands may not have those attributes.



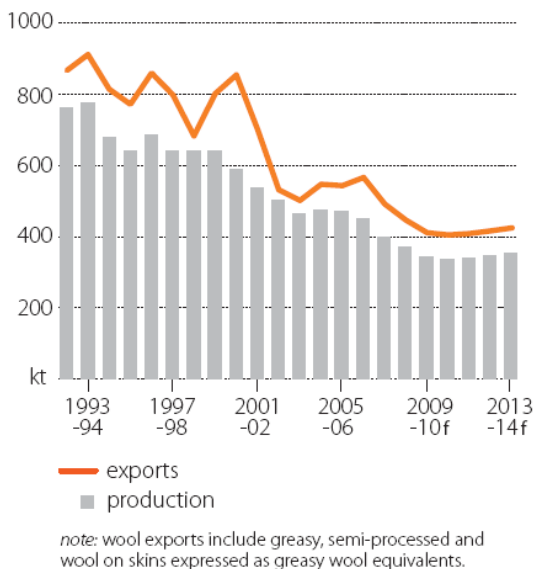
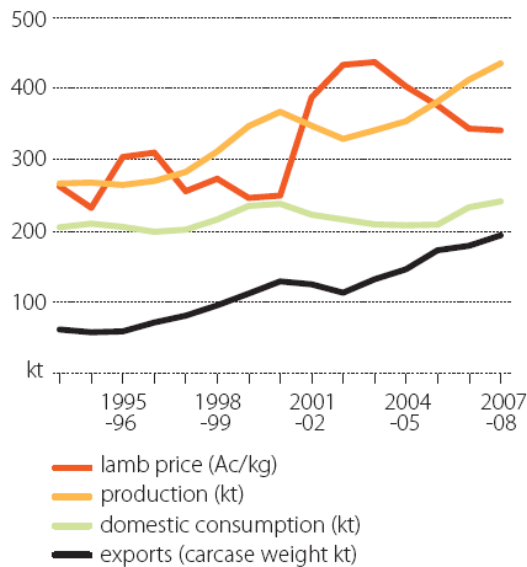
Size of the industry

Another important trend with implications for Sheep Genetics is the shrinking size of the industry it serves. Figure 9 shows the Australian sheep population over the last 20 years. ABARE notes that the relatively more rapid decline in the number of non-breeding sheep compared with that of ewes (81% versus 36% over the period) reflects the decline of the wool industry relative to sheep meat production. This trend is shown in Figure 10 and Figure 11.

Figure 9 Australian sheep numbers<sup>31</sup>



<sup>31</sup> ABARE, *Australian Commodities*, March quarter 2009.

Figure 10 Wool production in Australia<sup>32</sup>Figure 11 Lamb production in Australia<sup>32</sup>

Whether the trends of the last 15-20 years will continue is a matter for informed judgment by MLA and AWI. A number of factors suggest increasing pressure on sheep production generally – including global food shortages favouring crop production and the impending introduction of a carbon trading scheme, which could impose significant costs on ruminant production.

Forecasts of the Australian sheep population are beyond the scope of this review. However, it seems likely that the number of sires required by the industry will only decline as the industry is driven towards greater efficiency and as SG itself (aided by advances in genomics) allows a small number of top sires to be confidently identified.

The practical implication of the shrinking market for sheep genetic evaluation is that the problem of scale for SG is not likely to rectify itself. There will be increasing need for a business model that increases scale which, as described above, is likely to come either from a broader service offering or wider geographic territory.

#### Sustainability of levy revenue

Just prior to the finalisation of this report, AWI announced that it had secured a continuation of the 2% wool levy following WoolPoll 2009. The transaction levy supporting MLA's activities would also seem to be a reasonably safe proposition given the apparent health of the lamb industry. However, the recent decision of New Zealand wool producers to no longer pay an industry services levy provides a sharp reminder that levy funds are not guaranteed in perpetuity.

<sup>32</sup> ABARE, *Australian Commodities*, March quarter 2009.





Preferably, SG would be structured to minimise the risk that a quarter (or half) of its revenue base could disappear. This is not easy because it requires an entirely different mechanism to pay for the industry-good benefit of SG services, i.e. that proportion of the benefit accruing to the commercial producer and taxpayer (and preferably others besides, including retailers and consumers).

## Conclusions

This review has found that the current business model for SG is generally sound and, notwithstanding some relatively minor recommendations for improvement, probably performs as well as can be expected. This is not surprising. It is clear from the volume of literature supplied to this review that there has been considerable and erudite thinking about different possible business models for SG and, prior to that, LAMBPLAN, over the last 15 years. In fact there is very little in this review that has not been previously explored.

Some degree of dissatisfaction with customer service was expressed to this review, but this was almost certainly confined to the performance of one or two individuals rather than the organisation in its totality or the business model on which it operates. In one sense the current model lends itself to sound staff performance management because MLA as the parent company has well-established human resources practices in place (setting of key performance indicators, individual performance reviews and so on). On the other hand, SG suffers the constraints of small scale and the specialised nature of SG which might make recruitment more difficult. The position of AWI as a lesser partner in the SG relationship may also mean that the voices of the various customer segments are not equally heard.

Again, however, there is nothing in the current business model that would make any of these limitations fatal. Nor would they necessarily be 'fixed' by another business model – with the exception of the problem of scale, which might be addressed by some version of the 'one-stop shop' model.

Certainly there was no obvious business model template for SG among the range of similar organisations examined in this review. There are however some useful lessons and examples for SG and these, along with the findings of the SG review itself, have been incorporated into a series of suggested alternative business models. The models presented are not intended to be a mutually exclusive set of alternatives. Various features from two or more of the models could be combined – for example, the governance structure of one and the service provision model of another.

Table 4 summarises the models proposed by this review against a series of criteria that might be applied to test the models. The criteria and scores were determined by the SG Advisory Committee and are qualitative only. They depend to a great extent on particular decisions made during the establishment phase – for example, how an 'AUS-MEAT/AWTA' model would charge for its services.

**Table 4 Summary of proposed models\***

	<b>Black box</b>	<b>Licensed network</b>	<b>AUS-MEAT/ AWTA</b>	<b>One-stop shop</b>	<b>Sell-off</b>
Direct control by MLA and AWI	√	√	X	√	X
Technical rigour and independence	–	–	–	–	X
Business scale	X	–	√	√	√
Capacity to deliver new products	X	√	√	√	X
Capacity to provide R&D services	√	√	√	√	X
Resilience of revenue base	–	–	√	√	X
Equitable charging for services	√	√	–	√	X
Flexibility in decision-making	–	–	√	–	√
Safe distance from industry politics	–	–	√	–	√

\* Ratings show X = negative, – = neutral or √ = positive influence compared with current model

After reviewing the various models described in this report, the SG Advisory Committee concluded that the current model remained the preferred one for the foreseeable future. It also recognised that SG faces some major challenges and risks in coming years and that the model may have to change after the next five-year cycle. In particular, the Committee noted some of the advantages offered by the 'AUS-MEAT/AWTA' and 'One-stop shop' models in taking SG into the future.

The 'One-stop shop' model has been difficult to describe with precision in this review because of the many unknowns associated with new genetic tools. There is undoubtedly a major opportunity for SG to expand its scale by becoming the commercialisation vehicle for SNP chips, other emerging technologies and even data services such as livestock identification. Opportunities in these areas should be actively monitored and evaluated by MLA and AWI over the next few years as they emerge.

The advent of molecular genetic tools represents a major change in the sheep genetics business environment. If these tools deliver as promised then the market will be fundamentally altered, not so much because of the improved capacity to assess the genetic value of an animal but because of the nature of the new products – which have a lot more in common with 'silver bullets' than do quantitative genetic approaches.

Genomics will require new technical skills within SG but more importantly it will bring SG into competition with very different players than those it is used to dealing with – traditional studs and classers, phenotypic approaches and so on. Animal pharmaceutical companies have very powerful marketing capability but different objectives to MLA and AWI.



SG is likely to be better placed to thrive in this new environment (and arguably in the current environment) if it is structured as an independent entity of the type described in the 'AUS-MEAT/AWTA' model. The key to success would be in carefully establishing the objects and structure of the company. An independent entity could make commercial decisions not constrained by the charters of MLA and AWI as RRDCs. Even now there are challenges for SG in maintaining its revenue base, including the significant risk of at least one levy-derived revenue stream being cut. A business model that increases the resilience of SG to changes in the political and fiscal circumstances of MLA and AWI would be attractive.

A move to this type of structure will require careful consideration of the costs involved, a fact recognised by the Advisory Committee in its preference to retain the current model in the medium term. SG probably does not have the scale at this stage to justify the cost of becoming a company limited by guarantee. However, MLA and AWI should keep the model under consideration and should monitor the experience with NLIS Ltd, the industry's most recent example of the creation of such a company.

## Recommendations

This review makes three major recommendations relating to the objectives of the review, and three minor recommendations arising from observations of the current operation of the SG business.

### Major recommendations

1. The management and Boards of MLA and AWI note the findings of this review, taking into account the recommendation of the Advisory Committee that the current business model remains the preferred one for the next five-year cycle of SG.
2. MLA and AWI consider a much more detailed examination of the opportunity to expand SG into a 'one-stop shop' provider of genetic and potentially other sheep data services, as more information becomes available and in active collaboration with SheepGenomics, the Sheep CRC and other potential partners such as NLIS.
3. MLA and AWI plan to revisit the idea of constituting SG as an independent company during the next five-year cycle. This might take the form of a milestone for the Executive Committee to meet with the manager responsible for NLIS Ltd to learn from the experience of its establishment.

### Minor recommendations

4. SG consider introducing a system to track the time spent by staff on various tasks in the business so that resource allocation can be more accurately tracked.
5. SG consider appointing a person from WA to the Advisory and/or Technical Committees.



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6. SG consider the appointment of one or two service providers to the Advisory Committee.



## Appendix 1: Abbreviations used in this report

AASMB	Australian Association of Stud Merino Breeders
ABRI	Agricultural Business Research Institute
ABV	Australian Breeding Value (dairy)
AGBU	Animal Genetics and Breeding Unit
ADF	Australian Dairy Farmers
ADHIS	Australian Dairy Herd Improvement Scheme
AMSEA	Australian Merino Sire Evaluation Association
ASBA	Australian Sheep Breeders Association
ASBV	Australian Sheep Breeding Value
AWEX	Australian Wool Exchange
AWTA	Australian Wool Testing Authority
BLUP	Best linear unbiased predictor
EBV	Estimated Breeding Value
HIO	Herd Improvement Organisation
MLA	Meat & Livestock Australia
NLIS	National Livestock Identification Scheme
(R)RDC	(Rural) Research & Development Corporation
SG	Sheep Genetics
SGAC	Sheep Genetics Advisory Committee
SGEC	Sheep Genetics Executive Committee
SGTC	Sheep Genetics Technical Committee
Sheep CRC	Cooperative Research Centre for Sheep Industry Innovation
SIL	Sheep Improvement Ltd (NZ)
SNP	Single nucleotide polymorphism



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## Appendix 2: Key documents

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  - Welsman, S 2000, LAMBPLAN: products and pricing evaluation: a third pricing scenario, report to MLA, 30 May.
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  - Welsman, S 2000, An Australian Sheep Genetics System. Part 2: genetics service providers & compatibility, report to Meat & Livestock Australia and The Woolmark Company, October.



### Appendix 3: People consulted for this review

Daniel Abernethy	General Manager, ADHIS
Richard Apps	Adoption Manager, MLA
Lynton Arney	LAMBPLAN client
Philip Attard	Chair, SGAC; wool producer
Michelle Axford	Project Leader – Genetics Learning Package, ADHIS
Alex Ball	Manager Lamb and Sheepmeat R&D, MLA
Rob Banks	Manager Southern Australia, MLA
Katrina Blomfield	MERINOSELECT client
Daniel Brown	AGBU
Allan Casey	Service provider, NSW DPI
Bronwyn Clarke	Consultant, MERINOSELECT
Bill Close	LAMBPLAN client
Matthew Coddington	Fmr member, SGAC; MERINOSELECT client
Matthew Dwyer	Fmr Project Officer SG; MLA
Troy Fischer	Fmr Program Manager Genetics, AWI
Ken Geenty	Fmr Director, SIL
Marion Gibbins	Data manager
Sam Gill	Manager, SG
Hans Graser	Director, AGBU
Sue Hatcher	Service provider, NSW DPI
Lu Hogan	General Manager Wool Production, AWI
Michael Jackson	Managing Director, AWTA
Sue Jarvis	Genetics consultant
Ian Johnsson	General Manager Livestock Production Innovation, MLA
Brett Jones	MERINOSELECT client
Michael Larcombe	IT Manager, HiCo Australia
Geoff Lindon	Manager Sheep Technologies, AWI
Terry Longhurst	Manager Strategic Science, MLA
Gary McFarlane	Consultant, GMAC Consulting (involved in AWEX establishment)
Fiona McLoughlin	SG
Mark Murphy	MERINOSELECT client
Trish Oxley	LAMBPLAN client
Steve Parker	Service provider; LAMBPLAN client
Russell Pattinson	Consultant, Miracle Dog Pty Ltd





Don Pegler	Member, SGAC; LAMBPLAN client
Ian Pfeiffer	LAMBPLAN client
Robert Poole	Fmr General Manager, ADHIS
Cheryl Pope	Service provider, NSW DPI
Jim Prentice	LAMBPLAN client
Dale Price	Member, SGAC; LAMBPLAN client
Jo Quigley	Manager, NLIS Ltd
Anne Ramsay	Consultant, MERINOSELECT
James Rowe	Chief Executive Officer, Sheep CRC
David Rubie	Database Manager MERINOSELECT, SG
Alex Russell	Wool Industry Leader, NSW DPI
Warren Russell	Member, SGAC; MERINOSELECT client
Bill Sandilands	MERINOSELECT client
Tom Silcock	Member, SGAC; MERINOSELECT client
Luke Stephen	Project Officer, SG
Ben Swain	Executive Officer, AMSEA; MERINOSELECT client
Andrew Swan	AGBU
Paul Swan	Consultant, AWI
Andrew Ternouth	Executive Officer, ASBA
Graham Truscott	Manager Commercialisation and Adoption, Sheep CRC
David Ward	Fmr Managing Director, AWTA
Gary Want	NSW DPI
Graham Wells	Member, SGAC; MERINOSELECT client
Ashley White	NSW DPI
Nicole Williams	SG
Rob Woolaston	Chair, SGTC
Mark Young	SIL