



final report

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Integrity Systems Sub-Program Impact Assessment (2015-2020)

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Abbreviations

CL	Chemical Lean
eNVDs	Electronic National Vendor Declarations
eID	Electronic Identification
EU	European Union
FMD	Foot and Mouth Disease
IS	Integrity Systems
ISC	Integrity Systems Company
LPA	Livestock Production Assurance
MLA	Meat and Livestock Australia
NLIS	National Livestock Identification System
NTPS	National Traceability Performance Standards
NPV	Net Present Value
NVD	National Vendor Declarations
PIC	Property Identification Code
R&D	Research and Development
ROI	Return on Investment
SFA	Statutory Funding Agreement
US	United States of America
vCJD	Creutzfeldt-Jakob Disease

1. Project Background

MLA's Integrity Systems Program assists MLA to foster the prosperity of the Australian red meat and livestock industry by protecting its disease-free status and underpinning the marketing of Australian product as clean, safe and traceable. It also helps Australia capture price premiums from customers and consumers willing to pay more for higher levels of product assurance.

With an annual budget of approximately \$15.9M, MLA's Integrity Systems Program integrates scientific research with program delivery and support systems and involves a whole of industry approach to the management of food safety, traceability, biosecurity and product integrity. The program is sub-divided into three sub programs:

1. Livestock traceability systems (the National Livestock Identification System – NLIS)
2. On-farm food safety systems (Livestock Production Assurance (LPA) and National Vendor Declarations (NVDs))
3. Market access scientific research

As part of MLA's Statutory Funding Agreement (SFA), a 5 year Impact Assessment is required for all of MLA's marketing and R&D investments. This Impact Assessment is for the period 2015 – 2020. The Integrity Systems Program was subject to an impact assessment analysis in 2015 and this was used as the basis for assessment and reporting on the Product Integrity Program in 2016. In preparation for the 2020 Impact Assessment, this analysis updates the earlier impact assessment for the Integrity Systems Program, feeding into and supporting the broader MLA 2020 Impact Assessment.

The Australian red meat and livestock industry has for many years invested in the development and implementation of science and outcome-based integrity programs that underpin Australia's reputation as a supplier of safe and wholesome red meat products in both our domestic and international markets. Australia has enjoyed unparalleled access to world meat markets for many years, due to its favourable disease status and world-class food safety and integrity systems.

While these systems are well established, there is a requirement for on-going investment in the Integrity Systems Program to ensure that Australia's food safety systems utilise the latest science to address current and emerging food safety risks. This also ensures that the supply chain has access to robust, yet flexible systems that can adapt to meet future consumer and customer demands, allowing Australia to maintain its competitive advantage.

1.1 Integrity Systems Company (ISC)

A wholly owned subsidiary of MLA, the ISC is responsible for delivering the red meat industry's on-farm assurance and through-chain traceability programs that together make up Australia's red meat Integrity System Program.

1.2 Role of ISC in the Integrity Systems Program

The mission of the ISC is "growing red meat value chain opportunities through integrity and information systems innovation". The ISC delivers the Integrity System Programs detailed below by providing operational, promotional and education services. Together, these programs ensure the food safety, animal welfare, biosecurity and traceability of Australian red meat for domestic and international customers.

1.3 Livestock traceability systems:

The National Livestock Identification System (NLIS) is Australia's system for the identification and traceability of livestock. NLIS enables cattle, sheep and goats to be traced from property of birth to slaughter for biosecurity, food safety, product integrity and market access purposes.

NLIS was established in the late 1990's to enhance Australia's ability to trace animals in response to animal disease and residue incidents, and to support the market access requirements of the EU. NLIS was progressively mandated in each state and territory, and since 2006, it has been mandatory to register all cattle movements on the NLIS database. In 2009, mob-based movement recording of sheep and goats was introduced nationally, and in 2018 individual sheep and goat movement recording was introduced in Victoria.

NLIS underpins Australia's safe and wholesome reputation for the supply of red meat products in both the domestic and international markets, and is the primary vehicle used by industry and government in complying with the National Traceability Performance Standards (NTPS).

1.4 On-farm food safety systems:

Under the guidance of SAFEMEAT, the partnership between the red meat industry and the state and federal governments, industry wide programs, such as the Livestock Production Assurance (LPA) program, and National Vendor Declarations (NVDs), have been implemented to underpin the food safety status of the Australian red meat and livestock industry.

The NVD is an industry owned and endorsed form that enables information regarding the food safety status of livestock to be transferred along the supply chain to provide customers with confidence in the safety and integrity of the red meat product. The NVD is available in both paper and electronic formats and ensures that buyers have the information they need to assess the suitability of livestock for their destined markets.

The NVD is underpinned by the LPA program, which is an auditable, on-farm assurance program governed by Rules and Standards that outline the food safety, biosecurity and animal welfare practices that must be adhered to on-farm to ensure that red meat supplied by LPA accredited producers is safe, traceable and produced in an ethical manner.

The successful operation of these on-farm food safety programs is vital in promoting the integrity of Australian red meat products to our international and domestic customers, whilst at the same time ensuring that food safety related incidents are minimised.

1.5 Market Access Scientific Research:

Access to markets (whether in Australia or other countries) depends to a large extent on the guarantee of safety and suitability of product as judged by that market. Existing systems on-farm and for traceability (described above) respond to those needs of markets that can be achieved through systems pertaining to live animals. Many aspects of safety and suitability relate to other technical aspects, which may be considered as technical barriers to trade. A goal of the sub-program is to reduce existing, prevent additional, and/or efficiently meet the technical requirements for safety and suitability that are imposed by governments, customers and consumers.

The program focuses on understanding and communicating about food safety risks and producing information that can be used to influence decision-making in supply chains. Identification of unacceptable risks allows these risks to be addressed by efficient and effective controls at appropriate points in the supply chain and provide long-term benefits to the industry.

1.6 Project Objectives

1. Review the assumptions used to conduct the Product Integrity 2010-2015 impact assessment;
2. Validate the current ROI model and assumptions being used for the 2020 impact assessment and make recommendations for improvement;
3. Update and improve upon the analysis of price premiums within the current ROI model based on price received for similar (forequarter) cuts in markets where Australia competes directly with other suppliers with lower standards;
4. Review and improve upon the methodology used for assessing the relative attribution of price premiums to product integrity, and therefore MLA's Integrity Systems Program; and
5. Conduct an economic assessment aligned to MLA's broader 2020 impact assessment to demonstrate the value of 2015-2020 investment in MLA's Integrity Systems Program.

2 Audit of the MLA ROI Model

GHD's audit of MLA's ROI model and existing impact assessments of Integrity Systems identified the following four issues of significance, which were in-turn addressed in the impact assessment for the 2015-20 period.

2.1 Overestimation of the avoided disease costs by not annualising the cumulative costs over the multi-year duration (10 years) of disease spread.

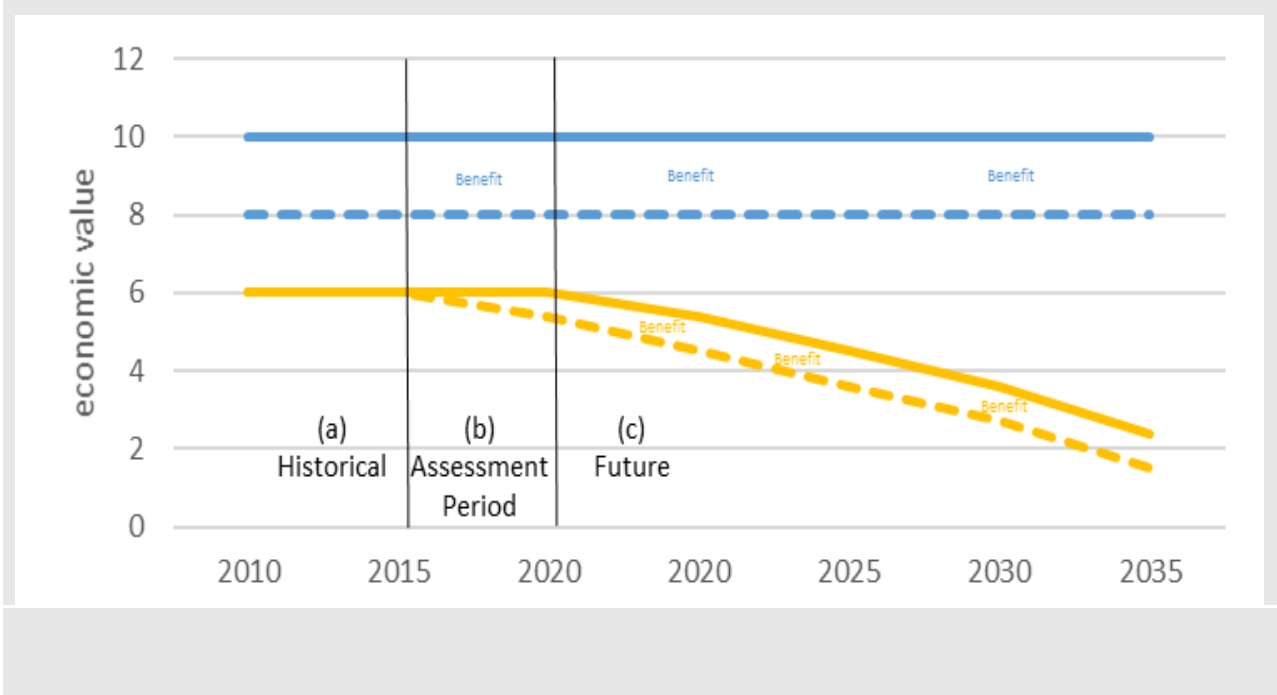
A key issue identified in the 2015 impact assessment, was that annual benefits associated with avoided disease costs were likely to be over-estimated, as they were calculated based on the cumulative cost of a 10-year disease outbreak. GHD considers that the analysis should have annualised the cumulative cost of the disease outbreak (divided by 10), or alternatively applied the annual probability of a disease outbreak (1.5%) once every 10 years, to reflect the likelihood of a subsequent outbreak. The probability of an FMD outbreak is discussed in further detail below.

2.2 Assumptions regarding IS operation outside of assessment period (i.e. before 2015 and after 2020 - Counterfactual)

The purpose of the impact assessment is to compare the net benefits attributed to the operation of MLA Integrity Systems during the period from 2015 to 2020, against the counterfactual case where these systems are not operating over the same period. However, another key issue is whether to assume MLA Integrity Systems operates outside of the assessment period i.e. prior to 2015 and after 2020, and how to account for this in the model. GHD determined that under the current MLA ROI model, the operational period of MLA Integrity Systems is treated differently according to each of two identified benefit streams (avoided disease cost benefits and export market price premiums), as per below. The implications of such asymmetric treatments is that the benefits from avoided disease costs continue into perpetuity, and are therefore overstated.

Table 1 Previous approach: Inconsistent treatment of MLA IS operation between project case (with) and counterfactual (without)

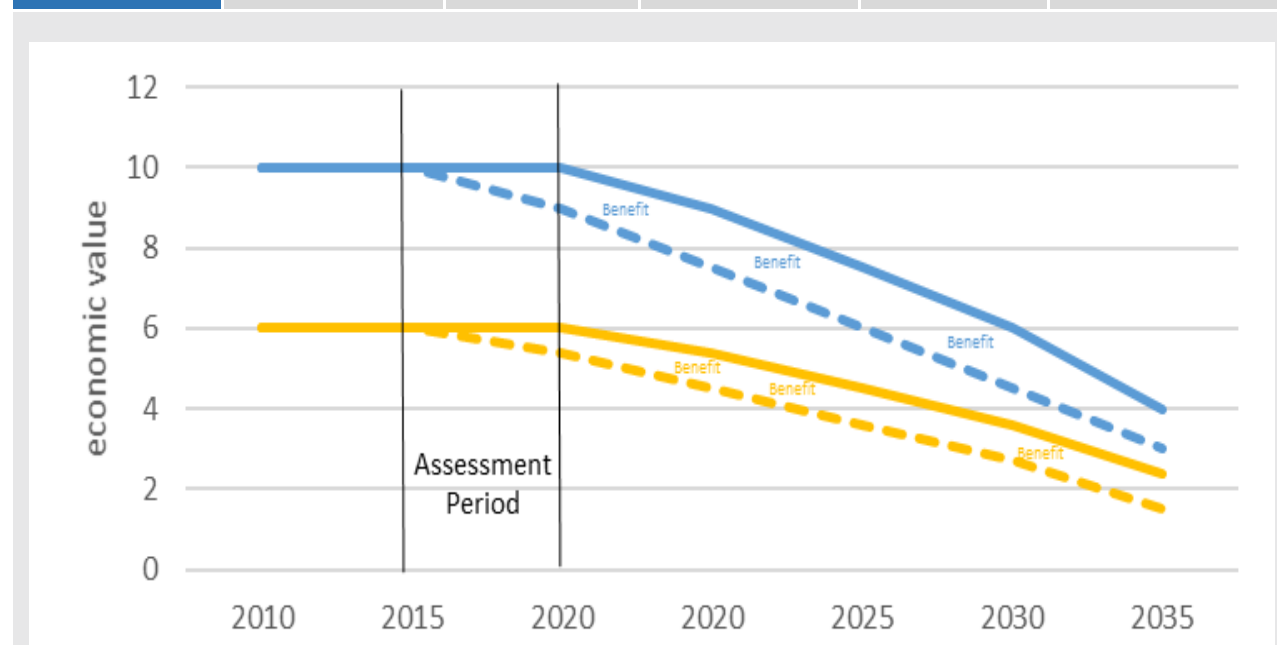
		(a) Historical: pre-2015	(b) Assessment period: 2015 to 2020	(c) Future: post 2020	Marker in Figure below
Project Case (with IS)	Avoided Disease Cost Benefits	In Operation	In Operation	In Operation	
	Export Market Price Premiums	In Operation	In Operation	Not in Operation	
Counterfactual (without IS)	Avoided Disease Cost Benefits	Not in Operation	Not in Operation	Not In Operation	
	Export Market Price Premiums	In Operation	Not in Operation	Not in Operation	



To address this, GHD proposed an alternative approach outlined in Table 2 below. In this approach, benefits associated with avoided disease costs as well as export price premiums decline gradually after 2020, reaching the existing traceability levels under the mob-based system in 20 years.

Table 2 Preferred approach: Consistent treatment of MLA IS operation between project case (with) and counterfactual (without)

		(a) Historical: pre-2015	(b) Assessment period: 2015 to 2020	(c) Future: post 2020	Marker in Figure below
Project Case (with IS)	Avoided Disease Cost Benefits	In Operation	In Operation	Not in Operation	
	Export Market Price Premiums	In Operation	In Operation	Not in Operation	
Counterfactual (without IS)	Avoided Disease Cost Benefits	In Operation	Not in Operation	Not In Operation	
	Export Market Price Premiums	In Operation	Not in Operation	Not in Operation	



Considering the purpose of the 2015-2020 ex-post assessments, GHD considers the above approach is most appropriate in that it provides a full symmetric treatment of the MLA IS operation status between the two benefits streams.

2.3 FMD outbreak probability – 1.50% recommended instead of 0.6%

The current MLA ROI model assumes the probability of an FMD outbreak in any given year is 0.6% based on a 2010 study completed by the World Organisation for Animal Health (OIE) for the US red meat industry. However, a separate assessment (ABARE 2013) adopts 1.5% based on an earlier Productivity Commission (PC) study and supported by a CSIRO Report (2017) that notes the probability is higher at 2.0%.

Furthermore, the probability of 0.6% implies one occurrence every 167 years while the probability of 1.5% means one occurrence every 63 years. If the expected frequency is once every 167 years, the

evaluated premium might be considered too high. Adopting 1.5% also better reflects the current Australian studies and outbreak probability.

GHD holds the view that the avoided disease costs as modelled by ABARE (2013) of circa \$52B should be held based on market access restrictions experienced by other countries (e.g. Argentina). Whilst improvements in control measures via fencing (both real and potentially virtual) may see this improve over time as well as access to, and availability of vaccines, for control measures it can be reasonably expected that impact in terms of the annual export sales over 10 years is still current.

Whilst the export revenue loss can be validated relatively easily, there appears to be an opportunity to update the modelling of ABARE (2013), particularly on the duration of market closure and clean up period of 10 years, along with the probability of an outbreak as detailed below. A joint media release dated 15th August 2019 from the Federal Minister of Agriculture quotes this report that noted this estimate of avoided disease costs is still being relied upon:

“A 2013 report by the Australian Bureau of Agricultural and Resource Economics and Sciences estimated that the direct impact of a large multi-state FMD outbreak in Australia would result in an economic cost of around \$50 billion over 10 years.”

2.4 Attribution of price premiums to MLA Integrity Systems Program

The observed historical export market price premiums (30%) is discounted twice in the MLA ROI model: Firstly MLA Integrity System Program is set at 5%, with the resulting figure discounted a second time by 60% according to the MLA budget share of the export market access related agencies. The end-result being that only 3% of the price premium is attributed to MLA's Integrity Systems investment. GHD has recommended that this attribution be increased from 5.0% to 7.50%.

This attribution is difficult to quantify, however 7.50% is considered more relevant for this assessment period based on the long-term price premium averages evident, and better reflects the high regard Australia's Integrity Systems is held in international export markets.

The role that Integrity Systems plays in maintaining market access, and export price premiums, cannot be underestimated. Whilst holding attribution of lamb and mutton static, the lift to 7.50% attribution is also supported based on recent performance in key beef markets.

The bulk of this recommended increase is attributable to beef with the only real competitor to Australia in lamb and mutton being New Zealand. Australia and New Zealand Lamb exports accounted for 71% of global trade in 2017 and New Zealand employs a similar Integrity System to Australia.

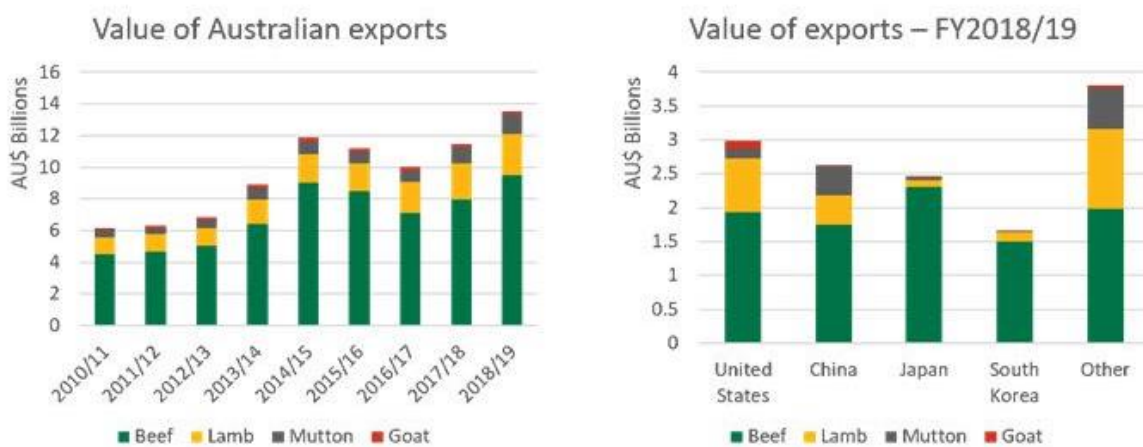
In the export market model, price premiums are estimated based on two countries; Malaysia and Philippines where Australia competes with other countries with somewhat comparable integrity systems (e.g. New Zealand) and those with inferior systems (e.g. India). Trade Map data has been relied upon and considered robust but at the time of reporting only has data available up until 2018.

There is some evidence that Australian products attract price premiums on other markets including the US and China. For example, consultation with an MLA US market specialist found:

- Australia has a strong reputation in the US market for high quality manufacturing beef product that is “on-spec”.

- Australia is a leader in grass-fed beef on quality and safety compared with other importing countries e.g. NZ.
- Price premiums depend on the specification and exchange rates, currently 90CL imported vs comparable domestic is trading at US11c/kg premium and 85CL is trading at a US20c/kg premium. At its height this year on 90CL, imported trade closed at a US40c/kg premium.
- Even when Australian product is higher priced, there is still significant demand, despite competing in a very price sensitive trade.
- The US lean trim trade places a high premium on food safety, which is one reason why Australian product is favoured over South American for example.

The MLA posted report dated 15th August 2019 “Export values soar to new heights”¹ notes the value of red meat exports surged in 2018/19 with the most valuable export destinations for boxed Australian red meat being the United States then China and Japan as detailed below in .



Source: ABS

Figure 1 Australian red meat exports

The report also notes:

- Beef exports reached A\$9.49B, a 19% increase on last financial year and A\$446M higher than the previous record set in 2014-15. The unit value of beef averaged A\$7.75/kg, a 9% increase year-on-year.
- Chilled beef rose to a record \$11.86/kg, and accounted for 38% of export dollars obtained (but made up just 25% of total volume). The price premium for chilled was \$5.47/kg, 74¢/kg higher than the 5-year average.
- The value of lamb exports continues to steeply climb, hitting A\$2.6B for the financial year. Reoccurring growth has been a consistent theme, with 9%, 17%, and 16% year-on-year growth for the previous three years respectively. Chilled lamb sits at a \$3.70/kg premium over frozen, 35¢ up on the 5-year average.

¹ <https://www.mla.com.au/prices-markets/market-news/export-values-soar-to-new-heights/>

3 Updated impact assessment (2015-2020)

3.1 Livestock traceability and on-farm food safety systems

Applying the above modifications, GHD completed an updated impact assessment for the 2015-2020 period. The results suggest that between 2015-2020, MLA's investment into Integrity Systems yielded economic benefits of \$499.26M that is detailed in Table 3 below.

Table 3 Benefits from livestock traceability and on-farm safety systems

	Present Value of Benefits (\$M in 2020 prices)
Avoided disease costs	\$364.99
Export market price premiums	\$134.27
Total Benefits	\$499.26

Compared to MLA's previous ROI assessment, the above scenarios apply changes to the baseline and counterfactual scenarios, relating to the assumptions as to whether MLA IS was in operation before 2015 and will be in operation after 2020. Compared to the previous assessment, these changes act to reduce benefits. However, the impact of these changes were more than countered by GHD's applied changes to assumptions relating to FMD probability (increasing from 0.6% to 1.5%) and MLA IS price premium attribution (increasing from 5% to 7.5%) which increased benefits substantially.

3.2 Market Access Scientific Research

In collaboration with MLA, GHD reviewed the outputs from the Market Access Scientific Research sub-program over the previous 5 years and identified outcomes, which are likely to generate productivity gains for industry.² GHD calculated the first round benefits (accounting for adoption costs), discounted to the 2020 base year via a 5% discount rate relating to the following areas and summarised in Figure 2 below:

- Development of a meat shelf-life predictive tool, with the potential to reduce spoilage and wastage through the supply chain (NPV = \$60.43M);
- Development of risk based post-mortem procedures, with the potential to reduce inspection times, markdowns and condemnations (NPV = \$103.17M);
- Development of improved screening and confirmation procedures for Shiga toxin-producing E. coli (STEC) (NPV=\$0.54M)

² Many of the projects within this sub-program are focused on improving market access, rather than productivity gains. Market access outcomes were not considered within the scope of this assessment as they are subject to a separate evaluation group.

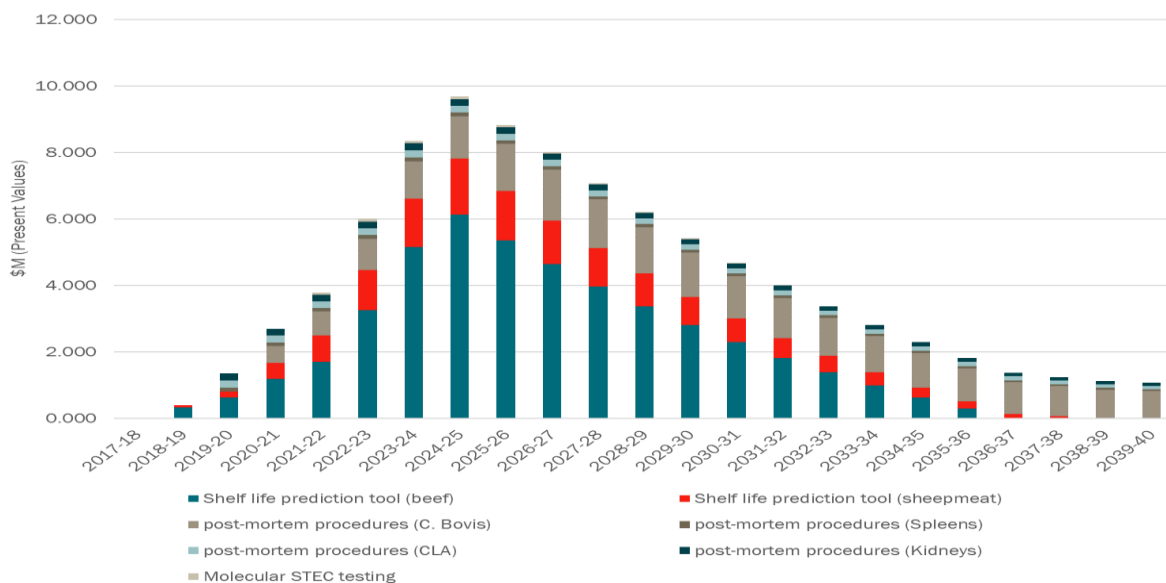


Figure 2 Market Access Scientific Research: NPV impact over time

The combined net economic benefits from the above outcomes was estimated at \$164.14M with the addition of these benefits yielding total present value of benefits to \$663.40M as per Table 4 below:

Table 4 Total benefits from Integrity Systems Investments

	Present Value of Benefits (\$M in 2020 prices)
Avoided disease costs	\$364.99
Export market price premiums	\$134.27
Market access science research	\$164.14
Total Benefits	\$663.40

4 Qualitative Benefits

In addition to the quantitative economic benefits relating to avoided disease costs and export market price premiums, GHD identified a range of additional, indirect or qualitative outcomes delivered by MLA Integrity System Programs. These include:

- Avoided indirect or secondary impacts to the broader Australian economy from exotic disease incursion;
- Benefits from NLIS and state-based Property Identification Code (PIC) databases, supporting a range of secondary disease surveillance and management activities;
- Improved economic prosperity of Australian meat and livestock businesses, providing additional resources for improved environmental outcomes;
- Reduced risk of human health impacts from the fatal variant Creutzfeldt-Jakob Disease (vCJD) and other pathogens;
- Avoided social impacts from severe livestock disease outbreak, including mental health, financial hardship, unemployment etc.; and
- Improved animal welfare outcomes through avoiding the widespread destruction of livestock typically required to eradicate exotic diseases

5 Implications

The updated 2015-20 impact assessment has found that MLA's investment into Integrity Systems continues to generate a positive net economic benefit to industry, and the broader public, primarily through avoiding costs associated with major disease outbreaks and delivering price premiums in certain markets by underpinning the marketing of Australian product as clean, safe and traceable.

In reviewing previous impact assessments and modelling, GHD found the economic evaluation approaches to be generally sound. However, a small number of suggested modifications were identified (assumptions regarding IS operation outside of assessment period, changes to FMD probability, and MLA attribution). When applied, these changes have the net impact of increasing the net benefits from the program, however it should be understood that these results primarily reflect a change in evaluation method, rather than an underlying change in the economic returns from the program.

In fact, this project including stakeholder feedback, has identified that the economic returns from MLA's Integrity Systems are currently static if not in slight decline. While the program continues to provide economic benefits from avoided disease costs, it is likely that export price premiums attributable to Australia's integrity systems are steadily declining as international competitors develop comparable systems.

In order to continue to deliver strong economic benefits, the MLA / ISC might consider the following recommendations:

- Streamlining national, state and territory processes to reduce duplication and improve system responsiveness and reporting capability;
- Seek to increase the level of traceability from present levels through ongoing system and technology enhancements;
- Ensure systems are able to address technical barriers to trade, which are increasingly being used to challenge or even restrict market access;
- Increasing opportunities for electronic data collection (e.g. eNVD)
- Exploring opportunities to derive additional value (or revenue) from collected data, while maintaining the integrity of the systems, and the confidentiality and support of industry and individual users.
- Close monitoring of international trade dynamics currently at play, and emerging issues such as African Swine Fever, may create additional demand for red meat in key export markets that further underpins the need for strong Integrity Systems.

5.1 Evaluation method and model

Completing an evaluation of the benefits and Impact Assessment for Integrity Systems requires consideration of a large number of assumptions and the evaluation model is highly complex. However, on balance, the fundamentals of the current approach, i.e. measuring price premiums and avoided cost of disease outbreaks, remains the most appropriate method of evaluation.

In terms of the avoided cost of a disease outbreak, the evaluation method continues to rely heavily on the 2013 ABARES study of potential socio-economic impacts from a foot and mouth outbreak in Australia, which is based on 2011 data. Due to the passing of time, this assessment probably underestimates potential losses for the large FMD outbreak scenario, for example, since 2011; the value of the sheep industry has grown considerably. Given the broad reliance on this study, it would be useful for industry and government to have an updated estimate of potential impacts.

A similarly important consideration in assessing the avoided cost of a disease outbreak is the assumed probability of an outbreak occurring. The accuracy of future assessments could be improved by updates of the ABARES and CSIRO research regarding probability of disease outbreak, taking into consideration factors such as the volume of international visitors and trade.

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Appendix 1 - Consultations

As agreed with ISC and MLA there were a limited number of targeted consultations conducted both over the phone and in person through the course of this project. Feedback from these consultations resulted in broad discussions around the MLA Integrity Systems Program and a selection of key themes that emerged are summarised below on a de-identified basis:

“Free Trade Agreements provide the key to the door, Market Access opens the door to trade and Integrity Systems play a critical role in this access. Increasingly Market Access is being viewed as the premium that Australian red meat exports secure”.

“Whilst there are genuine areas for improvement and enhancement, we should not lose sight of the fact that Australia’s Integrity Systems is the envy of the world and competitor countries continue to try to replicate this model. Continued investment and resourcing is required to maintain our Integrity Systems as a world leader moving forward.”

“As with all Integrity Systems there is opportunity for improvement, especially with the underlying IT infrastructure and necessary support from State jurisdictions that require resourcing. Moving forward this should be prioritised as competitor countries are catching up and biosecurity threats are always on the horizon – if there was ability for States to harmonise their systems this would make a huge impact on Integrity Systems.”

“Increasingly non-tariff or technical barriers for market access are areas of concern and Integrity Systems play a key role in negating these threats, especially in sophisticated markets where Australia enjoys solid premiums. In time there will be a requirement for real time data analytics to negate these threats and provide timely responses to questions from key markets.”

“There are non-negotiables of Integrity Systems activity that absolutely justify a nation-wide unified approach with support of Federal and State jurisdictions owing to the significant public good benefit that is afforded. Biosecurity must be viewed as sacrosanct; market access requires significant support mechanisms that underpin access and; industry would not provide this support via a self-funded mechanism owing to the potential for a splintered system that would not have a national focus.”

“Broad data connectivity in remote and regional areas is an issue and is a consideration for electronic NVDs. There may be a greater role for agents and local saleyards to assist here.”

“There has been significant changes in the last few years with ISC and this has potentially impacted on development of areas such as electronic NVDs and various reviews such as Safe Meat have slowed progress.”

“The red meat industry generally needs to adopt a QA culture starting at the farm level where extension and communication are required. These are key areas of growth for demonstrating the value of Integrity Systems activity that underpins market access”.

“Integrity Systems is effectively a risk mitigation tool and requires on going and significant investment to maintain effective evidence of robust control mechanisms and maintain market access.”

“There is no doubt that Integrity Systems provide a broad public good benefit and underpin access to premium markets in the red meat sector supporting all those in the supply chain.”

“An emerging opportunity for Integrity Systems as technology changes will be the ability to provide analytics back to the farm gate in terms of productivity or benchmarking. This would also provide an avenue for demonstrating the value proposition of ISC activity at the start of the supply chain.”

Appendix 2 - Achievements of ISC from 2015 (Sourced from ISC)

Integrity Systems Company (ISC) was formed in 2016 and key achievements as advised by ISC to date are detailed below in Table 5. Since its establishment in September 2016, ISC has set out to deliver upon industry's vision of a single entity delivering an integrated, efficient and effective red meat integrity system. The first 2 – 3 years have been focused on setting up the company strategy, bedding down operations and business as usual activities, along with taking a strong leadership role in defining the future of the integrity systems regarding leading edge technology and data platform analytic services. ISC has also lead the way in driving change and consolidation in industry governance structures and integrity systems standards.

ISC measures its communication and adoption outcomes through a range of measures. Over the three years of its operations, ISC has driven significant improvements in integrity program awareness (particularly LPA), increased adoption of eNVDs across the industry to almost 20% of livestock consignments, and has seen more than 40% of LPA accredited producers complete the LPA reaccreditation process. While there have been significant change initiatives implemented by ISC throughout this period, ISC has continued to enhance industry's national livestock traceability platform to support the recording of more than 23 million cattle and 40 million sheep and goat movements in 2018/19.

Table 5 ISC performance over the last 3 years

KPI	2016/17	2017/18	2018/19
myMLA Accounts	7,000	30,000	45,710
myMLA Linked NLIS & LPA Accounts	4,000	15,000	19,355
LDL Accounts		1,257 producers	1,796 producers
eNVD Consignments	1,400	29,242	83,339
eNVD % of consignments	~ < 1%	11.8%	21.6%
Accredited LPA PICs	220,000	213,000	200,412
New LPA Accreditations			10,999
LPA Reaccreditations	N/A	21,025	61,422
NLIS Cattle Movements	26.94 million	25.4 million	23.4 million
NLIS Sheep and Goat Movements	21.36 million	23 million	40.8 million (mob) 11 m (individual)
NLIS movement recording compliance	95.8%	96.77%	96.04%
Producer awareness of integrity systems	74% (LPA)	93% (LPA)	87% (LPA)
	98% (NVD)	99% (NVD)	96% (NVD)
	99% (NLIS)	99% (NLIS)	98% (NLIS)

Source: Integrity Systems Company Achievements (2019) *Internal ISC Paper May 2019 (updated to end of June 2019 by ISC)*

7. GHD Disclaimer

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Revision	Author	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
1.0	Michael White, Seamus Hoban	Paul Dellow		Michael White		09/09/2019
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