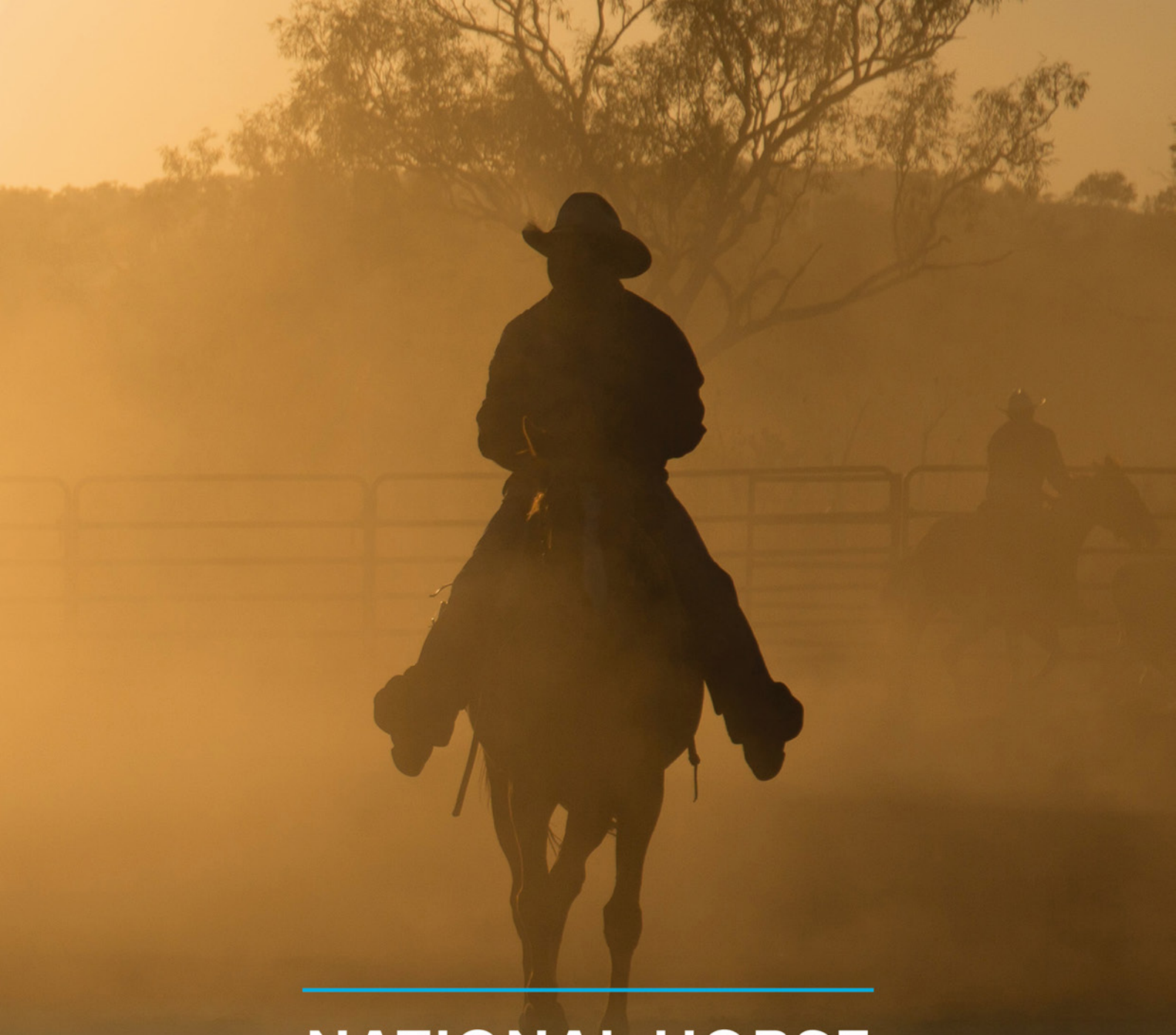


NATIONAL HORSE TRACEABILITY WORKING GROUP

FINAL REPORT

26 OCTOBER 2022

National
Horse Traceability
Working Group

CONTENTS

EXECUTIVE SUMMARY

The National Horse Traceability Working Group (NHTWG) is a non-statutory committee established in 2020 by the Agriculture Ministers' Meeting (AMM) and the Australasian Racing Ministers' Conference to provide advice on matters relating to the design and introduction of a traceability system with a biosecurity focus for horses, donkeys and mules (collectively referred to as horses) in Australia.

Four options for implementing horse traceability were identified through a dedicated review project undertaken by Marsden Jacobs Associates on behalf of the Victorian Department of Jobs, Precincts and Regions, and provided to the NHTWG for consideration.

The NHTWG has focused on two of these options, providing a more detailed view of the possible design and operation of a National Horse Traceability System (NHTS). Namely, the NHTWG has explored a system based on the use of Property Identification Codes (PICs) complemented by the recording of horse movements by industry participants (Option 2), and a microchip-based system supported by a national ownership and movement database (Option 4)[1].

The NHTWG sponsored another consultancy undertaken by KPMG to assess the costs and benefits of Options 2 and 4. KPMG determined that both Options are expected to deliver the desired biosecurity outcomes, but Option 2 is substantially more cost effective in delivering these outcomes – including implementation and ongoing costs to horse owners[2].

Having taken into consideration the range of purposes for which horses are kept in Australia, current biosecurity risk, threats and cost, the NHTWG recommends, subject to agreement on funding, Option 2 be introduced. Its features are as follows:

- The registration and assigning of PICs to all properties throughout Australia on which domesticated horses reside
- Uniform national PIC business rules for properties on which horses reside
- Enforcement by the jurisdictions of PIC rules and associated legislation
- Mandatory recording by industry participants of horse movements between PICs
- Voluntary microchipping in a standardised manner and associated registration of 'chipped' horses on existing databases
- Mandatory microchipping as an option in sectors where there is a particular need, such as to support integrity imperatives within the racing industries
- Use of industry managed microchip or paper-based tracking (no national ownership or movement register)
- Industry registers that record PIC details in relation to locations where horses owned or managed by constituents reside
- Industry registers with authority to release data to government agencies specifically and exclusively for biosecurity and emergency response purposes

The NHTWG has also reached agreement on proposed business rules to support the operation of Option 2 (see Appendix A) and proposes that they guide the drafting of enabling legislation and communications material.

These business rules provide the basis for nationally harmonised requirements, outlining industry participant obligations relating to property registration, how horses are to be microchipped where this identification method is used, movement recording requirements and associated information management.

Although ultimately the development of a NHTS incorporating greater functionality may be desirable in the future, the NHTWG agreed that there needs to be a base level policy and system platform as a starting point that delivers functional traceability for biosecurity purposes ahead of consideration at a later date of a more comprehensive NHTS. Attempting to introduce a more comprehensive system as the starting point may lead to resourcing and compliance challenges that are likely to undermine successful implementation. Mandatory microchipping and movement recording on a national database would add significant additional costs and result in compliance and integrity issues for minimal improvement in tracing efficiency for biosecurity purposes. This, however, does not preclude the addition of further features and obligations that address industry needs unrelated to biosecurity in the future.

[1] See *Marsden Jacob Associates - 'National Horse Traceability Project' report – 13 January 2022 for further details.*
[2] See KPMG report (Appendix C) page 42.

The NHTWG acknowledges that the preferred option is a significant departure from the current requirements of horse owners in diverse sectors and in different jurisdictions; currently the recreational horse industry is largely unregulated. The recommended changes will require legislative amendments and an increase in regulatory burden for all sectors of the horse industry and governments. Further, considerable industry change management support will be necessary to implement the system, and should not be underestimated.

The recommendations of the NHTWG are that:

1. Australia's NHTS should at its core address biosecurity threats and utilise the current property registration and PIC systems administered by the jurisdictions
2. Industry participants be required to generate and maintain horse movement records. These records should be readily accessible to government agencies for use during biosecurity incidents and emergencies
3. Subject to an agreement on funding (see recommendation 7), jurisdictions be asked to enact legislation by no later than 1 January 2025 that will support nationally consistent business rules relating to the operation of the NHTS (see Appendix A)
4. Industry be asked to commit to working cooperatively with government to introduce, support and utilise the system
5. Existing commercial and industry managed microchip registers be encouraged to record PIC details for the locations where horses reside when horses are initially registered, microchipped, change ownership, are exported or are reported as deceased
6. Commercial and industry horse identification and movement registers be encouraged to authorise as part of their Terms of Use conditions that allow the release of data to government agencies for use during biosecurity incidents and emergencies
7. AMM appoint an industry led National Horse Traceability Implementation Taskforce (NHTIT) to:
   a) recommend within 12 months of AMM agreement in principle to proceed, a mechanism for generating the funding needed for system implementation and maintenance, in particular covering costs associated with communications, monitoring and enforcement;
   b) develop a cost guide to inform and secure outcome-based funding to enable implementation;
   c) oversee the introduction of the preferred NHTS (Option 2) within agreed timelines;
   d) agree on KPIs against which the performance of the NHTS can be assessed in the future;
   e) develop a communications plan to be delivered by government and industry organisations outlining to horse industry participants their NHTS related obligations and the benefits of the system;
   f) through an independent review, explore opportunities for greater database integration and electronic movement record collection and storage including leveraging existing industry sector databases and the possibility of adopting Universal Equine Life Number (UELN) standards;
   g) encourage and support industry sectors that choose to implement enhanced versions of the NHTS that have broader objectives such as welfare, emergency response management, rider safety and the integrity of trade in horses
   h) within five years after its commencement, engage an independent consultant to review the NHTS for the purpose of:
      - assessing its effectiveness at tracing horses for biosecurity purposes against agreed performance standards (as listed in the business rules - see Appendix A)
      - advising AMM on the benefits, feasibility, cost and a funding model to support the introduction of a microchip-based traceability system for all horses incorporating a national horse database and movement register, and covering associated start-up costs and ongoing communications, monitoring and enforcement activities
      - considering the appropriateness of accommodating broader industry objectives potentially relating to animal welfare, emergency response management and the integrity of trade in horses, as part of the NHTS, and
      - proposing appropriate amendments to the NHTS business rules to enhance the system's performance.
8. Approve the composition of the NHTIT as an industry-led taskforce with Commonwealth and jurisdictional representation.

1. BACKGROUND

Senate inquiry

In early 2019, the Australian Senate requested that its Rural and Regional Affairs and Transport References Committee investigate the feasibility of establishing a National Horse Traceability Register for all horses. In November 2019, the committee released its report entitled '*The feasibility of a National Horse Traceability Register for all horses*' (the Report).

Context for convening the NHTWG

Following the release of the Report, the NHTWG was formed as a non-statutory committee in 2020 by the Agriculture Ministers' Meeting (AMM) and the Australasian Racing Ministers' Conference (ARMC) to provide advice on matters relating to the design and introduction of a traceability system for horses, donkeys and mules in Australia with biosecurity as its core purpose.

In line with the Report's recommendations, the NHTWG during its deliberations focused on horse traceability in the context of the prevention and containment of disease, in particular economically important emergency animal diseases and zoonoses (diseases that can be transmitted to humans from animals).

2. THE NATIONAL HORSE TRACEABILITY WORKING GROUP

Terms of Reference

The terms of reference of the NHTWG were:

1. To consider and make recommendations on the design, introduction, operation, legal framework and enforcement of a traceability system, addressing biosecurity, welfare and broader horse industry and stakeholder needs.
2. To review existing national livestock and companion animal traceability and register schemes as a guide how to approach the design and operation of a system for the horse industry.
3. To review existing horse tracing efforts and data collection arrangements in Australia.
4. In consultation with stakeholders, consider the funding, policy, legal, communications and enforcement challenges for the jurisdictions.
5. In consultation with stakeholders, advise on
   - Preferred horse identification, registration and database management arrangements including funding, legal and data access considerations,
   - Business rules relating to data collection and reporting applicable to each industry sector,
   - The register's role in the management of emergency animal diseases, natural disaster preparedness, rider safety, and horse theft.
6. In consultation with stakeholders, develop an indicative timetable for the introduction of a system.
7. Not have a defined focus on welfare outcomes and welfare activities related to horses or be deliberating on the end-of-life options for horses.
8. To make recommendations to AMM and through the Agriculture Senior Officials' Committee (AGSOC), for options for a national horse traceability system for Australia.

Represented organisations

The NHTWG was chaired by Mr Stuart McLean, OAM, with representatives from the following organisations:

- Animal Health Australia
- Harness Racing Australia
- Racing Australia
- Royal Society for the Prevention of Cruelty to Animals
- Australian Horse Industry Council
- Equestrian Australia
- The Australian and State and Territory Governments.

The NHTWG met 14 times between October 2020 and October 2022, twice face to face (22 April and 19 May 2021) and 12 times by video conference (21 July 2021, 20 August 2021, 10 September 2021, 22 October 2021, 13 December 2021, 8 February 2022, 24 March 2022, 5 May 2022, 27 June 2022, 10 August 2022, 5 October 2022 and 26 October 2022), and also corresponded by Microsoft Teams and email.

A NHTWG subcommittee was convened to discuss the key elements required to achieve adequate horse traceability to address biosecurity risks, to draft proposed business rules outlining horse sector participant obligations relating to property registration, microchip use, movement records and associated data management, and to draft a list of frequently asked questions and answers specific to horse traceability in the context of a NHTS (See Appendix B).

3. CONSIDERATIONS

Australia's horse population and economic importance

There is no accurate figure on Australia's horse population. Current estimates vary from between 900,000 to 1.8 million horses[3].

Horses are kept for a range of recreational, equestrian and racing purposes, as working animals particularly in the context of livestock production, and as pets.

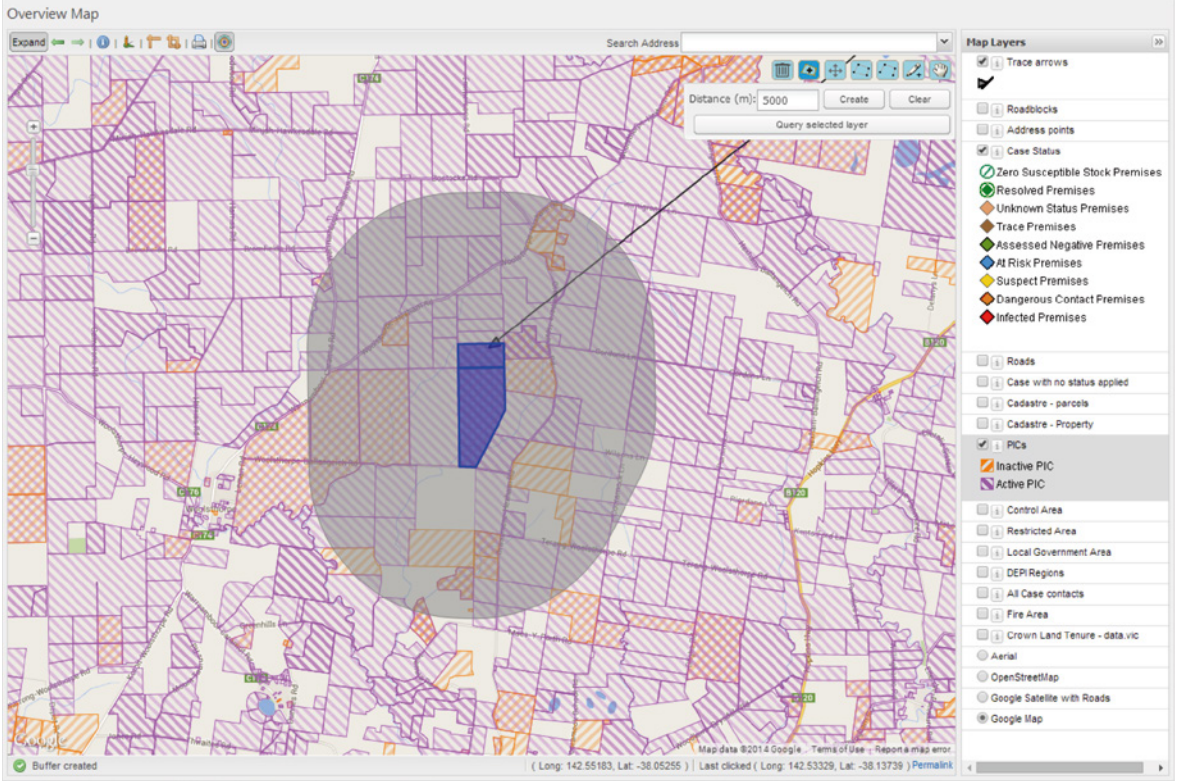
The 2017 economic impact study of the nation's Thoroughbred racing industry alone concluded that it contributed $9.15 billion to the Australian economy and provided 72,000 full-time jobs, with more than 159,000 individuals directly or indirectly involved in Thoroughbred racing nationally[4].

Traceability during disease incursions

There are many serious diseases that affect horses that are either not present in Australia or that occur sporadically. Notable examples include African horse sickness (AHS), equine influenza (EI), Hendra virus and vesicular stomatitis. The speed with which infected and potentially exposed horses are able to be traced is a critical factor in determining how quickly an incursion of an emergency disease is contained.

Knowing the physical location where susceptible animals may be located is also essential to support the surveillance effort and proactive measures such as vaccination. Figure 1 provides an example of how geospatial data sourced from Victoria's Property Identification Code (PIC) register is able to be used to identify properties with susceptible species that are in the vicinity of a simulated disease outbreak.

FIGURE 1. Use of geospatial PIC register data to identify properties within a 5km radius of a simulated outbreak



[3] Australian Senate's Rural and Regional Affairs and Transport References Committee report entitled '*The feasibility of a National Horse Traceability Register for all horses*'

[4] IER published study Thoroughbred Racing Nationally, Racing Australia Study - Racing Australia Study, https://ier-study.racingaustralia.horse/.

The NHTWG acknowledged that property registration is an integral part of all successful livestock traceability systems. During biosecurity emergencies, the challenge is to quickly determine the properties where infected and exposed animals are located. For a number of years, properties in Australia on which horses are kept, in most jurisdictions, have needed a Property Identification Code (PIC). The NHTWG also recognised that significant work is required to ensure PIC data is kept up-to-date and all horse owners/carers are familiar with and appreciated the value of the PIC system.

Disease threats and incursion costs

One example of a disease incursion impacting Australia's horse industry was the equine influenza (EI) outbreak of 2007. Horses on more than 10,000 properties were affected and over 140,000 horses needed to be vaccinated during the response effort. The outbreak caused major disruption to the movement of horses across the country. Estimates of the economic impact of the outbreak range from $350 million to $2 billion[3].

Containment and eradication costs associated with emergency animal disease incursions are shared between government and industry according to cost-sharing principles agreed under Emergency Animal Disease Response Agreement (EADRA).

Diseases are classified in the EADRA agreement into four categories with the cost-sharing arrangements differing for diseases in each category. For example, African horse sickness (AHS) is a Category 3 disease. The Commonwealth and states/territories would collectively be responsible for 50 per cent of the containment and eradication costs associated with the response to an AHS outbreak. Equine influenza is a Category 4 disease, with governments contributing 20 per cent to costs and industry responsible for 80 per cent.

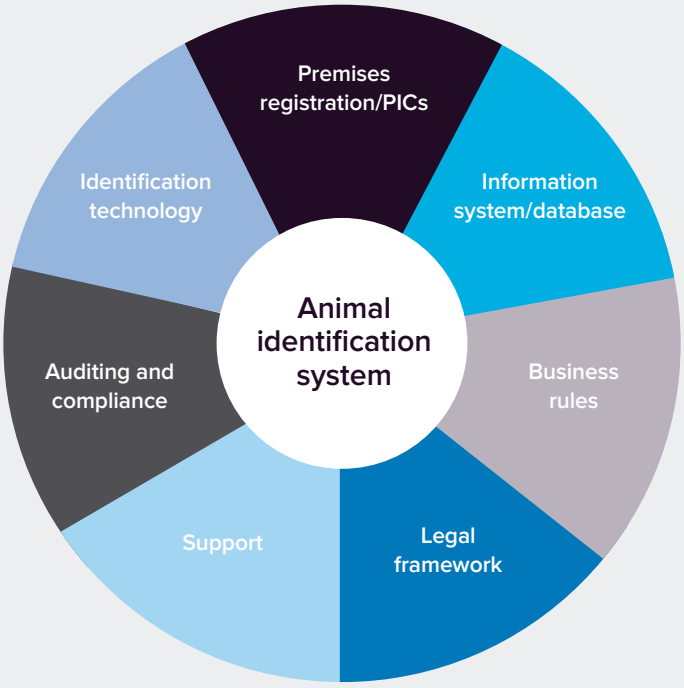
World Organisation for Animal Health

The World Organisation for Animal Health (WOAH) (formerly the Office International des Epizooties or OIE) is the intergovernmental organisation responsible for improving animal health worldwide. Standards published by the WOAH cover all animal species.

Chapters 4.2 and 4.3 of the WOAH Terrestrial Code contain guidelines on the design and operation of a livestock traceability system[5]. Figure 2 shows the various components that, according to the WOAH, are likely to be needed as part of such a system.

The NHTWG noted that the information system/database described in Figure 2 could potentially be a single database, or several separate databases and electronic and paper-based record keeping systems

FIGURE 2. Components of an animal identification system



[3] Australian Senate's Rural and Regional Affairs and Transport References Committee report entitled '*The feasibility of a National Horse Traceability Register for all horses*'

[5] World Organisation for Animal Health (OIE) 2012, *Terrestrial animal health code, Volume 1, Chapter 4*, http://www.oie.int/international-standard-setting/terrestrial-code

that are able to be accessed by government staff during biosecurity emergencies. In an emergency response, this could then enable information about an animal, its probable property of residence and/or the name of the responsible person to be established more rapidly. Whilst not ideal, record keeping could also be paper based.

Consultation

To support the review, the NHTWG considered advice from a range of stakeholders and assessed information from a range of sources.

Racing Australia

Racing Australia has introduced new requirements that ensure location and owner data are available for Thoroughbred broodmares, stallions, foals, unnamed horses, registered racehorses and retired racehorses at least until they leave the industry or care of Thoroughbred industry participants.

The database not only requires people involved in the racing industry to ensure that real-time location data for horses is accurate, but also allows for owners of retired racehorses to voluntarily provide location and ownership data. Individual horse identification and location traceability is via the use of microchips which are utilised across the Thoroughbred horse population and are integrated into the racing industry's traceability platform.

Professor Tim Morris

Professor Tim Morris was invited to present to the NHTWG at its meeting on 22 October 2021 on the UK's Equine Register in partnership with government and relevant industry sectors. Professor Morris is a non-executive board member from the United Kingdom's Department for Environment, Food & Rural Affairs.

Professor Morris recommended that the NHTWG consider three important points:

1. What is the purpose?
2. What data is required?
3. How will the system be enforced?

> ***"Keep it really simple and think about the core function."***

Mr Stewart Everett

Mr Stewart Everett was invited to present to the NHTWG at its meeting on 22 October 2021 on the operation of the UK's Central Equine Database. Mr Everett is the Chief Executive of the UK's Equine Register.

The Equine Register operates integrated animal identification and lifetime traceability systems. The register enables government, industry and governing bodies to provide national identification, registration, verification, safeguarding and lifetime traceable services and provides the Central Equine Database for the UK Government via the National ChipChecker platform.

ChipChecker provides the public and veterinarians with secure access to equine records and enables owners to view and update details about themselves and their horses. It provides a digital solution for veterinarians, police, local authorities, welfare and border control agencies to identify a horse in real time and offline. The Equine Register provides data integration, insights and data management of multi species data for the Livestock Information Service, Department of the Environment, Food and Rural Affairs (DEFRA) and livestock industries. The Register has been in place since 2016.

Dr Denis Napthine and Mr Tom Riley

Dr Dennis Napthine and Mr Tom Riley met with the NHTWG on 22 October 2021 to discuss the findings and recommendations specific to horse traceability contained in the *Thoroughbred Welfare Initiative* report. This report was prepared by the Thoroughbred Aftercare Welfare Working Group (TAWWG) and was released on 29 November 2021.

The TAWWG included participants from the breeding and racing sectors of the Thoroughbred industry and focused in particular on how the welfare of Thoroughbred horses could be protected and enhanced throughout their lives, including through better traceability.

A copy of the *Thoroughbred Welfare Initiative* report can be found at www.thoroughbredwelfareinitiative.org.au

Commercial registries

The NHTWG noted that there are currently five companion animal and horse microchip registry services licensed under Victoria's *Domestic Animals Act* and that operate nationally namely:

a) Petsafe (including standardbred microchip information sourced from Harness Racing Australia)
b) Australasian Animal Register
c) Central Animal Records
d) Homesafe ID
e) National Pet Register

Working together licensed registers sponsor the Pet Address website (at www.petaddress.com.au). This website enables users to search to determine the participating database where ownership information for a microchipped horse can be found. If a microchip number is present on one of the participating databases, users are then directed to that database for further information about that animal. Purchasers can then report ownership changes, and parties with access privileges, such as pounds, can use sourced information to rehome stray animals. Licensed registry databases focus principally on dog and cat registration. Horses are believed to represent only a small percentage of the animals that they have listed.

Licensed animal registry services charge a fee to register a microchipped horse or to change the ownership details of a horse. Fees for the processing of such changes are typically in the range of $15 to $25. To register ownership changes, the signature of the seller or a statutory declaration are generally required.

The usefulness of licensed registers in establishing the current owner and/or property of residence of a horse, or whether a horse is still alive or not, is limited. The lack of online options, the difficulty in securing the signature/s of previous owners and cost are several reasons why purchasers of horses fail to register an acquisition. Transcription errors when microchip numbers are manually recorded on ownership transfer forms, and the presence for some horses of records on more than one commercial register are also issues.

There are legal considerations for registers in relation to the release of information that they hold about microchipped animals. Parties adversely affected by the release of information could potentially take legal action against a register. For this reason, registers typically restrict access to records about microchipped animals. Clauses such as the following typically appear on registry websites:

> ***'xxx will only release your information to assist in reuniting you with your pet or if required by law. Councils have access to your owner and pet information on xxx and other national microchip registries and may use this information with local council pet registration and in administration of legislation'***

The cost and challenges associated with enforcing a requirement that people acquiring microchipped horses either as purchasers or as carers register the sale, movement, export or death of a horse in a timely manner was considered on behalf of the NHTWG by KPMG (see Section 7 of this report).

Thoroughbred industry registries

The Australian Stud Book (ASB), a subsidiary of Racing Australia (RA), records the parentage of Thoroughbreds born or entering Australia for the purpose of racing and breeding. Individual identification is via DNA typing, brands, markings and, since the year 2000, microchip numbers, all attached to a unique ASB identification number. RA references the ASB register for ownership registration purposes whilst Thoroughbreds are in the racing or breeding herd. RA also provides a horse identification service for people who have acquired a Thoroughbred that has left the racing industry but require clarification on the horse's identity, for a fee of $75 per search.

The Thoroughbred industry's microchip register is currently not linked to the Pet Address system.

Equestrian and breed associations

The Equestrian Australia (EA) member database, EA Online, is used for member registration by EA and all State Branches. Horses are required to hold full registration for competition events. Only information about horses and ponies that participate in events is collected. EA Online data is not shared with other sectors, or with organising committees.

There is no national entry system for state and national events. Multiple event entry systems are used, including Nominate https://nominate.com.au/, Global Entries Online www.globalentriesonline.com.au, ManeHub www.manehub.com, Equipe www.equipe.com and many more. These systems all collect different information.

When a horse dies, the identification papers may be retained by the owners but must be first sent to EA for cancellation. There are no penalties for not updating this information. When a horse is sold, the owners should notify EA but there are no penalties for not doing so. If the horse is sold to another EA member, the horse will have to be removed from the previous owner's membership and registered to the new owner's membership in order for them to ride it at events (particularly those that use Nominate and are linked with EA Online).

The Australian Horse Industry Council (AHIC) is a diverse collective of breed societies, performance/competition focused organisations, service providers and commercial retail enterprises.

Some of the breed societies have developed (at their own expense) sophisticated registration requirements (Stud Books) that may use any number of identification methodologies. This includes microchipping, brands, descriptions of colour, gender or a document of description which has the markings (white socks, blazes, hair whorls etc.). However, it is not mandatory to register all progeny within the breed society. The accuracy of the data held by breed societies cannot be assured, especially when horses change ownership or upon death of an animal. Some registered horses may hold multiple registrations across several organisations or have different names, giving an inflated picture of the total horse population.

Amongst the performance/competition groups there is a range of detail required by the organisation as to the absolute identity of the horses used for competition or club/rally participation. Details such as where the event was held, the identity of participants who attended, and in some cases where the point of origin and place of return of the horses who were used in the event are often recorded. Tracing documentation is an essential part of the entry system on platforms such as Event Secretary www.eventsecretary.com.au, Campdraft Central www.campdraftcentral.com.au or Horsecomps www.horsecomps.com. Despite not having absolute identification requirements of horses used at competitions or a club rally, valuable biosecurity tracing data is often collected such as place of origin, contact details of the owners of horse cohorts at the event, and place of return after the event or rally. The current vaccination status of horses may be recorded at the discretion of owners. There are a number of equine competition organisations (such as the Australian Endurance Riders Association and the National Campdraft Council of Australia) that already require a PIC as a mandatory entry requirement for competition.

With the retail enterprises and service provider members of the AHIC, there exists an opportunity to reach out to any of the horse enthusiasts who are not members of any breed or performance organisation. These businesses possess within their client base an ability to make contact with horse owners in the event of an exotic disease incursion or in response to a natural disaster. Some of the service provider groups require their membership to keep accurate records of locations that they have visited and to what horses they have provided professional care. This information is a core element of any biosecurity tracing document. The Equine Dental Association of Australia www.equinedental.com.au recognises the potential of the members in unwittingly spreading disease.

4. DATA COLLECTION AND MAINTENANCE BY ORGANISATIONS AND BUSINESSES

Survey of information collection practices

To further understand the opportunities and challenges associated with implementing a NHTS, the NHTWG engaged a service provider to conduct a survey of horse industry organisations and businesses in order to gain feedback on current information collection practices.

The survey proforma was forwarded in late January 2022 to 69 industry stakeholder organisations and 30 businesses. Submissions closed in mid-February 2022. The survey sought responses about the types of information organisations and businesses already collected and maintained, who collects it, updated it or had access to it, conditions of information collection from members or customers, and under what circumstances information about a disease or emergency incident could be distributed to contacts recorded on respondents' registers.

Completion of the questionnaire was voluntary and any personal information provided by respondents remains confidential.

Summary of survey findings

Responses were collected from organisations, defined as a separate legal entity, and businesses, either a sole trader, partnership, company or trust. Some individuals responded in both categories, which contributed to a high 'not applicable' response to some questions.

The types of organisations that responded included associations related to riding types (such as riding club or racing), breed societies, animal welfare and rescue groups, as well as some tertiary education institutions. Business types that responded included veterinary practices, and horse health, transport, studs, breeders, trainers of horses and riders, agistment property operators and industry service providers (such as saddlery and event management).

The number of fully completed survey responses was low compared with the numbers of people involved in the horse industry – about 26 completed the majority of the organisation questions while about 31 completed some or all of the business questions. This is unlikely to be a representative sample and so it has been difficult to identify trends that can be said with certainty exist across the industry. That said, the information gleaned from responses does provide an insight into the current practices around information gathering and storage.

Overall, the keeping of records, and in particular the types of information kept in a register, was specifically related to the mandate of the organisation. If the organisation was managing data on behalf of their sector or where there was an interface with a council/shire or police, the practices around collection, management and access seemed to be more rigorous, particularly the larger the organisation. Six organisations had more than 5000 members and these all had a centralised database owned by the organisation and none had paper-only systems. They all had either electronic systems or a combination of electronic and paper systems.

For the majority of organisation respondents, they were storing data in a register, and it was only the registered owner who could update the register via an electronic or paper-based update provided to the organisation for a staff member to complete.

With regard to people who were able to access records, this was related to the organisation or business mandate and how the information had been gathered. Terms of use relating to privacy and the reason for which data was originally collected were the primary reasons why the information in the register could not be broadly shared. Breed societies were more likely to enable anyone to access the register.

Across organisations and businesses, there is a range of detail collected relating to horse identification. In summary, both groups are collecting what they need to be able to operate and any change may require alterations to the entity's purpose, privacy

policy, operating regulations and/or upgrades to its information keeping procedures and tools.

About 70% of organisation respondents were keeping details on horse gender/markings, registered horse name, microchip number, brands/tattoos and member/ licensed person details (name, address, phone). About 60% were keeping the address of properties where horses reside while 45% were keeping PIC information. For businesses, nearly all were keeping their customer's name and phone number and three-quarters recorded the identity of horses. Only one-third were keeping details of the PIC from where a horse was transported to attend the business location.

With events being a potentially high-risk place for disease transmission, the focus on maintenance of records around events was of interest in the survey. Of those organisations with involvement in events, 85% were keeping records of horses that attended. Of those keeping records, 77% were recording horse identity, 69% the carer's name and phone number, and 46% each for location from which a horse was dispatched and that location's PIC. While not a large sample size (n=13), this provided some of the highest similarities around record keeping between groups in the survey responses.

In the case of an emergency, the ability of all groups to share specific information about members on their registers was mixed. For organisations, more than half of respondents would be able to share horse ownership, identification and location/ contact person details based on membership conditions. For businesses, only 45% would be able to share information about their customers in the event of an emergency.

However, the willingness to pass on information in the event of a disease incident was high among both groups at more than 90% each. This would indicate the importance of timely information distribution in a format that organisations can easily distribute to members.

Overall, businesses were more positive about a system and its potential benefits to the industry than organisations were – but they also identified a broader range of potential issues. The most common potential issues identified across both groups were cost, non-compliance, the additional workload for volunteer organisations, and ensuring quality and confidentiality of data and ensuring that it is only used for the purpose for which it is collected. The most common potential benefits listed were disease management, biosecurity and traceability and improvements to animal welfare.

Possible future registry enhancements

Registers on which information about horses is stored would be more useful for biosecurity and other purposes if they also had the ability to accept and record on a voluntary basis information that industry could then take responsibility for. Such functionality could include the ability to record:

- Breed (if not already accommodated)
- Name if the horse has been named for racing or breeding, or for performance or equestrian purposes
- Previous uses
- Date of birth (actual date, month and year, or year)
- Gender and markings
- Carer and their phone number and email address
- PIC of place where the horse is located (essential from an emergency disease or natural disaster response perspective)
- That an animal has died or been exported

Spare fields should also be available for use as needed at a later date.

Increasing and maintaining the information on registers about horses is a challenge for the future. Increasing information on registries will add legal and IT complexity to the challenge of ensuring that records held are accurate and up-to-date.

Work will also be needed to ensure that registry services are able to release information for biosecurity purposes with legal protection.

Developments in technology, including the use of microchip readers with Bluetooth functionality that link to apps on mobile phones, have the potential in the future to simplify the recording of useful information including movements on industry registers. They will also avoid the need for microchip numbers to be transcribed reducing the risk of transcription errors.

5. HORSE TRACEABILITY OPTIONS

MJA National Horse Traceability Project report

Marsden Jacob Associates (MJA) was engaged by the Victorian Department of Jobs, Precincts and Regions, independent of the NHTWG, to provide a report assessing options for the identification and tracking of horses in Australia for biosecurity purposes.

The MJA report, released in January 2022, described current traceability arrangements within horse industry sectors, described overseas models (United Kingdom, European Union, Canada) for tracking horses and assessed the scope and suitability of state PIC registers and industry-based animal identification and/or movement registers. The report also discussed horse related emergency disease threats.

The MJA report considered four options for enhancing horse traceability in Australia (see Table 1).

TABLE 1. Table of Options – ***(from Marsden Jacob Associates - 'National Horse Traceability Project' report – 13 January 2022, Page 5).***

5.1.1 Option 1: Continuation of the status quo

- Voluntary microchipping and database registration: mandatory under racing industry rules for Thoroughbreds and Standardbreds only
- PIC coverage for all locations where horses reside
- No national register (beyond above)

5.1.2 Option 2: Building on Option 1 and addressing gaps in the PIC system

- Uniform national PIC business rules
- Enforcement of PIC legislation
- Mandatory recording of high-risk movements from and to PICs
- Existing industry-managed microchip or paper-based tracking
- Industry registers align with uniform PIC business rules and link to Pet Address
- Industry registers establish authority to release data to government agencies specifically and exclusively for biosecurity and emergency response purposes

5.1.3 Option 3: Unified PIC system with jurisdictional reconciliation of databases including national register linking microchip databases

- Mandatory use of PICs by industry with the recording of movements from and to PICs
- Record location and movement data across animal lifecycle (address inconsistencies and gaps)
- State level paper-based and/or electronic system for all horse movements
- National register linking industry and commercial microchip databases

5.1.4 Option 4: NLIS+ approach for horses (significant step)

- Mandatory microchipping for all horses
- Describes register ownership and system governance arrangements that could potentially be adopted.
- Uniform national PIC business rules
- All movement data is scanned and updated within 24 hours.
- National movement register

MJA concluded that the preferred approach in the first instance should be Option 2, namely the strengthening of the existing PIC system, improved record keeping for horse movements, and better access to and utilisation of industry-held information by government agencies during disease outbreaks and emergencies.

MJA noted that knowing the properties where susceptible animals are located is critically important during disease outbreaks. Because of its relatively lower cost and likely effectiveness at delivering the required biosecurity outcomes, MJA recommended that as a starting point, a NHTS utilise the PIC system complemented by record keeping where horses move between PICs. MJA concluded that the funding and compliance challenges associated with attempting to implement a microchip-based system complemented by a national owner register and movement database would likely critically undermine successful implementation.

A copy of the *MJA National Horse Traceability Project* report can be found at https://agriculture.vic.gov.au/livestock-and-animals/horses/horse-traceability.

NHTWG assessment of traceability options

After considering information in the MJA report and advice from a range of sources, the NHTWG agreed that the two options that best represented possible pathways forward in relation to a future NHTS were Option 2 and Option 4. Refer to Section 8 of the report for further information on the assessment of the Options.

KPMG report – Design, governance and funding of a NHTS

On behalf of the NHTWG, KPMG was engaged to prepare a report focusing in particular on Options 2 and 4. The KPMG report entitled *'Scoping of models for the design, governance and funding of a national horse traceability system'* was finalised in August 2022 (see Section 7 of this report for more detailed information on Options 2 and 4).

6. PREFERRED TRACEABILITY OPTION AND RECOMMENDATIONS

Preferred option

Four design options for a horse traceability system with biosecurity as its focus were identified through a review project undertaken to assist the NHTWG by MJA.

The NHTWG has focused on two of these options, leading to more detailed consideration of the possible design and operational features of a National Horse Traceability System (NHTS). These options are a system based on the use of Property Identification Codes (PICs) complemented by the recording of horse movements by industry participants (Option 2), and a microchip-based system supported by a national ownership and movement database (Option 4)[1]. KPMG determined that both Options are expected to deliver the desired biosecurity outcomes, but Option 2 is substantially more cost effective in delivering these outcomes – including implementation and ongoing costs to horse owners[2].

The preferred option that the NHTWG proposes be considered by AMM to improve the ability to track horses is Option 2 as described in the proposed business rules (Appendix A). Its features are as follows:

- The registration and assigning of PICs to all properties throughout Australia on which domesticated horses reside
- Uniform national PIC business rules for properties on which horses reside
- Enforcement by the jurisdictions of PIC rules and associated legislation
- Mandatory recording by industry participants of horse movements between PICs
- Voluntary microchipping in a standardised manner and associated registration of 'chipped' horses on existing databases
- Mandatory microchipping as an option in sectors where there is a particular need, such as to support integrity imperatives within the racing industries
- Use of industry managed microchip or paper-based tracking (no national ownership or movement register)
- Industry registers that record PIC details in relation to locations where horses owned or managed by constituents reside
- Industry registers with authority to release data to government agencies specifically and exclusively for biosecurity and emergency response purposes.

Other recommended complementary activities include:

- Refreshing of the PIC registers maintained by the jurisdictions for all parcels of land on which horses reside, with ongoing work to ensure that these registers remain accurate and up-to-date
- Working with existing identification and movement recording registers to maximise their value during biosecurity emergencies and natural disasters
- Supporting registers accommodate, utilise and align with uniform PIC business rules
- Encouraging registers to establish authority to release data to government agencies specifically for biosecurity and emergency response purposes
- Explore opportunities for greater database integration and electronic movement record collection and storage including the possibility of adopting Universal Equine Life Number (UELN) standards.

Although ultimately the development of a NHTS incorporating greater functionality may be desirable, the NHTWG agrees that there needs to be a base level starting point that provides the platform to facilitate a move in time to a more advanced system should this be industry's wish. Attempting to introduce as the starting point a more complicated and demanding system would lead to resourcing and compliance challenges that are likely to undermine successful implementation. This, however, does not preclude the addition of further features and obligations by particular industry sectors to address their broader needs, or more generally in the future. This includes features and obligations that are likely to be beneficial in relation to horse welfare.

[1] See *Marsden Jacob Associates - 'National Horse Traceability Project' report – 13 January 2022 for further details.*
[2] See KPMG report (Appendix C) page 42.

National Horse Traceability Implementation Taskforce

An important consideration for the NHTWG is the mechanism through which further work on the development and introduction of a NHTS should be progressed. NHTWG considers that the vehicle for this work should be a taskforce led by industry, with membership available to representatives from the Commonwealth and jurisdictions.

The suggested name for this taskforce is the National Horse Traceability Implementation Taskforce (NHTIT). Its role would in the first instance focus on establishing funding arrangements to support the introduction and maintenance of a NHTS, defining the system's KPIs, developing a communications plan and working with industry sectors to accommodate and gain maximum benefit from the system.

After five years from its 'go live' date, it is envisaged that NHTIT would engage an independent party to review the performance of the NHTS and consider the appropriateness of accommodating broader industry objectives potentially relating to animal welfare, emergency response management and the integrity of trade in horses.

The recommendations of the NHTWG regarding establishment of a NHTS in Australia are listed below in full:

1. Australia's NHTS should at its core address biosecurity threats and utilise the current property registration and PIC systems administered by the jurisdictions
2. Industry participants be required to generate and maintain horse movement records. These records should be readily accessible to government agencies for use during biosecurity incidents and emergencies
3. Subject to an agreement on funding (see recommendation 7), jurisdictions be asked to enact legislation by no later than 1 January 2025 that will support nationally consistent business rules relating to the operation of the NHTS (see Appendix A)
4. Industry be asked to commit to working cooperatively with government to introduce, support and utilise the system
5. Existing commercial and industry managed microchip registers be encouraged to record PIC details for the locations where horses reside when horses are initially registered, microchipped, change ownership, are exported or are reported as deceased

6. Commercial and industry horse identification and movement registers be encouraged to authorise as part of their Terms of Use conditions that allow the release of data to government agencies for use during biosecurity incidents and emergencies
7. Agriculture Ministers Meeting (AMM) appoint an industry-led National Horse Traceability Implementation Taskforce (NHTIT) to:
    a) recommend within 12 months of AMM agreement in principle to proceed, a mechanism for generating the funding needed for system implementation and maintenance, in particular covering costs associated with communications, monitoring and enforcement;
    b) develop a cost guide to inform and secure outcome-based funding to enable implementation;
    c) oversee the introduction of the preferred NHTS (Option 2) within agreed timelines;
    d) agree on KPIs against which the performance of the NHTS can be assessed in the future;
    e) develop a communications plan to be delivered by government and industry organisations outlining to horse industry participants their NHTS related obligations and the benefits of the system;
    f) through an independent review, explore opportunities for greater database integration and electronic movement record collection and storage including leveraging existing industry sector databases and the possibility of adopting Universal Equine Life Number (UELN) standards;
    g) encourage and support industry sectors that choose to implement enhanced versions of the NHTS that have broader objectives such as welfare, emergency response management, rider safety and the integrity of trade in horses
    h) within five years after its commencement, engage an independent consultant to review the NHTS for the purpose of:
        - assessing its effectiveness at tracing horses for biosecurity purposes against agreed performance standards (as listed in the business rules - see Appendix A)
        - advising AMM on the benefits, feasibility, cost and a funding model to support the introduction of a microchip-based traceability system for all horses incorporating a national horse database and movement register, and covering associated start-up costs and on-going communications, monitoring and enforcement activities
        - considering the appropriateness of accommodating broader industry objectives potentially relating to animal welfare, emergency response management and the integrity of trade in horses, as part of the NHTS, and
        - proposing appropriate amendments to the NHTS business rules to enhance the system's performance.
8. Approve the composition of the NHTIT as an industry-led taskforce with Commonwealth and jurisdictional representation.

7. INDICATIVE COSTS AND BENEFITS OF OPTION 2 AND OPTION 4

After considering each of the options outlined in the MJA report, the NHTWG recommended the engagement of a consultant to quantify the costs and benefits of establishing a base level NHTS employing state/territory PIC registers complemented by industry-maintained movement records (Option 2), as well as the costs and benefits associated with a more advanced microchip-based system supported by a national horse ownership and movement database (Option 4). KPMG was engaged by DJPR on behalf of the NHTWG in May 2022 to undertake this analysis.

KPMG's report entitled *'Scoping of models for the design, governance and funding of a national horse traceability system'* completed in August 2022 provides a national breakdown of the likely costs of implementing and supporting both Options 2 and 4 (see Appendix C). KPMG's findings are outlined below:

	Option 2 **- Enhancing the PIC System and Record Keeping**	**Option 4** **- National Horse Traceability Database**
Cost to horse owners	Implementation costs principally to register properties that currently do not have a PIC and to refresh PIC registers: $500,000 Ongoing costs associated with the maintenance of jurisdictional PIC register information: $500,000 per annum	Implementation costs principally for microchipping the national herd[6] and for readers: $119.2m – $137.8m Ongoing costs to cover microchipping of the annual foal crop: $18.3m – $22.9m per annum
Cost to the system	Implementation costs for communications and engagement: $400,000 – $1.6m Ongoing costs mainly for monitoring and enforcement of PIC and record keeping requirements: $2.6m – $3.6m per annum	Implementation costs mainly for database creation: $3.2m – $6.2m Ongoing costs mainly for database operations and governance, and for communications, monitoring and enforcement: $8.3m – $10.8m per annum
Total costs	**Implementation costs: $0.9m - $2.1m** **Ongoing costs: $3.1m – $4.1m p.a**	**Implementation costs: $122.4m – $144m** **Ongoing costs: $26.6m – $33.7m p.a**

KPMG was able to estimate the costs, as above, however the assessment of the relative benefits was somewhat more subjective.

KPMG contends that for both options, there are considerable biosecurity benefits that can be realised – with the options representing different approaches and level of detail. KPMG stated that there are incremental biosecurity benefits from implementing both options, with these benefits not expected to vary materially between Option 2 and Option 4 (Refer to Appendix C - Slide 42 of the KPMG report).

[6] In most states/territories horses can only be microchipped by a veterinary surgeon. The cost estimate for microchipping a horse used by KPMG was $175 including veterinary fees.

Further, KPMG discussed stakeholder consultations that revealed non-biosecurity benefits that could be unlocked with further consideration, as outlined below and in Appendix C, page 43.

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Cost Analysis

Stakeholder consultations revealed a number of other non-biosecurity benefits that could be unlocked with some further consideration

While not the core focus of the proposed traceability system, stakeholders identified other benefits that may potentially be realised by the implementation of both Option 2 and Option 4.

Benefit Category	Benefit description	Enabler(s) of benefit required	Assessment of benefit
Horse welfare	Improved traceability could contribute to improved horse welfare by improving the ability for animal welfare organisations to identify and locate owners (Option 4) or carers (Option 2) when there are concerns for a horse's welfare.	Establishment of owners registry and resources to support required analytics / enforcement. Additional consideration to data access agreements and development of access functionality would be required.	Providing welfare organisations with access to specified data has the potential to improve the ability to locate responsible parties during welfare investigations. The ability to identify individual horses and horse owners (Option 4) may assist welfare investigations in uncovering the full extent of mistreatment. This additional benefit has not been quantified.
Knackeries and Abattoir traceability	Option 4 has the potential to provide an increased ability to trace a horse throughout its life, including when horses go to knackeries/abattoirs, enabling red flags to be raised for horses that should not be going for slaughter.	Changes to current requirements of knackeries and abattoirs to preclude components of current activity.	Not realised under current scope of Option 2 and Option 4.
Rider / Handler safety	Option 4 could potentially improve rider/handler safety outcomes by improving the information available by enabling horses that require more experienced handlers or are inappropriate for beginners to be flagged on the database.	An objective process and criteria to identify dangerous horses would need to be developed, tagging of these horses in the database, and establish a mechanism to communicate risks.	Not realised under current scope of Option 2 and Option 4.
Data quality	Option 2 will provide improved data to plan and understand the scale and location of a horse population, and provides a foundation for other options if they become more affordable or preferred in the future.	Full implementation of Option 2, further questioning/data extraction added to PIC registration	Not a quantitative benefit. Foundation for improved analysis and decision-making.
	Option 4 - mechanism for efficiently 'retiring' deceased horses on industry databases once abattoir and knackeries commence scanning for microchips.	Establishment of an obligation or instruction for horse owners to mark down deceased horses.	

Currently, the proposed horse traceability options being considered only seeks to address biosecurity objectives and does not directly target the benefits detailed above. The capacity for the additional functionality outlined above to realise these benefits and the associated costs of developing required functionality has not been quantified or considered. There is no material and quantifiable difference in non-biosecurity benefits between Option 2 and Option 4.

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Significantly, KPMG noted that the capacity for additional functionality outlined in the table above to realise these benefits and the associated costs of developing that functionality was not quantified. However, KPMG stated that there is no material and quantifiable difference in non-biosecurity benefits between Option 2 and Option 4.

In summary, KPMG determined that both Options are expected to deliver the desired biosecurity outcomes, but Option 2 is substantially more cost effective in delivering these outcomes – including implementation and ongoing costs to horse owners.

8. POSSIBLE FUNDING MODELS TO SUPPORT IMPLEMENTATION AND ONGOING MAINTENANCE OF OPTIONS 2 AND 4

The NHTWG considered three possible funding models to support the implementation and maintenance of both Options 2 and 4, whilst acknowledging that other funding models could potentially also be feasible.

Consideration of the costs associated with introducing and maintaining a traceability system for horses needs to also acknowledge the potential economic cost and impact on the welfare of affected horses associated with disease emergencies.

Models discussed included:

1. Government (funded by the states/territories, with Commonwealth investment principally to support implementation)
2. Co-funded (funded jointly by Commonwealth, states/territories and the horse industry)
3. Levy funded (User pays – horse industry sourced)

	Option 2 - potential cost recovery methods	Option 4 - potential cost recovery methods	Comments
Fully government funded	Initial seed funding Ongoing funding	Initial seed funding Ongoing funding	Initiative funding from government to support implementation is possible, however governments have indicated that ongoing system maintenance funding is unlikely to be available and will need to be sourced from industry.
Co-funded (funded jointly by governments and the horse industry)	Initial seed funding from governments Ongoing funding from industry through an annual PIC renewal fee potentially supplemented by limited government co-investment	Initial seed funding governments Maintenance funding generated via 1. Annual PIC renewal fee 2. Levy for registering a microchipped horse on the database, and/or 3. Fees for registering ownership changes and movements to race meetings and equestrian events	If nationally there are 100,000 horse PICs and an annual fee of $30 per PIC was introduced, this would generate ~$3m per annum With Option 4, a 'once for life' horse registration fee of $100 would generate $10 million per annum based on 100,000 foals 'chipped' annually. Database fees, if used as the only industry derived funding source, would need to be in the order of $20 per movement record to generate the required income. 'User pays' fees and levies would also add to compliance costs due to likely industry opposition and resulting poor compliance.
Levy System (User pays – horse industry)	Ongoing funding from industry e.g. through the introduction of an annual PIC renewal fee to support jurisdictional roles	Implementation and maintenance funding generated via industry sourced investment complemented by fees and levies as above to support jurisdictional roles.	It would be challenging for industry alone to amass the funds needed to implement Option 4. The higher the industry levies and fees, the greater the monitoring and enforcement challenges and associated costs

In line with KPMG's findings, funding to support a NHTS would likely require a combination of co-investment by government and industry, particularly during implementation, complemented by a reliable and ideally nationally consistent cost recovery model to support system maintenance.

A key learning reported by KPMG was provided by Integrity Systems Company (formerly known as NLIS Limited, the operator of the National Livestock Identification System database), namely that in regard to the funding of a traceability system, ongoing funding commitments and expected funding models must be established upfront to support compliance and system improvements and all operational aspects.

The NHTWG is also mindful of the level of concern about NHTS costs and scepticism about benefits expressed by industry respondents in their feedback to the Consultation Survey (as outlined in the next section).

It is essential that funding is 'locked in' upfront before a decision is made to proceed to prevent the erosion of system performance as funding for implementation is exhausted. As MJA noted in its report, if system compliance is poor and not addressed, the horse industry and jurisdictions will face considerable reputational risk and the biosecurity and other expected benefits will not be realised.

9. BUSINESS RULES FOR A TRACEABILITY SYSTEM FOR HORSES IN AUSTRALIA

Drafting of business rules

After considering the information it had received, and informed by the conclusions in the MJA report, the NHTWG began the drafting of business rules for a NHTS aligning with Option 2.

Survey of stakeholder views

To assist the drafting process, an independent provider was engaged on behalf of the NHTWG to design and conduct a survey seeking feedback from organisations, businesses and individuals in the horse industry regarding their views on the design and introduction of a traceability system for horses, donkeys and mules in Australia.

The survey sought stakeholder feedback on the proposed business rules describing Option 2. The four-week consultation period opened in late April 2022 and closed on 25 May 2022. The consultation period was widely promoted through relevant networks and platforms. All NHTWG members as well as stakeholders in the broader horse industry were provided with content to promote the survey and consultation period including via social media, websites, newsletters and other communication delivery channels.

In total, 489 responses were received. Of these responses, the breakdown received across the three categories was:

Organisation
33, or 7%

Business
60, or 12%

Individuals
396, or 81%

Respondents across all categories represented a broad range of sectors, as outlined below.

Sector	Responses	
Campdraft / rodeo / western	3.7%	18
Companion animal / pet	6.9%	34
Eventing / dressage	18.6%	91
Harness racing	0.8%	4
Pleasure / Riding Club	18.4%	90
Racing	2.7%	13
Rural / working	3.5%	17
Showing	13.3%	65
Stud stock	9.8%	48
Other (please specify)	22.3%	109
TOTAL	**100%**	**489**

Sectors listed in the 'other' category included show jumping; animal welfare advocacy people and organisations, rescue and rehome groups; pleasure, polocrosse, endurance and harness participants (but not harness racing); horse breed society management; agistment; research; veterinary and animal health; media; advocacy and a range of industry service providers. A number of responses listed they were involved in multiple options listed and, for some, it was not possible to select only one as they were multi-disciplinary.

Organisations which responded also ranged in size in terms of member numbers, including:

- 0-1000 members – 12
- 1001-5000 members – 4
- 5001-10,000 members – 7
- More than 10,000 members – 4
- N/A – 2

Summary of findings

There was a diverse range of feedback provided from survey respondents regarding the NHTS proposed in the consultation document. The NHTS proposed by the NHTWG requires PICs for all properties on which horses reside as well as requiring individuals, organisations and businesses to create and maintain movement records (Option 2).

There were two extremes in opinion expressed by respondents namely those who do not want any system at all and those who believe the proposed system does not go far enough and that microchipping of all horses is necessary to support traceability for biosecurity purposes.

The following two questions were included amongst those posed to individuals, organisations and businesses, and responses are summarised as follows:

- **For individuals, does the location where your horse resides have a PIC? For organisations/businesses, do the locations where you host events or conduct business have a PIC?**

Response option	Individual	Organisation	Business
Yes	83%	38%	88%
No	8%	31%	2%
Unsure	9%	31%	10%

- **If the proposed business rules are adopted, what actions do you anticipate will be necessary to implement the proposed arrangements within your sector of the industry?**

Response option	Individual n=371	Organisation n=29	Business n=48
Individual: Need to apply for a PIC from their state/territory government. **Business/organisation:** Need to request members, customers or event participants apply for a PIC from their state/territory government.	12%	59%	46%
Individual: Need to update information for a PIC they currently hold. **Business/organisation:** Update information regarding the PIC of members, customers or event participants.	22%	48%	42%
Begin to record horse movement onto or off their property	68%	N/A	N/A
Upgrading electronic systems for recording PICs and movements.	N/A	48%	58%
Other	23%	41%	16%

Many did not see any value proposition in a NHTS for them or their organisation/business. Respondents identified numerous challenges if a system was adopted, including:

- Ensuring compliance, coupled with concerns over who would police it and how.
- Confusion over requirements, which would be made worse if the system was complex and people did not understand it. A simple system was preferred and an app was referenced multiple times, although there were also concerns around IT issues and the capacity of all people to use electronic recording.
- Cost of implementation and who would pay.
- Integrity of record keeping such as quality issues, consistency and whether records would be completed in the required timeframe.

- Duplication of effort, particularly where information was already being collected such as through events and breed societies.
- Difficulty in obtaining information, such as PIC numbers and particularly for communal venues such as pony club grounds, equestrian trails or beach ride areas.
- Difficult engaging all sectors/individuals of the industry, especially those who are not part of the major horse industries/organisations.
- Increased workload for already stretched volunteers, and following COVID when their responsibilities had increased.

When it came to maximising the benefits from a traceability system, the overwhelming response was that respondents did not see any additional benefit. This was from those who did not agree with the proposal but also from those who had horses that were already microchipped and registered. Of the small proportion which did see a benefit, often it was not actually being offered by the NHTS proposed and could only be realised in the future or if the system's scope was widened.

The breadth of responses included:

- Overall horse traceability, biosecurity and disease control, and accountability in the event of an outbreak.
- Horse history and location, including tracing of individual horses.
- Increased information accessibility. Conversely, there was also concern from a few respondents about maintaining privacy of information provided.
- Horse safety and to support horse welfare advocacy.
- Preventing theft.
- Protection for property owners.
- A national, collaborative system which links to other systems, and is not standalone or state-by-state.
- Natural disaster and recovery funding.

Respondents identified that a significant education and awareness campaign would be required across multiple communication platforms and target audiences. Messaging would need to be simple with easy-to-understand outputs and maintained for a considerable length of time.

There were no simple solutions offered regarding who should pay for the system and almost every sector pointed to another sector as responsible for funding it. For example, for the individual survey respondents, there were 227 comments and 72% were against any form of charge to the industry or need for a financial contribution from them as individuals, to introduce and maintain the system. Of the remaining 28%, some did provide a cost threshold – ranging from $1 to $100, either as a once-off or per horse or per year – but a portion were not clear on how it should be funded or what it was that required funding.

Most objections to paying were because respondents did not agree with the proposal and saw no benefit to them personally. The sentiment was that they were already paying multiple membership and horse registration fees to existing organisations as well as land rates and insurance, and some also paid for microchipping. Many commented that owning horses was expensive enough already without additional traceability fees or costs. The sentiment was that if the government wants to implement this, they should be funding it. There was also strong sentiment that industry participants who only have one or two animals or only ride for pleasure should not be paying but rather the 'big players' should be leading the way and paying for the majority.

For organisations, sentiment was that not-for-profits should not have to pay while organisations which had already invested heavily in databases, registers and traceability felt they should not have to pay any extra costs. For businesses, 60% were against paying for the system.

When it came to paying more for a system that offered a national horse database with ownership and movement registration, as well as associated monitoring and enforcement, the majority of respondents did not want such as system or were unsure. The percentage breakdown of responses on the merits of a system offering a national horse database is summarised below:

	Yes	No	Unsure
Individual	21%	58%	21%
Organisation	18%	55%	26%
Business	30%	46%	24%

There was significant negative feedback regarding the NHTS. The NHTWG noted that this summary lists a selection of the sentiment and comments from respondents. For every positive or proactive comment received, there were many more comments that were negative or highlighting confusion or concern over the proposed NHTS.

Proposed business rules

After considering feedback to the survey, the NHTS finalised the business rules that it believes are required to support a NHTS aligned with Option 2 (Appendix A).

Assuming a decision is made in the future to introduce a NHTS based on Option 2, the business rules are designed to inform the drafting of enabling state/territory legislation and the preparation of communications material that will be used to advise industry participants of their responsibilities.

The use of implantable microchips is not mandatory under the proposed business rules. Microchipping may, however, be required by industry organisations, for example by the racing codes, for identification, integrity and performance recording purposes. Horse owners may also choose to microchip their horses on a voluntary basis.

It is important that the use of microchips is standardised so that where a microchip is present it can be reliably read in all states and territories. The proposed business rules specify, therefore, how microchips are to be used, the microchip technology and numbering configuration, and the permitted implantation site.

Frequently Asked Questions

To assist to explain the proposed business rules and to provide context in relation to why horse traceability is important, the NHTWG also drafted and published a 'Frequently Asked Questions' bulletin (see Appendix B).

Complementary activities

In addition to the introduction of enabling state/territory legislation aligning with the proposed business rules, additional work will be needed to maximise the value of the NHTS. This work includes:

- Refreshing of the PIC registers maintained by the jurisdictions for all parcels of land on which horses reside, with ongoing work to ensure that these registers remain accurate and up-to-date
- Working with existing identification and movement recording registers to maximise their value during biosecurity emergencies and natural disasters
- Supporting registers to accommodate, utilise and align with uniform PIC business rules
- Encouraging registers to establish authority to release data to government agencies specifically for biosecurity purposes
- Exploring opportunities for greater database integration and electronic movement record collection and storage including the possibility of adopting Universal Equine Life Number (UELN) standards.

10. RESPONSES TO THE NHTWG'S TERMS OF REFERENCE

The NHTWG addressed all clauses of its Terms of Reference during its deliberations. A summary of discussions in relation to each Term of Reference is provided below.

a) Consider and make recommendations on the design, introduction, operation, legal framework and enforcement of a traceability system, initially for the commercial horse sector, addressing biosecurity, welfare and broader horse industry and stakeholder needs.

The Senate Rural and Regional Affairs and Transport References Committee report entitled *'Feasibility of a national horse traceability register for all horses'* released in late 2019, concluded that biosecurity (measures to reduce the transmission of infectious diseases) above other considerations should inform the design and operation of a national horse traceability system.

A 'whole of life' approach by which animals can be traced back to their place of birth is not essential for the management of likely disease risks facing Australia's horse industry. Diseases of greatest concern, including EI, AHS and vesicular stomatitis, have short incubation periods, and an emergency response to an outbreak of these diseases is not expected to require 'whole of life' traceability.

The expected outcome associated with the NHTS proposed by the NHTWG and that has been included in the preamble to the proposed business rules is that:

- horses throughout Australia must be traceable within 24 hours back to properties (PICs) on which they have resided or visited within a defined period of time depending on the biosecurity incident being managed (traceback), and
- horses co-residing with or that have been in contact with horses of interest within a defined period of time must be locatable within 24 hours (contact tracing).

Properties on which horses reside that should have a PIC include farms, 'lifestyle' properties, studs, knackeries, abattoirs, depots, showgrounds, sale venues, event venues, racetracks, locations where horses congregate to exercise and veterinary clinics.

Horses are typically managed individually, or in pairs for example mares with their foals, rather than on a group or mob basis. As the MJA report concludes, the presence of a microchip complemented by a requirement for movement recording on a national database is unlikely to improve the short-term traceability of horses compared with Option 2. In terms of industry views on animal welfare these have been referenced in the KPMG report (Refer to Appendix C - Slides 48 to 53). Traceability in the previous six months should be adequate to support responses to incursions of emergency diseases such as EI or AHS.

Whilst biosecurity should inform the design and the operation of a NHTS, the NHTWG supports and encourages industry to implement more advanced traceability arrangements that address broader needs.

The NHTS proposed by the NHTWG also establishes a platform on which can be added greater functionality and additional requirements should there be consensus on the benefits and related costs of enhancements in the future.

b) Review existing national livestock and companion animal traceability and register schemes as a guide to how to approach the design and operation of a system for the horse industry.

Noting that the Terms of Reference were to look at companion animal traceability, given companion animal register schemes do not provide for traceability and movement information to be recorded they have not been addressed and considered.

Property identification and registration is an integral component of the National Livestock Identification System (NLIS) for each of the foot-and-mouth disease (FMD) susceptible livestock species and is the basis on which livestock traceability systems in other countries operate.

In all states except Tasmania, property owners and horse carers are required to have a PIC for the properties on which horses reside. The information

regarding each PIC held and maintained by the jurisdictions typically includes:

- Species present
- Name of property owner/manager and their contact details
- Name of livestock manager/carer and their contact details
- Geospatial information about the parcel/s of land associated with the PIC
- Address of the property

The PIC system is a tool that can enable the movement of horses between locations to be recorded, facilitating prompt traceback and contact tracking should the need arise. An accurate and up-to-date PIC system also enables the location of nearby properties on which susceptible species also reside to be quickly identified during a disease outbreak. Simply knowing the owner of a horse and the owner's address, which is the information typically held on companion animal registers, will not enable horses of interest to be quickly located during an emergency. Often horses are not located at the owner's address.

The challenge now and in the future is to ensure that the information held by the jurisdictions regarding properties with horses is kept up-to-date to facilitate effective and prompt traceback and contact tracing should the need arise. This is a joint responsibility of horse owners and carers, industry organisations and the jurisdictions. The jurisdictions need to commit to introducing and maintaining procedures for ensuring that their PIC registers remain up-to-date and accurate including in relation to properties on which horses reside. Ongoing industry funding to support this work is likely to be required.

c) Review existing horse tracing efforts and data collection arrangements in Australia.

Horses in Australia are very mobile increasing the risk that infectious diseases will spread rapidly. During their lives, horses frequently move between properties, to racetracks and training facilities, to veterinary clinics, agricultural shows and event venues, and through saleyards and auction venues. Horses assemble in large numbers for training and recreation including at trackwork for racing, and at equestrian, domestic horse sport activity such as camp drafting, pony club and trail riding events. Horses are transported in large numbers to stud farms during breeding season, and then disperse after the season over a large geographical area. The movement of horses between states is common highlighting the importance of a future NHTS being national.

Conversely, there are also horses kept for recreational purposes and as working animals that rarely leave the properties on which they reside. Biosecurity risks associated with these horses are minimal compared to horses that move frequently.

The racing industries maintain records relating to the movement of horses for racing and breeding purposes, and uses microchipping as a tool to support identification, integrity and traceability objectives. Owners of horses used in equestrian competition or for recreational purposes are also able to microchip their horses on a voluntary basis, however this should occur in a standardised manner. Organisations conducting equestrian events typically maintain records of horses that compete along with their owner or carer details. This information is potentially useful to government agencies in a disease emergency.

Further, horses within the racing and equestrian sectors are subject to a range of identification and record keeping obligations under their respective rules. Participants are often licensed. These sectors already hold considerable information that could be useful in a biosecurity context. The challenge going forward is for those progressing the introduction and administration of the NHTS to tap into this resource.

Microchip registers, however, are often not updated with ownership/carer changes, or the death or live export of microchipped horses. Ownership registers of microchipped thoroughbred and standardbred horses are maintained whilst horses they are in the racing and breeding herds of the respective industries.

At present, microchip registers typically do not record the PIC of residence of horses, information regarding the movement of horses, or the name and contact details of carers (in addition to a horse's owner). Knowing the owner of a horse is less useful from a biosecurity perspective than knowing the property on which the horse is located and the name and contact details of its carer. For these reasons, microchip registers cannot be relied on as a single source of accurate information for tracing purposes during disease emergencies.

Based on current disease threats, the NHTWG does not believe that there is a compelling biosecurity reason why all horses in Australia should be required to be microchipped or that all movements between PICs should be registered on a central database. However, the NHTWG recommends that industry participants maintain records for all horse movements, with these records readily accessible to government agencies during biosecurity incidents and emergencies. Situations where movements should be recorded are outlined in the proposed NHTS business rules (see Appendix A).

d) Design a system covering the commercial horse sector, at least at a high level, including the purpose of the register, governance and decision making, how it would function and the required legal basis for its effective operation.

Animal traceability involves far more than simply identifying animals using brands, marks and identification devices. The physical identification of a horse is one component of a multifaceted process that allows authorities to track an animal or group of animals to their properties of residence and to quickly locate past cohorts. These components, when linked together, form a traceability system that authorities can use to address biosecurity challenges.

The NHTWG has prepared draft business rules that describe how its proposed NHTS will operate (see Appendix A). The system described in the proposed business rules is an integrated package, linking several components in a framework designed to address agreed biosecurity related objectives in relation to the timely and reliable tracking of horses.

The starting point described in the proposed business rules is relatively low cost, is feasible and will support:

- Refreshing and maturing of the PIC system,
- Maturing and standardising industry movement/data recording systems, and
- Enhancements of benefit to industry once base level arrangements have been incorporated into industry's standard operating procedures and become established practice.

Attempting to introduce a more complex system may lead to funding and integrity challenges that are likely to undermine successful implementation. Mandatory microchipping complemented by movement records is likely to add significant new costs and compliance and integrity issues although benefits beyond those associated with biosecurity are likely.

If one or more jurisdictions have the view that mandatory microchipping of horses and the establishment of a national register need to be explored to address welfare and broader horse industry and stakeholder needs (horse theft and monitoring of certain breeds to ensure that they are not transported to abattoirs and knackeries for slaughter), then AMM may wish to expand the Terms of Reference of the proposed National Horse Traceability Implementation Taskforce (NHTIT). This is not to preclude the adding of further features and obligations to the NHTS in the future to enhance its usefulness for purposes other than biosecurity. In this regard, a periodic review is recommended commencing five years after the commencement date of the NHTS focusing on the system's performance against agreed KPIs.

Obligations relating to the requirement that properties with horses have PICs are already in place in all jurisdictions apart from Tasmania, and movement information is collected routinely when horses attend race meetings and equestrian events. The challenge for all jurisdictions and for industry is associated with ensuring that PIC registers are maintained and contain up-to-date information.

e) Explore how this system could be expanded to cover working horses and horses used for recreation when and if it is practical to do so, including matters that would need to be addressed in doing so.

The proposed business rules that the NHTWG has prepared (Appendix A) cover working horses and horses used for recreation, however the proposed obligations on their owners and carers are limited because of the reduced biosecurity risks associated with such horses compared to those associated with horses that move frequently and/or that compete regularly. The most important obligation on the owners and carers of working horses and horses that rarely move is that the properties on which their horses reside have a PIC against which is recorded up-to-date information about the location and parcels of land associated with properties, and carers and their contact details.

This information will enable authorities to quickly alert carers and locate horses that may be at risk during emergencies and disease outbreaks.

f) In consultation with stakeholders, consider the funding, policy, legal, communications and enforcement challenges for the jurisdictions.

In advance of the commencement of the proposed NHTS, communication and education will be essential to ensure stakeholders understand their legal obligations and the reasons why compliance with NHTS requirements is important.

Education efforts should be ongoing, with industry and government working cooperatively on the production and distribution of communications material.

An important consideration for the NHTWG is the mechanism through which further work on the development and introduction of a NHTS should be progressed. NHTWG considers that the vehicle for this work should be a taskforce led by industry with membership available to representatives from the Commonwealth and jurisdictions. The suggested name for this taskforce is the National Horse Traceability Implementation Taskforce (NHTIT) (see Section 6 of this report for further information on the role of the NHTIT).

g) In consultation with stakeholders, advise on:

- ***Preferred horse identification, registration and database management arrangements including funding, legal and data access considerations,***
- ***Business rules relating to data collection and reporting applicable to each industry sector,***
- ***The register's role in the management of emergency animal diseases, natural disaster preparedness, rider safety, and horse theft.***

The NHTS proposed by the NHTWG will utilise existing jurisdictional property identification code (PIC) registers and existing industry animal movement recording systems and identification registers. A central movement database for horses where every movement of a horse between two properties (PICs), including to and from a racetrack, show, stud veterinary clinic, abattoir or knackery must be recorded, would be very expensive to establish and operate. Monitoring and enforcement costs as documented by KPMG would also be prohibitive. Alternatively, if as proposed by the NHTWG, records are created and kept at an enterprise/venue level, the regulatory burden will be minimal and the prompt tracking of horses during disease incidents should be achievable.

h) In consultation with stakeholders, develop an indicative timetable for the introduction of a system, initially for the commercial horse sector.

Subject to agreement between industry and the jurisdictions regarding funding for both implementation and ongoing system maintenance, the NHTWG considers that it is feasible for enabling legislation to support the NHTS to be in place in each jurisdiction by 1 January 2025. The tasks that will need to be completed over the coming years in preparation for the commencement date essentially involve securing agreement on funding and standardising existing industry arrangements to align with the obligations outlined in the business rules and the enacting of enabling and harmonised Regulations and Orders in all jurisdictions.

APPENDIX A

Proposed Business Rules to support a National Horse Traceability System

National Horse Traceability System Business Rules

Introduction

The purpose of this document is to specify business rules for the operation of Australia's system for tracking horses for endemic and exotic disease control purposes to be known as the National Horse Traceability System (NHTS).

Reasons for horse traceability

Horses can act as vectors in the spread of infectious diseases such as equine influenza and other diseases such as Hendra virus and vesicular stomatitis that have potentially significant market access and/or human health impacts. In the event of an emergency animal disease outbreak it is essential that horses of interest are able to be located quickly and accurately to manage the spread of disease.

Effective tracing enables authorities to promptly deliver preventive measures to reduce the duration of a disease outbreak and provide considerable commercial, biosecurity and animal welfare benefits. The ability to accurately identify horses is also important when collecting disease surveillance information, including sampling for diagnostic purposes.

A 'whole of life' approach by which animals can be traced back to their farm of birth is not essential for the management of likely disease risks facing Australia's horse industry. For this reason, these business rules focus on the traceback and contact tracing of horses in the six month period that precedes a disease event. Traceback and contact tracing for a longer time period may, however, still be possible.

Traceability system

The importance of animal identification and traceability is recognised in the Terrestrial Animal Health Code of the World Organisation for Animal Health (OIE).[5]

Animal traceability is far more than simply identifying animals. Using brands, marks and identification devices is one component of a multifaceted process that allows authorities to track an animal or group of animals to their properties of residence and to quickly locate past members of their cohort. These components, when linked together, form a traceability system that authorities can use to address biosecurity challenges.

The National Horse Traceability System (NHTS) described in these business rules is an integrated package, linking several components in a framework designed to address clearly defined biosecurity related objectives.

To achieve adequate traceability, the NHTS system will require the following elements:

a) a property registration system maintained by the states/territories that allocates a unique identifying number known as a Property Identification Code (PIC) to properties. The PIC register contains information on the species present, contact details for the person who is responsible for animals and a mapping capability

b) where required by racing or equestrian authorities or utilised on a voluntary basis by owners, the use of implanted microchips (transponders) to permanently identify animals

[5] World Organisation for Animal Health (OIE) 2012, *Terrestrial animal health code, Volume 1, Chapter 4*, http://www.oie.int/international-standard-setting/terrestrial-code

c) defined movement recording requirements
d) industry managed secure databases that, where applicable, register transponders, brands and markings and receive and store movement records that wherever possible are linked to PICs
e) uniform business rules and associated legal frameworks supported by enabling state/territory legislation
f) an ongoing program to educate horse industry participants about their responsibilities
g) documented arrangements for performance monitoring, governance, enforcement, evaluation and periodic review, and
h) a query system that allows authorities to easily establish the history and whereabouts of individual horses or groups of horses and their cohorts, specifically for emergency disease response purposes, on approved registers and databases.

These business rules outline industry participant obligations relating to property registration, and the electronic identification of horses, movement recording and associated data management. The other components of the NHTS discussed above will be developed and introduced as part of an implementation plan agreed between horse industry and government stakeholders.

Identification methods

Identification systems for horses often utilise one or more methods including:

- brands,
- recording markings and gender, for example via the signalment key system,
- DNA, and/or
- microchipping

The identification of a horse with a microchip (transponder) or brand does not make the horse traceable. They are tools that when used in conjunction with an accessible and up-to-date database, property registration information and movement records assist in tracking horses for disease control purposes.

Where horses are rarely moved from their property of residence, or are only moved individually or in small groups, the use of microchips and brands offers limited benefits from a traceability perspective provided accessible movement records are available to assist traceback and contact tracing.

The mandatory microchipping of horses currently does not form part of the NHTS, however horse owners if they wish can microchip their horses provided it occurs in the manner described in these business rules.

Industry sectors including racing authorities, equestrian associations and breed societies may require microchipping for integrity and performance recording purposes. Where horses are microchipped, information about implanted horses held on accessible commercial and industry registers could potentially complement, for biosecurity purposes, the information held on jurisdictional PIC registers and the movement records created and maintained by industry participants in accordance with these business rules.

Expected Outcomes

The expected outcome associated with the implementation and operation of these business rules is that:

- horses throughout Australia must be traceable within 24 hours back to properties (PICs) on which they have resided or visited within a defined period of time depending on the biosecurity incident being managed (traceback), and
- horses co-residing with or that have been in contact with horses of interest within a defined period of time must be locatable within 24 hours (contact tracing).

> ***Note: Properties include farms, 'lifestyle' properties, studs, knackeries, abattoirs, depots, showgrounds, sale venues, event venues, racetracks, locations where horses congregate to exercised including Crown Land reserves, beaches, horse riding trails and veterinary clinics.***

These business rules represent minimum requirements that by no later than (*insert agreed commencement date)* will be standardised and become obligatory throughout Australia under state/territory legislation.

Scope

These business rules apply to:

1. all horses, donkeys and mules (referred to collectively as horses) and their intact carcases,
2. their movements between properties (locations with different PICs), and
3. persons responsible for their management, care and/or their dispatch to, receival at and transportation from properties, including farms, residential properties, saleyards, assembly points, veterinary practices, pre-embarkation export depots, knackeries, abattoirs, racetracks, and pony club, rodeo, polo, camp drafting, agricultural show venues, and crematoriums and sites at which the carcases of horses are disposed.

Interpretation

Each numbered section or part of this document covers a responsible party, and contains the following information:

- Scope — specifies the parties to whom the section or part applies
- Objective — intended outcome(s) for each section
- Business Rules — minimum requirements that must be met under state/territory law
- Verifiable statements — business rules are intended to be clear verifiable statements and are numbered with the prefix 'S'
- Notes — provide guidance in the context of the business rules
- Acronyms and terms — are as defined in the glossary.

Industry databases

Industry microchip registers and movement databases are encouraged to introduce upgrades that will allow the recording of PIC of residence details, name and contact details of carers, and in relation to the recording of movements either the addresses or PICs of the properties where a movement commences and ends.

The carer is the person principally responsible for the care and husbandry of a horse or horses on a property. From a biosecurity perspective, having access to a horse's PIC of residence and the name and contact details of its carer is more important that having access to the name and contact details of its owner. Carers will often include trainers, stud masters, veterinary practice managers, and persons keeping horses for commercial purposes, for lifestyle reasons or as pets.

Record keeping

Movement records can be stored by industry participants in a retrievable electronic format or hardcopy if electronic is not available, or on an accessible database provided they are able to be promptly retrieved when requested to do so by an authorised state/territory biosecurity officer.

Commencement date

State/territory laws are expected to be in place by no later than *(to be determined)* to bring into effect the obligations specified in these business rules.

Part 1: Horse owners and carers

Scope

This Part of these business rules applies to:

- persons owning and/or managing a property where horses are bred, agisted, reared, held or kept
- persons primarily responsible for the care of horses (carers), and
- persons owning and/or managing horses moving off or onto a property at any point of a horse's life for any reason, and to the intact carcases of dead horses.

Objective

To ensure that the properties on which horses reside have a valid property identification code (PIC), and that their movements are recorded to facilitate tracking for biosecurity purposes as and when required.

Business Rules

S1.1 Property identification

S1.1.1

a) A person owning or managing a property on which a horse or horses are or will be kept must ensure that a valid PIC issued by the relevant state/territory government agency is in place for that property.

b) A person who is the carer of a horse must ensure that a valid PIC issued by the relevant state/territory government agency is in place for the property on which that horse resides.

S1.1.2

The property owner and carer are responsible for ensuring that their state/territory agency is notified within 28 days of changes to any of the following details relating to a PIC:

a) owner contact details including name, address and contact phone number,

b) carer contact details including name, address and contact phone number,

c) changes to property boundaries involving their expansion through acquisition or agreement to graze horses, or their reduction through sale or the relinquishing of a lease or agistment right, and

d) the livestock species that are or will be kept on the property.

> ***Note: A property on which one or more cattle, buffalo, bison, sheep, goats, pigs, alpacas, llamas, camels, horses, domesticated deer, and/or more than 10 domesticated emus or ostriches, and/or more than 50 poultry are present, must have a PIC.***

S1.2 Horse identification

S1.2.1

The use of implantable microchips is the only method for the permanent identification of horses regulated as part to these business rules.

> ***Note: The use of implantable microchips is not mandatory under these business rules. Microchipping may, however, be required by industry organisations for identification, integrity and performance recording purposes. Other identification methods may be used by horse owners and horse industry organisations for management and other purposes.***

S1.2.2

Other than in the context of the slaughter of horses in an abattoir or the processing of a carcase in a knackery, implanted transponders must not be removed from horses, or altered or damaged in any way either prior to or after implantation.

S1.2.3

a) A horse must not be implanted with a microchip until the animal's near-side nuchal ligament has been scanned with a properly functioning full duplex-B (FDX-B) reader to ensure that the animal has not already been microchipped.

b) Where a horse is to be microchipped, the microchip used must operate in FDX-B mode, be encoded with a unique unalterable number and comply with Australian Standards AS5018-2001 and AS5019-2001.

c) The microchip must be implanted into the nuchal ligament approximately 3 centimetres below the crest and approximately half-way between the poll and the withers on the left-hand (near) side either by a veterinarian or a technician permitted to microchip horses by the relevant state/territory authority.

d) After implantation the person responsible for implanting the microchip must check using a FDX-B enabled reader to confirm that the microchip is operating correctly.

e) The age in years, breed and gender of the horse, owner's name and address, carer's name and contact phone number, PIC of the location where the horse was implanted, and microchip number must be provided by the implanter within two business days to an accessible register approved by the relevant state/territory agency.

> ***Note: For thoroughbred and standardbred horses, microchips supplied by the Australian Stud Book and Harness Racing Australia under their respectively rules must be used.***

S1.3 Movement recording

S1.3.1

a) The person dispatching or authorising the dispatch of a horse from a PIC must ensure that a movement record is generated other than for movements:
   i. to a racetrack for a race meeting, place where the horse will be exercised or veterinary clinic, provided the horse will return within 24 hours to the PIC from which it was dispatched; or
   ii. to an equestrian event or show where the event organiser is maintaining the movement records specified in S5.2.1.

b) The movement record must be accurate in respect to each horse in the consignment and must include:
   i. the PIC and address of the property from which the horse or horses are to be dispatched
   ii. the date of dispatch of the horse/s
   iii. the number horse/s in the consignment
   iv. the description of the horse/s dispatched including if applicable any brand or microchip
   v. the name of the person creating the record
   vi. the phone number of the person creating the record
   vii. the date the record is made
   viii. the intended destination of the horse/s, being the PIC of the destination property and / or alternatively the street address of the destination property, or the name of an auction venue, saleyard, knackery or abattoir.

c) The movement record specified in S1.3.1(b) must be created within 24 hours of the dispatch of a horse from a PIC.

> ***Note: A movement record is required when a horse is moving to another PIC on which it will then reside, but not where a horse is being moved to race, be exercised, attend an equestrian event or show where movement records are being kept, or receive veterinary treatment, provided the horse will return directly within 24 hours to its PIC of residence.***
>
> ***Note: Records can be stored in hardcopy or in a retrievable electronic format provided they are able to be promptly retrieved when requested to do so by an authorised state/territory biosecurity officer.***

S1.3.2

a) The person generating a movement record must keep the record for a minimum of 6 months.

b) Copies of movement records must be retrievable by the person who generated the record upon request to do so by an authorised state/territory biosecurity officer within a reasonable timeframe per the requirements of the request.

> ***Note: Reasonable timeframe is based on the necessity of the information being requested i.e., in an Emergency Animal Disease response the information must be supplied without delay.***

S1.3.3

A person consigning a living or dead horse to a knackery must also create a movement record in the form of S1.3.1 (b).

S1.3.4

When a horse leaves Australia, the exporter must ensure that a movement record in the form of S1.3.1 (b) is made in relation to the movement.

S1.4 Persons acquiring horses

S1.4.1

Where a horse is purchased other than at a public auction, no later than at the time of collection the purchaser must provide the person selling the horse with the PIC or the address of the next property to which the horse will be taken.

S1.4.2

A person acquiring a horse at a public auction, including a processor or person acting on behalf of a processor, must before the horse is collected provide the selling agent with the PIC or address of the next property to which the horse will be taken.

S1.5 Persons moving horses

S1.5.1

A person moving a horse or authorising the movement of a horse must provide the receiver, or in the case of a movement to an event, the event organiser, with the PIC or address of the property from which it was moved by no later than the time the horse arrives at its destination.

S1.5.2

A person moving a horse or authorising the movement of a horse from an event, must provide the event organiser with the PIC or address of the property to which the horse will be taken if different from the PIC or address of the location on which it was located before it arrived.

S1.5.3

A person consigning a horse to a public auction or to an abattoir or knackery must advise the person receiving the horse of the PIC or address of the last property on which the horse resided by no later than the time the horse arrives at its destination.

Part 2: Transporters

Scope

This Part of these business rules applies to:

- businesses involved in the transportation of horses between properties including to a saleyard, depot, abattoir, knackery, veterinary clinic, stud farm, agricultural show or equestrian event for any reason or purpose.

Objective

To ensure that horses that are being moved by commercial transport operators are traceable should the need arise.

Business Rules

S2.1 Movement document

S2.1.1

A business involved in the transportation of horses must for each consignment establish a record of:

i. the PIC or address of the property from which the horse or horses were collected
ii. the date of departure of the horse/s
iii. the number horse/s in the consignment
iv. the name and telephone number of the person who has authorised the collection and movement of the horse/s, and
v. the destination of the horse/s, being the PIC of the destination property, the address of the destination property, and/or the name of a saleyard, knackery or abattoir.

S2.1.2

a) Movement records must have been created by a transporter within 24 hours of the movement of a horse.
b) The transport business generating a movement record must keep the record for a minimum of 6 months.
c) Copies of movement records must be retrievable by the person who generated the record upon being requested to do so by an authorised state/territory biosecurity officer within a reasonable timeframe per the requirements of the request

> ***Note: Reasonable timeframe is based on the necessity of the information being requested i.e., in an Emergency Animal Disease response, the information must be supplied without delay.***

Part 3: Selling agents

Scope

This Part of these business rules applies to:

- person that operates a saleyard or holds a public auction including auctions held on a farm, auction venues or at an agricultural show or exhibition. Also includes designated horse online selling platforms contracted to sell horses.

> ***Note: This Part also applies to agents involved in the private trading of horses including the trading of horses on the internet.***

Objective

To ensure that horses traded with the aid of an agent can be effectively and rapidly tracked for biosecurity purposes.

Business Rules

S3.1 Horse identification

S3.1.1

The selling agent must ensure that before a horse is offered for sale it can be reliably linked to the PIC or address of the property from which it was consigned.

S3.2 Records regarding the sale of horses

S3.2.1

The selling agent must record the following information for each horse that they sell both privately and by auction:

i. date of sale
ii. sale lot number (if applicable)
iii. PIC or address from which the horse was dispatched, and
iv. name of the buyer/authorised agent, or vendor if the horse was passed in, and the destination address and/or PIC provided by the buyer, or vendor for passed in lots, to which the horse is to be taken.

S3.2.2

Movement records must have been created within 24 hours of the date when the purchaser takes possession of a sold horse, or a vendor takes possession of a passed in horse.

S3.3 Post-sale documentation

S3.3.1

The selling agent must keep a copy of the movement record described in S3.2.1 for a minimum of 6 months from the date of the sale and be able to retrieve the record upon request to do so by an authorised government biosecurity officer within a reasonable timeframe of the request.

> ***Note: Reasonable timeframe is based on the necessity of the information being requested i.e., in an Emergency Animal Disease response, the information must be supplied without delay.***

Part 4: Processors

Scope

This Part of these business rules applies to:

- persons owning, operating or managing a location where horses are processed, including a licensed abattoir or knackery.

Objective

To ensure that the last property of residence of a horse prior to arriving at the abattoir or knackery, which could be a saleyard, can be rapidly established for biosecurity purposes.

Business Rules

S4.1 Property identification

S4.1.1

A person owning or operating an abattoir or knackery at which horses are processed must ensure that a valid PIC issued by the relevant state/territory government agency is in place for that property.

S4.1.2

Each holding property and depot used by a processor or knackery, if not adjoining the facility precinct and forming part of the precinct's PIC, must have its own PIC issued by the relevant state/territory agency.

S4.1.3

A horse must not be slaughtered or processed unless:

a) its last property of residence (which may be a saleyard) before arriving at the abattoir or knackery has been established, or

b) it needs to be slaughtered to relieve unreasonable pain and suffering. A record must then be immediately made and kept for two years of the name of the person who consigned the horse to the abattoir or knackery.

S4.1.4

Once a horse is slaughtered by a processor or knackery, its carcase must be identified in a manner that for disease surveillance purposes maintains correlation with its last property of residence until the point at which:

a) it has passed meat inspection and is deemed to comply with the Australian Standard for the Hygienic Production and Transportation of Meat and Meat Products for Human Consumption (AS 4696:2007) if destined for the human food chain, or

b) it has been inspected and deemed to comply with the Australian Standard for the Hygienic Production of Pet Meat AS 4841:2006 if destined for rendering or use as pet food.

S4.2 Movement documentation

S4.2.1

For each horse processed, processors and knackeries must generate a processing record recording the:

a) PIC and/or address from which the horse was sourced (which may relate to a saleyard), and

b) date of slaughter/processing.

S4.2.2

Movement records must be created within 24 hours of the date when a horse is processed.

S4.2.3

The processor or knackery must keep a copy of the movement record described in S4.2.2 for a minimum of 6 months from the date of processing and be able to retrieve the record upon being requested to do so by an authorised government biosecurity officer within a reasonable timeframe per the requirements of the request.

> ***Note: Reasonable timeframe is based on the necessity of the information being requested i.e., in an Emergency Animal Disease response, the information must be supplied without delay.***

Part 5: Race meetings, agricultural shows, equestrian events and veterinary clinics

Scope

This Part of these business rules applies to persons and organisations organising or managing an event at which horses will assemble including:

- agricultural shows, race meetings, equestrian events included pony club gatherings, polo tournaments, rodeos, camp drafts, training clinics and camps, and
- non-competition gathering of horses i.e. trail riding clubs, fun ride clubs.

This Part of these business rules also applies to operators of veterinary clinics where horses are examined or treated

Objective

To ensure that the movement of horses to and from events and veterinary clinics can be tracked effectively and rapidly.

Business Rules

S5.1 Property identification

S5.1.1

Persons and organisations operating a veterinary clinic or organising or managing an event involving horses must ensure that the location where the event is held has a valid PIC issued by the relevant state/territory government agency.

S5.2 Movement recording

S5.2.1

The person or entity responsible for an event must compile within two business days of the event the following records:

i. the PIC and address of the location where the event was held
ii. the date of the event
iii. the PIC and/address of the property from which each horse attending the event was dispatched
iv. phone number and other contact details of each exhibitor/person responsible for the horse at the event
v. the number of horses in total from each PIC or property in attendance
vi. the name, email address and phone number of the person responsible for the record
vii. the PIC or address of the property to which a horse will be sent after the event, if different from the PIC or address of the property from which the horse was located before it arrived.

S5.2.2

The person or entity responsible for a veterinary clinic must compile within two business days of the arrival of a horse the following records:

i. the date when the horse arrived at the clinic
ii. the date when the horse left the clinic
iii. the PIC or address of the property from which the horse was dispatched
iv. name, phone number and email address of the person responsible for the horse
v. the PIC or address of the property to which the horse was sent (which may be a knackery if the horse has died), if different from the PIC or address of the property from which the horse was located before it arrived.

S5.2.3

a) The person generating a movement record relating to an event or arrival of a horse at a veterinary clinic must keep the record for a minimum of 6 months.
b) Copies of movement records must be retrievable by the person who generated the record upon request to do so by an authorised state/territory biosecurity officer within a reasonable timeframe per the requirements of the request.

> ***Note: Reasonable timeframe is based on the necessity of the information being requested i.e., in an Emergency Animal Disease response, the information must be supplied without delay.***
>
> ***Event records may be created and stored electronically or on an accessible movement database service.***

Part 6: Databases and registers

Scope

This Part of these business rules applies to:

- the operators of databases and registers used for microchip registration and/or the creation and storage of movement records.

Objective

To ensure that data held on commercial and horse industry microchip registers and movement databases accommodates biosecurity needs and can be accessed during an emergency animal disease incident or other biosecurity event by government biosecurity staff.

S6.1 Microchip number uniqueness

S6.1.1

Only microchips that comply with AS5018-2001 and AS5019-2001 are permitted to be used for the identification of horses in Australia.

Microchip registers, including interlinked registers that provide a search function, must ensure that there is no duplication of microchip numbers in relation to the microchips that they register.

If it is discovered that a microchip number or numbers could have been duplicated, the details are to be reported within 5 business days to the relevant state/territory authority for investigation.

S6.2 Biosecurity data

S6.2.1

By no later than 1 January 2026 microchip registers must be able to record against each microchipped horse the PIC on which the horse was implanted, the current PIC of residence of a horse if the horse has moved, the horse's carer and their contact email address and phone number, and a horse's description for example using a signalment key system.

> ***Note: Implanters, and owners and carers of microchipped horsed are encouraged as part of the NHTS to submit PIC of residence details and a horse's description when they register a horse, or notify a register of the movement of a horse or its death or export. Registers are strongly encouraged to create fields for the recording of this information.***

b) When an industry participant provides a PIC, the register must undertake an algorithm check to confirm the validity of the PIC. If the industry participant is unable to provide a valid PIC, the register may record the invalid PIC.

> ***Note: It may be possible during an emergency for state/territory biosecurity staff to determine from an invalid PIC number the correct PIC for the property.***

c) Registries must allow authorized parties to efficiently and in a secure manner change information held on the register including owner's name, address, contact number, PIC of residence details, name of carer and their contact details, gender changes for example when a colt is gelded, and that a horse has died or been exported.

> ***Note: The Thoroughbred industry will only allow access to its administrative and breeding databases to parties governed by the Rules of Racing.***

d) By no later than 1 January 2026, commercial and horse industry microchip registers and movement databases must have adopted business rules that allow authorised government biosecurity staff to access data for the sole purpose of assisting with the containment of biosecurity incidents.

> ***Note: Registers that provide commercial microchip registration services or provide a registry service for one or more sectors of the horse industry are encouraged to participate in the Petaddress microchip look-up service or offer an equivalent service that enables interested parties to identify the register on which information about a microchipped horse can be found.***

S6.4 Movement information

S6.4.1

By no later than 1 January 2026, all registers that provide movement recording services for horse related events must provide the functionality to record:

i. the PIC and address of a property where the event is held
ii. the date of the movement or event
iii. the PIC or address of the property from which each horse attending an event was dispatched
iv. the number of horses in total in attendance from each PIC or address at the event
v. the intended destination of the horse/s, which may be the PIC or address of the property from which the horse or horses were consigned or the PIC or street address of the destination property.
vi. the name, email address and phone number of the person creating the record

S6.5 Security and data maintenance

S6.5.1

Horse industry databases and registries must ensure that recorded information is maintained in a manner that minimises the risk of unauthorised access and is 'backed-up' to prevent data loss or corruption.

S6.5.2

a) Movement and microchip registry information must be retained by the operator, or by a legal Australian based entity contracted to do so by the operator, in an accessible form for at least 20 years.

b) Authorised government biosecurity staff must be given access to relevant movement and microchip registry information for the sole purpose of assisting with the containment of biosecurity incidents within 24 hours of a request being received.

Acronyms and terms

The following terms apply throughout this business rules -

Biosecurity Incident
An unintentional, unforeseen or uncontrolled exposure to an exotic pest, infectious disease or incident where the health of horses are or may be impacted.

Business day
Means a day other than a Saturday, Sunday or public holiday.

Carer
The person principally responsible for the care and husbandry of a horse or horses on a property. Carers will often include trainers, stud masters, veterinary practice managers, and persons keeping horses for commercial purposes, for lifestyle reasons or as pets.

Cohort
A group of animals that have resided concurrently on a property or on a vehicle during transportation

Consignment
One or more horses leaving a property.

Event
An event includes but is not limited to activities such as a race meetings, agricultural shows, equestrian competitions including but not limited to pony club, polo tournament, rodeo or camp draft events, or any situation at which horses will assemble to compete or for exercise.

Exporter
Person or company responsible for acquiring, assembling, preparing for export and exporting horses from Australia.

Horse/horses
Includes donkeys, mules and hinnies.

Horse industry
Collectively the recreational, equestrian, racing and working horse sectors

Movement
Any movement involving one or more horses between two properties with different PICs.

Movement record
The record compiled by a person consigning, moving or selling horses and used to describe the horses and record the locations where the movement commenced and ended. Movement records may be created and kept in electronic form.

National Horse Traceability System (NHTS)
The NHTS is the national system operating throughout Australia for identifying and tracking horses for biosecurity purposes.

Offering for sale/sell
Includes transactions where one or more horses are offered free of charge or given away.

Person
Includes a corporate entity recognised by law.

Property
A parcel of land, consisting of one or more blocks within the one locality, operating as part of a livestock enterprise, hobby/lifestyle farm or residence. It includes farms, private residences where horses are kept, sale venues, holding properties, racing stables, studs, veterinary hospitals and clinics, racetracks, equestrian and show venues, knackeries and abattoirs.

Property Identification Code (PIC)
The eight-character alphanumeric code for a property as allocated by the relevant state or territory authority.

Sale lot
One or more horses offered for sale and for which bids are invited at a public auction.

Transporter
A transporter is responsible for the movement of a horse from a property to a different property. In this definition it is not the person who transports the horse who is the owner or carer at the property of origin. It is a different person from the owner/carer as defined in the Business Rules.

Vendor
A person, organisation or company offering horses for sale.

APPENDIX B

Frequently Asked Questions

The NHTWG has developed and published a list of commonly asked questions and answers specific to horse traceability in the context of a NHTS.

What is the purpose of the National Horse Traceability Working Group (Working Group)?

The National Horse Traceability Working Group (Working Group) is a non-statutory committee set up by the then Agriculture Ministers' Forum in 2020 to provide advice on the design and introduction of a traceability system for horses, donkeys and mules in Australia.

The Working Group was established following the release in mid-2021 of the Senate's Rural and Regional Affairs and Transport References Committee's report entitled *'The feasibility of a National Horse Traceability Register for all horses'*, which recommended that at its core, a National Horse Traceability System (NHTS) should serve a biosecurity function.

The Working Group is considering further ways in which a NHTS could be used to deliver broader benefits to horse industry stakeholders. This is in line with the Senate Committee's report which as part of Recommendation 6 proposed that the NHTS be designed to enable additional features to be incorporated as it progresses, and to allow for the horse industry to take responsibility for and progress any future functionality amendments. Such functionality amendments could assist with improving animal welfare, emergency response management and the integrity of trade in horses.

What is the membership of the Working Group?

The Working Group includes representatives from Animal Health Australia, Australian Horse Industry Council, Racing Australia, Harness Racing Australia, Equestrian Australia, the RSPCA and the State, Territory and Commonwealth governments.

Agriculture Victoria is represented by one of the thirteen government and non-government members of the Working Group and is providing administrative support.

What is horse traceability?

Horse traceability in the context of the proposed NHTS refers to the ability to trace (find) the location of horses and to determine their past movements from place to place.

What is the National Horse Traceability System?

The proposed NHTS will be a tool that will be used to enhance horse traceability by government departments/agencies, to meet biosecurity challenges such as preparedness and response to disease outbreaks and natural disasters.

What is the difference between horse traceability and horse welfare?

In the context of a disease or natural disaster, horse traceability is used for finding:

- where a horse or group of horses have been within the applicable time period for that disease or incident, and
- the current locations of animals, both horses and other susceptible species, that were with or near an affected animal or location.

Good welfare means providing horses with all the necessary elements to ensure their physical and mental wellbeing. Complying with agreed welfare standards and codes, and with state and territory animal welfare legislation for the management and care of horses means that horse owners are meeting the minimum standards required for care of their horses.

For thoroughbred racing and breeding industry participants, other horse welfare and traceability related obligations are contained within the Australian Rules of Racing, the Local Rules of Racing and the Rules of the Australian Stud Book. The standardbred breeding and racing industry is regulated by the Rules of Harness Racing.

How do horse traceability and welfare intersect?

Horse welfare and traceability intersect in a number of ways including when the following occur:

i. extreme weather events (fire/flood/drought),
ii. disease outbreaks, and
iii. when essential needs are not being met such as food, water, shelter.

In the event of any one of these emergencies it is essential to be able to contact the owner/carer quickly to make arrangements to ensure the horses safety.

Is rider safety being considered as a part of the proposed traceability system?

At this point in time, the proposed NHTS will not include a function to ensure the safety of riders, this remains the responsibility of the individual. Remembering that each horse is unique with differing temperaments, athletic ability and that a horse responds in the moment, in relation to that horse's experiences.

Knowing that a horse's movement history is available, individuals will be able to share this information with each other on a case by case basis, but this will not form part of the legislative framework.

What other work is being undertaken by government to continually improve horse welfare?

Work is underway at a national level, led by the Queensland Department of Agriculture and Fisheries, on the development of new '*Australian Animal Welfare Standards and Guidelines for Livestock at Processing Establishments*'. Queensland is also leading a review of the suitability of the existing *Australian Animal Welfare Standards and Guidelines for the Land Transport of Livestock* in relation to horses.

Why is traceability for horses important in Australia?

The ability to rapidly trace horses will enable authorities and industry to effectively manage the response to and recovery from a disease outbreak or natural disaster.

What biosecurity threats exist for horses?

Horses are susceptible to many infectious diseases including Equine Influenza, Hendra Virus, African Horse Sickness, Japanese Encephalitis Virus and Vesicular Stomatitis.

Outbreaks of serious diseases could potentially have significant horse health and welfare, economic, and in some cases human health implications.

Who is responsible for biosecurity in Australia?

States and territories, with support from industry and the Commonwealth, are responsible for managing biosecurity within their borders, including disease surveillance and emergency response. The Commonwealth is responsible for matters relating to the national border, including border security, quarantine and regulation of imports. Pests and disease status can also be a relevant element of the Commonwealth's agricultural export certification requirements.

The maintenance of biosecurity standards relating to horses in Australia is the joint responsibility of horse owners and carers, various horse industry sectors, the states/territories and the Commonwealth. Supporting organisations, in particular Animal Health Australia, also play a role.

Animal Health Australia is the custodian of the Emergency Animal Disease Response Agreement (EADRA) that outlines stakeholder responsibilities, joint decision making and the cost share arrangements for a national emergency animal disease response. The Australian Veterinary Emergency Plan (AUSVETPLAN) sets out nationally agreed plans on how to respond to emergency animal disease outbreaks.

What is a PIC?

A Property Identification Code (PIC) is a unique eight character identifying code allocated by the agency responsible for animal health in each state or territory. The requirement for properties on which horses reside to have a PIC was introduced in most states and territories soon after the 2007 Equine Influenza outbreak. A PIC identifies a parcel or parcels of land on which livestock are or may be held.

Information regarding each PIC is held in registries maintained by the states or territories.

This will generally include:

- Name and/or address of the property
- Name of the property owner and their contact details
- Name of the livestock manager/carer and their contact details,
- Geospatial information about the parcel/s of land associated with the PIC, and
- Species present (including domesticated horses)

Who is currently required to register for a PIC?

Owners and managers of horses must ensure that the properties on which their horses are kept have a PIC. Businesses responsible for land where horses will visit or attend such as showgrounds, racecourses, veterinary clinics must ensure they have a PIC. In most states, properties on which cattle, buffalo, bison, sheep, goats, pigs, alpacas, llamas, horses, domesticated camels or deer must have a PIC. This includes farms, residential properties at which livestock live, racetracks, transit depots, studs, veterinary practices, knackeries, abattoirs, public auction houses including saleyards, rodeo, camp drafting and agricultural show venues.

The PIC system is the cornerstone of Australia's National Livestock Identification System (NLIS) for cattle, sheep, goats and pigs, and will play a central role in the proposed NHTS.

How do I obtain a PIC?

PICs are assigned by state and territory government agencies to parcels of land on which livestock are or may be held.

To obtain a PIC, you should contact the relevant agency responsible for animal health in your state or territory.

Refer to Table 1 on page 9 for relevant state/ territory contact details and website links.

How much does a PIC cost?

The costs associated with applying for and maintaining a PIC vary from state to state. Contact the relevant animal health agency in your state or territory.

Refer to Table 1 on page 9 for relevant State/ Territory contact details and website links.

What do horse owners/carers need to do to keep their PIC information current?

A property owner, stud/farm/agistment manager is responsible for ensuring that the relevant government agency in their state/territory is notified of changes to details relating to a PIC. This may include:

a) owner contact details including name, address and contact phone number,
b) manager contact details including name, address and contact phone number,
c) changes to property boundaries including expansion through acquisition or agreement to graze livestock, or reduction through sale or the relinquishing of a lease or agistment right, and
d) the livestock species that are or will be kept on the property.

Owners and carers should check with their relevant animal health agency regarding their obligations to report changes to information kept in a PIC register.

Refer to Table 1 on page 9 for relevant State/ Territory contact details and website links.

Who should I contact to update my PIC details?

Contact the relevant animal health agency in your state or territory.

Refer to Table 1 on page 9 for relevant State/ Territory contact details and website links.

How are horses traced today?

Currently, there is no formal NHTS in Australia. States and territories rely on their PIC system to identify where horses reside or have been located.

Some sectors of the horse industry already have more advanced identification and traceability systems to support integrity and performance recording imperatives, such as the thoroughbred and harness racing industries.

There are currently no nationally consistent requirements relating to the keeping of records when horses move. Movement recording used in conjunction with the PIC system will greatly enhance the ability of government authorities to trace horses during disease outbreaks and in times of natural disaster.

How is PIC information currently used by state and territory governments?

During an outbreak of an infectious horse disease or natural disaster, government agencies will use their PIC registers to identify affected properties with horses and other susceptible species. Persons responsible for the care of livestock on these properties will be quickly contacted and their animals examined and tested, moved or returned home, as appropriate.

Why is it important that PIC details are kept up-to-date?

An accurate and up-to-date PIC system enables the location of properties on which horses or other susceptible species are kept to be quickly identified during a disease outbreak or natural disaster, which helps to protect horse health and welfare.

If PIC details are not kept up-to-date, state and territory governments may not be able to identify affected properties and contact horse owners or carers to quickly locate horses when necessary.

What is the role of the PIC in a horse traceability system?

A PIC identifies a parcel of land on which a horse/s (or other species) are kept and provides contact details for the owner/carer.

The PIC system enables the recording of movements of livestock between properties.

Are there any current horse movement requirements in my state/territory?

In some states, for example Queensland and NSW, people moving horses may need to carry a waybill or Travelling Stock Statement.

Check the website of the relevant government authority in the state/territory in which horses are to be moved to determine movement documentation requirements.

Refer to Table 1 on page 9 for relevant State/ Territory contact details and website links.

Do other countries have horse traceability systems?

Horse traceability systems operate in the UK, European Union and Canada. They each have differing objectives and obligations on horse owners and carers.

What will a horse traceability system mean for me?

The proposed NHTS will require that people keeping horses must have a PIC for the properties on which their horses reside. This is currently the case in most states and territories.

They will also be required to create and retain records when horses move to a different PIC.

These measures will enable horses to be traced more quickly during disease outbreaks, minimising the economic impact and protecting their health and welfare.

What new requirements will be proposed that do not currently apply?

- Introducing uniform national PIC related business rules for properties and other locations where horses reside.
- Improving traceability through mandatory recording of PICs by competitors at horse events.
- Requiring horse movement information to be recorded and retained by all sectors of the horse industry/community.

What is the cost of national horse traceability system?

A consultant has been engaged to quantify the costs of establishing a base level NHTS using state and territory PIC registers and industry-maintained movement records, as well as a more advanced microchip-based system supported by a national horse ownership and movement database. This will inform the Working Group's recommendations to Agriculture ministers.

Components of the NHTS may require additional funding including communications, and monitoring and enforcement of regulatory requirements.

An ongoing communications effort will be needed to ensure that people who own properties on which horses are kept and who care for horses understand their obligations relating to obtaining and maintaining a PIC.

Ongoing effort will also be needed to ensure adequate communication and extension is provided, as well as monitoring the compliance of industry participants with movement recording obligations.

How will my horse be identified in a horse traceability system?

Horses are typically managed on an individual or small group basis. The identity of horses that are moving between properties could be recorded for traceability purposes using identification descriptions such as breed, gender, colour, markings, brands, and where possible or required, microchip details.

How will the users of the horse traceability system handle my information?

In the event of an emergency, to support disease surveillance or for monitoring and enforcement purposes, only state and territory governments will have access to PIC information held on their PIC registers. They may also require copies of movement records.

Industry held movement information provided by industry participants as part of a proposed NHTS will be governed by state and territory privacy provisions and can only be utilised by authorised officers.

When will the horse traceability system be live?

The Working Group's role is to make recommendations on the design and introduction of a NHTS. The Working Group will provide recommendations to Agriculture Ministers in the coming months. These recommendations will be considered and decided upon by Agriculture Ministers, followed by implementation on the agreed date.

Refer to Table 1 below for State/Territory contact details and website links

TABLE 1 - State/Territory contact details and website links

State/Territory	Contact phone number	Website to apply for a Property Identification Code
Australian Capital Territory	Phone: (02) 6205 3737	https://www.environment.act.gov.au/parks-conservation/plants-and-animals/Biosecurity/animal-health/livestock-management#PIC
New South Wales	Local Land Services Helpline: 1300 795 299	https://www.lls.nsw.gov.au/i-want-to/apply-for-a-property-identification-code
Northern Territory	Phone: (08) 8973 9703	https://nt.gov.au/industry/agriculture/livestock/get-a-property-identification-code
Queensland	Biosecurity Queensland - Business Information Centre: 13 25 23	https://www.business.qld.gov.au/industries/farms-fishing-forestry/agriculture/land-management/pic
South Australia	Biosecurity SA Phone: 1800 654 688	https://www.pir.sa.gov.au/biosecurity/animal_health/property_identification_code_pic
Tasmania	Biosecurity Tasmania Phone: 1300 368 550	https://nre.tas.gov.au/agriculture/animal-industries/identifying-selling-moving-livestock/about-livestock-identification/property-identification-code-(pic)-registration
Victoria	Biosecurity Division Phone: 1800 678 779	https://agriculture.vic.gov.au/farm-management/property-identification-codes
Western Australia	Phone: 1300 926 547	https://www.agric.wa.gov.au/livestock-biosecurity/stock-brand-and-pic-register-search-guide

APPENDIX C

KPMG Report

Scoping of models for the design, governance and funding of a national horse traceability system

Department of Jobs, Precincts and Regions

August 2022

VICTORIA State Government | Jobs, Precincts and Regions

Table of Contents

Glossary

ABARES	Australian Bureau of Agricultural and Resource Economic and Sciences
AGMIN	Agriculture Ministers' Meeting
AHA	Animal Health Australia
AHIC	Australian Horse Industry Council
API	Application Programming Interface
ARMC	Australasian Racing Ministers' Conference
CED (UK)	Central Equine Database
CoE	Centre of Excellence
DAF	QLD Department of Agriculture and Fisheries
DAFF	Department of Agriculture, Fisheries and Forestry
DITT	Department of Industry, Tourism and Trade, Northern Territory
DJPR	Department of Jobs, Precincts and Regions, Victoria
DPI	Department of Primary Industries, New South Wales
DPIPWE	Department of Primary Industries, Parks, Water and Environment, Tasmania
DPIR	Department of Primary Industries and Regions, South Australia
DPIRD	Department of Primary Industries and Regional Development, Western Australia
EA	Equestrian Australia
EI	Equine Influenza
EAD	Emergency Animal Disease
EADRA	Emergency Animal Disease Response Agreement
FTE	Full-time Employee
Horse/ horses	For the purposes of this report, horses include donkeys, mules and hinnies
Horse industry	Collectively the recreational, equestrian, racing and working horse sectors
HRA	Harness Racing Australia
ISC	Integrity Systems Company
MJA	Marsden Jacobs Associates
MoU	Memorandum of Understanding
NHTWG	National Horse Traceability Working Group
NHTS	National Horse Traceability System
NLIS	National Livestock Identification System
PIC	Property Identification Code
RACI	Responsible, Accountable, Consulted, Informed
RA	Racing Australia
RSPCA	Royal Society for the Prevention of Cruelty to Animals
TOM	Target Operating Model

Executive Summary

This report provides analysis on options for viable traceability systems for horses in Australia

High-level target operating models have been identified and evaluated for two potential options for a National Horse Traceability System (NHTS).

Background

The National Horse Traceability Working Group (NHTWG) was established in late 2020 to scope the implementation of a horse traceability system, to improve the industry's biosecurity incident response capability.[1] As a part of this, Agriculture Victoria commissioned a Marsden Jacob Associates (MJA) Report, which presented the four implementation options detailed below[2]:

1. **Continuation of the Status Quo**
   Business as usual procedures featuring significant gaps in location data and compliance.
2. **Addressing Gaps in the Property Identification Code (PIC) System and Adding New Movement Record Keeping Obligations**
   Unified PIC and movement record keeping obligations across all jurisdictions.
3. **Unified PIC System and National Microchip Register**
   National Register developed to link existing industry databases.
4. **NLIS-type Approach for Horses**
   Mandatory microchipping of all horses. National database developed to incorporate ownership details, movement, PIC and microchip data.

MJA analysis on the options above was provided to the NHTWG and recommendations were made incorporating the findings.Based on the MJA report, Option 2 and Option 4 were identified as viable solutions to achieve biosecurity objectives and require further investigation.

Scope

A four phased approach has been undertaken to assist the NHTWG in the scoping of Option 2 and Option 4:

- **Determine attributes and high-level functional requirements of Option 2 and Option 4.**
- **Identify high-level target operating models (TOM)** for each option, focusing on governance and funding considerations.
- **Cost analysis and identification of potential benefits** for both horse traceability systems.
- **Evaluation** and presentation of recommendations relating to the responsibilities of jurisdictions and industry stakeholders and potential funding and governance models required to build, operate and maintain a horse traceability system.

The consideration of the high-level target operating models for Option 2 and Option 4 provided a framework to assess and recommend implementation considerations. The framework was also applied to the cost analysis and informed funding model identification.

Analysis has been developed in consultation with the NSW DPI, QLD DAF, WA DPIRD, VIC DJPR, SA DPIR, NT DITT, TAS DPIPWE, DAFF, RA, HRA, RSPCA, EA, AHIC and AHA.

Source: (1) Agriculture Victoria, accessible here (accessed June 2022) (2) Marsden Jacob Associates Report, accessible here (accessed June 2022)

Horse industry stakeholders believe the key to a successful future traceability system is establishing robust funding and governance frameworks

Stakeholder consultations revealed the following key insights:

The current horse traceability system is insufficient and is not effective for ongoing biosecurity risks due to gaps in user compliance.	The collaboration of government and industry will be the key to success of any future horse traceability system.	There are currently no formal structures in place for the maintenance of an efficient horse traceability system.	There is no clear self-funding model for a future horse traceability system as it is expected that a user pays or levy based pricing approach is likely to result in non-compliance.	A large proportion of horse owners do not see the value of a national horse traceability system and view additional traceability requirements as a regulatory burden.
"Currently, due to failure to enforce PIC requirements, not all property owners have a PIC[1]"	*"State and Territory jurisdictions rely heavily upon assistance from industry event managers and their recording of attendees details[2]"*	*"Establishing an advisory board can create clear reporting lines, enabling increased oversight over traceability effectiveness [3]"*	*"The traceability system needs to be future-proof, make it easy to register horses and be affordable [4]"*	*"It is difficult to incentivise people to trace horses during "peace-time" – what are the benefits for horse owners? [5]"*

Source: (1) NHTS Consultation report, accessible here (accessed June 2022), (2) NSW DPI Stakeholder Consultation (accessed June 2022), (3) VIC DJPR Stakeholder Meeting (accessed June 2022), (4) Primary Industries and Regions SA Stakeholder Consultation (accessed June 2022), (5) WA DPIRD Stakeholder Consultation (accessed June 2022)

The two most viable options for a future system fundamentally differ in their coverage and implementation

Analysis of the key attributes and components of each option reveals distinct benefits and challenges.

Option 2: Enhancing the PIC System and Record Keeping is an incremental approach to the current traceability system. It leverages the existing Property Identifier Code (PIC) system, ensuring that all properties where horses reside are recorded and includes new movement record creation and storage obligations across the industry as horses move or are moved. This option is a relatively more cost-effective approach that specifically targets current biosecurity requirements by increasing movement recording obligations and enhancing compliance monitoring across all States and Territories.[1]

Potential benefits

- Leverages existing State and Territory based PIC systems, with minimal development costs required.
- Easier implementation and enforcement processes.
- Supports biosecurity outcomes.
- Establishes a base from which Option 4 can be implemented, if necessary, at a later date.

Potential challenges

- Non-compliance from horse owners registering for PICs may result in data integrity issues, compromising biosecurity effectiveness.
- No central database to record movements, foaling or death of horses.
- Use of paper-based records may hinder accessibility to movement. records in biosecurity emergencies.
- Current levels of compliance with the PIC system is not fully understood.

Option 4: A National Horse Traceability System is a more comprehensive approach that goes above and beyond current biosecurity requirements – achieving whole of life traceability. A key component of this option is the mandatory microchipping of all domesticated horses in Australia. Being a high cost option, the implementation of a national system would also involve developing an online database to enable more efficient tracking of individual horses, their movements and their owners.[1]

Potential benefits

- Centralised database enables quick access to individual horse traceability data in a biosecurity emergency or natural disaster.
- Increased oversight over horse population.
- "Real-time" movement traceability.
- Provides a foundation for horse and rider welfare improvements to be made.

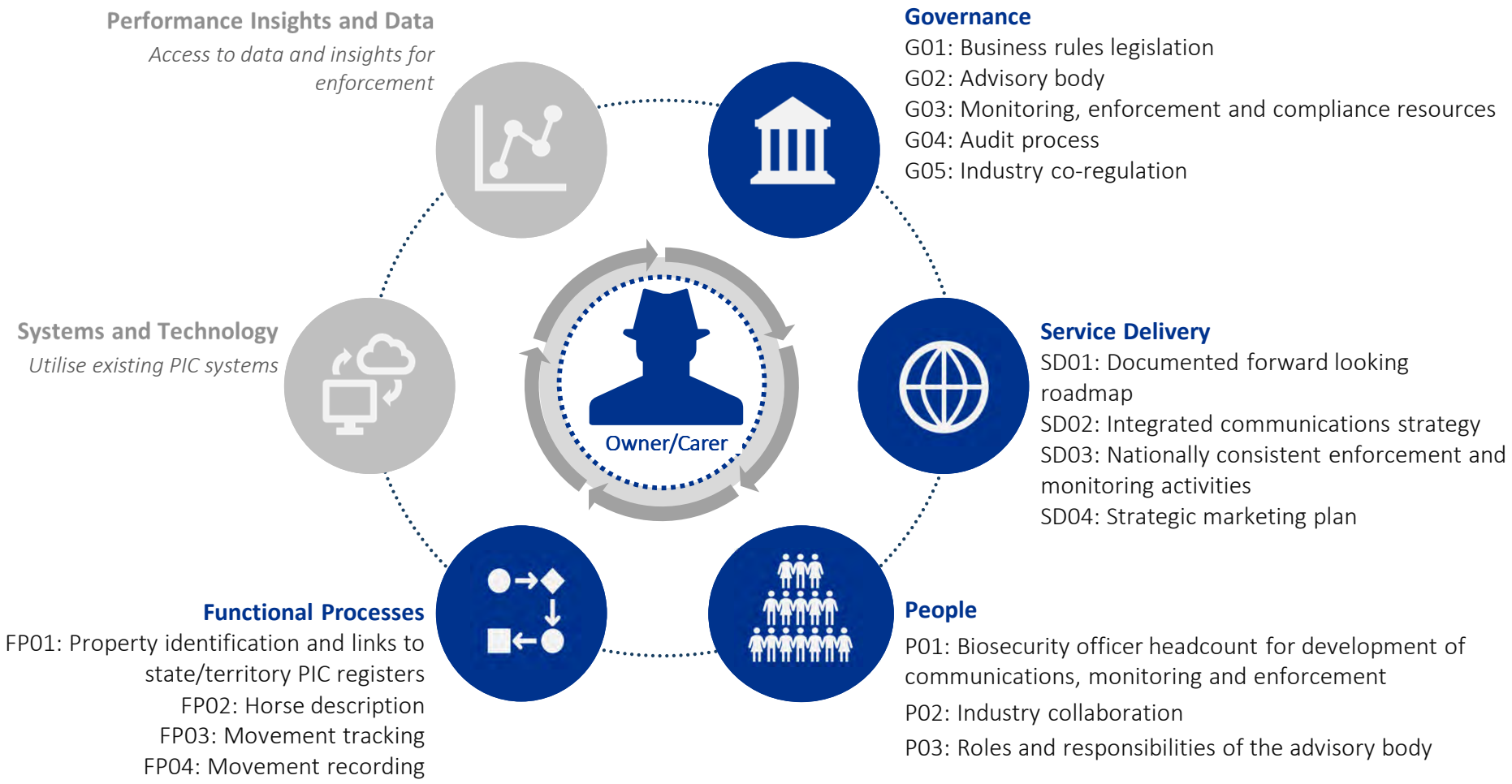
Potential challenges

- Requires implementation of Option 2.
- Higher risk of non-compliance[1] of horse owners may result in data integrity issues, compromising biosecurity effectiveness.
- High development and ongoing costs.
- Mandatory recording of horse deaths would be necessary.
- Does not begin to deliver biosecurity benefits until movement records are being created in the database for the majority of horse movements.

Source: (1) Marsden Jacob Associates Report, accessible here (accessed June 2022)

Guided by the high-level TOM framework, implementing Option 2 will require the establishment of robust governance and communication frameworks

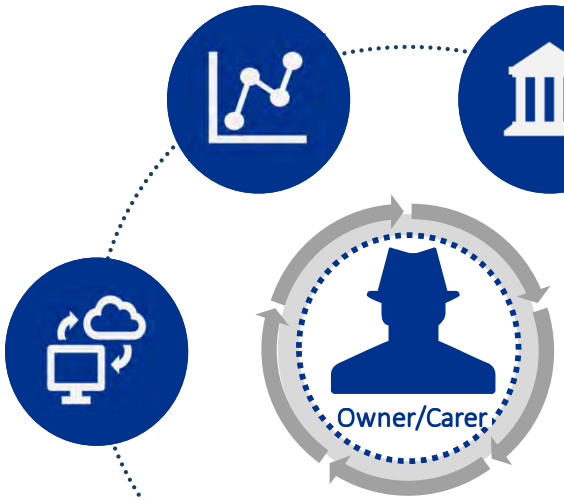
Implementation considerations have been developed around the six design layers of the target operating model.[1] For Option 2, two layers are not relevant for implementation.



*Source: (1) State, Territory and Industry Consultations, accessed June/July 2022 *Implementation considerations expanded upon in Appendix 3. High-level target operating model design layers defined in the Background section.*

Implementing Option 4 is expected to be significantly more complex, with database development requiring a number of additional considerations

Implementation considerations have been developed around the six design layers of the high-level target operating model.



Performance Insights and Data
PID01: Reporting KPI's
PID02: Integrated reporting requirements
PID03: Data access rights

Governance
G01: Business rules legislation
G02: Legal entity registration
G03: Board of directors
G04: Monitoring, enforcement and compliance resources
G05: Audit process
G06: Standard operating procedure for authorised microchip implanters
G07: Database terms of use, data dictionary, privacy policy and data access agreements
G08: Risk management framework
G09: Legal framework for registering ownership changes

Systems and Technology
ST01: Development or contracting of a national database
ST02: Online portal development
ST03: Mobile application development
ST04: Data exchange interfaces
ST05: Data storage
ST06: Microchip readers required for event managers and industry officials
ST07: Helpdesk portal
ST08: Business continuity plan

Service Delivery
SD01: Implementation roadmap
SD02: Integrated communications strategy
SD03: Nationally consistent enforcement and monitoring activities
SD04: Strategic marketing plan
SD05: Service delivery segmentation
SD06: Centralised planning functions

Functional Processes
FP01: Property identification and links to state/territory PIC registers
FP02: Unique horse identification
FP03: Movement tracking
FP04: Movement recording

People
P01: Dedicated customer service line
P02: Industry collaboration
P03: Biosecurity officer headcount and hire database staff for development of communications and enforcement
P04: Microchip implanting training and accreditation
P05: Roles and responsibilities of the board of directors
P06: Roles and responsibilities of the legal entity
P07: Biosecurity officer's skills

**Implementation considerations expanded upon in Appendix 4. High-level target operating model design layers defined in the Background section.*

The primary cost driver for Option 2 is expected to be the ongoing costs associated with enforcement and compliance activities

National implementation and ongoing costs of Option 2 have been categorised based upon the cost buckets, with only four cost buckets relevant due to this option leveraging the existing PIC system. An estimate of expected costs incurred by jurisdictions and horse owners under each option is detailed below. Funding or cost recovery arrangements are considered separately.

Cost Bucket	Overall Estimated Costs	Components*	Cost to Horse Owners	Cost to Traceability System
Business Rules and PIC Admin	**Implementation Cost:** $0	The business rules for option 2 are fully drafted	✗	✓
Property Identification	**Implementation Cost:** $0.5m **Ongoing Cost:** $0.5m p.a.	While all PICs incur an annual fee, cost is calculated based only those that were previously non-compliant represent an additional cost. PIC registration costs are $30 p.a. per property on which horses reside.[2]	✓	✗
Legislation / Governance	**Implementation Cost:** $0 - $0.4m	Stakeholders expressed a view that required functions could be performed by existing resources.[1] However, it is unlikely existing staff will be diverted - estimate includes an additional 2 FTE temporary resource support required for the administrative/governance processes under Option 2.	✗	✓
Communications and Engagement	**Implementation Cost:** $0.4 - $1.2m	Estimate includes an additional 2 FTE temporary resource support required for communications and engagement to ensure horse owners/carers are aware of their obligations.	✗	✓
Reporting and Compliance	**Ongoing Cost:** $2.6m - $3.6m p.a.	Jurisdictions identified that an additional 13 biosecurity FTE would be required to perform monitoring, enforcement and auditing requirements.[1] This cost has not been agreed to be fully funded by the states.	✗	✓
Administrative Burden	**Ongoing Cost:** $8,100 - $16,200	Separate to the financial costs incurred by horse owners under Option 2, there is an additional administrative burden associated with the time spent recording horse movements to comply with the updated PIC system	✓	✗

*Source: (1) State and Territory Consultations, accessed June/July 2022 (2) VIC DJPR Stakeholder Meeting, accessed June 2022 * Full costing estimates and assumptions outlined in the Cost Analysis section.*

Whilst implementation costs for Option 4 are expected to be significant, animal and property identification costs would be shared by all horse owners and carers in Australia

Implementation and ongoing costs of Option 4 are categorised based upon the cost buckets. Estimated cost to implement and operate a national system under Option 4 detailed below. Funding or cost recovery arrangements are considered separately.

Cost Buckets	Overall Estimated Costs	Components*	Cost to Horse Owners	Cost to Traceability System
Business Rules and PIC Admin	**Implementation Cost:** $0 - $0.4m	Alternate estimate includes an additional 2 FTE temporary resource support required for implementing business rules.	✗	✓
Property Identification	**Implementation Cost:** $0.5m **Ongoing Cost:** $0.5m p.a.	While all PICs incur an annual fee, cost is calculated based only those that were previously non-compliant represent an additional cost. PIC registration costs are $30 p.a. per property on which horses reside.[1]	✓	✗
Legislation/ Governance	**Implementation Cost:** $0.3m - $1.1m	Establishing a separate legal entity to operate the database is estimated to cost $0.3m. Alternate estimate includes 4 FTE required to design and implement a legislative framework for horse traceability.	✗	✓
Means of Animal Identification	**Implementation Cost:** $118.7m - $137.3m **Ongoing Cost:** $16.6m - $19.9m p.a.	Microchipping costs are based upon microchipping all remaining horses. Microchip cost is estimated at $175 per horse, with 50% of horse owners assumed to require a microchip reader ($500ea).[2]	✓	✗
Information Systems	**Implementation Cost:** $1.7m -$2.6m **Ongoing Cost:** $3.1m - $4.2m	Estimated cost modelling of costs to develop and operate a national online database (incl. mobile application). This includes a Board of Directors resourcing with 6-8 members and support staff.	✗	✓
Communications and Engagement	**Implementation Cost**: $1.2 – $2.1m	6-10.5 FTE temporary resource support required for communications and engagement.	✗	✓
Reporting and Compliance	**Ongoing Cost:** $5.2 - $6.8m p.a.	Additional 27 biosecurity FTE will be required to perform monitoring, enforcement and auditing requirements.[1] Alternate estimate adjusted to reflect horse population and relative resource requirements in each State and Territory.	✗	✓
Administrative Burden	**Ongoing Cost**: $1.2m - $2.3m p.a.	Separate to the financial costs incurred by horse owners under Option 4, there is an additional administrative burden associated with the time spent recording horse movements to comply with the national horse traceability system.	✓	✗

*Source: (1) State and Territory Consultations, accessed June/July 2022 (2) VIC DJPR Stakeholder Meeting, accessed June 2022 * Full costing estimates and assumptions outlined in the Cost Analysis section.*

To simplify cost comparison, the cost to the traceability system and the cost to individual horse owners has been separated

A national cost breakdown of implementation costs and annual ongoing costs for the traceability system has been calculated.

Cost to Traceability System

Option 2 Enhancing the PIC System and Record Keeping	Option 4 National Horse Traceability Database
Total Implementation Cost: $400,000 - $1,600,000	**Total Implementation Cost:** $3,200,000 - $6,200,000
Total Ongoing Cost: $2,600,000 - $3,600,000 p.a.	**Total Ongoing Cost:** $8,300,000 - $10,800,000 p.a.

Estimate Assumptions

Stakeholders consulted in each State and Territory jurisdiction were asked to provide estimates of the additional resourcing required for the development of 'business rules', the design and establishment of required legislation, communication and engagement and reporting and compliance activities to support the implementation of an effective horse traceability system. The estimated cost of a FTE resource is assumed to be $200k p.a. This estimate represents an indicative 'fully loaded' cost inclusive of all salaries, salary related oncosts and other overheads. This does not include consideration of funding or cost recovery mechanisms for these resources.

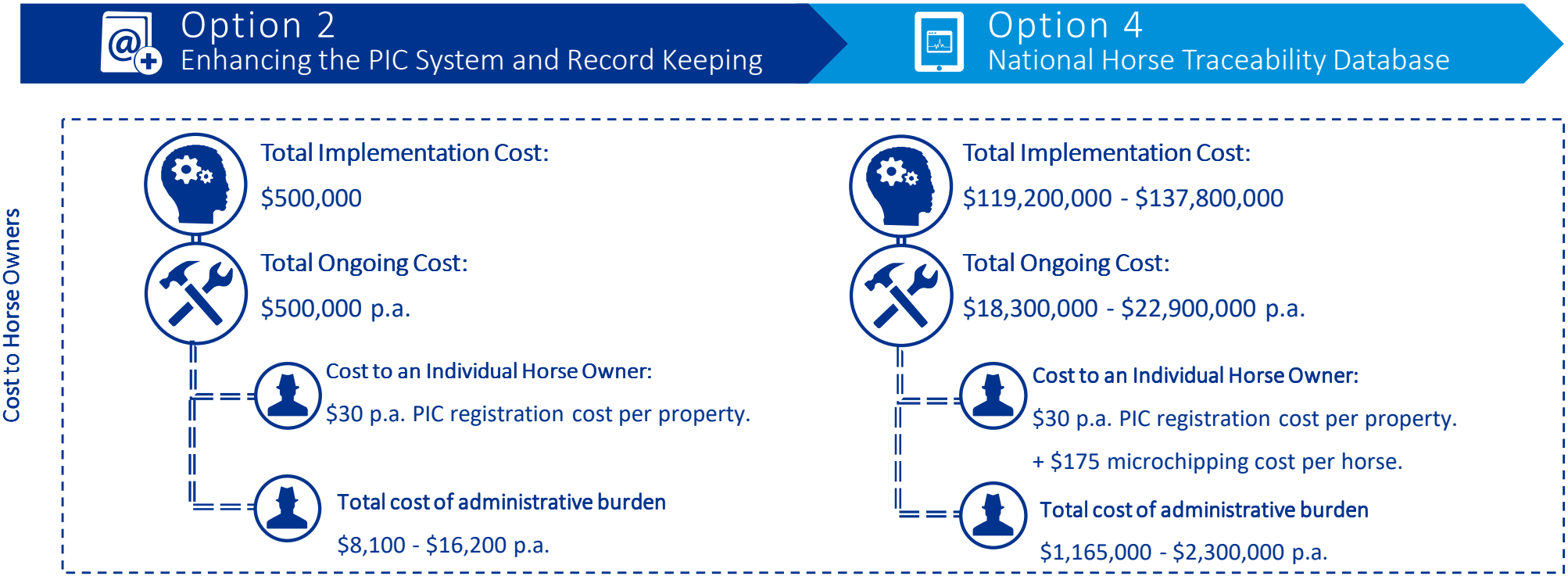
For Option 2, with the exception of Reporting and Compliance, stakeholders expressed a view that required functions could be performed by existing resources. For the purposes of conservatism in both options, an 'alternative estimate' has also been applied, based upon additional temporary resource requirements and resource adjustments based upon horse populations in each State and Territory jurisdiction.

Option 4 includes the estimated cost to develop and operate a national online database, developed based on engagement with providers of comparable technologies and other anecdotal information.

** Detailed Cost Assumptions outlined in Appendix 5.*

The total cost for horse owners is expected to be vastly different due to requirement for all horses to be microchipped under Option 4

A national cost breakdown of implementation costs and annual ongoing costs for all horse owners has been calculated.



Estimate Assumptions

The total implementation and ongoing costs to horse owners of each option differs greatly as Option 4 requires all individual horses to be microchipped.

Under Option 2, horse owners/carers must register for a PIC for all properties on which their horses reside. While all registered PICs incur an annual fee, it is assumed that only those previously non-compliant represent an additional cost. This cost has been estimated based upon the estimated rate of non-compliance with PIC requirements of 20% (estimated based on stakeholder estimates and other data reference points).

Microchipping costs under Option 4 have been estimated based upon the estimated number of horses, % of horses microchipped and the cost of microchipping the remaining horses. Microchip costs were developed based on the full cost paid for veterinary insertion. Based on a range of estimates and stakeholder input, this was estimated to be $175 per microchip. The cost of microchip readers has also been estimated, with an average cost of $500 per reader and 50% of horse owners assumed to require a reader. It was further estimated that 20% of readers would require a replacement each year.

In addition to the financial costs incurred by horse owners, additional non-financial costs associated with the administrative burden related to the new requirement to record horse movements. This estimate is based on an assumption around the number of additional movements (non-racing), the time taken to record those movements, and the value of the time spent by horse owners in recording those movements

** Detailed Cost Assumptions outlined in Appendix 5.*

Option 2 has minimal implementation costs, whilst Option 4 has far higher implementation and on-going costs with broader capacity for welfare applications

An overall summary for Option 2 and 4 was provided based on a number of key components, along with potential funding models.

Options	Description	TOM**	Implementation Time	Major Cost*	Overall Cost*
Option 2: Enhancing the PIC System and Record Keeping	Option 2 provides basic traceability capabilities leveraging existing state and territory systems.[1]	Option 2 does not require a new governance structure with the establishment of a non-legal advisory body to oversee the implementation, coupled with a possible decentralised service delivery model with existing governance in each State and Territory.	Quick Implementation – within 2 years of commencement	Reporting and Compliance	Implementation Cost Ongoing Cost $0.9 – $2.1m $3.1m – $4.1m p.a.
Option 4: National Horse Traceability System	Option 4 provides more capacity for-other management benefits such as animal welfare.[1]	Option 4 requires the establishment of a separate legal entity which would oversee implementation. This would require a more structured governance model and a possible hybrid service delivery model comprising of decentralised front-office and centralised back and mid-office functions.[3]	Longer Term Implementation – up to 5 years	Means of Animal Identification	$122.4m – $144.0m $26.6m - $33.7m p.a.

Potential Funding Models for Both Options*

Cost Recovery

A cost recovery model involves charging individual horse owners and carers a small fee to cover the associated costs of the horse traceability system.[2]

Co-investment

A co-investment model would require funding from the Commonwealth, State and Territory Governments and the industry.[2]

*Source: (1) VIC DJPR Stakeholder Meeting, accessed June 2022 (2) VIC DJPR Stakeholder Meeting, accessed July 2022 (3) Derived from desktop research into ISC Ways of Working – Operating Model Assessment, accessed June 2022 * Full costing estimates and funding model outlined in the Cost Analysis & Appendix 5 sections. **High-level target operating model expanded upon in Appendix 3 and Appendix 4.*

Background

The NHTWG aims to provide a recommendation for the development of a national horse traceability system

Understanding why the NHTWG was formed is key to the purpose of this report:

The National Horse Traceability Working Group (NHTWG) is a non-statutory committee constituted by the Agriculture Ministers' Meeting (AGMIN) and the Australasian Racing Ministers' Conference (ARMC) to provide advice on matters relating to the design and introduction of a traceability system for horses, donkeys and mules in Australia.[1]

The NHTWG was formed following a report in November 2019 by Rural and Regional Affairs and Transport References Committee specifically regarding horse traceability for prevention and containment of diseases and the economic impact of these diseases. The aim of the NHTWG is to provide a recommendation for the implementation of a national horse traceability system.

There are three main purposes of the working group[2]:

1 Considering and making recommendations on the design, introduction, operation, legal framework and enforcement of a traceability system.[2]

Core components:

- In consultation with industry and government stakeholders, advising on Business Rules to support a potential National Horse Traceability System (NHTS).
- Developing an indicative timetable for the introduction of a potential NHTS.

2 Reviewing existing national livestock and companion animal traceability and register systems as a guide for implementation of a system for the horse sector.[2]

Core components:

- Research and consultations with pre-existing national livestock / animal traceability and register stakeholders to guide the approach, design and operation of a system for the horse sector.
- Reviewing existing horse tracing efforts and data collection arrangements in Australia.

3 In consultation with stakeholders, considering the funding, policy, legal, communications and compliance requirements to support a potential NHTS.[2]

Core components:

- Stakeholder consultations with relevant biosecurity and existing traceability system representatives from industry and State and Territory governments.

Source: (1) Agriculture Victoria, accessible here (accessed July 2022) (2) National Horse Traceability System Reform, accessible here (accessed July 2022)

This report builds upon prior completed work to expand the understanding of viable horse traceability systems and facilitate implementation decision-making

Marsden Jacobs Associates conducted analysis on four implementation options.

In January 2022, Marsden Jacob Associates released a report on National Horse Traceability.

MJA were engaged to undertake a study focusing on the potential role of a national horse traceability system in the context of biosecurity.[1]

The report details current arrangements, reviews overseas models, assesses scope and suitability of PIC registers as a component of an animal identification system and potential future options.

Four future horse traceability options were identified in the MJA report, with Option 2 and Option 4 presented as the most viable.

Option 1

- Voluntary microchipping and database registration
- PIC coverage for locations where horses reside (not required in all States and Territories)

Option 2

- Uniform national system business rules
- Enforcement of PIC legislation
- Industry managed mandatory movement recording (paper-based or electronic system)

Option 3

- National register linking industry microchip databases
- Mandatory use of PICs by industry for movement recording

Option 4

- Mandatory microchipping of horses
- Uniform national system business rules
- Implementation of a national ownership and movement database

Source: (1) Marsden Jacob Associates Report, accessible here (accessed June 2022)

There are two options that were identified by the NHTWG as requiring additional operational and cost analysis

An in-depth assessment of the components and business rules unique to each option has been conducted.

Option 2 builds upon the existing horse traceability arrangements and seeks to directly address current biosecurity requirements. This option involves improving consistency of the application of PIC registration and record keeping by unifying business rules across all States and Territories.

Option 4 goes beyond current biosecurity requirements to achieve centralised individual animal whole of life traceability. The key components of this option are the introduction of mandatory microchipping requirements for all domesticated horses in Australia and the development of an online national database to record individual horses microchip number, ownership and the PIC on which they reside.

Option 2 key considerations:

- Business rules require all horse owners and carers to register all of the properties on which horses reside and obtain a PIC.
- Owners and carers are not required to record on the PIC register the details of their individual horses.
- Movement records must be logged, with paper-based or electronic records to be stored by the horse owners/carer/event organiser for at least 6 months.[1.]
- Movement records may then be requested by a biosecurity officer in the event of an emergency.

Option 4 key considerations:

- Horse owners and carers are required to report movements to the national database within 48 hours.
- This option is only expected to add value and achieve biosecurity objectives when most horse movements are being recorded on the database.
- Whilst individually identifying all horses in Australia will enable greater insight into the composition of Australia's horse population, greater levels of non-compliance are expected, potentially compromising biosecurity effectiveness.[2.]

Source: (1) NHTWG Business Rules Document, accessible here (accessed June 2022) (2) Marsden Jacob Associates Report, accessible here (accessed June 2022)

The difference between the options is decentralised movement recording with Option 2 and horse identification and movement recording on a central database with Option 4

The key differences between business rules in the two systems are outlined below[1]:

	Property Identification	Horse Identification	Movement Tracking	Movement Recording
	1	2	3	4
Option 2	Properties where horses reside identified.	No identification of individual horses and their owners. Infected horses identified by property.	Movement data only accessed in a biosecurity emergency or for compliance checks	Paper-based or electronic records utilised for movement records from the last 6 months.
Option 4	Properties where horses reside identified. All horses attending an event must have an assigned 'FROM PIC'.	Mandatory microchipping enables identification of individual horses, their owners and their PIC of residence.	All movement data must be recorded in the National Database including deaths.	Movement data required to be recorded in National Database within 48 hours.

Source: (1) NHTWG Business Rules Document, accessible here (accessed June 2022)

Operational and design considerations have been assessed against the high-level target operating model framework

This report evaluates the scope and design of the two recommended horse traceability options, to determine expected costs and benefits.

This report takes into consideration the operational components of Option 2 and Option 4 from the MJA report to assess the operations, governance structures and funding models for each option. A comprehensive cost analysis has been undertaken for each option, with indicative benefits of a traceability system identified to aid decision-making.

In considering each option, analysis was structured around the evaluation of the high-level target operating model (TOM), which incorporates the following six elements:

Scope of document

- Identification of key components of Option 2 and Option 4[1]
- Evaluation of the design, governance and funding of Option 2 and Option 4[1]
- Analysis of cost components and estimated benefits

Sources of information

- Government and industry reports
- Research into global best practice systems delivery
- Consultations with industry, government and related bodies

Source: (1) Marsden Jacob Associates Report, accessible here (accessed June 2022)

A set methodology has been followed, incorporating research into global best practice delivery of traceability systems and consultations with industry stakeholders

A five phase approach has been followed to establish design, governance and funding considerations for a future horse traceability system.

Background and Context

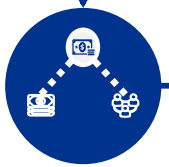
Research into the context of the forming of the NHTWG and the importance of maintaining an effective horse traceability system was performed. Unique components and business rules for the two most viable traceability options were identified.

High-level target operating model assessment

Each option was assessed through defining a high-level future target operating model. The six design layers of the high-level TOM provided a framework to identify implementation considerations for each option.

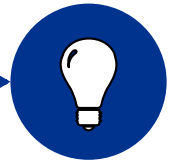
Cost analysis

Cost buckets were identified and mapped to the six design layers of the high-level TOM. Detailed cost analysis enabled overall implementation and ongoing costs of each option to be calculated.



Potential funding models identified

Research into global traceability systems and consultations with Australian horse industry stakeholders revealed a combination of two potential funding models should be considered; a cost recovery funding model and a co-investment model. Ongoing funding commitments and expected funding models must be established upfront to support compliance and system improvements.



Next step recommendations

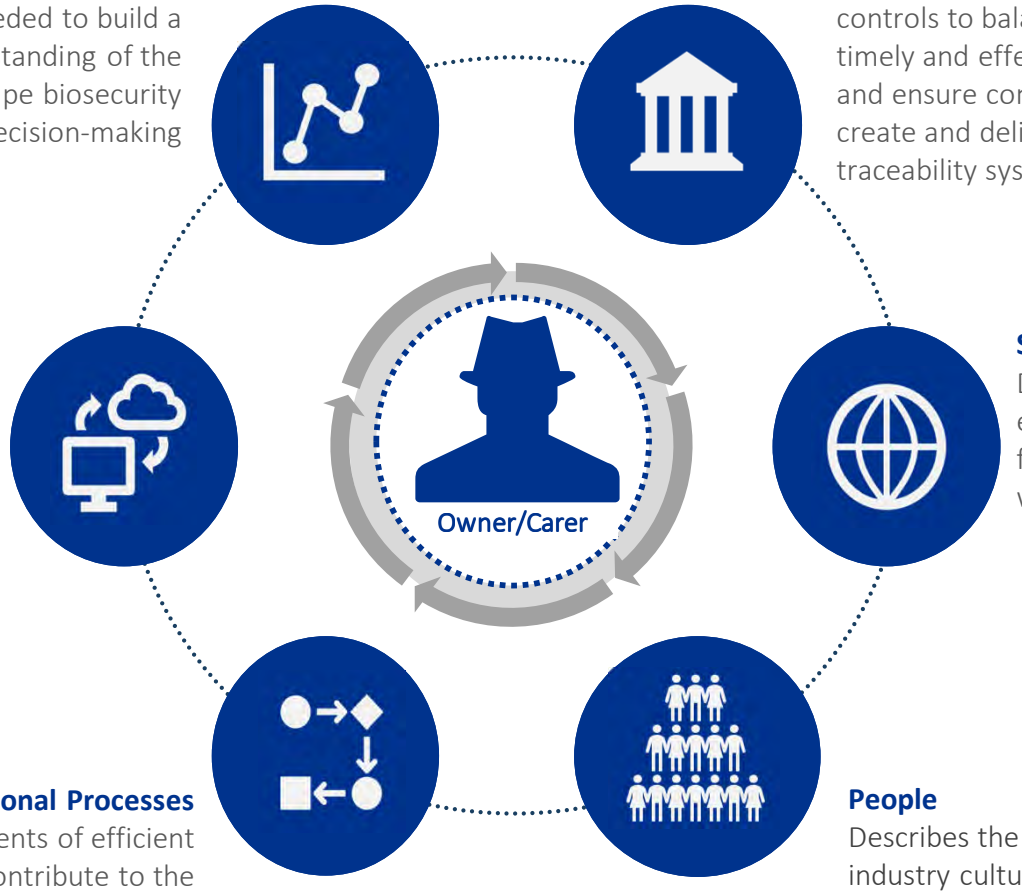
Next steps have been identified to guide further thinking by the NHTWG and Government.

The high-level future target operating model has been defined for either option, providing a framework to identify implementation considerations and indicative costs

Six design layers were defined, outlining the components that contribute to each layer.

Performance Insights & Data
Describes the data, analytics and actionable insights needed to build a comprehensive understanding of the horse industry to shape biosecurity decision-making

Governance
Describes the structures, policies, and controls to balance risk, to facilitate timely and effective decision making, and ensure compliance in order to create and deliver the most efficient traceability system



Systems & Technology
Describes the components of, technologies and platforms, aligned to intended experiences and service delivery model with solutions that are secure, scalable, and cost-effective

Service Delivery Model
Describes how to deliver services with efficiency to improve the experience for horse owners and encourage widespread adoption

Functional Processes
Describes the components of efficient processes that contribute to the delivery of traceability outcomes in a consistent and seamless way

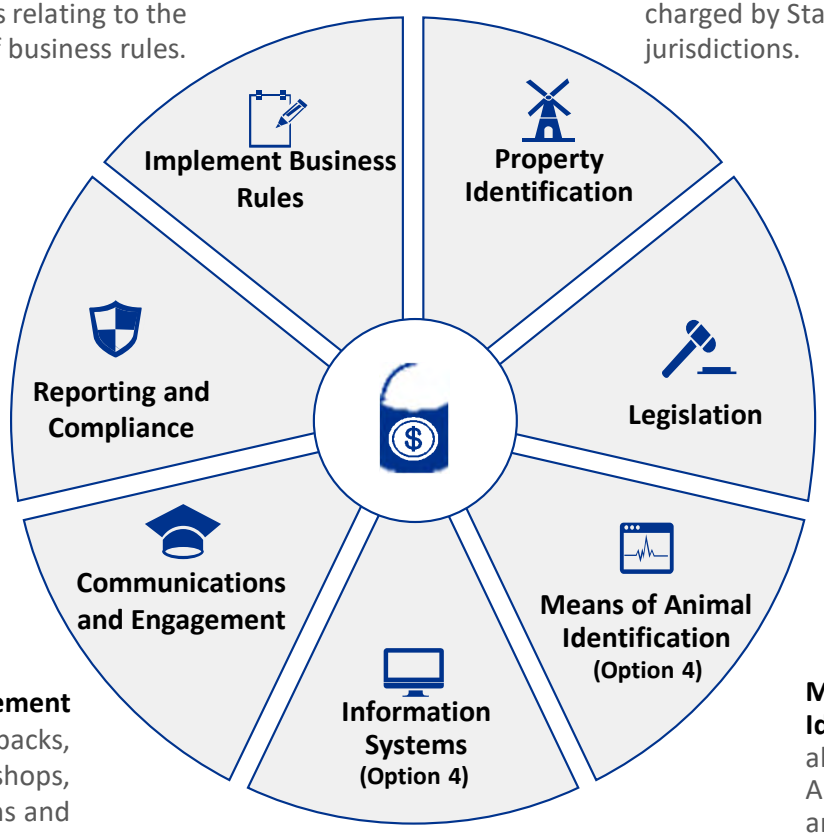
People
Describes the components of an industry culture that promotes collaboration, alignment and empowers people to do their part to contribute to horse traceability

Research into the best practice delivery of global traceability revealed that effective systems require the consideration of seven key elements

These elements are based upon the World Organisation for Animal Health's general principles of identification and traceability[1] and have been utilised to categorise expected cost components for each system.

Implement Business Rules
Additional resources required across State and Territory jurisdictions relating to the unification of business rules.

Property Identification
Ongoing PIC registration fees charged by State and Territory jurisdictions.



Reporting and Compliance
Expansion of biosecurity officer headcount for monitoring, enforcement and audit requirements.

Legislation
Enacting business rules into legislation and the registration of a new legal entity to develop and manage a national database (Option 4).

Communications and Engagement
Preparation of guidance packs, online resources, workshops, training sessions and communications strategy including customer service capability.

Means of Animal Identification Microchipping of all domesticated horses in Australia, includes veterinary fees and the cost of microchips.

Information Systems
Development of a national online database and mobile application and ongoing maintenance.

Source: (1) Marsden Jacob Associates Report, accessible here (accessed June 2022)

By improving the current horse traceability system, the time it takes to eradicate future biosecurity emergencies may be reduced

Research into eradication costs of the 2007 Equine Influenza (EI) outbreak may help to begin quantify the potential impact of any future disease outbreaks.

Source: Estimating the value of Australian biosecurity arrangements for equine influenza since the 2007 outbreak

$571m

Costs incurred by Australian governments as a result of the 2007 Equine Influenza outbreak.[1]

Whilst it is expected that it cost the entire horse industry approximately $2 billion.[2]

The 2007 Equine Influenza outbreak was eradicated within 4-6 months.[3]

Implementation of the national horse traceability system has the potential to improve traceability efficiency and management of future emergency animal diseases (EADs) and protect an industry worth over $10 billion.[4]

As stated by James Waugh, a witness at the senate inquiry into the feasibility of a National Horse Traceability Register for all horses, if a national horse traceability system has the ability to reduce control and eradication time for future EAD outbreaks from 4 months to 4 weeks – this has the potential to save governments $290 million and industry $1.6 billion.[5]

When compared to eradication costs, prevention and monitoring measures are relatively cheap, with Australian government biosecurity costs estimated as just $14 million between 2007-2019.[1] Additionally, it is estimated that 92% of this cost was recovered by the Commonwealth Government from horse importers for quarantining horses at the border[1].

Overall, ongoing biosecurity controls have generated benefits of over $879 million in avoided costs for the horse industry and community[1], suggesting net benefits could be at least $294 million. These findings demonstrate that continued investments into prevention and monitoring are warranted[1].

Source: (1) Estimating the value of Australian biosecurity arrangements for equine influenza since the 2007 outbreak, accessible here (accessed June 2022), 2) Feasibility of a national horse traceability register for all horses Senate Inquiry, accessible here (accessed June 2022), (3) NSW DPI Summary of the 2007/08 Equine Influenza Outbreak, accessible here (accessed June 2022), (4) $10 billion figure derived from $9 billion in economic contribution from thoroughbred racing, accessible here (accessed June 2022) and $1 billion in economic contribution from Equestrian Australia, accessible here (accessed June 2022), (5) Based upon a lower estimate of government costs of $350 million from the Feasibility of a national horse traceability register for all horses Submission 43 Senate Inquiry, accessible here (accessed June 2022)

Through background research into the MJA report, key benefits for both options were obtained

Marsden Jacobs Associates identified the potential benefits expected from the implementation of Option 2 and Option 4[1].

Compared to the current state, Option 2 has comparatively higher biosecurity benefit with high-risk movement being tracked either on paper or online.

Option 4 offers centralised collection and maintenance of horse identification and movement data.

Option 2 Benefits[1]:

- Improves on current traceability capabilities to satisfy requirements, mitigating biosecurity risks. Clear communication of new business rules and requirements will be required to improve current levels of non-compliance.
- Timeliness of the system will enable tracing of horses in a shorter period of time.
- Cost-effective outcomes gained from using pre-existing systems.
- Record keeping for high-risk movements of horses for at least six months.

Option 4 Benefits[1]:

- Assuming compliance is high, the increased availability of data in a centralised system will increase the timeliness of response to a disease outbreak.
- Simplified documentation and the recording of movement in the private hobby and club sector.
- The ability to achieve oversight over the entire horse population and whole of life traceability establishes a base from which a number of improvements are able to be made. However, the risks of recording non-compliance could limit the accuracy of information required for biosecurity purposes.
- Allows the horse industry to work with abattoir and knackery operators to introduce the scanning of microchips to enable deceased animals to be ‘retired’ on industry databases.

Source: (1) Marsden Jacob Associates Report, accessible here (accessed June 2022)

High-Level Target Operating Model Definition

The purpose of a high-level operating model is to provide a framework for the design of an effective horse traceability system

Understanding the current state of horse traceability and future aspirations of ~~key~~ stakeholders has been key to the design of options for a future national horse traceability system.

Stakeholder consultation defined the operational characteristics and expectations of the traceability system options…

Derived from industry and government consultations

…which have been outlined according to the Target Operating Model (TOM) framework layers

- Six Design Layers
- Service Delivery
- Functional Processes
- People
- Systems & Technology
- Governance
- Performance Insights & Data

Evaluating the current state of horse traceability enabled existing gaps to be identified, informing the design of the high-level target operating model options

The current state assessment uncovered a number of high priority functional issues which can be addressed by enhancing Australia's horse tracing capabilities.

Service Delivery Model

- The lack of business rules alignment and integrated communication strategy between State and Territory jurisdictions and horse owners is hindering traceability of horses.
- Horse owners are unclear of traceability requirements and of rules and regulations.

Functional Processes

- There are currently no standardised processes that guide delivery of key activities, causing confusion between States and Territories and horse owners.
- There is also no guideline documentation and processes are manual, with the majority of movement tracking in paper based/non-digitised format.

People

- The lack of uniformity of movement document requirements has resulted in horse owners being unsure of their obligations. There is currently little commitment to enforce this.
- There is also a lack of collaboration between industry bodies and state jurisdictions who all have key information relating to horses.

Systems and Technology

- Systems and Technology are currently underutilised and lack inbuilt integrations, causing roadblocks in achieving operational efficiency.
- There is not centralised system that can be easily accessed by industry bodies and regulators, especially in the event of a biosecurity emergency which is a key risk.

Governance

- There is a lack of effective governance and compliance frameworks across State and Territory jurisdictions resulting in poor compliance from individual horse owners and carers.
- Although there are uniform legal requirements across jurisdictions to have a registered PIC (ex. TAS), the above is a result of lack of enforcement.

Performance Insights and Data

- As the majority of information is paper based and not tracked in a system, there has been no metrics and hence no analytics performed on horse traceability.
- Therefore measurable performance metrics must be implemented across the customer journey to monitor performance and draw insights to make informed business decisions.

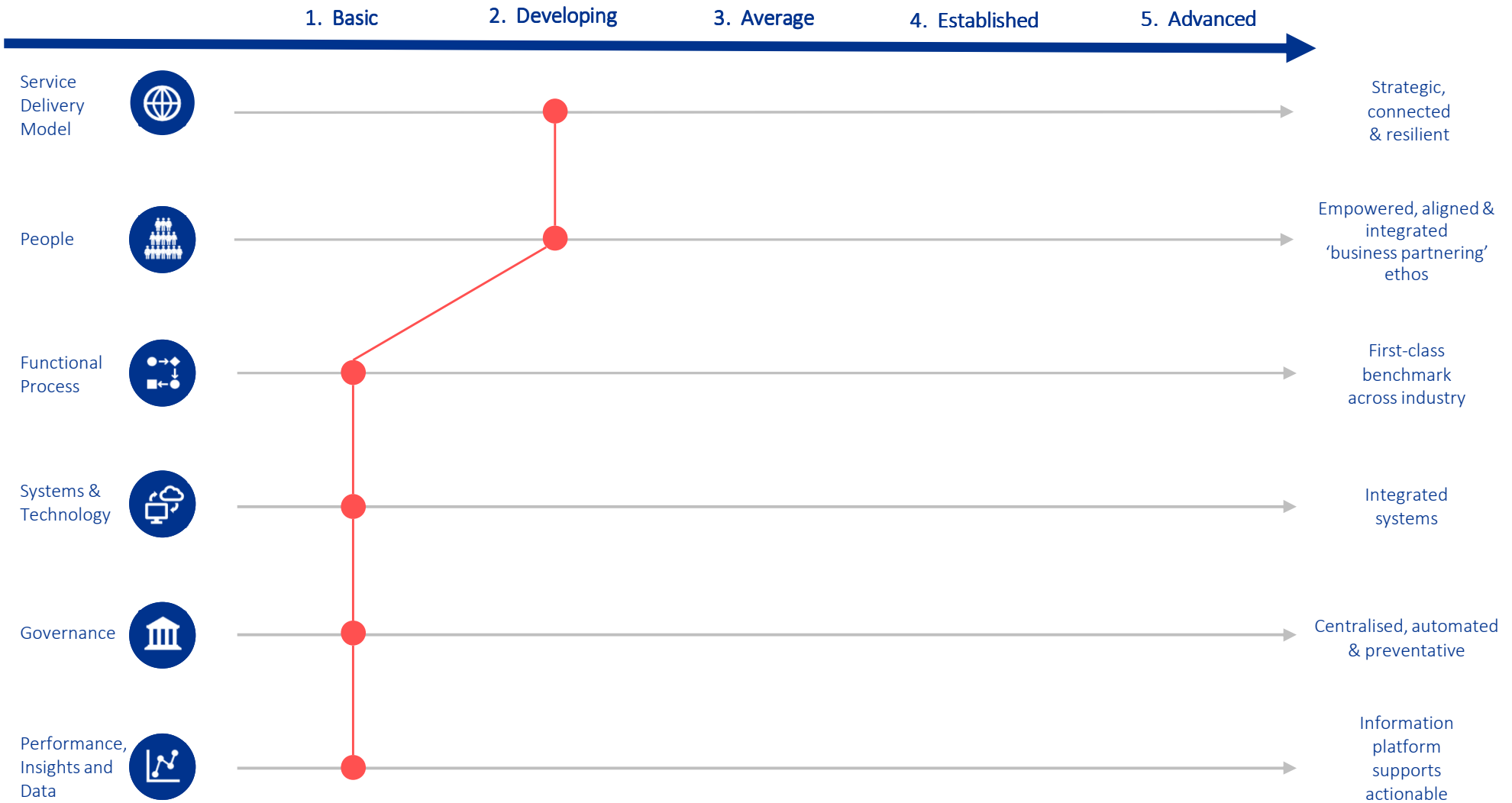
Horse Owner Obligations

Poor compliance by users has resulted from the lack of uniformity of requirements under current business rules and legislation imposed across the States and Territories, with both options specifically designed to resolve this issue.

Assessments derived from industry and government consultations

The capability of the current horse traceability system in Australia has been assessed

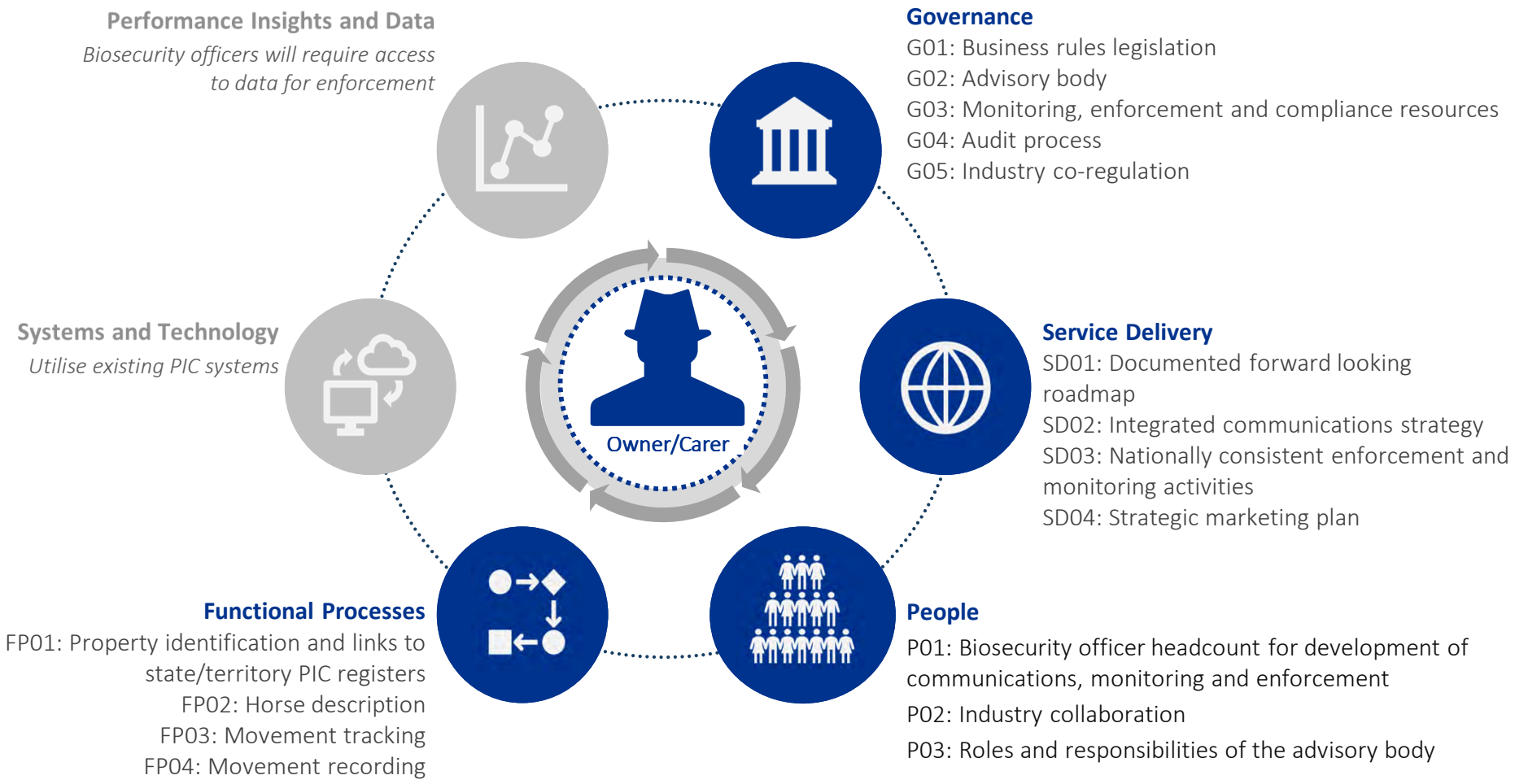
A high level current state assessment has been performed against the six design layers of the high-level target operating model*.



*Ratings detailed in Appendix 2.

Guided by the high-level TOM framework, implementing Option 2 will primarily require establishing robust governance, compliance and communication frameworks

Implementation considerations* have been developed around the six design layers of the target operating model. However for Option 2, two aspects are not relevant for implementation.



*Implementation considerations expanded upon in Appendix 3 and are also captured within Conclusions and Next Step Recommendations Section.

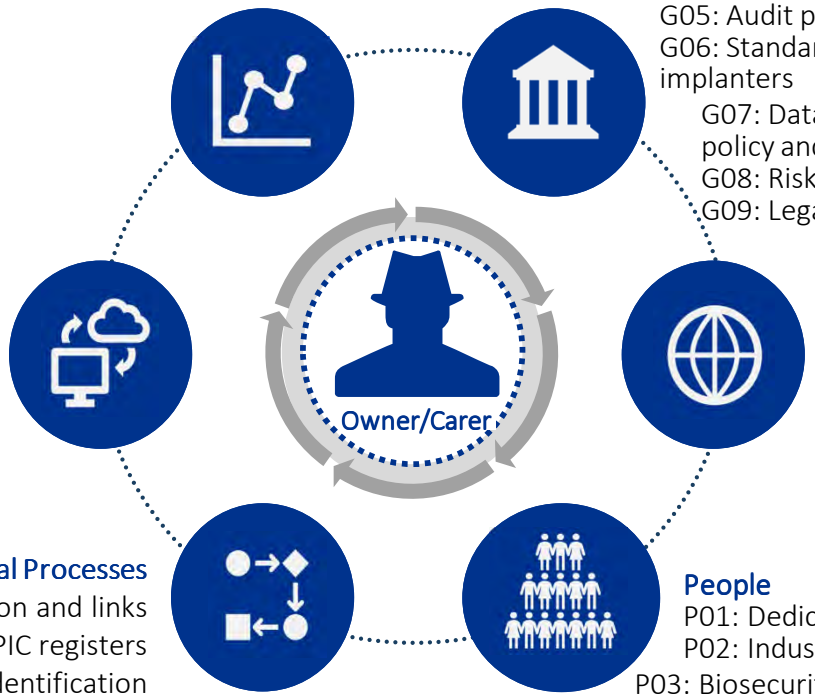
Implementing Option 4 is expected to be significantly more complex, with database development requiring a number of additional considerations

Implementation considerations* have been developed around the six design layers of the high-level target operating model.

Performance Insights and Data
PID01: Reporting KPI's
PID02: Integrated reporting requirements
PID03: Data access rights

Governance
G01: Business rules legislation
G02: Legal entity registration
G03: Board of directors
G04: Monitoring, enforcement and compliance resources
G05: Audit process
G06: Standard operating procedure for authorised microchip implanters
G07: Database terms of use, data dictionary, privacy policy and data access agreements
G08: Risk management framework
G09: Legal framework for registering ownership changes

Systems and Technology
ST01: Development or contracting of a national database
ST02: Online portal development
ST03: Mobile application development
ST04: Data exchange interfaces
ST05: Data storage
ST06: Microchip readers required for event managers and industry officials
ST07: Helpdesk portal
ST08: Business continuity plan



Service Delivery
SD01: Implementation roadmap
SD02: Integrated communications strategy
SD03: Nationally consistent enforcement and monitoring activities
SD04: Strategic marketing plan
SD05: Service delivery segmentation
SD06: Centralised planning functions

Functional Processes
FP01: Property identification and links to state/territory PIC registers
FP02: Unique horse identification
FP03: Movement tracking
FP04: Movement recording

People
P01: Dedicated customer service line
P02: Industry collaboration
P03: Biosecurity officer headcount and hire database staff for development of communications and enforcement
P04: Microchip implanting training and accreditation
P05: Roles and responsibilities of the board of directors
P06: Roles and responsibilities of the legal entity
P07: Biosecurity officer's skills

**Implementation considerations expanded upon in Appendix 4 and are also captured within Conclusions and Next Step Recommendations Section.*

Option 2 is expected to provide an incremental improvement upon the current state of horse traceability whilst Option 4 represents a significant step change in capability

The future state high level assessment for Option 2 and Option 4 has been performed against the six design layers of the high-level target operating model.*

*Ratings detailed in Appendix 2.

Cost Analysis

Cost analysis has been performed based upon seven key elements

These elements are based upon the World Organisation for Animal Health's general principles of identification and traceability[1] and have been utilised to categorise expected cost components for each system.

Implement Business Rules
Additional resources required across State and Territory jurisdictions relating to the unification of business rules.

Property Identification
Ongoing PIC registration fees charged by State and Territory jurisdictions.

Reporting and Compliance
Expansion of biosecurity officer headcount for monitoring, enforcement and audit requirements.

Legislation
Enacting business rules into legislation and the registration of a new legal entity to develop and manage a national database (Option 4).

Communications and Engagement
Preparation of guidance packs, online resources, workshops, training sessions and communications strategy including customer service capability.

Means of Animal Identification
Microchipping of all domesticated horses in Australia, includes veterinary fees and the cost of microchips.

Information Systems
Development of a national online database and mobile application and ongoing maintenance.

Source: (1) Marsden Jacob Associates Report, accessible here (accessed June 2022)

Whilst the most significant cost identified relates to the microchipping of all horses in Australia, it will be incurred by individual horse owners

A national cost summary for Option 2 and 4 was estimated based on the seven cost components.

Cost bucket	Option 2		Option 4	
	Implementation costs	Ongoing costs	Implementation costs	Ongoing costs
Implement business rules	NA	NA	$0.0m-0.4m (S)	NA
Property identification	$0.5m (H)	$0.5m p.a. (H)**	$0.5m (H)	$0.5m p.a. (H)**
Legislation/governance (incl. entity set up)	$0-0.4m (S)	NA	$0.3m-$1.1m (S)	NA
Means of animal identification*	NA	NA	$118.7m-$137.3m (H)	$16.6m-$19.9m(H)
Information systems	NA	NA	$1.7m-$2.6m (S)	$3.1-$4.2m (S)
Communications and engagement	$0.4m - $1.2m (S)	NA	$1.2m - $2.1m (S)	NA
Reporting and Compliance	NA	$2.6m-$3.6m p.a. (S)	NA	$5.2m-$6.8m (S)
Administrative Burden	NA	$8,100 - $16,200	NA	$1.2m - $2.3m (H)
Total costs	**$0.4m - $1.6m (S) $0.5m (H)**	**$2.6m-$3.6m p.a. (S) $0.5m p.a. (H)**	**$3.2m-$6.2m (S) $119.2m-$137.8m (H)**	**$8.3m-$10.8m p.a. (S) $18.3m-$22.9m (H)**

Key: S = System Cost; H = Cost borne directly by horse owners

Note:

* Estimate is includes the financial costs of animal identification incurred by horse owners (i.e. microchips, readers and veterinary costs). It also includes the non-financial value of time taken by horse owners to record movements (i.e. estimate of the economic value of time spent complying with new requirements).

** The estimate of ongoing PIC costs relates only to the assumed rate of non-compliance (20%) as this represents the additional costs incurred as a result of the system)

It is expected that there will be an initial requirement for additional resources to implement a new horse traceability system

Estimated resourcing required for the implementation of Option 2 and Option 4 has been calculated.

Cost bucket – System implementation costs	Option 2		Option 4	
	Estimate low range	Estimate high range	Estimate low range	Estimate high range
Business rules	0.0 FTE	0.0 FTE	2.0 FTE	2.0 FTE
Legislation/Governance (resourcing only)	0.0 FTE	2.0 FTE	2.0 FTE	4.0 FTE
Communications and Engagement	2.0 FTE	6.0 FTE	6.0 FTE	10.5 FTE
Total	**2.0 FTE**	**8.0 FTE**	**8.0 FTE**	**16.5 FTE**
Total cost ($)	**$0.8m**	**$1.6m**	**$1.6m**	**$3.3m**
Estimated cost range ($)	**$0.8m - $1.6m**		**$1.6m - $3.3m**	

Stakeholders consulted in each jurisdiction were asked to provide estimates of the **additional resourcing** required to support the development of **'business rules'**, the design and establishment of the **'legislation'** and required **'communication and engagement'** activities to support system implementation.

It should be noted that FTE required for implementation will likely not be required on an ongoing basis, with costs not recurring beyond the 1st or 2nd year post implementation.

With the exception of 'communications and engagement', **stakeholders expressed a view that some of the required functions could be performed by existing resources (refer 'estimate provided')**. However, it is unlikely states will reassign resources for implementation, particularly with the recent FMD outbreak and budgetary pressure.

The **estimated cost of all resources is assumed to be $200k p.a. (FTE)**. This represents an indicative 'fully loaded' cost inclusive of all salaries, salary related oncosts and other overheads.

Option 4 involves additional costs associated with the establishment of a legal entity and the development and maintenance of a national database

Estimated implementation and ongoing legislation and information systems costs have been identified.

Legislation Costs (governance costs – entity establishment)

Separate to the resourcing allowed to design and implement the legislative framework required to operationalise a national horse traceability system, stakeholders have identified the need for the establishment of a separate legal entity to operate and maintain the required database.

To achieve this outcome, an additional system implementation cost of $300k has been identified, which would cover the following:

- Entity registration and set up costs
- Legal, tax and accounting advice
- Insurance costs
- Recruitment and onboarding of entity staff / Board members

Once established, the annual operating costs of the entity were assumed to be equivalent to the estimated database management and administration costs (as estimated opposite).

Information Systems (implementation and ongoing)

The estimated cost to develop and operate a national online database (incl. mobile application) was developed based on engagement with providers of comparable technologies.

Representatives from UK CED provided the following inputs:

- An estimated cost of 0.5m-1.5m pounds to establish a national database with the required functionality to support horse traceability
- Approximately 150,000-200,000 pounds **per month** to operate and maintain the national database (incl. data management and tech support), with potential for this amount to decrease if offsetting revenues can be generated from other user groups.

Based on these estimates and other anecdotal information provided through the stakeholder consultation, the cost modelling assumes the following:

- Database implementation costs of $1.7m to $2.6m
- Database operating costs of $3.1m to $4.2m per annum

Note, this excludes the impact of any offsetting revenue, which would be subject to separate consideration.

Case Study – Integrity Systems Company

- Integrity Systems Company managers and delivers the Australian red meat industries traceability programs, primarily through its national database the National Livestock Identification System (NLIS)[1].
- The NLIS database is Australia's system for the identification and traceability of cattle, sheep and goats[2].
- The system is fully funded through producer bodies that provide input into Meat and Livestock Australia and levies from the processing sector and live export[2].
- It cost approximately $65 million to develop with operating costs of approximately $5 million p.a[3]. This includes database development, communications, helpdesk operations, industry support services and management / administration costs[3].
- However, the NLIS has experienced an erosion of funding over time, due to the change of priorities of governments and industry[4]. The key learning for ISC in regard to the funding of a traceability system, is that ongoing funding commitments and expected funding models must be established upfront to support compliance and system improvements[5].

Source: (1) Integrity Systems Company, accessible here (accessed July 2022), (2) NLIS, accessible here (accessed July 2022), (3) Ex-post benefit-cost assessment of MLA's Product Integrity Programs, accessible here (accessed July 2022), (4) Animal Traceability in Australia Senate Enquiry, accessible here (accessed July 2022), (5) ISC Stakeholder Consultation, accessed June 2022

Additional resourcing requirements were identified by State and Territory biosecurity stakeholders

The ongoing costs for Reporting and Compliance under Option 2 and 4 have been identified.

Jurisdiction	Option 2		Option 4	
	Low range	High Range	Low Range	High Range
VIC	1.0	2.0	2.0	5.0
NSW	No estimate provided (VIC 1.0)	2.0	No estimate provided (VIC 2.0)	5.0
QLD	2.0	4.0	4.0	5.0
WA	2.0	2.0	5.0	5.0
SA	No estimate provided (WA 2.0)	2.0	No estimate provided (WA 5.0)	5.0
TAS	4.0	4.0	4.0	5.0
NT	1.0	2.0	4.0	4.0
Total	13.0 FTE	18.0 FTE	26.0 FTE	34.0 FTE
Total cost ($ p.a.)	$2,600,000	$3,600,000	$5,200,000	$6,800,000
Cost range ($ p.a.)	$2,600,000 - $3,600,000		$5,200,000 - $6,800,000	

- A high range has been prepared to show relative resourcing in each jurisdiction. This was adjusted to be broadly equivalent to each jurisdictions relative size from the highest estimates provided by states (number of horses and PICs).
- For jurisdictions that did not provide estimates, the most similarly sized jurisdiction (Victoria for NSW & WA for SA) has been used in place for state level and overall costing.

Under Option 2, non-compliant horse owners and carers are required to register for a PIC

The implementation and ongoing costs for animal identification under Option 2 have been identified.

This cost has been estimated based on the current number of PICs in each jurisdiction (provided by stakeholders or estimated based on other available data – the estimated rate of compliance with PIC requirements (assumed based on stakeholder estimates and other data reference points), and the average cost per PIC registered (approximately $30 p.a.).

It is noted that the number of horses on a PIC will often not be static. Horses move regularly between PICs for various reasons. For racing stables and studs, movements onto and off these PICs occur on a daily basis and ownership changes are also frequent. Properties, particularly in peri-urban areas, on which horses reside may not as yet have a PIC, or may have a PIC but not have horses listed as one of the species present.

This equates to an additional cost to horse owners of around $0.5m through implementation of either Option 2 or Option 4, with this cost recurring each year.

While all PICs incur an annual fee, it is assumed that only those that were previously non-compliant represent an additional cost.

Further, it is assumed that there is no net change in the number of PICs registered with horses each year. This corresponds to an annual cost of $0.5m p.a.

A sensitivity analysis has been conducted over the PIC non-compliance figure due to uncertainty around current state compliance.

State / Territory	Registered PICs	Assumed non-compliance %	Additional PICs required	Registration fee	Registration fee - 10% non-compliance	Registration fee - 30% non-compliance	Registration fee - 50% non-compliance
QLD	36,000	20%	7200	$216K	$108K	$324K	$540K
NSW[1]	19,806	20%	3961	$118.8K	$59.4K	$178.3K	$297.1K
VIC[2]	17,170	20%	3434	$103K	$51.5K	$154.5K	$257.6K
WA	4,105	20%	821	$24.6K	$12.3K	$36.9K	$61.6K
SA	4,400	20%	880	$26.4K	$13.2K	$39.6K	$66K
TAS[3]	1,502	20%	300	$9K	$4.5K	$13.5K	$22.5K
NT[2]	951	20%	190	$5.7K	$2.9K	$8.6K	$14.3K
ACT	200	20%	40	$1.2K	$0.6K	$1.8K	$3K
Total	**84,134**	**20%**	**16827**	**$504.8K**	**$252.4K**	**$757.2K**	**$1262K**

1. NSW PIC Numbers were not provided and as such have been estimated by dividing the estimate for total horses from the EI report by the derived horses per PIC figure from Victoria (similar size jurisdiction)
2. PIC's in Victoria and Northern Territory are currently free
3. Tasmanian PIC numbers may require more significant change and be more inaccurate than other jurisdictions due to the fact that there is no legislative requirement in Tasmania to register a PIC if a property has horses nor is there an obligation to notify if horses are on a particular property that has a PIC.

For Option 4, all horse owners and carers will be required to microchip their horses and many will also require a microchip reader

The implementation and ongoing costs for animal identification under Option 4 have been identified.

This cost has been estimated based on (1) the estimated number of horses, (2) the % of those microchipped and (3) the full cost of microchipping remaining horses.

1) An estimate of total horses was derived based on data contained in previous reports and stakeholder inputs (e.g. number of horses per PIC and PIC numbers were used to extrapolate estimates in some cases). To arrive at a range, an additional 20% was added to the derived figures, which suggested the total number of domesticated horses fell between 765,000 and 919,000. This number was assumed to remain largely constant, with a comparable birthing and death rate of around 10 per cent.
2) The percentage of horses already microchipped was estimated based on figures reported for each category of horse (i.e. 100% of thoroughbreds, 20% of Equestrian horses, 10-15% of Standardbred and other horses).
3) Microchip costs were developed based on the full cost paid for veterinary insertion. Based on a range of estimates and stakeholder input, this was estimated to be $175 per microchip.

The cost of microchip readers was also estimated, based on information from both the thoroughbred and harness racing industries, bluetooth enabled readers are estimated to cost approximately between $400 and $600 retail, as such a mid-point of $500 has been selected as the microchip reader cost figure. 50% of horse owners are assumed to require a reader. It was further estimated 20% of readers would require replacement each year.

State / Territory	Number of horses	Derived number + 20%	Existing chips	Implementation Microchip cost (Low)	Implementation Microchip cost (High)	Reader cost	Ongoing/annual cost (low)	Ongoing/annual cost (high)
QLD	287,500	345,000	30%	$35.4M	$42.5M	$10.8M	$6.5M	$7.8M
NSW	184,870	221,844	30%	$22.8M	$27.3M	$5.9M	$4M	$4.8M
VIC	160,263	192,315	30%	$19.8M	$23.7M	$5.2M	$3.5M	$4.2M
WA	49,994	59,993	30%	$6.2M	$7.4M	$1.2M	$1M	$1.2M
SA	46,715	56,058	30%	$5.8M	$6.9M	$1.3M	$1M	$1.2M
TAS	14,554	17,465	30%	$1.8M	$2.2M	$0.5M	$0.3M	$0.4M
NT	11,319	13,583	30%	$1.4M	$1.7M	$0.3M	$0.2M	$0.3M
ACT	2,595	3,114	30%	$0.3M	$0.4M	$0.1M	$50K	$0.1M
Total	**757,809**	**909,371**	30%	**$93.4M**	**$112.1M**	**$25.2M**	**$16.6M**	**$19.9M**

The valuation of administrative burden was conducted through separation into three major categories

There is an administrative burden associated with the time spent recording horse movements. The estimated cost (non-financial) is: (A) the no. of additional horse movements per annum; (B) the time taken by horse owners to record movements; (C) the value of that time.

A. There is no available data on the additional horse movements per annum that would need to be recorded as part of a national horse traceability system or the expansion of the PIC system. While movements of race horses are known to be high in volume, industry led requirements already exist for these movements to be recorded. Therefore, the additional burden is limited to movements for other types of horses, which are likely to be less regular. Anecdotally, the average number of additional (non-racing) movements that will require recording per year are assumed to be 250,000 to 500,000. For the enhanced PIC system only high risk movements are recorded, outside the racing industries this is estimated at between 5,000 and 10,000

B. It is estimated that the national traceability system and accompanying technology would be designed to support horse owners in efficiently recording horse movements. For the purposes of this analysis, it is assumed that on average the recording of a horse movement would take horse owners an average of 15 minutes. To comply under the expanded PIC system this would only require the owner to keep records (electronically or on paper), the time to comply is therefore shorter, estimated at 5 minutes.

C. The value attributed to the time spent by horse owners to record horse movements was estimated based on the methodology outlined in the Australian Transport Assessment and Planning (ATAP) guidelines, which attributes a value of time equivalent to 40% of Average (full time) Weekly Earnings (recognising the time spent is 'private' time, which is valued at a lower rate than working time). Applying this approach, the value applied in this analysis was:

$1748.4 x 40% = **$699.36**

$725.8 ÷ 37.5 = **$18.65**

$19.35 ÷ 4 = **$4.66 per 15 minutes** and $19.35 ÷ 12 = **$1.62 per 5 minutes**

Option case	A. No. of additional movements recorded per year	B. Time taken to record each movement	C. Value of time	Administrative burden
2 Low case	5,000	5 minutes	$1.62	$8,100
2 High case	10,000			$16,200
4 Low case	250,000	15 minutes	$4.66	$1,165,000
4 High case	500,000			$2,331,200

Calculation of administrative burden

Based on the above assumptions and approach, the administrative burden associated with the implementation of Option 2 is estimated to be between $8,100 and $16,200 and Option 4 is estimated to be between $1,165,000 - $2,331,200 p.a.

This estimate and approach would need to be refined through a future Regulatory Impact Statement process.

For both options, there are considerable biosecurity benefits that can be realised

The delivery of biosecurity benefits was the focus of both Option 2 and Option 4, with these options representing different approaches and levels of detail in their approach to the delivery of these benefits. As set out below, there are incremental biosecurity benefits to be realised under the implementation of both options, with these benefits not expected to vary materially between Option 2 and Option 4.

The cost of not managing biosecurity risks for horses is substantial:

- The 'Estimating the value of Australian biosecurity arrangements for equine influenza since the 2007 outbreak' report (2020)[1] estimated benefits from ongoing biosecurity controls of $879 million in avoided costs for the horse industry and horse community, further noting investment in biosecurity had cost just $14 million in prevention and monitoring - a benefit-to-cost ratio of 61:1.
- The report estimated the cost of the EI outbreak to the horse industry was approximately $350 million; however, other organisations such as the Australian Veterinary Association and Australian Horse Industry Council believe the outbreak could have cost the industry up to $2 billion. In addition, the total cost of eradicating the EI outbreak was $571 million including compensation to offset the disruption to industry. As such, creating sufficient biosecurity protections has substantial benefits from the perspective of mitigation of risk for avoidable equine disease outbreak related costs in the horse industry.

Both Options are expected to deliver the desired biosecurity outcomes, but Option 2 is substantially more cost effective in delivering these outcomes (incl. implementation and ongoing costs to horse owners).

- Both Option 2 and Option 4 address risks around biosecurity. Option 2 meets the necessary requirements for tracing horses during outbreaks of economically important diseases, has a lower cost and provides a foundation for further improvement and data collection going forward. Option 4 however, has a substantially higher implementation and on-going cost for similar benefits from a biosecurity standpoint.

Source: (1) Agriculture Victoria, accessible here (accessed June 2022), (2) WA DPIRD Stakeholder Meeting, accessed Sept 2022

Stakeholder consultations revealed a number of other non-biosecurity benefits that could be unlocked with some further consideration

While not the core focus of the proposed traceability system, stakeholders identified other benefits that may potentially be realised by the implementation of both Option 2 and Option 4.

Benefit Category	Benefit description	Enabler(s) of benefit required	Assessment of benefit
Horse welfare	Improved traceability could contribute to improved horse welfare by improving the ability for animal welfare organisations to identify and locate owners (Option 4) or carers (Option 2) when there are concerns for a horse's welfare.	Establishment of owners registry and resources to support required analytics / enforcement. Additional consideration to data access agreements and development of access functionality would be required.	Providing welfare organisations with access to specified data has the potential to improve the ability to locate responsible parties during welfare investigations. The ability to identify individual horses and horse owners (Option 4) may assist welfare investigations in uncovering the full extent of mistreatment. This additional benefit has not been quantified.
Knackeries and Abattoir traceability	Option 4 has the potential to provide an increased ability to trace a horse throughout its life, including when horses go to knackeries/abattoirs, enabling red flags to be raised for horses that should not be going for slaughter.	Changes to current requirements of knackeries and abattoirs to preclude components of current activity.	Not realised under current scope of Option 2 and Option 4.
Rider / Handler safety	Option 4 could potentially improve rider/handler safety outcomes by improving the information available by enabling horses that require more experienced handlers or are inappropriate for beginners to be flagged on the database.	An objective process and criteria to identify dangerous horses would need to be developed, tagging of these horses in the database, and establish a mechanism to communicate risks.	Not realised under current scope of Option 2 and Option 4.
Data quality	Option 2 will provide improved data to plan and understand the scale and location of a horse population, and provides a foundation for other options if they become more affordable or preferred in the future.	Full implementation of Option 2, further questioning/data extraction added to PIC registration	Not a quantitative benefit. Foundation for improved analysis and decision-making.
	Option 4 - mechanism for efficiently 'retiring' deceased horses on industry databases once abattoir and knackeries commence scanning for microchips.	Establishment of an obligation or instruction for horse owners to mark down deceased horses.	

Currently, the proposed horse traceability options being considered only seeks to address biosecurity objectives and does not directly target the benefits detailed above. The capacity for the additional functionality outlined above to realise these benefits and the associated costs of developing required functionality has not been quantified or considered. There is no material and quantifiable difference in non-biosecurity benefits between Option 2 and Option 4.

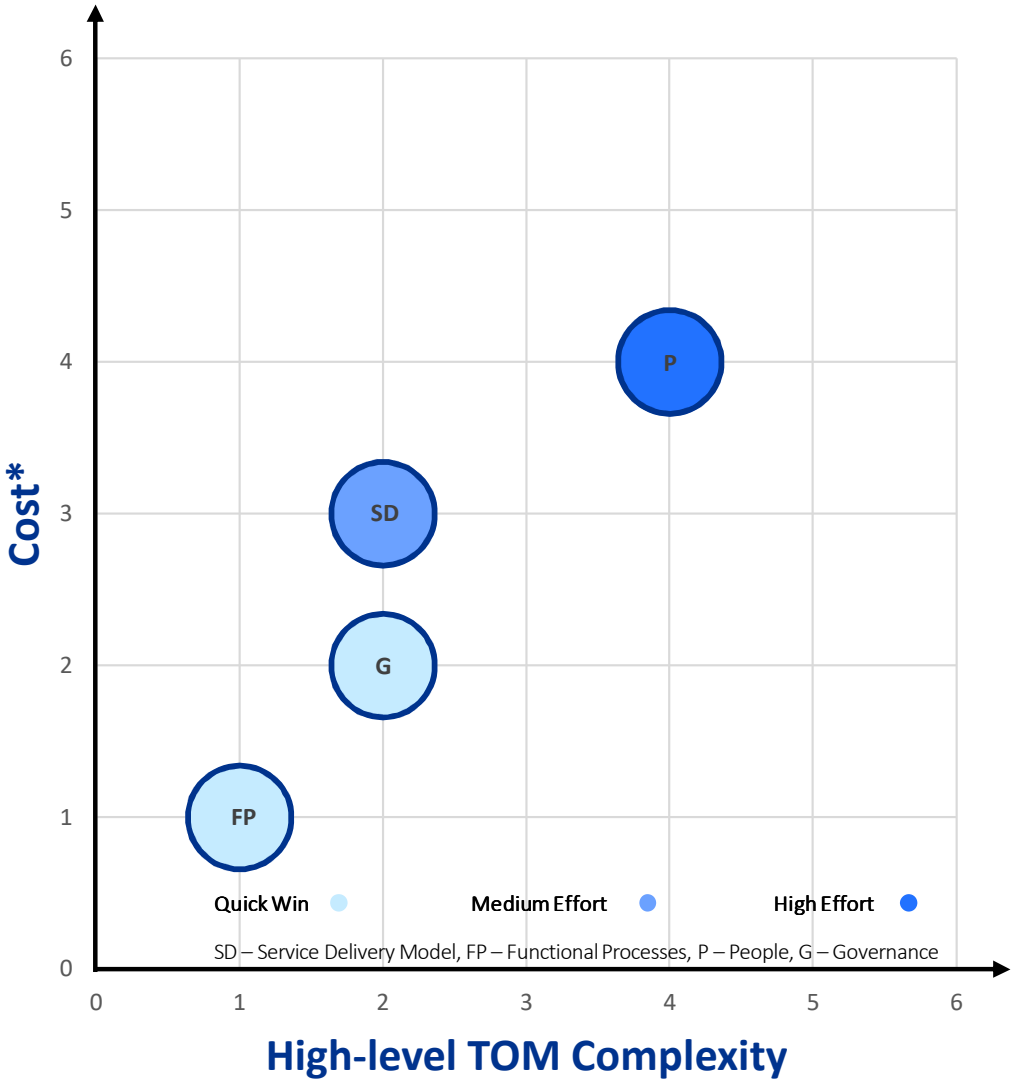
Conclusions and Next Step Recommendations

There are several quick win opportunities in the implementation of Option 2 due to the leveraging of the existing PIC system

Considerations under each high-level target operating model design layer have been assessed to understand the potential barriers to implementation.

The implementation complexity of Option 2 is expected to be relatively low due to the lack of the Systems and Technology and Performance, Data and Insights design layers, given that Option 2 will leverage the existing PIC system.

Additionally, functional processes are expected to be easily implemented as business rules build upon and standardise existing requirements across all State and Territory jurisdictions.

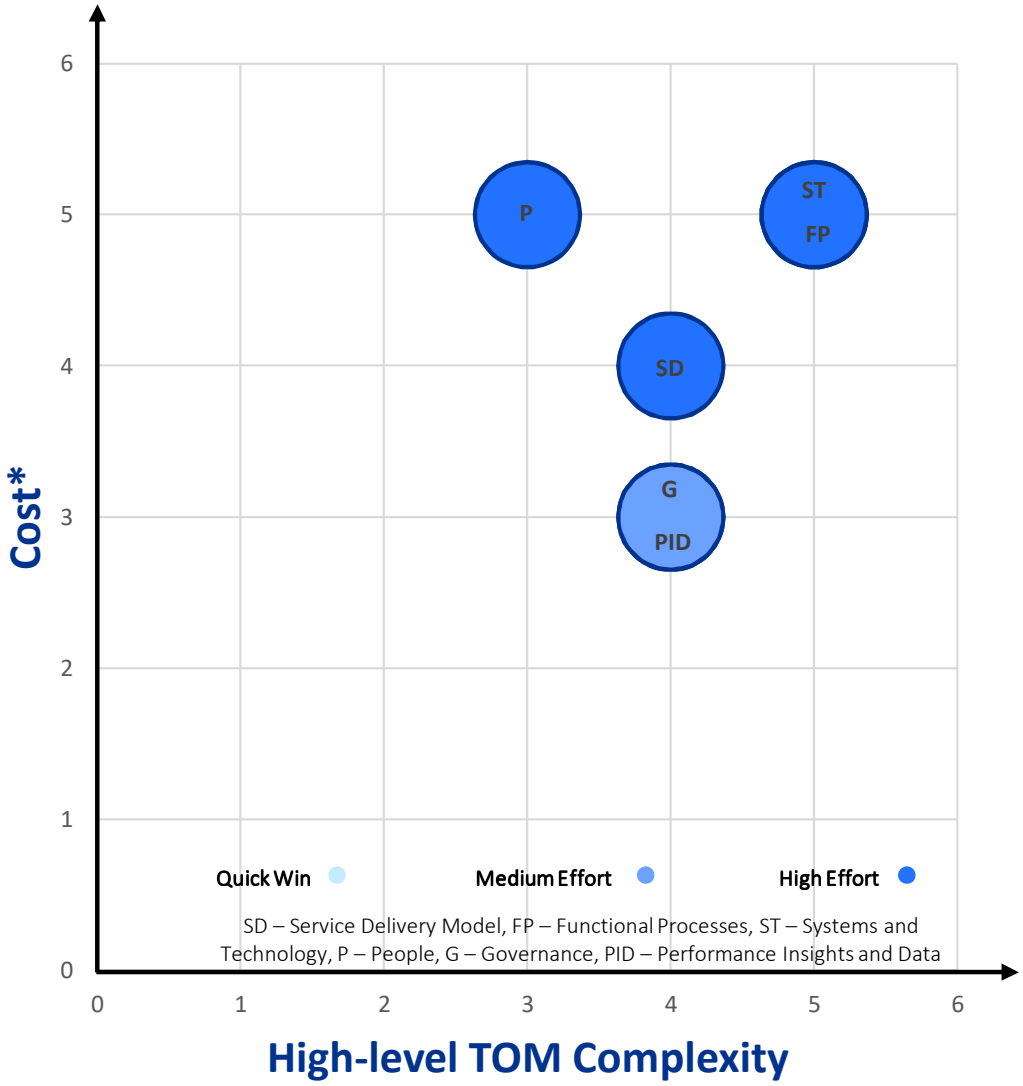


**Cost buckets were mapped to the high-level target operating model design layers, detailed in Appendix 7.*

Implementation of Option 4 is expected to be considerably more complex, driven by mandatory microchipping, database development and legal requirements

Considerations under each high-level target operating model design layer have been assessed to understand the potential barriers to implementation.

The implementation of Systems and Technology, primarily driven by the development of a national database is expected to require the most amount of time and resources to implement and adds considerable complexity to the other design layers. However, this entire implementation step could be contracting out to a third party, which may dramatically reduce the complexity of the entire option.



**Cost buckets were mapped to the high-level target operating model design layers, detailed in Appendix 7.*

Option 2 could be implemented as a tactical approach while Option 4 as a more strategic one, once the former has been adopted

An overall summary for Option 2 and 4 was provided based on a number of key components.*

A tactical and a near-term approach could be the implementation of Option 2, leveraging the existing horse traceability functions in place (PIC system) to provide basic traceability capability. The majority of the costs would be attributed to ongoing costs of reporting and compliance. This option does not require a highly differentiated governance model and relies on existing governance and regulation at a State and Territory level.[1]

A strategic and long-term approach could be the implementation of Option 4, and assuming a high level of compliance could be achieved, providing more capacity for traceability and potentially a solution to other industry issues such as animal welfare and lifetime traceability. The majority of the costs would be attributed to the implementation and ongoing costs of microchipping and animal identification complemented by sustained monitoring and enforcement. This option requires the development of a new legal entity along with an associated governance and funding model.[1]

Next Steps

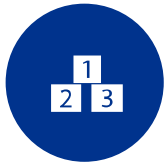
In determining a future horse traceability system, this report provides key estimates in regard to cost and complexity that should help inform the right balance between cost and benefit of a future horse traceability system.

*Source: (1) VIC DJPR Stakeholder Meeting, accessed June 2022. *High-level target operating model expanded upon in Appendix 3 and Appendix 4.*

Appendix 1 - Summary of Stakeholder Consultations

Stakeholder Consultation Summary – Racing Industry

Summary of the four key themes expressed by Racing Australia and Harness Racing Australia.



Option Preference

The Racing Industry supports the implementation of Option 4. Strict regulation imposed by the industry already requires horse owners to record microchip, ownership and movement information in an existing database. Industries indicated that they would be willing to establish data sharing agreements with a national database.[1]

Enforcement

All jurisdictions have traceability staff who conduct audits and enforce the NLIS in other species. Whilst horses are within racing, traceability obligations are heavily regulated, but additional government staff and associated funding would be needed to ensure coverage of horses that are not part of the thoroughbred and standardbred herds.

Microchipping

The majority of horses in the racing industry are already microchipped.[1] The industry are supportive of Option 4 as they already have advanced systems in place, which records individual horses microchip numbers, ownership details and movement records.

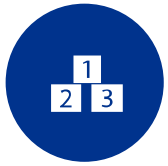
Key Metrics

Racing Australia account for approximately 13% of Australia's domesticated horse population.[1] Harness Racing Australia have between 100-300 thousand horses in their system.[2*]

*Source: (1) Racing Australia Stakeholder Consultation, accessed June 2022 (2) Harness Racing Australia, accessed June 2022 *Values may include horses that are deceased*

Stakeholder Consultation Summary – RSPCA

Summary of the four key themes expressed by the RSPCA.



Option Preference

RSPCA are supportive of the implementation of Option 4 as it will enable them to allocate resources more efficiently. Individual horse identification is very important to the RSPCA, improving their ability to reunite horses with owners following emergencies and assists inspectors when enforcing animal welfare legislation.[1]

Compliance

RSPCA expect compliance to be performed at a State based level. The RSPCA also stated they can perform animal welfare checks and enforcement to check properties.1

Funding

RSPCA believe the development of a NHTS should be funded initially by the Commonwealth Government. To cover ongoing funding of Option 4, RSPCA has suggested that enhanced features be developed on a scaled user-pays basis.[2]

Ownership

RSPCA specified that they would like ownership and person in charge to be included as a field within the database. This is important for example in instances where horses need to be lifted for a rescue or to reunite horses with their owners.

Source: (1) RSPCA Stakeholder Consultation, accessed June 2022 (2) RSPCA Blueprint for a National Horse Traceability System, accessible here (accessed June 2022)

Stakeholder Consultation Summary – States and Territories

Summary of the four key themes expressed by State and Territory jurisdictions in relation to Option 2.

Funding

Some State and Territories believe a NHTS should be funded by the Commonwealth Government.[1] Others believe that Commonwealth funding is unrealistic and that its on-going maintenance including communications, auditing and enforcement should be industry funded.

Governance

An effective traceability system must be underpinned by robust governance structures. Establishing an advisory body that reports to the National Biosecurity Committee on the effectiveness of the potential system ensures the system remains fit-for-purpose.[2]

Enforcement

Enforcement will need to be conducted at events to ensure that attendees with horses have a PIC and are aware of their obligations.[3] Biosecurity officers will be reliant upon industry event managers compiling information on non-compliance and to create and maintain movement records. Additional resourcing will be required to enforce legislation and conduct checks for other movement types.

Benefits

Whilst the primary objective of the NHTS is to address biosecurity concerns, it would also be extremely useful in the event of natural disasters, helping people identify horses, their owners and location quickly and effectively. It is extremely important to highlight all potential benefits to individual horse owners to encourage their participation.[4]

Source: (1) NSW DPI Stakeholder Consultation, accessed June 2022 (2) DJPR Stakeholder Meeting, accessed June 2022 (3) Primary Industries and Regions SA Stakeholder Consultation, accessed June 2022 (4) WA DPIRD Stakeholder Consultation, accessed June 2022

Stakeholder Consultation Summary – AHIC

Summary of the four key themes expressed by the AHIC.

Option Preference

The AHIC are supportive of Option 2, emphasising the importance of firstly harmonising the fragmented State-based approach to collecting and storing PIC data. It is the view of the AHIC that the "federalisation" of the system is the minimum foundation for any kind of national database.

Compliance

AHIC believe that getting horse owner compliance may be difficult, with skepticism expected towards the governing body. AHIC believe that compliance should be promoted using the "carrot" as opposed to enforcement activities.

Rider Safety Misconceptions

The AHIC does not believe that rider safety can be improved by a national database system as all horses are potentially dangerous given optimum behavioural responses cannot be guaranteed in all circumstances. The AHIC also highlighted that it is not just riders at risk around horses, with unmounted individuals or transporters of horses also at risk.

Major Costs

AHIC believe that education and communication costs are paramount to the successful implementation of either traceability option. Horse owners should receive information on benefits of PIC's and the importance of compliance.

Source: (1) AHIC Stakeholder Consultation, accessed June 2022

Stakeholder Consultation Summary – Equestrian Australia

Summary of the four key themes expressed by Equestrian Australia.

Funding

For EA, the national horse traceability system should be funded by the Commonwealth Government given the biosecurity and welfare benefits.

Key Considerations

EA has highlighted some key considerations to take into account. Horse owners are resistant to change and culture is stiff. Moreover, there may be significant pushback from horse owners that don't move their horses often.[1]

Microchipping

The majority of horses in Equestrian Australia are either microchipped or have freeze brands as a form of identification.[1]

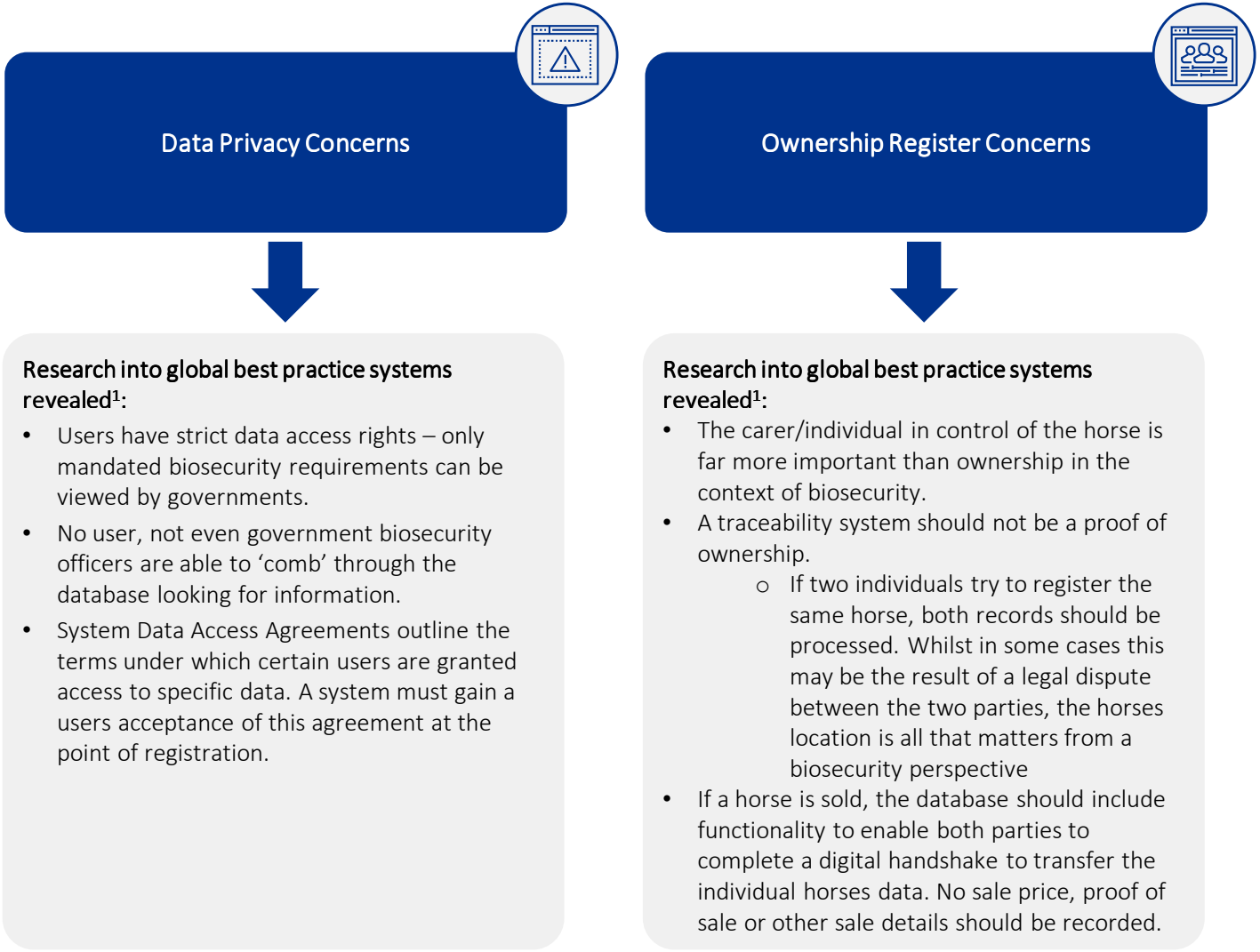
Benefits

Key benefit for EA in terms of a national horse traceability system is welfare and rider safety. A NHTS could give key information regarding horses, for example if they have been a racehorse and locations where it has been.[1] This information would be key in determining if horses are appropriate for beginner riders.

Source: (1) Equestrian Australia Stakeholder Consultation, accessed June 2022

Research into global best practice systems revealed that strict data access agreements help to protect user privacy

Many stakeholders and horse industry participants expressed concerns around their data privacy and the implications of developing an ownership register under Option 4.



Source: (1) Derived from insights gained from desktop research into global traceability systems and consultations with the UK CED, NLIS and PigPass.

Appendix 2 - Current State Assessment

Defining the maturity levels against which the TOM layers have been graded

Each of the TOM layers have been graded against the below five ratings in current state and future state assessments

	1. Basic	2. Developing	3. Average	4. Established	5. Advanced	
Service Delivery Model	There is no service delivery model in place Service(s) are sourced inhouse Decision making is decentralised	Highly fragmented; minimal use of central functions	Utilisation of centra- or shared-functions (with state jurisdiction), utilisation of outsourcing; basic Service Level Agreement (SLA)s in place	Integrated SDM implemented, lead-times, markets and demand are customer centric A centralised planning team is evolving into a formal competence function	A centralised SDM is in place agile governance. A formal central competence is established to drive collaboration and communication across regions	Strategic, connected & resilient
People	Roles are not defined and no formalised organisation structure ownership; reactive low span of control; limited skills development and training	Roles are defined but not consistently mapped across the organisation Siloed site/office based planning with little oversight from central function medium span of control	End-to-end process ownership enabled by organisational alignment, knowledge and capabilities; established training and development programs to drive value-add expertise	Highly skilled workforce with focus on and performance improvement; high span of control; human expertise and oversight layer of automated execution; prioritised including functional rotations	Highly skilled, empowered and aligned workforce organizational silos disrupted to deliver end-to-end processes; Evidence that key skills are being developed and availability monitored	Empowered, aligned & integrated 'business partnering' ethos
Functional Process	Manual, static, time consuming, complex, siloed processes without common vision and standards	Standardised transactional processes, policies (undocumented) are in place, execution is highly manual; KPIs not aligned or consistent	Organisation-wide standardization of processes, policies. Several key automations	Progressing towards integrated, standardised global end-to-end processes policies, leveraging several key automations Real-time data is not extensively used	Responsive, standardised and integrated processes, policies, and leveraging automation and intelligent automation - Processes are tested using real-time simulations with live data	First-class benchmark across industry
Systems & Technology	Multiple systems, manual source system data entry and high reliance on spreadsheets	Disparate system architecture, limited use of automation, lack of governance technologies	Standardised consolidation applications with basic automation and integrations. Some governance technologies	Cloud based solutions and consolidation applications with key automations and integrations leveraging governance technologies	Digitally enabled, advanced cloud based solutions enabling automation, customised reporting, and seamless real-time integration across systems	Integrated systems
Governance	There is no formal governance procedures in place Progress and compliance is not tracked and monitored	Identification of risk areas, documentation of controls, and stabilisation of control environment; limited and manual data model, roles, or technology governance processes	Manual and automated controls, complete documentation and remediation plan; regional data model, roles, or technology governance processes managed by regional design authority	Mostly automated controls and focus on value creation controls; global data model, roles, or technology governance process managed by global design authority	Proactive mitigation through automation of risks providing integrated, data-driven controls; roles, and technology governance process enabled by workflow	Centralised, automated & preventative
Performance, Insights and Data	Lack of transparency and standardisation of data for reporting; manually produced and time intensive	Limited data transparency and standardisation; data and reporting is spreadsheet driven and does not support decision making	'Single source of truth' is established Data and standard metrics are clearly defined but not tracked in real-time	Standardised master data and reporting enabling users to access and display key data and reports on an ad-hoc basis across multiple platforms	Insight driven, master data and reporting leveraging cognitive machine learning that provides real-time performance insights for end-users across multiple platforms	Information platform supports actionable analytics

Appendix 3 - Option 2 High-Level Target Operating Model Definition

Functional Processes

Option 2 is related to registering properties with horses with a PIC.

Implementation Consideration	*What does this look like?*
FP01: Property identification and links to state/territory PIC registers	Introduction of uniform State and Territory government business rules will make it mandatory for all horse owners/carers to register for a PIC for the properties on which horses reside.[1] Consider integrating a PIC registration campaign into the communications strategy and offering a free registration amnesty period to drive uptake. The owner of a thoroughbred horse in the care of a trainer or stud will not require a PIC.
FP02: Horse description	Individual horses are not identified under the PIC system. In a biosecurity emergency, individual horses may be identified through movement records by descriptions, brands and/or markings.
FP03: Movement tracking	In the event of an emergency, biosecurity officers lock down areas of concern and identify PICs where horses reside located within. Officers may then contact and visit the properties to request movement records as a part of their contact tracing and disease containment measures.[2]
FP04: Movement recording	Movements will be recorded within 24 hours either using an online or paper based system that will need to be held for at least six months.[3]

Source: (1) VIC DJPR Stakeholder Meeting, accessed June 2022 (2) QLD DAFF Stakeholder Consultation, accessed June 2022 (3) NHTWG Business Rules Document, accessible here (accessed June 2022)

People

Improving awareness of obligations and creation of a collaborative culture may improve the effectiveness of the horse traceability system.

Implementation Consideration	*What does this look like?*
P01: Biosecurity officer headcount for development of communications, monitoring and enforcement	State and Territory jurisdiction consultations revealed that additional biosecurity resources will be required to develop communications and engage with stakeholders. Alternative estimates include additional temporary resource support of an equivalent of 2 FTE nationally.[1]
P02: Industry collaboration	Industry participants should be made aware of the benefits of complying with the new obligations. These should be communicated by industry in partnership with State and Territory governments.[2]
P03: Roles and responsibilities of the advisory body	Responsibilities of the advisory body will include providing a compliance report every 3 months to the National Biosecurity Committee against KPI's designed to measure the effectiveness of the traceability system. Develop clear RACI (Responsible, Accountable, Consulted and Informed) for individual advisory body members. The centralised advisory body will function in a similar way to SAFEMEAT and will drive consistency across State and Territory jurisdictions. The advisory body should be comprised of 6-8 industry and government members.[3]

Source: (1) TAS DPIPWE Stakeholder Consultation, accessed July 2022 (2) AHIC Stakeholder Consultation, accessed June 2022 (3) VIC DJPR Stakeholder Meeting, accessed June 2022

Governance

Establishing structured decision-making frameworks enables clear oversight of the effectiveness of the PIC enhancement effort.

Implementation Consideration	*What does this look like?*
G01: Business rules legislation	State and Territory governments to enact movement and PIC business rules into legislation. Effectiveness of the horse traceability system will be dependent upon legislation being mirrored and enacted across all jurisdictions.[1]
G02: Advisory body	The implementation of this governance model will enable structured direction setting and decision-making across all jurisdictions. The advisory body will act in a similar capacity to SAFEMEAT in the red meat industry and will also provide guidance to industry bodies and horse owners regarding their obligations.[2]
G03: Monitoring, enforcement and compliance resources	State & Territory governments have advised they will require additional biosecurity officers to enforce compliance through conducting checks of PICs, movement records and to perform desktop audits. State and Territory stakeholders estimated that a total of 13 FTE would be required, with resourcing requirements based upon State and Territory horse populations but would need to be funded.[1]* Additionally this enforcement process could be co-opt with local government, helping achieve better monitoring and auditing outcomes for compliance.[2]
G04: Audit process	Develop an agreed national performance standard that can be utilised to validate the effectiveness of the PIC enhancement effort in achieving biosecurity objectives. This standard is to be developed nationally based upon a consensus decision between State and Territory governments. State and Territory biosecurity officers to regularly conduct an audit of the system against the national standard for horse biosecurity to ensure ongoing effectiveness.[3] For biosecurity threats, MJA report has stated traceability of at least 6 months is adequate.[1]
G05: Industry co-regulation	Encourage data-rich and highly regulated industries such as the racing industry to conduct their own monitoring and enforcement activities, reporting breaches that are unable to be managed within the framework of their rules to State and Territory biosecurity officers.[4]

*Source: (1) Marsden Jacob Associates Report, accessible here (accessed June 2022) (2) VIC DJPR Stakeholder Meeting, accessed June 2022, (3) QLD DAFF Stakeholder Consultation, accessed June 2022 (4) VIC DJPR Stakeholder Meeting, accessed July 2022 *Exact resources required outlined in the Cost-Benefit Analysis section*

Service Delivery Model

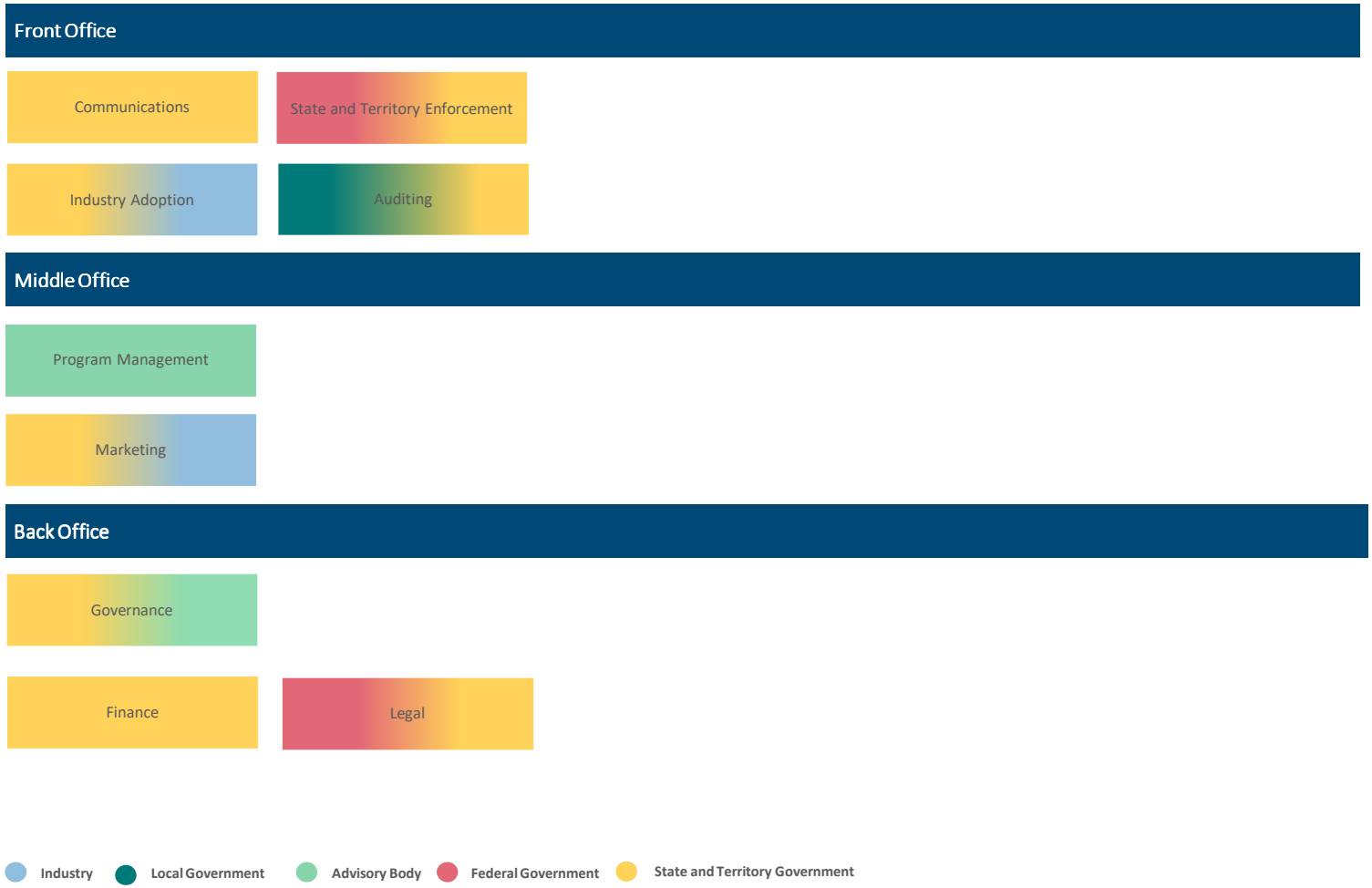
An established service delivery model aimed at encouraging horse owner participation and the execution of enforcement activities will improve overall compliance levels

Implementation Consideration	*What does this look like?*
SD01: Documented forward looking roadmap	Allocate accountability for the holistic service delivery, including development of a documented roadmap for the future of PIC registration eliciting benefits and incrementally establishing a foundation that industry could then use to build towards a more advanced system of end to end horse traceability.
SD02: Integrated communications strategy[1]	Jurisdiction prepare guidance packs and online resources, conduct industry level workshops and training sessions and leverage existing social media strategy to educate horse industry participants of their obligations.[2] Industry to consider promoting and tailoring these resources to suit the requirements of their participants.
SD03: Nationally consistent enforcement and monitoring activities	Jurisdictions can co-opt with local government for enforcement and monitoring at a jurisdiction level which may improve the compliance of horse owners and carers.[3]
SD04: Strategic marketing plan	Create a strategic marketing plan across State and Territory jurisdictions with rigorous campaigning and marketing around movement recording and PIC registration. Consider integrating a PIC registration campaign into the communications strategy and offering a free registration amnesty period to drive uptake.[4]

Source: (1) Importance of an integrated communications strategy derived from best practice research and ISC consultation, accessible here (accessed June 2022), (2) DJPR VIC Stakeholder Meeting, accessed June 2022 (3) DJPR VIC Stakeholder Meeting, accessed July 2022 (4) Primary Industries and Regions SA Stakeholder Consultation, accessed June 2022

Service Delivery Model

Possible design of a Service Delivery Model comprising of front, middle and back office categorised by function and stakeholder for Option 2[1]



There are a number of **cross functional overlaps, between jurisdictions and industry** such as enforcement which, if not managed in a collaborative manner, can lead to resourcing inefficiencies for the States and Territories as a front office activity.

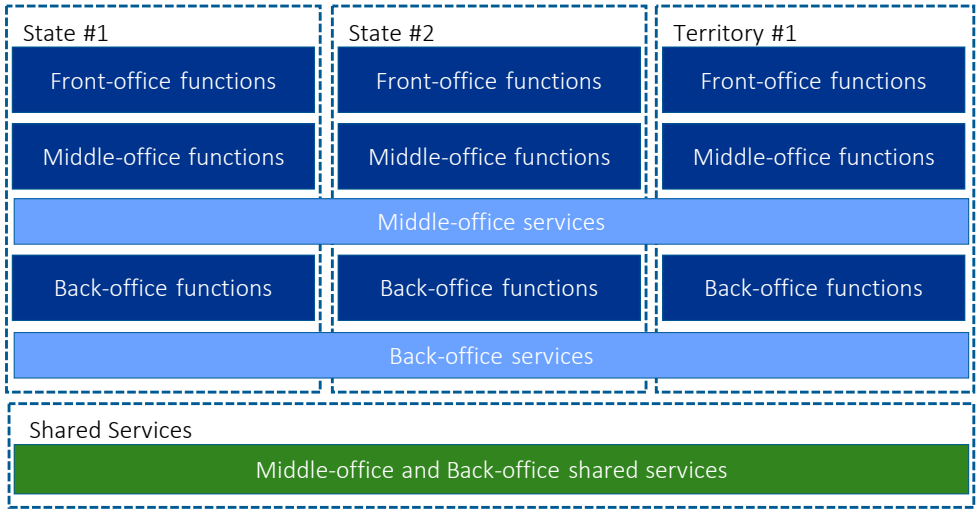
The advisory body would sit at the centre and perform some of the shared services (program management, governance and marketing). **However, most functions of front, middle and back offices would be decentralised** at a State and Territory level for the implementation of Option 2, including finance, governance and legal.

Source: Derived from desktop research into ISC Ways of Working – Operating Model Assessment, accessed June 2022

High-Level Service Delivery Model and Governance Model

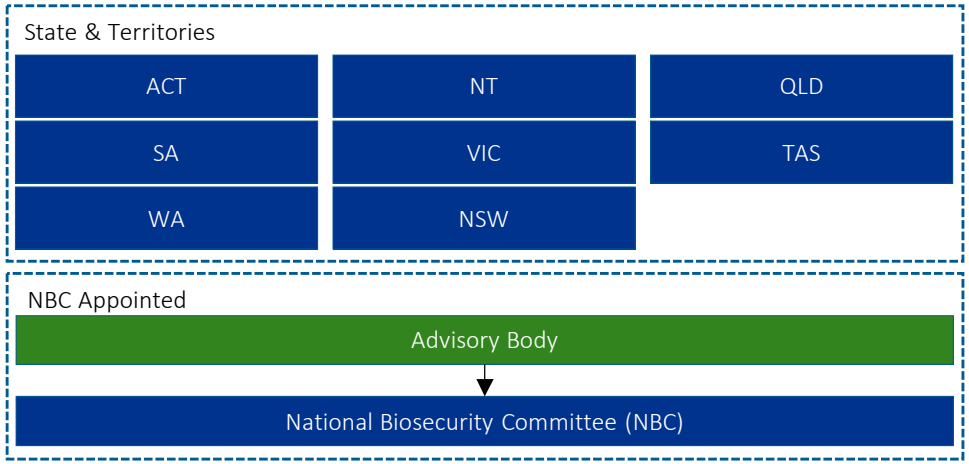
Option 2: Possible governance and service delivery model of a decentralised front, middle and back office functions with select operations performed by shared services.

Service Delivery Model



- This option is the continuation of the current decentralised model for Option 2 with the introduction of an advisory body.
- With decentralisation, the front, middle and back office functions remain distributed and operate out of different geographies with certain operational middle office and back office operations performed by shared services.

Governance Model



- State and Territories to leverage upon the already existing governance structure in place for base level PIC registration system.
- An advisory body to be set up which would oversee the program management of Option 2, and reports to the National Biosecurity Committee (NBC).

Source: Derived from desktop research into best practices of service delivery and governance models proposed in government led systems, accessed June 2022. DJPR Stakeholder Consultation, accessed June 2022.

Appendix 4 - Option 4 High-Level Target Operating Model Definition

Functional Processes

Mandatory microchipping is by far the most cost-intensive and complex component of Option 4, although this cost is shared across all horse owners and carers.

Implementation Consideration	*What does this look like?*
FP01: Property identification and links to state/territory PIC registers	Introduction of State and Territory business rules will make it mandatory for all horse owners/carers to register for a PIC for the properties on which horses reside (same as Option 2). Consider integrating a PIC registration campaign into the communications strategy and offering a free registration amnesty period to encourage existing horse owners to register. The owner of a thoroughbred horse in the care of a trainer or stud will not require a PIC.
FP02: Unique horse identification	All domesticated horse owners in Australia will be required to have their horses microchipped by a vet or authorised implanter and create a record of the microchip, PIC and ownership of individual horses in the national database. Widespread adoption and reduction in costs incurred by horse owners can be achieved through delaying the application of microchipping legislation by 2 years[1], enabling microchipping to occur alongside a routine vet visit. Consider gaining support from organisations such as the RSPCA[2], to incorporate subsidised horse microchipping into their community vaccination days, further reducing the cost burden for horse owners. Horse ownership may cause considerable issues, especially as non-racing horses are traded frequently without documentation and racehorses are often owned by syndicates and partnerships. The standard of proof regarding a claim of ownership submitted to the database about a horse will require consideration.
FP03: Movement tracking	Horse owners/carers will be required to create movement records in the national database within 48 hours[3]. Development of easy to use movement recording functionality in a mobile app will encourage user compliance.
FP04: Movement recording	Establish data access rights agreements to enable biosecurity officers to access movement data, identify individual horses at risk and quickly alert owners in the event of a biosecurity emergency.[4] Data access rights for welfare advocacy and enforcement organisations will need to be negotiated. Access rights for such groups may discourage compliance compromising biosecurity objectives, as there is apprehension about the possibility of data being accessed for reasons other than biosecurity purposes.

Source: (1) Compulsory microchipping to improve horse welfare UK, accessible here (accessed June 2022), (2) RSPCA Stakeholder Consultation, accessed June 2022 (3) NHTWG Business Rules Document, accessible here (accessed June 2022) (4) Primary Industries and Regions SA Stakeholder Consultation, accessed June 2022

People

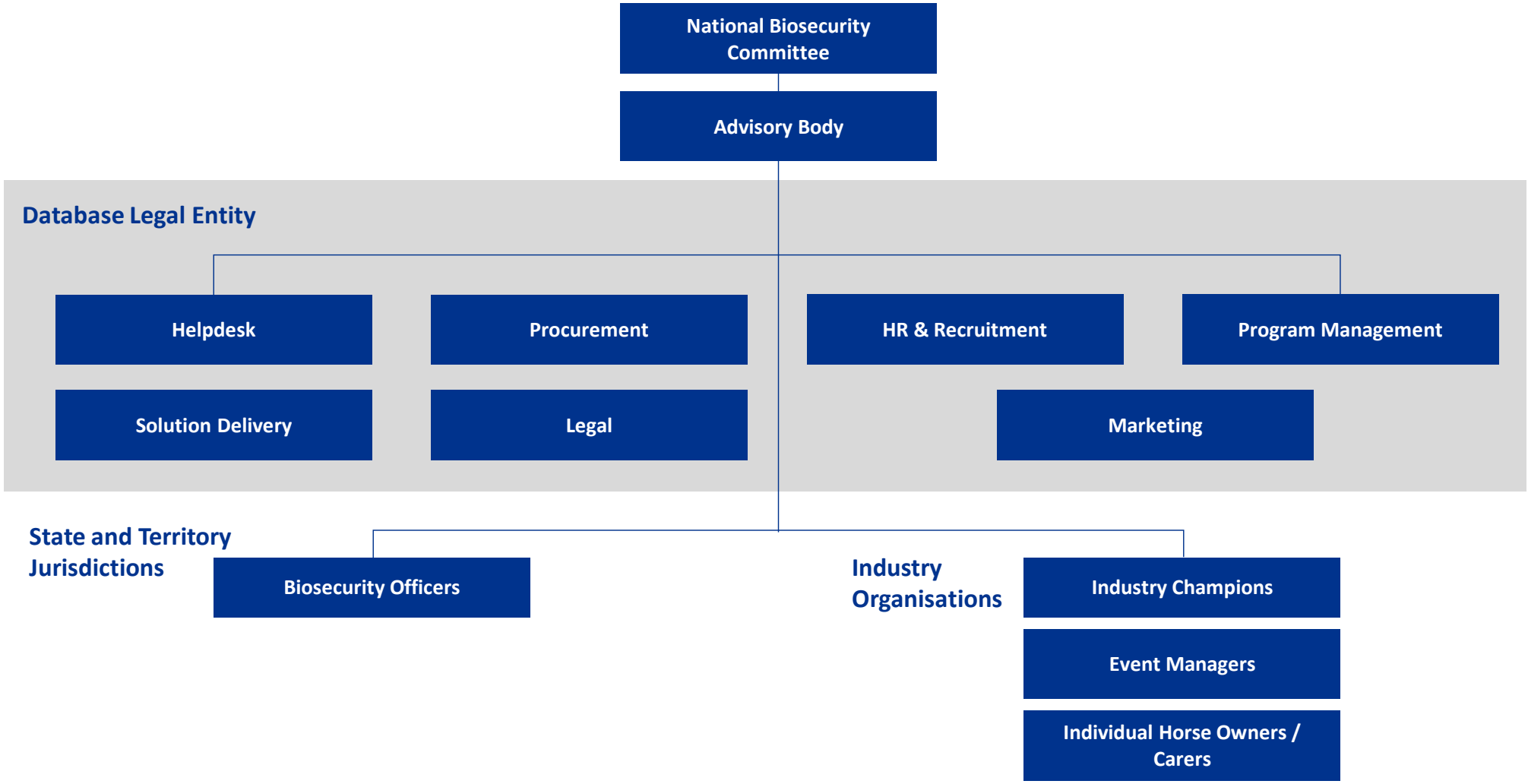
Improving horse owner awareness and aligning perspectives across the industry will be the key to the creation of a collaborative culture.

Implementation Consideration	*What does this look like?*
P01: Dedicated customer service line	Establishing a temporary centralised customer service line will assist horse industry participants to understand their obligations and provide standardised guidance for national database users. State and Territory stakeholders estimated that this will require 3-6 FTE for the first 12 months, with 1-2 FTE likely to be required on an ongoing basis.[1]
P02: Industry collaboration	The effectiveness of the database will be dependent upon collaboration between industry and jurisdictions.[1] Effective communication of the benefits for horse owners of complying with traceability obligations from industry leaders, will significantly improve compliance. Consider creating informal traceability roles within industry, with the formal structure of this role assisting to guide and drive collaboration and compliance of industry participants.
P03: Biosecurity officer headcount and database staff for development of communications and enforcement	State and Territory consultations revealed that additional biosecurity resources will be required and database staff will need to be hired to develop communications. Funding will be required.
P04: Microchip implanting training and accreditation	Most State and Territory jurisdictions only allow veterinarians to microchip horses, with exceptions in some jurisdictions whereby authorised implanters may also implant microchips.
P05: Roles and responsibilities of the advisory body and the board of directors	Define the responsibilities of the advisory body which may include providing a compliance report every 3 months to the National Biosecurity Committee against KPI's designed to measure the effectiveness of the traceability system.[2] The advisory body should be comprised of 6-8 industry and government members.[3] Develop clear RACI for individual advisory body and board members. The board will be responsible for overseeing the fulfillment of the legal entity's responsibilities as detailed below. The board should be comprised of 6-8 members with prior horse industry and/or experience managing a traceability system.[2]
P06: Roles and responsibilities of the legal entity	Responsibilities of the new legal entity may include development and maintenance of the database, establishing the database Terms of Use, data access rights, developing clear RACI for employees, staff recruitment, procuring data storage services and hardware, procuring comprehensive insurance as well as preparation of MoU's and the business continuity plan.[2]
P07: Biosecurity officer's skills	A skilled workforce is required to understand business rules, enact legislation and to build a training program for horse owners.

Source: (1) State and Territory Consultations, accessed June/July 2022 (2) VIC DJPR Stakeholder Meeting, accessed June 2022

People

The advisory body will receive strategic input and advice from all horse industry stakeholders, informing its reporting to the National Biosecurity Committee.



Derived from best-practice research into effective Governance structures. Legal Entity functions derived from Integrity Systems Company.

Systems and Technology

Developing fit for purpose technology encourages users to create and maintain up-to-date records.

Implementation Consideration	*What does this look like?*
ST01: Development or contracting of a national database	Complete an assessment of data to be captured and functionality requirements of the system to guide development decisions. System design must include considerations into future integration and enhancement capabilities, to improve the system's ongoing viability.
ST02: Online portal development	Develop an online portal to enable users to easily access, update and create records for their horses.[1] The online portal should include functionality to enable users to register new individual horses, update existing horse records, create movement records and death records.
ST03: Mobile application development	Develop a mobile application to accompany the online portal.[2] This mobile application should mirror the functionality of the online portal and have offline capabilities to improve the accessibility of the system for all industry participants.
ST04: Data exchange interfaces	Consider establishing data exchange interfaces with existing industry databases such as Australian Stud Book and HarnessWeb to ensure data consistency and avoid duplication.[3] Existing industry databases should consider updating required fields to ensure data captured aligns with the national database. This enables existing databases to be linked to the national database, with data transferred and records updated when a user updates either database.
ST05: Data storage	The national database will require secure and encrypted cloud storage, enabling timely retrieval of data when required and ensuring user data is protected.
ST06: Microchip readers required for event managers and industry officials	Configure microchip readers to automatically upload movement data to the database upon scanning enabling industry to take a proactive approach to compliance and reduce recording requirements of participants.[4]
ST07: Helpdesk portal	Develop a helpdesk portal with functionality enabling users to raise support tickets.[1] The helpdesk portal should be accessible via the online portal and mobile application and be monitored regularly by customer support staff. Complaint logging functionality should also be integrated into the portal, with a complaint handling procedure developed.
ST08: Business continuity plan	Assess and develop a business continuity plan outlining contingencies and procedures to restore critical business functions in the event of a system outage.

Source: (1) VIC DJPR Stakeholder Meeting, accessed July 2022 (2) ISC Stakeholder Consultation, accessed June 2022 (3) Harness Racing Australia Stakeholder Consultation, accessed June 2022 (4) NSW DPI Stakeholder Consultation, accessed June 2022

Governance (1 of 2)

Establishing structured decision-making frameworks enables clear oversight of the effectiveness of the national database.

Implementation Consideration	*What does this look like?*
G01: Business rules legislation	State and Territory governments to enact PIC, movement and mandatory microchipping business rules into legislation. Effectiveness of the horse traceability system will be dependent upon legislation being mirrored, enacted and enforced across all jurisdictions.[1]
G02: Legal entity registration	Create and register a new legal entity, responsible for development, management and delivery of the national database.[2]
G03: Board of directors	The implementation of this governance model will enable structured direction setting and decision-making across all State and Territory jurisdictions.
G04: Monitoring, enforcement and compliance resources	State & Territory governments have advised they will require additional biosecurity officers to enforce compliance through conducting checks of PICs, microchips and movement records at horse events and to perform desktop audits. State and Territory stakeholders estimated that a total of 24 FTE would be required, with externally funded resourcing requirements based upon State and Territory horse populations.*
G05: Audit process	Develop an agreed national performance standard that can be utilised to validate the effectiveness of the national database in achieving biosecurity objectives. This standard is to be developed nationally based upon a consensus decision between State and Territory governments. State and Territory biosecurity officers to regularly conduct an audit of the system against the national standard to ensure ongoing effectiveness.[3]

*Source: (1) Marsden Jacob Associates Report, accessible here (accessed June 2022) (2) VIC DJPR Stakeholder Meeting, accessed June 2022, (3) QLD DAFF Stakeholder Consultation, accessed June 2022 (4) VIC DJPR Stakeholder Meeting, accessed July 2022 *Exact resources required outlined in the Cost-Benefit Analysis section*

Governance (2 of 2)

Establishing structured decision-making frameworks enables clear oversight of the effectiveness of the national database.

Implementation Consideration	*What does this look like?*
G06: Standard operating procedure for authorised microchip implanters	Facilitate the development and access to a standard operating procedure and guidance document for the microchipping of horses. Documents will standardise microchip insertion and be utilised by veterinarians and authorised implanters.[2]
G07: Database terms of use, data dictionary, privacy policy and data access agreements	Engage legal experts to assist in preparing a terms of use and privacy policy to outline the defined rules for using the database and how user information is collected and used. A data access agreement will also need to be prepared and will specify the terms under which biosecurity officers are granted access to specific and relevant data that may be used to contain a biosecurity incident.[4] This agreement will be utilised to gain explicit acceptance from database users upon registration.
G08: Risk management framework	An effective risk management framework will outline strategies to reduce and mitigate business risks including strategies to ensure the database does not underperform in an emergency. This may include procuring comprehensive insurance to protect the database from legal ramifications of underperformance.
G09: Legal framework for registering ownership changes	Create verification standards to address issues with ownership recognition as many horses are traded between owners through simple handshake agreements or racehorses are often owned by syndicates. A robust legal framework is required to mitigate issues relating to ownership and claim disputes and ensure validity of claims.[4]

*Source: (1) Marsden Jacob Associates Report, accessible here (accessed June 2022) (2) VIC DJPR Stakeholder Meeting, accessed June 2022, (3) QLD DAFF Stakeholder Consultation, accessed June 2022 (4) VIC DJPR Stakeholder Meeting, accessed July 2022 *Exact resources required outlined in the Cost-Benefit Analysis section*

Service Delivery Model

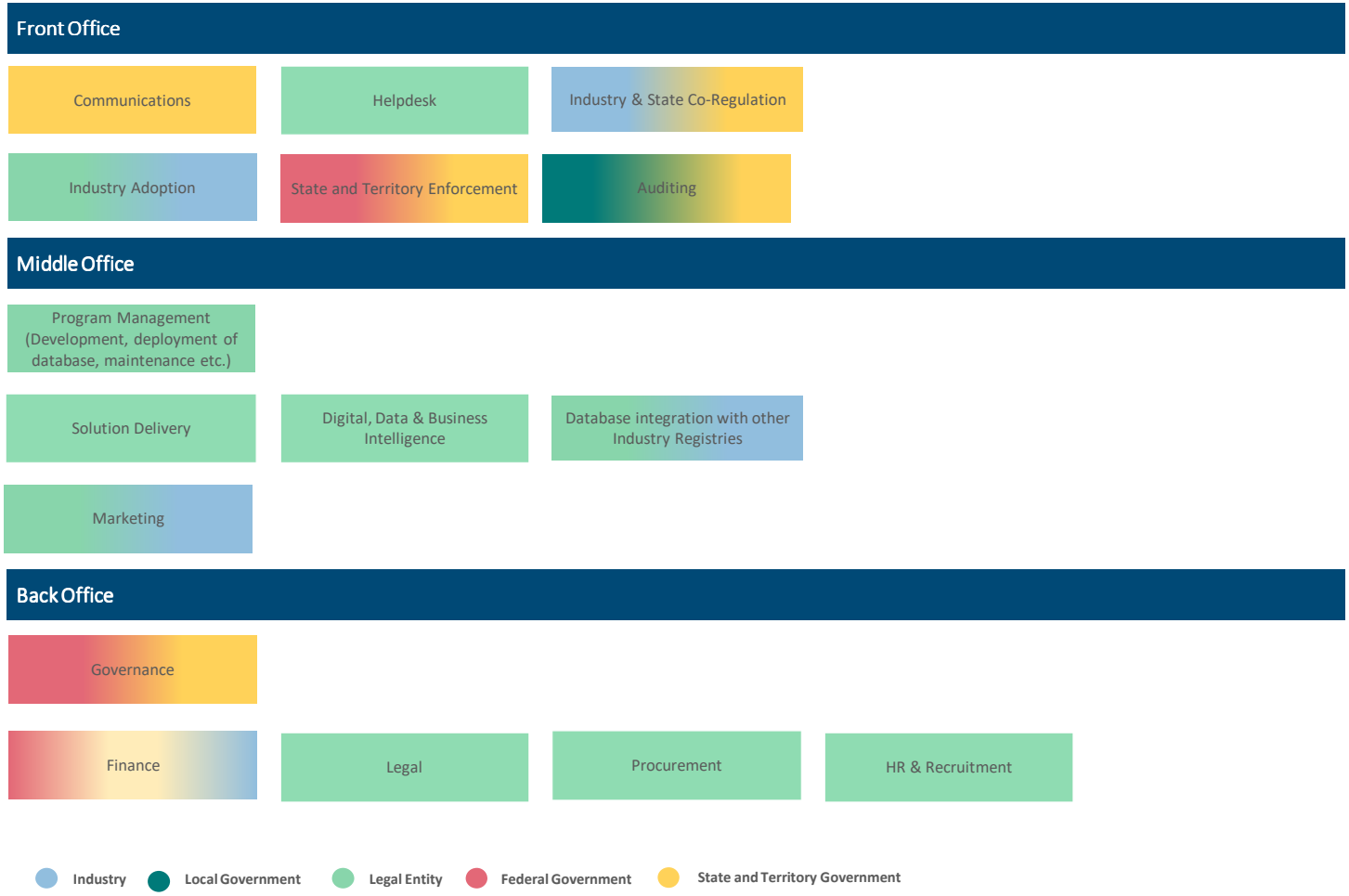
An established service delivery model aimed at encouraging horse owner participation and the execution of enforcement activities will improve overall compliance levels

Implementation Consideration	*What does this look like?*
SD01: Implementation roadmap	Allocate accountability for the holistic service delivery, including development of an implementation roadmap for the establishment of a national horse traceability database and mandatory microchipping business rules.
SD02: Integrated communications strategy[1]	Create an integrated communication strategy comprising of guidance packs and online resources, conduct industry level workshops and training sessions and leverage existing social media strategy to educate horse industry participants of their obligations.[2] Industry to consider promoting and tailoring these resources to suit the requirements of participants.
SD03: Nationally consistent enforcement and monitoring activities	Jurisdictions can co-opt local government for enforcement and monitoring at a jurisdiction level which may improve the compliance of horse owners and carers fostered by Industry collaboration and support.[3] Enforcement and monitoring including auditing to be a front office activity but will need to be supported by external funding.
SD04: Strategic marketing plan	Create a centralised marketing plan with rigorous campaigning and marketing around biosecurity requirements of traceability.[4] Local RSPCA bodies may promote campaigns and offer free microchipping at events across states and jurisdictions to drive uptake.[5]
SD05: Service delivery segmentation	Define clearly what service is getting carried out and segmenting them into front middle and back office, forming the basis for the development of RACI.
SD06: Centralised planning functions	Planning would lie centrally with the established legal entity providing select services such as marketing, HR, procurement, legal, quality and solution delivery, helping drive the end-to-end process according to defined activity split between the industry, Commonwealth, State and Territory and local governments.[3]

Source: (1) Importance of an integrated communications strategy derived from best practice research and ISC consultation, accessible here (accessed June 2022), (2) DJPR VIC Stakeholder Meeting, accessed June 2022 (3) DJPR VIC Stakeholder Meeting, accessed July 2022 (4) Primary Industries and Regions SA Stakeholder Consultation, accessed June 2022 (5) RSPCA Stakeholder Consultation, accessed June 2022

Service Delivery Model

Possible high level design of a service delivery model comprising of front, middle and back office categorised by functions



There are a number of **cross functional overlaps, between state and industry** such as enforcement and co-regulation which, if not managed in a collaborative manner, can lead to resourcing inefficiencies for the states as a front office activity.

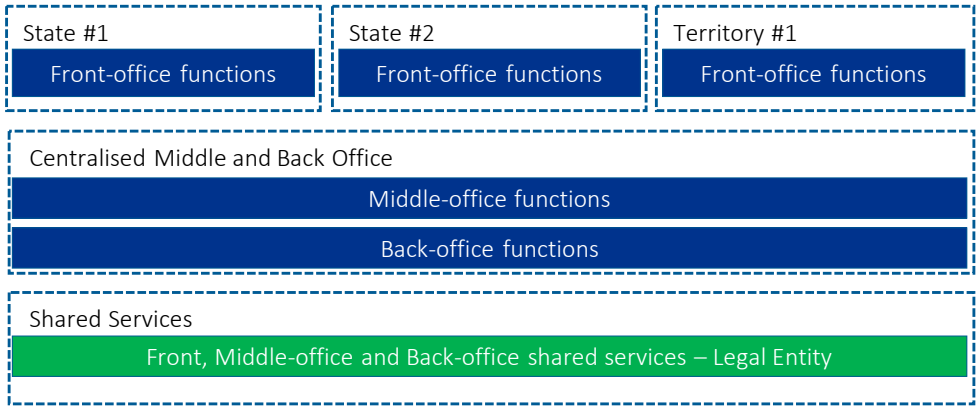
There are a number of **overlaps between industry and the legal entity (to be)** such as industry adoption which would involve a middle office activity of a database integration of Industry microchipping data. There are also a number of functions which sit purely with the centralised legal entity such as legal, procurement, **HR and recruitment,** solution delivery, program management and the customer helpdesk which would be a combination of front, middle and back office operations. For a massive scale of implementation of a national horse register across all States and Territories**, a collaborative approach towards most front office operations between industry**, State and Territory and Commonwealth Govt. is critical. The legal entity plays the role of a CoE (Centre of Excellence) forming the shared services across the front, middle and back offices services.

Source: Derived from desktop research into ISC Ways of Working – Operating Model Assessment, accessed June 2022

High-Level Service Delivery Model and Governance Model

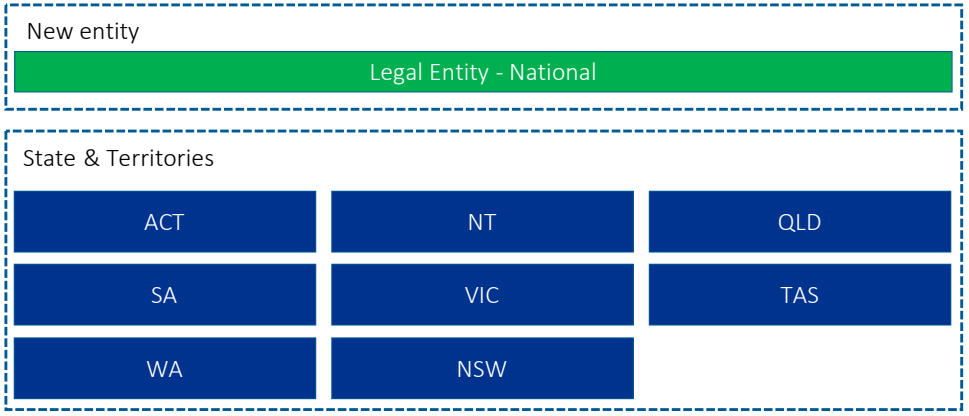
Option 4: Possible governance and service delivery model of a decentralised front, middle and back office functions with select operations performed by shared services.

Service Delivery Model



- A hybrid service delivery model is recommended with the core of front office functions being decentralised at a State and Territory level.
- Shared service function in the form of a legal entity to be introduced which would sit centrally but would encompass parts of front, middle office and back office functions across all States and Territory jurisdictions as well as at a national level.
- Core of middle and back office functions to be centralised.
- The legal entity would comprise of some elements of customer facing activities such as customer helpdesk and certain operational middle office and back office activities.

Governance Model



- The Legal Entity would sit at the top of governance at a national level.
- All States and Territory would be responsible for enforcement, co-Regulation, auditing and would function independently.

Source: Derived from desktop research into best practices of service delivery and governance models proposed in government led systems, accessed June 2022. DJPR Stakeholder Consultation, accessed June 2022.

Performance, Insights and Data

Effective reporting frameworks and functionality may facilitate effective real-time decision-making.

Implementation Consideration	*What does this look like?*
PID01: Reporting KPI's	Define KPI's and measures for success to enable the board of directors to produce reports on the performance and effectiveness of the traceability system.[1] These KPI's should incorporate biosecurity metrics from the national performance standard as well as non-biosecurity KPI's.
PID02: Integrated reporting requirements	Complete an assessment of the key metrics, biosecurity requirements and industry insights that can be gained from the national database. Develop and integrate real-time tailored insight reports into database functionality, informing database entity, industry and government decision-making.
PID03: Data access rights	Develop a strict data access policy to comply with Data Privacy legislation.[2] Establish authority to release relevant and specific data to government, exclusively for emergency or biosecurity responses.

Source: (1) WA DPIRD Stakeholder Meeting, accessed June 2022, (2) VIC DJPR Stakeholder Meeting, accessed July 2022

Appendix 5 - Cost Analysis Assumptions

Cost buckets were analysed with reference to the two options being considered

Data and stakeholder perspectives were gathered to better understand each cost bucket and develop the inputs for quantification.

Cost bucket	Description	Category	Type	Data requirements	Source
Implement business rules	Additional resources required across State and Territory jurisdictions relating to the unification of business rules.	System cost	Implementation cost	• No. FTE required in each jurisdiction • Implementation timeframe	Jurisdictions via consultation/ estimates (extrapolated if not provided)
Property identification	Ongoing PIC registration fees charged by State and Territory jurisdictions.	Horse owner cost	Implementation cost	• No. current PICs per jurisdiction • Estimated non-compliance • Cost per PIC registration (by jurisdiction)	Jurisdictions via consultation / previous reports (extrapolated if not provided)
			Ongoing cost	• Total number of PICs per jurisdiction • Assumed no net annual change • Cost per PIC registration (by jurisdiction)	
Legislation (Option 4 only)	Enacting business rules into legislation and the registration of a new legal entity to develop and manage a national database.	System cost	Implementation cost	• No. FTE required to deliver new legislation • Implementation timeframe • Cost of new legal entity to develop and manage data base (incl. legal advice, registration, Board establishment, etc)	Jurisdictions via consultation, estimates
Means of animal identification (Option 4 only)	Microchipping of all domesticated horses in Australia, includes veterinary fees and the cost of microchips.	Horse owner cost	Implementation cost	• No. horses in each jurisdiction • % of horses already microchipped • No. horse owners requiring reader in each jurisdiction) • Cost per microchip added / reader	Jurisdictions via consultation / previous reports / research (extrapolated if not provided)
			Ongoing cost	• No. of new horses each year • Cost per microchip added • No. movements per year • Cost per movement (time)	

Cost buckets were analysed with reference to the two options being considered (cont.)

Data and stakeholder perspectives were gathered to better understand each cost bucket and develop the inputs for quantification.

Cost bucket	Description	Category	Type	Data requirements	Source
Information systems (Option 4 only)	Development of a national online database and mobile application and its ongoing maintenance.	System cost	Implementation cost	• Cost to procure and implement new database	Indicative vendor estimates
			Ongoing cost	• Cost to maintain and support database (data updates, tech support and maintenance)	
Communications and engagement	Preparation of guidance packs, online resources, workshops, training sessions and communications strategy including customer service capability.	System cost	Implementation cost	• No. FTE required in each jurisdiction • Implementation timeframe	Jurisdictions via consultation (extrapolated if not provided)
Reporting and compliance	Expansion of biosecurity officer headcount, audit requirements and the establishment of an advisory board or a board of directors.	System cost	Ongoing cost	• No. FTE required in each jurisdiction	Jurisdictions via consultation (extrapolated if not provided)

Cost Summary - VIC

Estimated costs incurred for each State and Territory has been calculated.

Cost bucket	Option 2				Option 4			
	Implementation Govt	Ongoing Govt	Implementation Horse Owner	Ongoing Horse Owner	Implementation Govt	Ongoing Govt	Implementation Horse Owner	Ongoing Horse Owner
Implement business rules					$50k			
Property identification			$0.1m	$0.1m			$0.1m	$0.1m
Legislation	$50k				$50k			
Means of animal identification							$28.9m	$4.2m
Information systems								
Communications and engagement	$50k				$0.2m			
Reporting and Compliance		$0.2m				$0.4m		
Total costs	$0.1m	$0.2m	$0.1m	$0.1m	$0.3m	$0.4m	$29.0m	$4.3m

Note: Movement data has not been estimated at the state level and as such this cost is excluded from the ongoing horse owner costs for Option 4 at the state level.

Information systems was provided as a national estimate and thus is not applied at the state level.

Cost Summary - NSW

Estimated costs incurred for each State and Territory has been calculated.

Cost bucket	Option 2				Option 4			
	Implementation Govt	Ongoing Govt	Implementation Horse Owner	Ongoing Horse Owner	Implementation Govt	Ongoing Govt	Implementation Horse Owner	Ongoing Horse Owner
Implement business rules					$50k			
Property identification			$0.1m	$0.1m			$0.1m	$0.1m
Legislation	$50k				$50k			
Means of animal identification							$33.3m	$4.8m
Information systems								
Communications and engagement	$50k				$0.2m			
Reporting and Compliance		$0.2m				$0.4m		
Total costs	$0.1m	$0.2m	$0.1m	$0.1m	$0.3m	$0.4m	$33.4m	$4.9m

Note: Movement data has not been estimated at the state level and as such this cost is excluded from the ongoing horse owner costs for Option 4 at the state level.

Information systems was provided as a national estimate and thus is not applied at the state level.

NSW did not provide estimates for communications and reporting and compliance FTE and thus Victoria's estimates have been used being the state closest in size/# of horses.

Cost Summary - QLD

Estimated costs incurred for each State and Territory has been calculated.

Cost bucket	Option 2				Option 4			
	Implementation Govt	Ongoing Govt	Implementation Horse Owner	Ongoing Horse Owner	Implementation Govt	Ongoing Govt	Implementation Horse Owner	Ongoing Horse Owner
Implement business rules					$50k			
Property identification			$0.2m	$0.2m			$0.2m	$0.2m
Legislation	**$50k**				$50k			
Means of animal identification							$53.3m	$7.8m
Information systems								
Communications and engagement	$50k				**$0.2m**			
Reporting and Compliance		$0.4m				$0.6m		
Total costs	$0.1m	$0.4m	$0.2m	$0.2m	$0.3m	$0.6m	$53.5m	$8.0m

Note: Movement data has not been estimated at the state level and as such this cost is excluded from the ongoing horse owner costs for Option 4 at the state level.

Information systems was provided as a national estimate and thus is not applied at the state level.

Cost Summary - WA

Estimated costs incurred for each State and Territory has been calculated.

Cost bucket	Option 2				Option 4			
	Implementation Govt	Ongoing Govt	Implementation Horse Owner	Ongoing Horse Owner	Implementation Govt	Ongoing Govt	Implementation Horse Owner	Ongoing Horse Owner
Implement business rules					$50k			
Property identification			$24k	$24k			$24k	$24k
Legislation	$50k				$50k			
Means of animal identification							$8.6m	$1.2m
Information systems								
Communications and engagement	$50k				$0.2m			
Reporting and Compliance		$0.4m				$1.0m		
Total costs	$0.1m	$0.4m	$24k	$24k	$0.3m	$1.0m	$8.6m	$1.2m

Note: Movement data has not been estimated at the state level and as such this cost is excluded from the ongoing horse owner costs for Option 4 at the state level.

Information systems was provided as a national estimate and thus is not applied at the state level.

Cost Summary - SA

Estimated costs incurred for each State and Territory has been calculated.

Cost bucket	Option 2				Option 4			
	Implementation Govt	Ongoing Govt	Implementation Horse Owner	Ongoing Horse Owner	Implementation Govt	Ongoing Govt	Implementation Horse Owner	Ongoing Horse Owner
Implement business rules					$50k			
Property identification			$26k	$26k			$26k	$2k
Legislation	$50k				$50k			
Means of animal identification							$8.2m	$1.2m
Information systems								
Communications and engagement	$50k				$0.2m			
Reporting and Compliance		$0.4m				$1.0m		
Total costs	$0.1m	$0.4m	$26k	$26k	$0.3m	$1.0m	$8.2m	$1.2m

Note: Movement data has not been estimated at the state level and as such this cost is excluded from the ongoing horse owner costs for Option 4 at the state level.

Information systems was provided as a national estimate and thus is not applied at the state level.

SA did not provide estimates for communications and reporting and compliance FTE and thus WA's estimates have been used being the state closest in size/# of horses.

Cost summary - TAS

Estimated costs incurred for each State and Territory has been calculated.

Cost bucket	Option 2				Option 4			
	Implementation Govt	Ongoing Govt	Implementation Horse Owner	Ongoing Horse Owner	Implementation Govt	Ongoing Govt	Implementation Horse Owner	Ongoing Horse Owner
Implement business rules					$50k			
Property identification			$7k	$7K			$7k	$7K
Legislation	$50k				$50k			
Means of animal identification							$2.6m	$0.3m
Information systems								
Communications and engagement	$50k				$0.1m			
Reporting and Compliance		$0.8m				$1.0m		
Total costs	$0.1m	$0.8m	$7k	$7k	$0.2m	$1.0m	$2.6m	$0.4m

Note: Movement data has not been estimated at the state level and as such this cost is excluded from the ongoing horse owner costs for Option 4 at the state level.

Information systems was provided as a national estimate and thus is not applied at the state level.

Cost summary - ACT

Estimated costs incurred for each State and Territory has been calculated.

Cost bucket	Option 2				Option 4			
	Implementation Govt	Ongoing Govt	Implementation Horse Owner	Ongoing Horse Owner	Implementation Govt	Ongoing Govt	Implementation Horse Owner	Ongoing Horse Owner
Implement business rules					$50k			
Property identification			$1k	$1k			$1k	$1k
Legislation	$50k				$50k			
Means of animal identification							$0.4m	$60k
Information systems								
Communications and engagement	$50k				$0.1m			
Reporting and Compliance								
Total costs	$0.1m		$1k	$1k	$0.1m	$0.1m	$0.4m	$61k

Note: Movement data has not been estimated at the state level and as such this cost is excluded from the ongoing horse owner costs for Option 4 at the state level.

Information systems was provided as a national estimate and thus is not applied at the state level.

Cost summary - NT

Estimated costs incurred for each State and Territory has been calculated.

Cost bucket	Option 2				Option 4			
	Implementation Govt	Ongoing Govt	Implementation Horse Owner	Ongoing Horse Owner	Implementation Govt	Ongoing Govt	Implementation Horse Owner	Ongoing Horse Owner
Implement business rules					$50k			
Property identification			$6k	$6k			$6k	$6k
Legislation	$50k				$50k			
Means of animal identification							$2.0m	$0.3m
Information systems								
Communications and engagement	$50k				$0.1m			
Reporting and Compliance		$0.2m				$0.8m		
Total costs	$0.1m	$0.2m	$6k	$6k	$0.1m	$0.9m	$2.0m	$0.3m

Note: Movement data has not been estimated at the state level and as such this cost is excluded from the ongoing horse owner costs for Option 4 at the state level.

Information systems was provided as a national estimate and thus is not applied at the state level.

The funding of a horse traceability system would likely require a combination of co-investment by government and industry and a reliable method of cost recovery

Research into the best practice delivery of global traceability systems and consultations with relevant Australian horse industry stakeholders has revealed two potential funding models.[1]

Cost recovery

A cost recovery model involves charging individual horse owners, carers and users of the database a fee to recover the associated costs of the horse traceability system. Initial development costs would be required to be funded by the Commonwealth, with implementation and development costs to be repaid over time.

Core considerations

- There are multiple potential cost recovery methods available for each Option including increasing annual PIC registration costs (this would increase costs for all livestock owners) and placing a levy on horse feed or worm treatments.[2]
- For Option 4, a levy could be placed on microchips or a one-off or annual national database registration fee could also be charged.
- However, any method of cost recovery that involves charging the end-user to comply with their obligations under the horse traceability system, is likely to lead to higher levels of non-compliance[1].

Co-investment

A co-investment model would require initial Commonwealth funding with ongoing funding likely requiring support from State and Territory governments and the industry.

- Ongoing enforcement costs, such as the employment of additional biosecurity FTE's could be funded by State and Territory governments, however jurisdictions say this is unlikely.
- Initial support and contribution to ongoing funding from industry will likely be required.
- PIC registration and microchip costs will still be required to be funded by individual horse owners/carers.

Case study

UK Central Equine Database (CED)[3]

- The Central Equine Database in the UK provides a good example of the implementation of a cost-recovery model.
- Whilst all mandatory traceability functionality is free, the UK CED has developed and integrated additional revenue generating functionality such as a digital vet portal, vet verified vaccination functions, data insight reporting to inform policy development and a dealer/auctioneer portal, to enable the system to generate revenue from other industry participants and cover operating costs[4].
- Equine Register Ltd is the entity which operates and maintains the CED. This entity now offers to develop digital horse traceability solutions for other organisations and countries. Equine Register leverages their pre-existing revenue generating functionality that has previously enabled them to roll out national digital horse traceability solutions, that are able to cover their ongoing costs within approximately 12 months.[3]

Source: (1) VIC DJPR Stakeholder Meeting, accessed July 2022 (2) Preferred Levy Options from Australian Horse Industry and EADRA, accessible here (accessed July 2022), (3) UK CED Consultation, accessed July 2022, (4) Equine Register, accessible here (accessed July 2022)

Appendix 6 - Indicative Database Fields

Indicative database fields have been provided to demonstrate the potential data capture under Option 4

Indicative mandatory and optional database fields[1]:

Mandatory	*Required for biosecurity purposes*

- Individual horse description e.g. gender
- Microchip number
- Owner's name/s, addresses and contact details
- Carer's name, address and contact details
- PIC of horse's property of residence when first registered on the national register
- FROM PIC and TO PIC for each movement of the horse between properties/locations until death and carcase disposal, or live export

Optional	*May be included to improve database functionality*

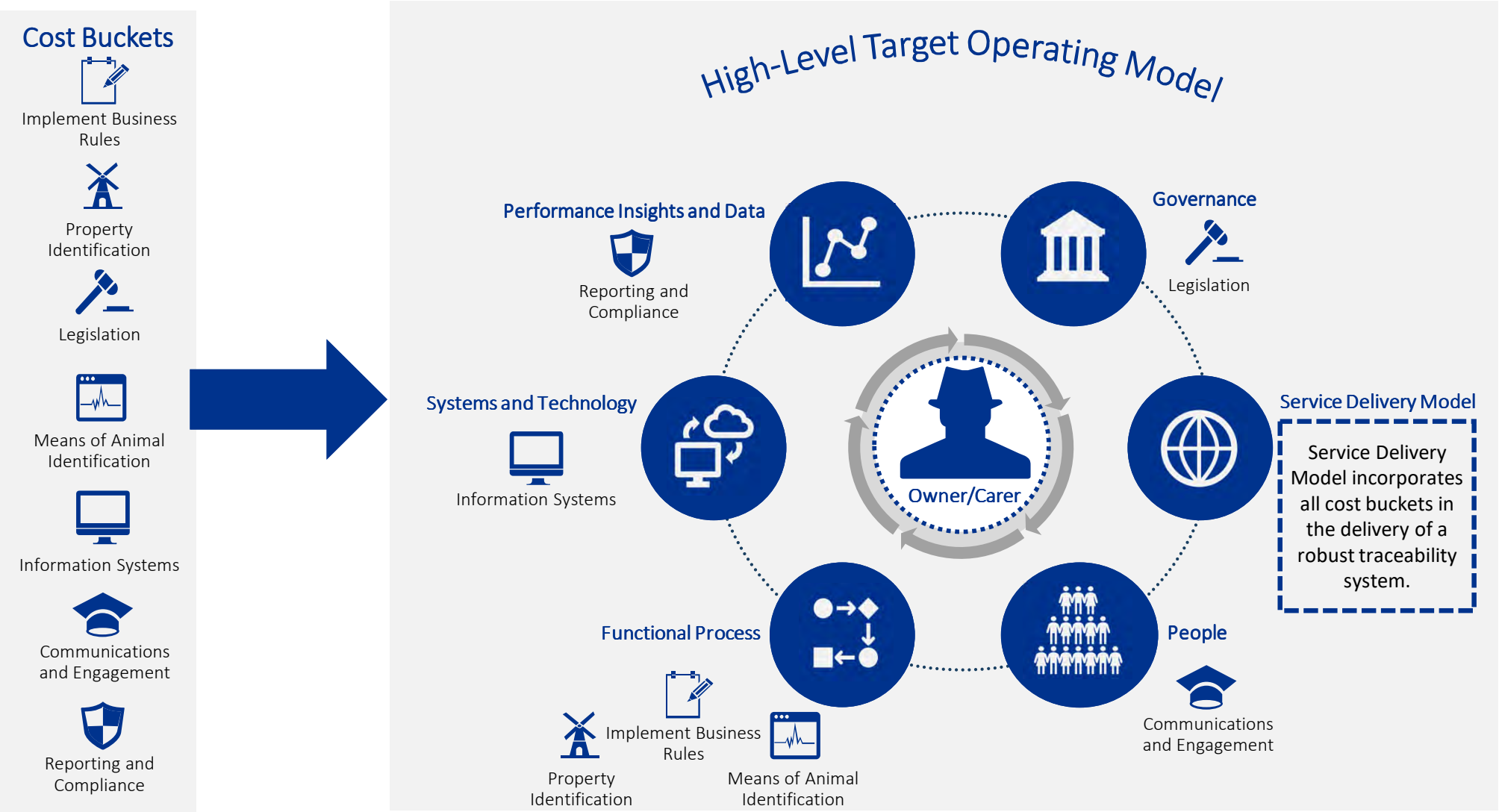
- Horse name
- Date of birth (either month and year, or exact date)
- Brands and markings
- Breed
- Name of microchip implanter, date and PIC of implantation
- Document storage (e.g. ownership transfer document)
- DNA parentage verification data
- Vaccination status and date vaccinated

Source: (1) Correspondence from DJPR

Appendix 7 - Mapping Cost Buckets to the High-level TOM

To guide the categorisation of implementation cost and complexity, cost buckets have been mapped to the high-level target operating model framework

Cost buckets were mapped to the six design layers of the high-level target operating model and are based upon the World Organisation for Animal Health's general principles of identification and traceability[1] .



Source: (1) Marsden Jacob Associates Report, accessible here (accessed June 2022)

Scoping of models for the design, governance and funding of a national horse traceability system

Commissioned by the Department of Jobs, Precincts and Regions on behalf of the National Horse Traceability Working Group

National
Horse Traceability
Working Group