Dairy Data Audit June 2025

Created by	DataGene – DataConnect
Authors	Simon Jenkins & Ian Posthumus
Reviewers	Matthew Shaffer & Erika Oakes
Client	Dairy Australia
Date	30/06/2025
Version	1.0

Table of Contents

1. Executive Summary

Australia's dairy industry has made substantial progress in building its digital foundations. Thanks to the leadership and investment of organisations like Dairy Australia and DataGene, the sector is already equipped with valuable infrastructure, including the Central Data Repository (CDR) and the DataVat platform DairyBase, and has developed a shared understanding of the importance of data integrity, interoperability, and farmer trust.

This audit builds on these foundations. It examines how data is generated, shared, and governed across the farm-to-processor supply chain. Through in-depth interviews with farmers, software vendors, processors, and industry advisors, the project has mapped current data flows and identified inefficiencies, capability gaps, and opportunities as the sector responds to shifting strategic priorities, regulatory expectations, and digital opportunities.

What is clear is that while much has been achieved, a step change is now required.

Despite ongoing investment in digital tools and platforms, the industry lacks the trusted, scalable, and farmer-centric data-sharing infrastructure needed to unlock real value. Market forces alone have not delivered. There is no common framework for consent or interoperability, APIs (Application Programming Interfaces) and identifiers remain inconsistent, and commercial reluctance to enable permissioned data sharing continues to fragment the system. The results are that farmers face increasing data burdens, advisors and processors work with incomplete insights, and industry bodies struggle to harness the full potential of existing data assets.

This fragmentation also risks undermining future value. The next wave of decision support, sustainability reporting, and innovation will depend on combining animal, feed, environmental, and infrastructure data. The audit did not include financial systems in scope, yet the farm business analysis space has seen little investment for more than 15 years. Data entry remains complex for farmers, who typically rely on consultants, accountants, or milk processors. These intermediaries often default to DairyBase and do not invest in their own tools. Importantly, farm consultants, accountants, and providers of accounting software such as Xero and Figured have not been consulted, despite the fact that the majority of dairy farmers now use these systems to capture both financial and physical data, with inventory and production information frequently entered. Draft findings from 32 recent DairyBase interviews will be available to inform and refine these observations. While there is no immediate threat, global agtech, fintech, and supply chain providers are well placed to fill the gap. Within six to 18 months they could introduce vertically integrated ESG and finance platforms that incentivise farmers to bypass industry systems. Within two to three years, external players could consolidate farm management platforms, displacing industry governance and further fragmenting the advisory ecosystem.The window to shape a trusted, farmer-aligned data environment is closing.

This report offers a strategic response. It distinguishes between:

- Industry-good functions requiring shared leadership and investment (e.g., trust frameworks, integration infrastructure, and digital maturity tools), and
- Commercial opportunities that must be enabled through open standards and a permissioned integration layer.

Lessons from other sectors, such as banking (Open Banking), energy (smart meter hubs), and healthcare (HL7/FHIR), show how failures can be addressed through shared standards and enforced interoperability. Agriculture is starting to follow, with partial models emerging in Canada and New Zealand.

Australia's dairy sector has a head start - but the next step is critical. Without acting on the recommendations of this report, the risk is not just inefficiency. It is loss of strategic control, limited productivity gains, and diminished returns on current and future investments across the supply chain.

The opportunity is clear. The foundations are in place. Now is the time to lead and act decisively.

1.1 Recommendations

The following recommendations are organised using the framework categories of Strategy, Structure, People, Processes, Data and Technology.

Strategy:	
1. Establish and Govern a Shared Digital Roadmap	• Develop a unified digital roadmap with input from stakeholders such as vendors, farmers, and advisors. • Define clear roles for governance, ownership, and data stewardship. • Use a formal framework to prioritise investments based on farmer impact and strategic value. • Maintain transparency and update regularly with sector-wide feedback. • Include a governance map to clarify responsibilities and improve coordination.
2. Align Platforms with Strategic Priorities	• Review and update core platforms (Dairy Australia tools, DataVat, Herd Platform) to reflect current strategies. • Modernise data models and outputs to support ESG, regional relevance, and advisor use. • Continue to support DairyBase as a connected, accessible tool for benchmarking and carbon reporting. • Ensure platform alignment and minimise duplication across the ecosystem.
3. Prepare for Scalable ESG Integration	• Prepare for scalable ESG by leveraging existing data assets. DairyBase already contains 5,300 carbon calculator datasets from real dairy farms, in addition to those entered via the ADCC spreadsheet. Rather than establishing a new pilot, the sector should run structured workflows on this existing data to test and refine Scope 3 reporting in real farm contexts.Identify barriers to collecting, sharing, and verifying ESG data. • Test how CDR and DataVat can enable trusted, permissioned data use across the wider ecosystem. While DairyBase already separates private user information through Dairy Australia's Salesforce CRM system, with permissions and farm IDs managed via the Dairy Levy Register, the challenge extends beyond DairyBase. The opportunity is to validate how CDR and DataVat can provide a consistent, secure model for permissioned data access and sharing across multiple platforms and stakeholders.Build capability for reusable, verified data across programs.

Structure:	
4. Recognise and Reward Quality Data Sharing	• Co-design a framework to acknowledge accurate, timely data contributions. • Offer value exchange through feedback reports, benchmarking, dashboards, or recognition tiers. • Include both non-monetary and optional incentive models.

	• Co-develop with farmers, herd testers, and breed societies to ensure trust and scalability.
5. Create a Shared Framework for Vendor Collaboration	• Establish a coordination group for vendors, herd testers, and delivery partners. • Align priorities, share integration plans, and resolve common issues. • Set minimum technical standards and shared onboarding/testing processes. • Strengthen governance and delivery consistency across the digital ecosystem. • Complement the digital roadmap with structured, collaborative implementation.

People:	
6. Strengthen User Capability with Role-Specific Support	• Provide tailored, role-based training aligned to real-world workflows and experience levels. • Offer practical, accessible guidance from beginner tips to advisor-level insights. • Deliver support through both digital tools and trusted human channels (field staff, advisors). • Embed ongoing help within platforms to build confidence and support tool adoption. • Ensure capability grows alongside digital system integration.

Processes:	
7. Standardise and Simplify Core Digital Tasks	• Streamline routine tasks (e.g., event entry, herd test uploads, reporting) for consistency across platforms. • Create an agreed business glossary or common Taxonomy of terms to better align data definitions across the supply chain • Ensure predictable data sync timing and clear user communication.
8. Use Artificial Intelligence (AI) to Improve Support Across Systems	• Deploy an AI assistant to triage issues and direct users to the right support channel. • Use smart tagging to track repeat issues across platforms. • Build a shared AI-powered knowledge base for consistent guidance. • Improve support visibility without replacing vendor-level services. • Potential first step toward an industry-wide ‘digital farm assistant’.

Data & Technology:	
9. Establish a Common Technical Framework	• Co-develop a shared technical reference architecture (APIs, data structures, authentication). • Create a developer portal with documentation, test environments, and support. • Improve platform compatibility, reduce duplication, and enable faster integration. • Continue to develop data validation tools and services that lead to transparent data capture and supports greater on farm decision making.

10. Modernise Core Platforms with Ongoing Improvement	• Shift from workarounds to targeted, user-driven enhancements. • Invest in platform performance and usability, guided by clear development pathways. • Establish a structured improvement process and criteria for system retirement. • Support strategic infrastructure planning (e.g., DataConnect).
11. Activate New Data Sources and AI Decision Support	• Integrate farm-based Internet of Things (IoT) data into shared systems. • Building on the foundation of strong industry decision support tools: ○ Develop AI tools for advisory, assurance, and forecasting methods and tools that create opportunity for quicker decision makingPrioritise transparency, trust, and usability to drive adoption.

2. Introduction

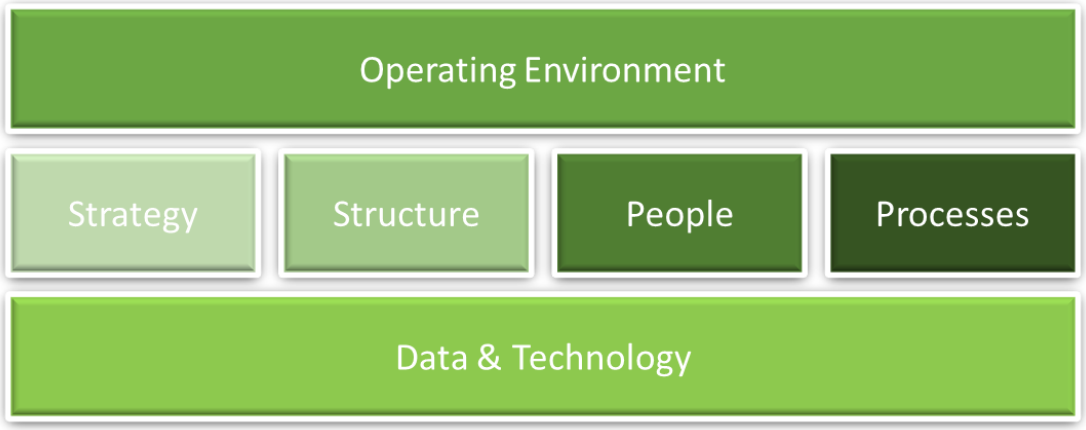
2.1 Purpose

The objective of this report is to provide industry stakeholders with a review of the current information systems, technologies, processes, data, and methodologies that support the dairy supply chain from farm inputs through to processors. While some consideration is given to regulatory bodies and downstream impacts, the primary focus remains on the farm-to-processor segment.

The report evaluates the current ('As-Is') state of the system and presents recommendations and actions to support the development of a future ('To-Be') model.

2.2 Approach

This report considers the dairy industry using framework categories across its operating environment (Strategy, Structure, People, and Processes), and a specific Data and Technology category.



The findings of this report are organised by functional areas of the operating environment. While the findings are comprehensive, the recommendations have been synthesised from interview insights into actionable steps. They are not presented in order of priority but are intended to outline practical activities that can be implemented immediately to accelerate progress toward a more integrated, collaborative, and data-driven industry model.

For transparency, the number of interview references for each issue has been noted. However, frequency alone should not be seen as an indicator of importance; some lower-frequency themes have been included due to their strategic significance or alignment with known system gaps.

Effective planning and scheduling are critical to the success of any change program. Farmer training and ongoing support are essential to embed change within farm and industry culture. Change management should be deliberate and coordinated, with attention to all interrelated components to ensure a smooth transition to new ways of working.

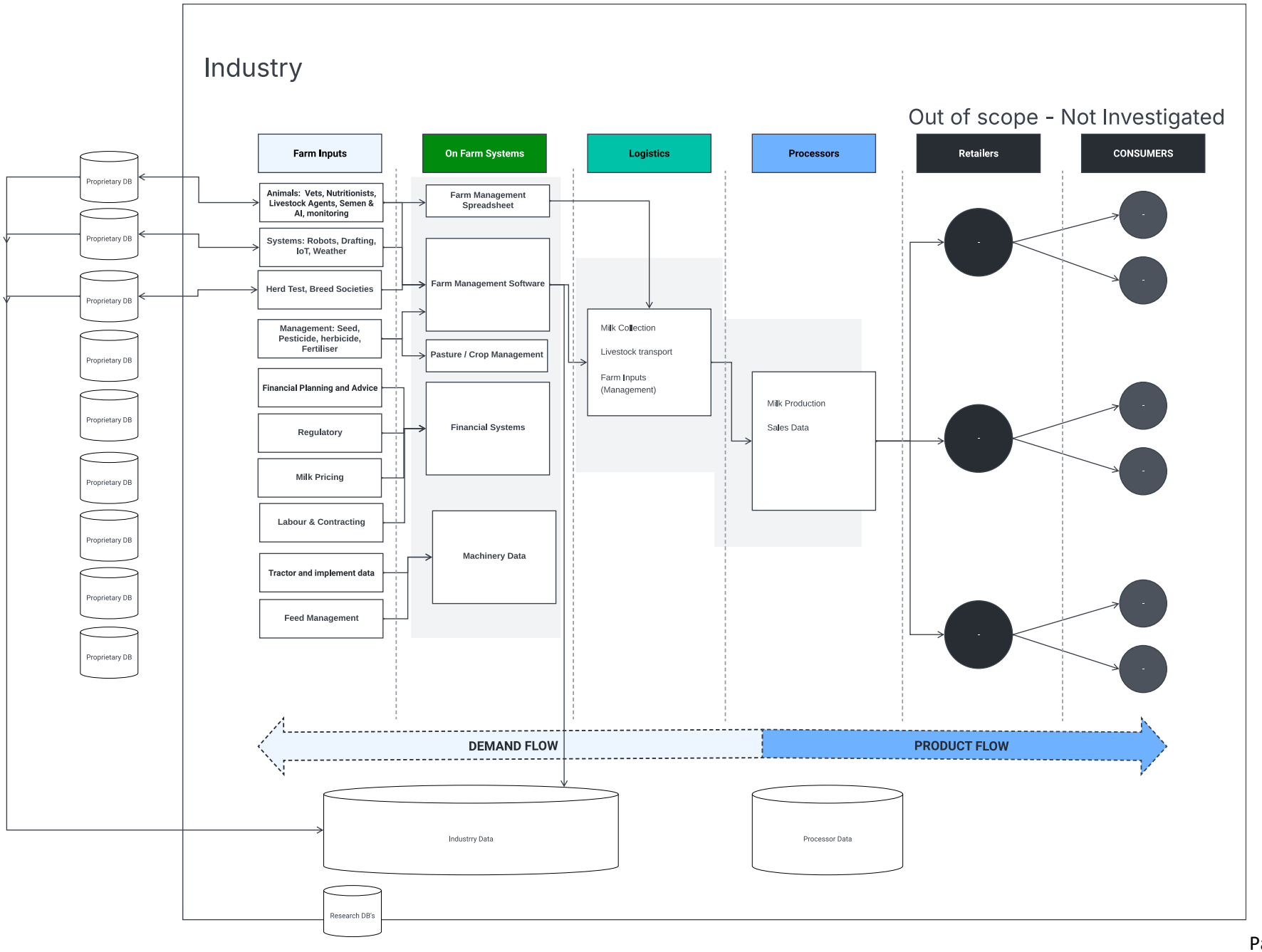
2.3 Areas of Investigation

When interviewing industry stakeholders, the following areas of investigation were used to frame and drive discussions, although the conversations were allowed to 'go where they needed to' and this was not a set questionnaire style interview, it was an open dialogue informed by this set of themes:

- **Define the dairy data supply chain -** Opportunity for individual to talk to their unique perspectives.
- **Identify data sources and accessibility -** What types of data are being collected? How comprehensive are the datasets? Who controls access?
- **Data platforms and integration -** What software and services are utilised? What technology limitations or opportunities exist?
- **Data storage, access and sharing** How and where is data stored and held? With whom is it being shared? Are there impediments in sharing datasets due to data rules? How is data being transferred?
- **Collection and updating frequency -** What data is being collected by whom and how? What timing or criticality issues exist?
- **Data quality and validation -** How is data quality controlled? What processes are in place to ensure accuracy, consistency, reliability, etc.?
- **Data governance, privacy, and protection -** Are there formal agreements that govern data use and data sharing, is there clear understanding of privacy laws and ownership?
- **Current skill - digital and technical capability of or within each segment (farmers/advisors/industry)** - e.g. Do farmers know how to accurately record data to get the best advice from their trusted advisors and benchmarking or industry reports?
- **Capacity and readiness to change for each segment -** How prepared is each segment? What means, desire, financial and other capacity does each segment have to capture the data sharing opportunity?
- **What Technology opportunities do you see in the near and mid horizon -** What is the interviewee's understanding of what is coming and how the industry could pivot?
- **What role do you believe Artificial Intelligence will play in the supply chain within the next three to five years? -** Always the last question of our calls and often very revealing about how much or little the interviewee perceived the role of AI and its impacts.

2.4 Supply Chain Diagram

The supply chain diagram is not intended to show all the actual technical integrations that are in place but indicative of the headline areas of data that form the scope of this audit and therefore are considered in the design of the implementation phases.


Industry
Out of scope - Not Investigated
Farm Inputs
On Farm Systems
Logistics
Processors
Retailers
CONSUMERS
Proprietary DB
Proprietary DB
Proprietary DB
Proprietary DB
Proprietary DB
Proprietary DB
Proprietary DB
Proprietary DB
Proprietary DB
Proprietary DB
Animals: Vets, Nutritionists, Livestock Agents, Semen & AI, monitoring
Systems: Robots, Drafting, IoT, Weather
Herd Test, Breed Societies
Management: Seed, Pesticide, herbicide, Fertiliser
Financial Planning and Advice
Regulatory
Milk Pricing
Labour & Contracting
Tractor and implement data
Feed Management
Farm Management Spreadsheet
Farm Management Software
Pasture / Crop Management
Financial Systems
Machinery Data
Milk Collection
Livestock transport
Farm Inputs (Management)
Milk Production
Sales Data
DEMAND FLOW
PRODUCT FLOW
Industrry Data
Processor Data
Research DB's

3. Operating Environment

The Operating Environment encompasses the external conditions and forces that influence or constrain the performance of internal elements- such as Strategy, Structure, People, Processes, and Data & Technology - and provides the broader context in which these systems operate.

3.1 Findings – Operating Environment

Lack of organisational clarity about Dairy Australia and DataGene (FOE1)

There is widespread confusion among farmers, advisors, and vendors about the respective roles of Dairy Australia and DataGene in digital systems, data stewardship, and governance. This ambiguity weakens coordination, slows progress, and contributes to uncertainty around who is responsible for decisions affecting platforms and integration.

Lack of industry-wide agreement on data value, control, and responsibility (FOE2)

Stakeholders expressed divergent views on data ownership, access rights, and the value exchange for contributors. Questions around whether farmers should be compensated for their data, and concerns over vendors retaining data for their own purposes, highlight the need for a clear, shared governance framework and trusted data-use policies.

Pressure to meet emerging compliance and ESG requirements (FOE3)

Farmers and processors are under increasing pressure to meet Scope 3 and sustainability reporting requirements and antimicrobial AHW metrics by 2030. However, current industry systems are not yet equipped to efficiently support these obligations. Interviewees noted a lack of guidance, technical readiness, and integration pathways to enable reliable ESG reporting at scale.

Fragmented vendor ecosystem and limited commercial incentives for integration (FOE4)

Vendors operate under commercial models that often conflict with industry-wide interoperability goals. Without shared standards or aligned incentives, integration efforts are slow, inconsistent, and dependent on individual negotiations, constraining system-wide progress.

Cultural hesitancy around data sharing and automation (FOE5)

Trust in digital systems remains uneven. Smaller producers and later adopters are cautious about data sharing, automation, and AI, often due to previous poor experiences or concerns about control and privacy. These concerns highlight the importance of building trust alongside technical solutions.

Investment uncertainty and short planning cycles (FOE6)

A lack of consistent, multi-year funding was cited as a key barrier to digital development. Vendors and delivery partners noted that short-term resourcing limits their ability to invest in scalable improvements, leading to piecemeal progress and fragile system outcomes.

3.2 Observations – Operating Environment

These findings reflect persistent system-wide conditions - not just implementation challenges - that limit progress toward a more integrated, data-driven dairy sector. While many recommendations in this report aim to address specific issues through strategy, process, or technology, these environmental factors require sector-wide leadership, clearer mandates, and sustained coordination.

To unlock real value, the industry must:

Clarify roles and responsibilities between Dairy Australia, DataGene, and commercial actors.

- Establish shared standards and data governance frameworks.

- Support cultural change alongside technical integration.
- Align incentives to enable vendor participation.
- Move from short-term projects to long-term digital infrastructure planning.

3.3 Lessons Learned

The lack of agreed data standards and supporting infrastructure has long hindered efforts to integrate data across the dairy supply chain. While the current DataConnect project aims to address many of these longstanding challenges, it too is constrained by legacy thinking and entrenched barriers. For example, combining data from herd management systems, sensors, and diagnostics remains difficult due to inconsistent standards, infrastructure limitations, and proprietary restrictions - leaving farms with fragmented data and variable quality.

Sustained investment in foundational data projects has been lacking. As a result, key initiatives have either stalled,failed to launch or receive necessary funding on ongoing maintenance and support e.g.

- C-Milk, (lack of ongoing funding and support)
- Animal Health and Welfare Dashboard, (no processor investment)
- Body Condition Score system (including potential AI applications using LIDAR), (failed to get past BRD stage)
- AI technician mobile app, (failed to get past BRD stage)
- Early Milk Collection Index (industry did not deliver but was partially implemented by some processors)

Engaging commercial players in data-sharing initiatives has also proven difficult. Even when farmers explicitly request data access or integration, there have been persistent barriers to retrieving data from across the supply chain. Programs such as IDDEN offer a promising model for collaborative data sharing, having invested substantial time in governance, system design, and testing. Yet after five years, the Australian dairy industry remains unconnected to major manufacturers such as GEA, DeLaval, and Lely—reflecting technical, political, and timing-related hurdles common to both national and international initiatives.

At the local level Australian Farm management systems such as Easy Dairy, Jantec and Mistro have various levels of connectivity to industry databases. The still remains a significant amount of data not being shared, not due to limitations of technology but due to limitations of trust, commercial protectionism and willingness to cooperate.

The failure of the above programs is at least in part due to governance dynamics that have derailed these programs. Industry bodies have not been able to agree on priorities or responsibilities, and funding is allocated unevenly. Without a transparent framework that defines roles, allocates resources and enforces accountability, even the best initiatives collapse before delivering results.

The purpose of this audit, and the subsequent recommendations and implementation pathway, is to identify points of leverage and reduce friction based on past lessons. The risks of inaction are growing, particularly as external industries move ahead. The technology is available, the benefits are clear, but unlocking value will require greater alignment and commitment from commercial stakeholders.

Three imperatives emerge from these experiences:

1. Establish and enforce industry-wide technical and semantic standards - including APIs, data schemas, and shared definitions.
2. Invest in change management and user support to drive adoption and long-term impact.

Empower a unified and clearly communicated approach with the creation of clear accountabilities and roles - with the authority, funding, and mandate to govern the roadmap and ensure accountability across participants within the dairy supply chain

By embedding these lessons, the industry can move beyond historical frustrations and build the foundations for a genuinely integrated and future-ready data ecosystem.

4. Strategy

4.1 Findings - Strategy

Governance is unclear and decisions lack transparency (FS1)

Stakeholders reported confusion over who governs and approves changes to digital platforms such as Herd Platform and GESNP (Genetic Evaluation System New Platform). Roles and responsibilities between Dairy Australia, DataGene, and vendors are poorly defined, undermining trust and slowing coordinated progress. *(Raised in seven interviews, particularly by senior executives and industry experts)*

Tools are not designed with end users in mind (FS2)

Farmers and advisors find digital tools complex and misaligned with daily workflows. Limited onboarding support and inconsistent interfaces reduce usability, leading to low adoption or reliance on third parties to manage system use. *(Raised in 12 interviews, particularly by extension providers, farmer-facing staff, and platform trainers)*

Data quality and consistency remain unresolved (FS3)

Issues such as duplicate animal IDs and conflicting records persist across platforms, eroding trust in data-driven tools and increasing the burden of manual correction during herd testing, mating, and genomic evaluation. *(Raised in 10 interviews)*

Platforms are fragmented and poorly integrated (FS4)

Disconnected systems and inconsistent workflows force users to manage multiple logins and re-enter data across platforms. This increases workload, limits data reuse, and slows decision-making across the supply chain. *(Raised in 11 interviews, particularly by software vendors, herd test centres, and advisors)*

Contributors lack visibility into how their data is used (FS5)

Farmers and advisors often do not know who accesses their data, how it is used, or what value it creates. This lack of transparency discourages voluntary data sharing and reduces trust in industry systems. *(Raised in eight interviews, especially by producers, advisors, and data aggregators)*

Legacy platforms are not keeping pace with strategy (FS6)

Key systems, such as DairyBase, may need updating but are not misaligned with carbon reporting or farm benchmarking. Recent interviews with farmers, DFMP coordinators, accountants and software providers, milk processors, bankers, and other service providers confirm that DairyBase remains relevant, though investment will be required to ensure it continues to meet emerging sustainability and data integration needs. (Raised in seven interviews, including by Dairy Australia, breed organisations, and service providers) note: Financial systems were out of scope for this review and accountants and bankers were not interviewed. **The industry lacks a shared roadmap for digital infrastructure (FS7)**

There is no published roadmap outlining how systems connect, what changes are planned, or how stakeholders can coordinate investment and development. This limits alignment and hinders forward planning. *(Noted in six interviews, particularly by platform vendors, strategic partners, and industry managers).*

4.2 Observations - Strategy

The dairy industry has made important strides in genetics and herd improvement platforms but lacks a clear, coordinated digital strategy to guide the next phase of transformation. Interviewees consistently raised concerns about system fragmentation, limited usability, unclear governance, and weak alignment with strategic goals such as ESG reporting and advisor support.

While significant digital infrastructure exists, its value is constrained by the absence of shared standards, integrated workflows, and consistent user engagement. A sector-wide strategy is now required - one that aligns investment, defines priorities, and supports delivery through practical tools, open standards, and a unified roadmap. This strategy must be grounded in real-world use cases, co-designed with end users, and supported by a clear implementation pathway.

4.3 Recommendations - Strategy

1. Establish and Govern a Shared Digital Roadmap

Dairy Australia, DataGene and industry partners should jointly develop a unified digital roadmap that outlines key platforms, integrations, decommissioning plans and development priorities. This roadmap should be published and maintained, with input from vendors, herd testers, and advisors, and managed by a central or virtual team with shared responsibility. It should clearly define roles in governance, system ownership, data stewardship, and decision-making. A formal scoring framework should be used to prioritise platform investments based on famer impact, strategic alignment, and data quality, with transparency on how decisions are made and input from across the sector. The roadmap should be updated regularly, supported by structured feedback loops and a commitment to delivery discipline. A governance map should accompany it to improve coordination and remove ambiguity. This will also assist in clearly defining industry roles which was highlighted in several interviews.

2. Align Platforms with Strategic Priorities

Core platforms (Dairy Australia tools, DataVat, Herd Platform) should be reviewed and updated to reflect Dairy Australia's and DataGene's current and ongoing strategies reflecting the growing importance of sustainability, profitability, and resilience in farm management. This includes updating underlying data models to support ESG reporting, improving functionality for different regions and breeds, and modernising reporting outputs so they are useful to both farmers and advisors.

DairyBase was noted as a key industry asset, but its future value depends on making it relevant, accessible, and connected to the broader data ecosystem and dairy industry needs and outcomes. This means ensuring it can consume shared data from the CDR, produce outputs that align with farm and advisor workflows, and support evolving needs such as carbon accounting and business benchmarking, but above all integration to key accounting software such as Xero is a priority.

This review should be jointly scoped and resourced by Dairy Australia and DataGene and align with the broader digital roadmap. It should also consider how other platforms in the ecosystem complement or duplicate roles, to ensure that investments are targeted and strategic.

3. Prepare for Scalable ESG Integration

A small number of pilot farms should be supported to trial practical pathways for Scope 3 reporting, using existing calculators, datasets, and farm systems. These pilots are not just about testing technical tools; they are an opportunity to understand how environmental and sustainability data can be captured as part of everyday farm workflows and used with confidence by the broader supply chain.

The pilots should identify where challenges exist in collecting, sharing, and verifying ESG-related data, and begin to test how core industry infrastructure, such as the CDR and DataVat, can support more streamlined reporting. This includes exploring how data can be shared securely with trusted third parties based on farmer permissions and a clear record of how data is used.

This work lays the foundation for a future system that allows verified farm data to be reused efficiently across multiple programs, reducing duplication and helping farmers meet increasing reporting demands without added burden. DataGene can support integration and technical setup, while Dairy Australia leads engagement, incentives, and cross-industry alignment.

5. Structure

5.1 Findings - Structure

There is no shared framework for recognising data contribution (ST1)

Farmers and service providers want transparency and feedback when contributing data. They're more likely to participate if there's visible value or recognition. Coordination across vendors and delivery partners is underdeveloped. (*mentioned in eight of 18 interviews*)

Coordination across vendors, researchers, and delivery partners is underdeveloped (ST2)

Vendors and service providers often work in silos, unaware of overlapping developments. This creates duplicated effort and misses integration opportunities. (*raised in six interviews*)

There is no maintained architecture or integration map (Shared in Strategy) (ST3)

Without a clear structure showing how systems and data flows connect, planning becomes reactive and fragmented. This approach unintentionally promotes poor connectivity, and productivity outcomes, and at times, poor trust, particularly over time. (*noted in six interviews, especially from platform providers and strategic planners)*

5.2 Observations - Structure

Stakeholders across the sector expressed uncertainty about who is responsible for governing platforms, setting integration priorities, and managing data access. This lack of structural clarity creates friction, undermines collaboration, and limits progress.

While both Dairy Australia and DataGene are trusted in specific roles, neither is clearly positioned as the sector's data steward. Even within organisations, teams lack clarity on decision-making authority, creating confusion over governance, technical ownership, and accountability.

In addition, the absence of mechanisms to recognise and reward high-quality data contributions weakens motivation for participation. Many contributors do not receive feedback or visibility on how their data supports broader industry outcomes.

Vendor and partner coordination is also largely *ad hoc*. Without a formal structure to align integration plans and resolve shared issues, system development remains fragmented and inefficient. A coordinated framework is needed to guide collaboration, reduce duplication, and ensure digital infrastructure evolves in a consistent and strategic manner.

5.3 Recommendations – Structure

4. Recognise and reward quality data sharing

There is currently no consistent mechanism in place to acknowledge or support those who regularly contribute accurate, timely, and high-value data into shared platforms. Many farmers, advisors, and service providers expressed frustration that their data appears in national reports or benchmarking tools without any feedback, visibility, or return. This lack of recognition weakens trust in data-sharing processes and limits voluntary participation in key initiatives such as benchmarking, sustainability reporting, and genetic evaluation.

DataGene and Dairy Australia should co-design a framework that recognises data contributors and creates a clear, visible value exchange. This could include personalised feedback reports, comparative benchmarking summaries, contributor dashboards, or opt-in recognition tiers that demonstrate how a farm's data has contributed to industry outcomes. The framework should allow for both non-monetary and optional incentive-based models, depending on the type of contribution and the use case.

Importantly, the model should be co-developed with farmers, herd test centres, farm consultants, Veterinarians, nutrition advisors, researchers and breed organisations to ensure it is practical, scalable, and trusted.

5. Create a shared framework for structural coordination and vendor collaboration

While technical roadmaps can provide visibility into upcoming system changes, there is no formal structure in place to guide how vendors, herd test centres, and other delivery partners coordinate their work. Currently, integration efforts and platform updates are managed on a case-by-case basis, often negotiated bilaterally with limited awareness of overlapping initiatives. This results in duplicated effort, inefficient onboarding processes, and missed opportunities to share resources or align development timelines.

To address this, DataGene and Dairy Australia should jointly establish a coordination group focused on digital delivery partnerships. This group would include technical and operational representatives from key vendor partners, e.g., Easy Dairy, Jantec, NHD, DeLaval, GEA, etc., and act as a forum to align priorities, share integration plans, troubleshoot shared issues, and build delivery consistency. It would also support agreement on minimum technical standards, testing processes, and partner expectations for ongoing platform maintenance.

Establishing a formal delivery coordination mechanism is a structural step toward a more integrated digital ecosystem. It complements the roadmap recommendation by focusing on the relationships, governance, and shared operating practices required to deliver aligned and efficient technology outcomes across the industry.

6. People

6.1 Findings - People

Digital literacy and system confidence vary widely across the industry (P1)

Interviewees consistently noted significant variation in digital confidence among farmers, service providers, and even internal teams. Older producers and part-time operators were often less comfortable with digital tools, while some advisors and field staff lacked the training needed to support users effectively. *(Raised in 12 interviews, across farmer-facing and support roles)*

Initial tool introduction and ongoing training are insufficient and poorly targeted (P2)

Many users are introduced to digital systems with minimal guidance tailored to their specific role. Training is often generic, outdated, or disconnected from real-world workflows. This leaves users unsure how to navigate tools effectively or where to seek help, resulting in inconsistent data entry, missed tasks, and low platform confidence. Interviewees called for training that is role-specific, practical, and reflective of actual farm operations. *(Raised in 10 interviews, particularly by extension staff, platform users, and support teams)*

Digital tools and training often overlook user diversity across the dairy sector (P3)

Younger farm workers tend to prefer self-guided digital learning, while older farmers often favour structured, in-person support. However, most systems and training materials assume a uniform user profile, overlooking differences in enterprise type, region, and digital familiarity. This mismatch leads to frustration, disengagement, and slow adoption. *(Raised in eight interviews, especially by extension officers, farmers, and support teams)*

Platform usability and support gaps affect data quality and engagement (P4)

Platform usability and support gaps affect data quality and engagement (P4) Users described digital workflows as confusing, repetitive, or unintuitive. Coupled with reactive and overstretched support teams, this contributes to data entry errors, user frustration, and disengagement. Several stakeholders directly linked these issues to poor data quality. In addition there are spatial and temporal issues, such as the lack of seamless pathways for herd data collected cow-side via apps to flow

directly into the CDR and synchronise with herd management software. (Raised in seven interviews)**Decision-makers are not always the digital users (P5)**

On many farms, digital tools are used by younger family members or junior staff, while business decisions remain with older operators who may not interact directly with the system. When the digital user leaves, platform engagement often drops. This disconnect between use and authority undermines long-term adoption. *(Noted in six interviews)*

Negative past experiences have created resistance to new tools (P6)

Some farmers and advisors are hesitant to adopt new systems due to past experiences such as lost data, unclear value, or abrupt platform changes. These legacy issues erode trust and make it harder to gain buy-in for future tools or updates. *(Noted in five interviews)*

Confidence and experience influence digital behaviour more than age (P7)

Interviewees emphasised that reluctance to adopt digital tools is often driven by negative past experiences or inadequate support, not simply age. Farmers who have had positive experiences are more likely to engage with digital platforms, regardless of generation. This highlights the importance of building trust and providing tailored support over relying on age-based assumptions. *(Raised in five interviews)*

End users are not consistently engaged in design or feedback (P8)

Several interviewees expressed concern that farmers, advisors, and service providers are not routinely involved in the design or improvement of digital tools. This limits relevance, reduces adoption, and weakens the perceived value of new features. *(Mentioned in four interviews)*

6.2 Observations - People

Digital capability across the dairy sector is highly variable. While some farmers and advisors are confident users of digital tools, many others struggle due to limited training, poor onboarding experiences, and inconsistent support. This affects data quality, system adoption, and overall trust in digital services.

Engagement is shaped more by confidence and experience than by age. Users are more likely to adopt digital tools when they see clear value, have access to timely support, and receive training tailored to their role and workflow.

Currently, training is often generic, support is reactive, and user feedback is not systematically incorporated into tool design. This results in confusion, workarounds, and disengagement—especially when digital tools are perceived as disconnected from on-farm decision-making.

To improve adoption, systems must be designed with users in mind, and support must be practical, timely, and aligned to real-world use. Building capability requires not just better tools, but ongoing investment in communication, training, and trust.

To help describe this variation in engagement, three digital user profiles were developed from the interviews. These are not rigid categories, but they reflect common patterns of system use, confidence, and support needs:

Digital User Profiles:

Profile	Characteristics
Engaged Navigators	These users are digitally capable and confident in exploring tools, entering data accurately, and interpreting results. They are often younger producers or supported by trusted digital leads (e.g., advisors, herd testers, or family members). They proactively seek out new features and give feedback on usability.
Functional Participants	These users are comfortable with routine digital tasks (e.g., herd test uploads, calving records) but rely on advisors or vendors to assist with more complex features or data analysis. Their engagement is practical but limited by time, training, or platform design.
Cautious Operators	These users often avoid digital systems unless required. They may have experienced prior platform issues or simply prefer manual or paper-based processes. Data entry may be minimal, and engagement depends heavily on trust, simplicity, and perceived value.

A person's placement within these profiles tends to reflect a combination of confidence, exposure, and experience not just age. Notably, even highly experienced farmers can become effective digital users when shown how tools fit their business priorities and provided with practical, hands-on support.

These profiles highlight the need for user-centred system design, targeted training pathways, and improved onboarding experiences. They also underscore the importance of trust both in systems and in the people delivering them. Building digital capability in the dairy sector will require not just better tools, but better engagement with the people expected to use them.

6.3 Recommendations - People

6. Strengthen User Capability Through Role-Specific Support and Practical Guidance

Lift digital confidence and consistency across the dairy supply chain by providing support that is tailored to users' roles, experience levels, and real-world workflows. This includes structured, role-based learning at the right time - from simple guides for new users to deeper insights for advisors - delivered through both digital tools and trusted human support.

Training should be practical, accessible, and ongoing, with always-available help inside platforms supported by local field staff, advisors, and service providers. This combined approach ensures that people feel supported when adopting new tools, and that capability grows in step with digital system integration. Any pilot programs should incorporate an action/research, action learning model to ensure ongoing industry learning and productivity improvements.

7. Processes

7.1 Findings - Processes

Duplicate records and mismatched animal IDs continue to disrupt core workflows (PR1)

Manual correction of duplicate or inconsistent animal records remains a common task across platforms such as CDR, breed societies, and herd management tools. These issues reduce trust in system outputs and create extra work during herd testing, mating, and genomic evaluation. Although tools exist to assist, inconsistent handling and unclear ownership delay resolution. *(Raised in 11 interviews)*

Also raised in: Strategy (as a data trust issue) and Structure (unclear responsibility)

Process focus: Emphasises operational time burden and rework caused by unresolved duplication.

Data entry and task workflows are unnecessarily complex (PR2)

Routine tasks such as herd test uploads, calving data entry, or benchmarking require users to navigate multiple systems and inconsistent processes. This complexity results in double handling, missed steps, and frequent reliance on individual support staff. *(Raised in nine interviews)*

Also raised in: People (confidence and support needs)

Process focus: Highlights inefficiencies in how core farm and service tasks are executed.

Users rely on local workarounds to complete tasks or fix system gaps (PR3)

Spreadsheets, templates, and informal methods are used to overcome system limitations. While often effective, these workarounds create inconsistency and introduce risk when people leave, or systems change. *(Raised in seven interviews)*

Also raised in: People (reliance on individuals and informal knowledge)

Process focus: Highlights operational fragility and the hidden burden of unsupported workflows.

Workflow design is inconsistent across systems (PR4)

Key workflows vary in how they are structured and executed across tools. Required fields, task steps, and terminology differ even when collecting the same data, making it difficult to train users and ensure accuracy. *(Raised in six interviews)*

Also raised in: People (training confusion)

Process focus: Addresses inconsistent execution of tasks across platforms, not system ownership or UI aesthetics.

Support and feedback processes are informal and inconsistent (PR5)

There is no shared process for logging, escalating, and resolving user issues across DataGene, vendors, and service teams. Users often repeat themselves, don't know where to go, or feel that their feedback doesn't lead to change. *(Raised in five interviews)*

Also raised in: Structure (unclear accountability)

Process focus: Describes the lack of structured workflow for handling user support and system feedback.

Delays and unclear timing between connected systems reduce trust in data (PR6)

Users reported that data updates—such as herd testing results or animal ID changes—do not appear promptly in downstream systems. These delays cause uncertainty and often result in double handling or unnecessary support requests. *(Raised in four interviews)*

Also raised in: Strategy (confidence in system performance)

Process focus: Focuses on day-to-day workflow delays and their impact on operational decision-making.

7.2 Observations - Processes

Core digital processes across the dairy supply chain are fragmented, inconsistent, and often inefficient. Common tasks - such as herd test uploads, event recording, and calf registrations - require navigating multiple systems with differing rules and formats, leading to double handling, errors, and delays.

Duplicated animal records, mismatched IDs, and inconsistent data workflows are recurring issues that undermine trust in system outputs and increase operational burden. Users frequently resort to manual workarounds, such as spreadsheets or informal support channels, to compensate for system limitations.

Support processes are also fragmented. Users are unclear on where to report issues, feedback loops are weak, and there is no standardised mechanism for triaging and resolving cross-system problems.

These challenges stem not from technology alone, but from inconsistent workflow design, unclear ownership of processes, and limited coordination between platform providers. Addressing them requires aligning core tasks across systems, reducing unnecessary complexity, and improving the user experience from end to end.

7.3 Recommendations - Processes

7. Standardise and Simplify Core Digital Tasks

Make routine farm and advisory tasks faster and more consistent by improving the way digital tools are designed and used. Focus on streamlining common actions such as entering events, uploading herd tests, and generating reports, so they work in a familiar, predictable way across systems.

This includes:

- Reducing unnecessary steps in everyday tasks
- Improved taxonomy and validation steps: Aligning field names, form layouts, and workflows across major platforms
- Ensuring data synchronisation timing is predictable and clearly communicated to users
- Replacing high-risk workarounds with in-system tools based on real user needs

8. Use AI to Simplify Support Across a Fragmented System

Farmers and advisors often work with multiple platforms and vendors, each with separate support processes. This creates confusion about who to contact, and many issues fall through the cracks promoting poor outcomes and lack of trust. Rather than replacing vendor-level support, the industry should explore how AI can help users triage issues, surface the right contact pathway, and track common problems across systems.

Rather than building a centralised support system, this recommendation proposes using existing tools (e.g., AI-based triage, shared knowledge bases) to improve consistency in how problems are reported and resolved across platforms. Vendors and support providers would continue to handle their own issues, but users would have clearer pathways for common requests, reducing duplication and confusion.

This could include:

- A single AI-powered support assistant that routes users to the right vendor based on the problem type
- Smart tagging and tracking to identify repeat issues across the supply chain
- A cross-platform knowledge base that uses AI to surface relevant guidance regardless of the system in use
- By using AI as a shared overlay not a replacement, the sector can improve support visibility, reduce duplication, and create industry-level insights into where systems are failing users.
- Could be the first use case for a ‘digital farm assistant’ AI service

8. Data & Technology

8.1 Findings - Processes

Poor integration between key systems is a major blocker to efficiency (DT1)

Many platforms used by farmers, herd testers, and advisors do not connect well – or data remains on-farm, unconnected to any databases or platforms. Lack of API-level integration results in manual file transfers, duplicated effort, and delays in data being available for reporting or analysis. This fragmentation slows down adoption and limits the value of otherwise capable tools. *(Raised in 11 interviews)*

Real-time or automated data flows are only available to a small subset of users (DT2)

High-performing farms and tech-savvy advisors have automated integrations, often through custom solutions. But most users still rely on manual uploads or outdated sync methods. This has created a two-speed system where advanced users are innovating while others are stuck waiting for more support to leverage basic technologies. *(Raised in seven interviews)*

Technical constraints are shaping user experience and design decisions (DT3)

Several vendors and support staff noted that some platform interfaces and workflows are the way they are due to backend limitations or legacy codebases. Rather than being designed for users, systems are often designed around what the technology can currently handle. Some tools and technologies are not well supported by their vendor, and some require modernisation to add more value. *(Raised in six interviews)*

The absence of a shared technical framework leads to inconsistency and friction (DT4)

Across vendors, service providers, and organisational teams, there is no agreed or shared technical reference architecture guiding how systems should interact across the supply chain. This means each organisation makes independent decisions about how to structure data, manage authentication, build APIs, or roll out system upgrades. Without shared design patterns or minimum standards, integration efforts become slow, expensive, and inconsistent. For example, connecting a commercial tool to DataGene's platforms may require custom workarounds because of mismatched field definitions, incompatible authentication methods, or missing documentation. These issues don't just slow down technical teams they delay the delivery of user-facing features, create risks when systems are upgraded in isolation, and ultimately limit the ability of the industry to move towards a more connected and scalable digital environment. Issues such a duplicate records and poor data quality that have been raised elsewhere in this report are indicators of this in action *(Raised in five interviews)*

System performance and reliability are inconsistent across platforms (DT5)

Users noted that some systems experience timeouts, lag, or unpredictable behaviour under load. Herd Platform was mentioned in this context while other systems were mentioned more in terms of useability, leading to the idea that training could be a root cause. While these issues are not constant, they can erode trust and make users hesitant to engage deeply with the technology, particularly during peak times like herd testing or mating data entry. *(Raised in five interviews)*

IoT data is underutilised and often not fully integrated into decision tools (DT6)

Several farms and advisors use sensors or devices to track milk yield, feed intake, or cow behaviour but this data is rarely connected to platforms like DairyBase, HerdPlatform, or advisor dashboards. The integration gap prevents full use of the available data. *(Raised in five interviews)*

Some technology vendors are resistant to change or partnership (DT7)

A small number of vendors were described as hesitant to open their systems or participate in broader integration initiatives. This is often due to concerns about intellectual property (IP), client retention, or business model risk but it creates roadblocks for an open data ecosystem which could facilitate greater data sharing, training and analysis for farmers. *(Raised in four interviews)*

8.2 Observations – Data & Technology

The dairy sector generates significant volumes of data, but its value is constrained by poor integration, inconsistent standards, and limited interoperability. Most systems were developed independently, resulting in fragmented data flows, manual transfers, and duplicated effort.

While some advanced users have built automated workflows, most farmers and advisors still rely on disconnected tools with limited support for real-time data exchange. Legacy platforms and outdated architecture further constrain usability and responsiveness, particularly during peak periods like herd testing.

The lack of a shared technical framework means vendors adopt different approaches to APIs, data structures, and authentication—slowing integration and increasing complexity. Issues such as duplicate records and mismatched fields are common symptoms of this misalignment.

Despite these limitations, there is strong appetite across the sector for a more connected, standards-based ecosystem. Stakeholders want tools that are easier to integrate, more reliable in performance, and better aligned to practical needs. Realising this potential will require coordinated investment in shared architecture, modernised platforms, and transparent, farmer-permissioned data sharing.

8.3 Recommendations – Data & Technology

9. Establish a Common Technical Framework for Integration and Innovation

Convene DataGene, Dairy Australia, vendors, and other key supply chain partners to collaboratively develop and maintain a streamlined technical reference architecture. This framework should establish baseline standards for APIs, data structures, authentication protocols, and integration quality. To support implementation, a dedicated developer portal should provide up-to-date documentation, testing environments, and support resources. Collectively, these tools will reduce duplication, enhance platform compatibility, and accelerate the delivery of interoperable features across the dairy technology ecosystem.

10. Modernise Core Platforms and Build a Process for Ongoing Improvement

While many existing platforms continue to serve their purpose, they are not always efficient or scalable. Over time, layers of workarounds and legacy architecture have made systems harder to maintain, extend, or integrate. This complexity slows user workflows, limits innovation, and complicates data connectivity across tools. Although some areas are benefiting from incremental improvements, there is a clear need for greater investment in making core systems more productised, with defined development pathways and transparent communication to industry stakeholders.

The immediate priority should be targeted, user-informed enhancements to address known pain points, streamline outdated workflows, and improve system performance where it matters most. These improvements should be guided by a structured and continuous improvement process, ensuring that recurring issues are addressed rather than left unresolved.

At the same time, this approach should lay the foundation for longer-term system planning. It enables informed decisions about when a platform has reached the end of its useful life and requires replacement or large-scale redevelopment. In doing so, it supports strategic infrastructure management, building on existing initiatives like DataConnect, and moves the industry from reactive fixes to proactive digital leadership.

11. Activate New Data Sources and AI-Driven Decision Support

Develop and pilot data pipelines and AI tools that support real-world decision-making across the supply chain. Begin by integrating farm-based IoT data (e.g., sensors, meters, monitors) into shared systems, and build AI models that enhance advisory services, quality assurance, and forecasting. Focus on transparency, trust, and usability to ensure adoption.

9. Implementing the Recommendations: From Findings to Action

This section presents a practical way to move from the findings and recommendations of the audit toward staged, coordinated delivery. Rather than treating each recommendation as a standalone action, we group them into key initiatives that build on one another, supported by targeted investment in people and capability.

Each step in this approach is designed to respond to multiple recommendations at once ensuring that no major theme is left unaddressed, while avoiding duplication or fragmentation of effort. Together, these initiatives provide a structured, scalable path for lifting the digital maturity of the sector, improving data quality, and increasing the value returned to farmers, advisors, and industry bodies.

Importantly, this section also shows how the complexity of the audit can be translated into a focused implementation plan that recognises system constraints, vendor realities, and the need to build trust as well as tools.

In reviewing these recommendations, it is important to distinguish between actions that fall within the remit of industry leadership (such as coordination, standards, and shared infrastructure), and those that rely on commercial actors (such as proprietary software updates or direct support) while maintaining the right for farmers to choose how, what and when their data may be used, efficiently and effectively. This proposed implementation plan prioritises what the industry can influence directly, while recognising that sustained market engagement will be essential for system-wide impact. There are emerging cases of industry partners also recognising the importance and shift in data and technology opportunities, highlighting again that the need to act is in the near horizon.

Mapping Matrix – Findings to Recommendation

Each of the recommendations is mapped back to a finding of the audit. Each finding in the report is numbered to assist the reader in identifying the lookup, e.g., recommendation 1 links to Strategy Finding FS 1 and FS 5 as well as Structure Finding FST 3.

Recommendation	Strategy FS	Structure FST	People FP	Process FPR	Data & Technology FDT
1	1, 5	3			
2	2,4			3	2
3	**3**		7		3
4		2			
5	**6**	1, 3			
6			1,2,3	6,7,8	
7			8	1,2	1
8	**7**		2,5,6	4	4
9				3,5	5,6
10				6	2,6
11				5	1,7

Mapping Matrix: Recommendation to Implementation

Each of the recommendations is mapped forwards on to the Implementation phases, e.g., Recommendation 1 maps to 'Establish Digital Maturity Baseline' and, as shown above maps back to finding FS1, FS5 and FST 3 to provide document traceability.

Recommendation	Establish Digital Maturity Baseline	Build & Pilot A DP Model	Enable Trusted Integration	Publish Platform Roadmap & Scale
1	X			
2	X	X		
3		X		
4			X	
5		X	X	
6	X	X		
7			X	
8			X	X
9			X	
10				X
11				X

Step 1: Quick Wins to Build Momentum

While this plan proposes a staged, structured rollout, there are several practical actions that could begin immediately, this assumes the continuation of projects such as DataConnect and the CDR / DataVat rebuild.

Improve support materials for new users

Many users struggle not because the tools are inherently difficult, but because the help materials are generic or difficult to access. Creating short, role-specific guides (e.g., for herd testers, advisors, farm owners) using existing content or filming screen-capture tutorials for common tasks would deliver immediate value. These can be shared via breed societies, field days, or software and services channels, supporting early-stage digital confidence without requiring new systems. While some of this may be seen as a challenge between industry good and commercial responsibility there is a balance between pushing all the tasks to the commercial partner and the desire for industry to have access to high value data.

Integrating non-animal data streams

An early opportunity exists to demonstrate the value of the utility layer by integrating non-animal and IoT data through a focused pilot. Several stakeholders highlighted that datasets such as feed input records, effluent management logs, environmental sensor data, and walkover weights are either collected in isolation or remain underutilised. These streams are becoming increasingly important for ESG, carbon, welfare, and financial reporting, yet they lack clear integration pathways into shared systems. Despite this, there is no visible step in the current implementation plan that addresses this category of data, representing a blind spot that could limit near-term ESG readiness and long-term system utility.

To close this gap, a targeted pilot could be initiated to test ingestion of a high-value non-animal dataset into the emerging utility layer. The pilot would validate how structured non-animal data (such as feed types, rainfall, or nutrient plans) can be aligned with ESG or productivity indicators, permissioned, and re-used in tools like DataVat or benchmarking dashboards. It would also explore how AI might surface early insights or triggers from this enriched data environment. A practical focus could be placed on a single data class, such as feed input records from mixes, involving one vendor already aligned to industry goals, one or two ESG-focused processors, and a small number of farmers currently collecting but not yet integrating this data.

This pilot would directly support Recommendation 3 (Prepare for ESG Integration) and Recommendation 11

(Activate New Data Sources and AI). It would show that the utility layer is not limited to animal event data and reinforce the importance of broader farm datasets in future systems. It would also provide a real-world test case for schema mapping, token-based access, and permissioning helping build vendor trust and demonstrating how integration can reduce duplication and reporting burden for producers. Even a single standardised feed input pipeline could save farmers hours in ESG or carbon audit preparation.

Fix high-frustration workarounds

Farmers and advisors often rely on spreadsheets or offline processes, rather than data validation tools to complete everyday tasks like herd data uploads, event recording, or benchmarking prep. Targeting just two or three of the most common manual workarounds and funding or incentivising software and service providers to integrate these directly into existing tools could save hours of rework per farm, reduce errors, and demonstrate the benefit of user-centered fixes. This approach also provides a visible example of "industry listening" to real pain points. Like the challenge highlighted above the is a balance between making the change and owning it. Resolving the how, will require identifying the appropriate lever to pull with the service provider, be that financial, other compensation, motivation or regulatory.

Share a draft of integration standards

Even without full consensus, sharing a simple draft of integration requirements such as preferred APIs, field naming conventions, or permissioning models signals that the industry is moving toward interoperability. This draft can serve as a starting point for vendor engagement, early feedback, and alignment, rather than waiting until all decisions are finalised. It also helps developers scope future integration work in parallel with broader planning. There is already emerging interest to be involved in this from various players across the supply chain.

Begin soft rollout of ADP recognition

The Approved Data Partner model (see below) will take time to build and formalise, but early momentum can be created by recognising existing high-value data contributors. For example, small to large producers with complete genomic and event data could be acknowledged, Farm management software that provides a comprehensive data set or processors that share data to actively complete gaps in the supply chain visibility. This soft rollout would demonstrate the principle of rewarding quality data sharing without imposing complex certification overhead.

Publish a public-facing digital roadmap

Farmers, advisors, and vendors all benefit from clearer visibility into what's changing and when. Publishing a simple, high-level roadmap showing planned upgrades, key integration milestones, and upcoming support features helps build trust and reduces duplicated effort. It also supports coordination across projects already underway, such as DataConnect, and gives stakeholders a channel to flag alignment opportunities or emerging gaps. This could incorporate both industry-good, governance, research and commercial programs.

Step 2: Establish a Digital Maturity Baseline to Guide Improvement and Investment

This audit provides a strategic view of the current state of digital infrastructure, capability, and data use across the dairy supply chain. But to drive improvement over time, the industry also needs a practical tool that operates at the level of farms, advisors, and service providers. One that captures how digital tools are being used, where gaps exist, and what kind of support would make a difference.

This step proposes the creation of a **Digital Gain Assessment Framework (DGAF)**: a structured, repeatable way to assess digital maturity across the sector. The DGAF would be used by farms, advisors, vendors, and industry bodies to measure where they are starting from, track progress over time, and guide support or investment decisions. Unlike the audit, which looks across the whole system, this is a software tool designed to support everyday users and operational planning, and the input data should come initially from existing sources and improved over time.

To anchor this work, a **National Data Objective (NDO)** should also be developed. Like the National Breeding Objective, the NDO would define what good data practice looks like in dairy. It would provide direction for training, platform development, and data quality improvement across the supply chain. The DGAF would then measure how farms and systems are progressing toward this shared goal. The NDO should ensure that enshrined in its definition of success a truly representatation of all actors in the supply chain be represented, not merely enthusiasts.

Together, the DGAF and NDO provide a foundation for smarter, better-aligned digital growth. They also help surface the economic value in better data use and system design.

For example:

- Farms that move from manual reporting to automated data flow between herd testing and herd management platforms can reduce administrative effort, improve data accuracy, and make quicker decisions on feed, mating, or health management.
- Advisors and vendors who understand the digital capability of their clients can tailor support, training, or integration efforts to where they are most needed, reducing costs and improving adoption.

These tools support better decisions, more consistent outcomes, and ultimately higher productivity across the sector. They create the conditions for improvement and give the industry a clear, evidence-based way to invest in what works. Developing the NDO and DGAF will require sector-wide consultation, design, and piloting. This work should be staged over 12 months, with early pilots deployed within the first year. This is an ambitious and aggressive timeline meant to indicate the urgency in bringing these tools and structure to the industry before emergin players take this ground. Crucially, success will depend not just on technical design, but on broad participation and practical support. Farmers, advisors, vendors, and extension staff must be actively involved in shaping the framework to reflect real workflows and decision-making needs. Support must extend beyond documentation, with clear, role-specific guidance, peer-led examples, and trusted champions in the field. This is not a compliance tool it is a practical resource to help people work smarter, and its value will depend on how well it fits everyday use.

Improving digital maturity is not just a strategic enabler it is a cost-efficiency imperative. The DGAF gives the industry a structured way to target investments where they will return the greatest value. At the farm level, better digital capability reduces duplication, avoids manual errors, and enables quicker, more confident decisions on mating, feed, health, and compliance. Even incremental improvements in these areas can lead to meaningful savings both in time and operational cost. But there is also a cost to inaction: if digital maturity is not addressed, the costs and inefficiency mount, and innovation is stymied. Advisory services remain constrained by partial data. ESG and carbon reporting become reactive and expensive. Research outputs take longer to translate into practice. Low-value digital behaviours like double entry, spreadsheets, and missed tasks continue to consume time without contributing to system-wide improvement. The DGAF provides a low-cost, high-leverage way to guide capability-building, enhance innovation, and unlock productivity gains, while the cost of inaction will only increase as reporting demands and digital dependencies grow.

This document has not investigated the full cost to implement. Each part of the program should be considered and funding models identified to fulfil the implementation.

Step 3: Establish an Approved Data Partner (ADP) Model to Build Trust and Enable Value Exchange

With a clearer picture of digital capability in place, the next step is to formalise how data contributors and system partners are recognised and supported. The **Approved Data Partner (ADP)** model provides the structure to do this offering a clear, transparent way to demonstrate commitment to quality data use, responsible sharing, and alignment with industry goals.

The ADP model creates a common language for participation. It defines what “good” looks like for farms, advisors, vendors, and processors in terms of data quality, transparency, system integration, and alignment with national identifiers and industry-led priorities. It also provides a pathway for industry and service providers to

signal trustworthiness, demonstrate conformance to shared standards, and participate in new services built on top of shared data.

The model is not about enforcing compliance it is about rewarding participation and building confidence in the system. It is not a replacement of existing models such as the NFF Farm Code, but a dairy-specific trust model. Early ADP participation could be voluntary, supported by tailored feedback, comparative insights, or preferred access to pilots and services. Over time, participation in ADP could serve as a signal of readiness for new programs, platform integrations, or recognition schemes.

Importantly, the ADP model must be co-developed with the sector. All actors across the supply chain, including software and services providers, breed societies, herd test centres, and farm advisors should help define the behavioural and technical criteria that underpin ADP tiers. These criteria may be informed by the DGAF outputs but must be practical, achievable, and fair. The model should also be staged beginning with recognition and transparency, then expanding into formal credentialing, standards alignment, and permissioned data sharing.

The ADP framework forms the trust layer for what follows. It creates the environment in which integration, interoperability, and data reuse are possible because roles are clear, participation is visible, and expectations are shared.

Private sector engagement will not happen by default. The ADP model provides an incentive structure through public recognition, integration opportunities, and potential eligibility for future joint programs. Early success will depend on demonstrating commercial benefit, not just compliance. Pilots should focus on vendors who are already showing interest or alignment, creating momentum rather than imposing blanket expectations.

This work can begin in parallel with Step 2. ADP co-design and early prototyping could commence within six months, with tiered rollout of recognition tools and pilot participation by month 12. Full implementation, linked to DGAF outputs and national platform integration efforts, could follow in the 12–18-month window.

Step 4: Enable Trusted Integration and Reuse Across the Supply Chain

The final step in building a connected, farmer-aligned data ecosystem is to support secure, permissioned reuse of data across systems, services, and supply chain partners. This is not just about fixing integration gaps. It requires a shared utility layer, a lightweight infrastructure that enables systems to speak the same language, respect permissions, and make data reusable at scale.

This layer does not replace existing infrastructure like the CDR or DataVat. Rather, it extends and enhances their value. The CDR remains essential for industry, but farmers now need their data to work across many more domains including processors, ESG reports, sensors, benchmarking platforms, and financial tools. A utility layer makes this possible by creating a common foundation for data to move securely, consistently, and with consent.

While the CDR remains focused on animal data, this layer should also support integration of non-animal sources such as feed input systems, environmental sensors, financial tools, and infrastructure logs. This broader inclusion is essential for whole-farm ESG reporting, productivity analysis, and emerging risk management tools.

For farmers and advisors, this means practical time savings and greater control. ESG forms, sustainability audits, carbon calculators, and farm assurance paperwork could be pre-filled using verified data sources. Trusted advisors could access the information they need with permission, without repeated downloads or emails. This saves hours of duplicated effort and improves data quality along the way.

This approach also prepares the industry for emerging technologies. AI tools, benchmarking engines, and automated compliance reporting all depend on connected, structured data. Without a consistent integration layer, these tools underperform or rely on clumsy workarounds. With it, their potential is unlocked generating insights faster, targeting support more effectively, and enabling new services that are built on real-world activity, not generic models.

For any system to succeed, stakeholders across the value chain must clearly understand its purpose and benefits. Farmers need to see how it supports their operations; advisors and service providers must trust that access is secure, reliable, and privacy-compliant; and vendors must recognise how participation reduces

duplication and enhances their service offerings. Achieving this requires co-development and piloting with end users to ensure the solution is practical and fit-for-purpose. Trust will be built not through technical diagrams or standards alone, but by deliveringtruly transaprent, tangible value in real-world use.

From a cost and timing perspective, this infrastructure can be built using well-established patterns: schema registries, token-based APIs, and permissioning services (that enable users to control who can access, use, and share their data, ensuring secure and compliant data governance). The initial investment is modest compared to the potential system-wide savings. Design and pilot work could commence from month nine and run in parallel with the ADP model. Early use cases such as ESG data reuse, benchmarking access, and shared report generation could be tested within 12 to 18 months.

This is not just a technical fix. It is a foundation for making current and future digital systems work better together. It reduces the load on farmers. It increases the return on investment in existing platforms. And it positions the dairy industry to lead not follow in the next wave of digital value creation.

Success Outcome: Feedback Loops

Include a lightweight "data impact feedback loop" pilot, e.g., push notifications or quarterly dashboards showing how data from a farm, advisor or ADP was used in benchmarking, ESG pilot, or herd-level insights. This will help maintain transparency, identify the value and reduce mistrust on how the data had been used versus the privilege that was assigned to it through the DataVat approval process.

Success Outcome: A Natural Language Assistant for Dairy Decision-Making

Once the integration layer is in place, the dairy industry will have the foundation to build a natural language assistant within platforms like DataVat. This would allow farmers and advisors to ask plain-English questions such as *"Why have my milk solids dropped?"* or *"How do my herd's fertility rates compare to similar farms?"* and receive answers powered by their own data, plus trusted benchmarks.

By securely connecting data from the CDR, processors, vendors, and sensors, the assistant could surface insights, flag anomalies, and guide action in real time. Importantly, participation would be opt-in, and users would retain control over which data is used for shared learning. This tool would make advanced analytics feel as simple as asking a question using natural language queries and help turn complex datasets into everyday decision support. This is a complex system that presents ease of use to consumers of the service, much like Generative Pre-trained Transformers (GPTs). It does however require significant investment, even if leveraging partially available technologies.

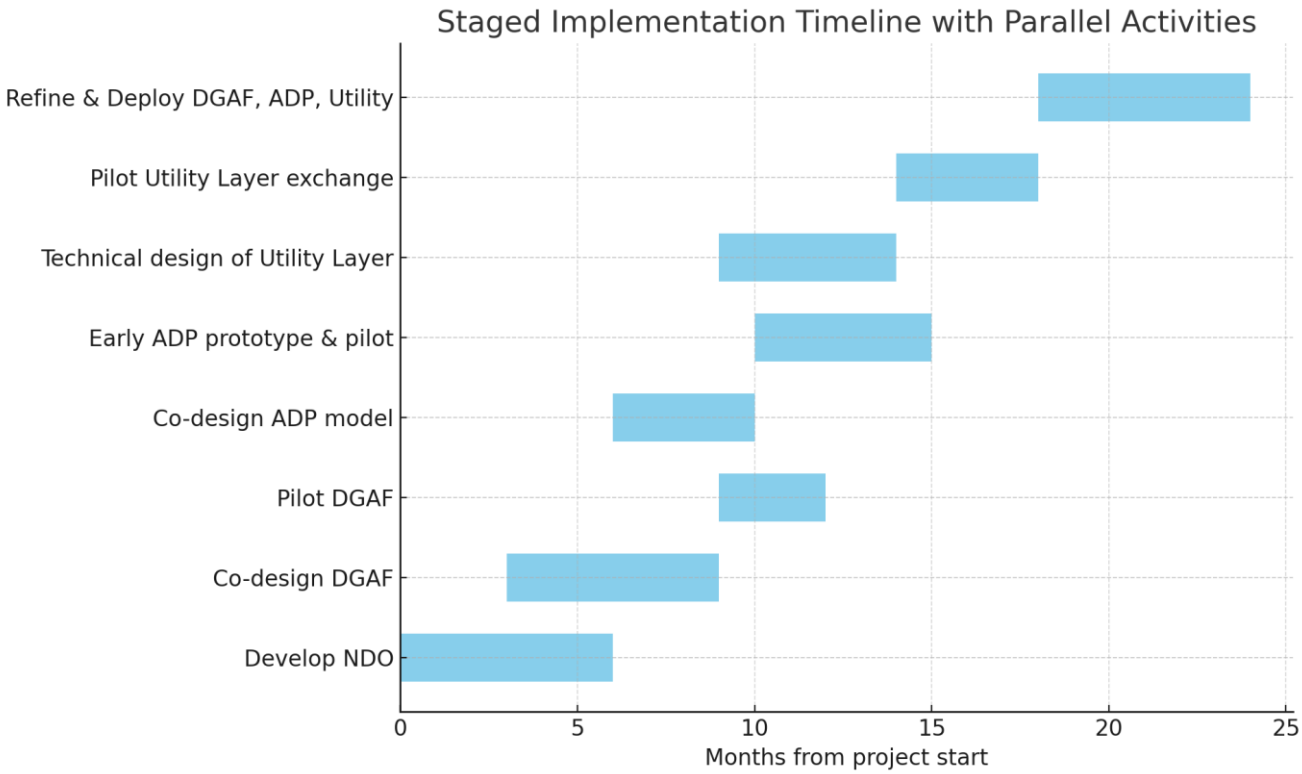
Example Natural language queries:

- *"What's driving my cell count increase this month?"*
- *"Have any similar farms reduced methane production / emissions by switching feed types?"*
- *"Which herd traits predict better feed conversion for my region and herd mix?"*
- *"Am I on track to meet Processor X's sustainability reporting obligations?"*
- *"What's the earliest my calves typically reach target weight?"*

This table is indicative only and some of the work could be accelerated and incremented if the use case was narrowed. In an accelerated option, assuming parallel development of the above-mentioned steps, an active digital farm advisor AI model could be deployed as early as 12 months from inception.

Phase	Activity	Timeframe
1	Model design, data schema mapping	Months 1–3
2	MVP on DataVat with mock data	Months 4–6
3	Pilots with real farms, advisors, processors	Months 7–12

4	Federated scaling + ADP integration	Year 2



TInvestment uncertainty and short planning cycles (FOE6)

(NDO)

10.Change Management & Communication

Implementing the recommendations in this report will require coordinated effort across systems, organisations, and day-to-day workflows. This section outlines how change could be delivered effectively and communicated clearly, with a focus on building trust, reducing resistance, and sustaining momentum across the dairy supply chain. This is not intended to replace the task of developing a change delivery plan but is in part based on synthesising the feedback from the interviews and suggests an approach.

10.1 Coordinated Change Delivery

Establish a Change Coordination Group

Create a joint working group led by DataGene and Dairy Australia, utilising Action Learning/Research Models, including key vendors, regional extension staff, and user representatives. This group should meet regularly to review progress, align actions, and resolve implementation issues early.

Create the opportunity for early wins

Prioritise recommendations that can be delivered quickly and visibly such as small, manageable end to end pilot programs, streamlining workflows, clarifying responsibilities, or improved training. Visible early progress will help build support and confidence across the industry – see Step 1, Section 9.

Embed change through trusted networks

Use existing channels such as breed societies, herd testers, and regional advisors to localise delivery and tailor support to different user needs. Farmer profiles and personas developed during this audit should inform the

rollout approach or leverage the more detailed persona profiling previously delivered through Dairy Australia projects.

Monitor, learn and adapt – fast

Define success metrics for each initiative (e.g., usage, feedback, error rates) and use them to guide delivery. Adjust the approach based on real-world uptake and barriers encountered during implementation.

10.2 Communication Strategy

Start with the 'why'

Each change should be introduced with a clear explanation of what problem it addresses the value proposition, who it helps, and how it supports the broader industry strategy including timeline. Messaging should be clear and practical—avoiding technical jargon.

Communicate consistently and in plain language

Use a mix of communication methods: platform messages, emails, short videos, regional events, and extension bulletins. Information should be regular, short, and tied directly to what users will experience or need to do.

Maintain a public roadmap

A shared roadmap of platform upgrades, integration plans, and training rollouts should be updated quarterly and made visible to vendors, advisors, and producers. This helps reduce confusion and allows others to align their work.

Share progress, not just plans

Regularly report on what's been delivered, what's coming next, and lessons learned. This keeps momentum visible and ensures feedback is looped back into the design and delivery process.

10.3 Supporting Change on the Ground

Empower industry champions

Support extension staff, breed organisation reps, and advanced users to act as champions for change. Provide them with updates, tools, and support to coach others through new systems and workflows.

Respect user bandwidth

Avoid introducing too many changes at once. Where possible, group changes into manageable phases and clearly explain what users need to know or do at each stage.

Offer simple and accessible support

Provide help content, videos, and real-time support that match user skill levels. AI-powered support tools can help surface relevant content at the point of need and reduce help workload.

10.4 Governance and Accountability

Assign delivery responsibility

Each recommendation should have a named lead organisation and contact. Joint ownership should only apply where roles are clearly defined and agreed in advance.

Align governance with delivery

Ensure platform steering groups or technical working groups have the authority and clarity needed to make decisions, allocate resources, and resolve blockers.

10.5 Managing Risk and Building Confidence

Anticipate resistance

Some users will prefer current systems or distrust changes. Offer opt-in pilots, show real examples, and allow time for transition. Focus on value, not just compliance.

Support system continuity

During system upgrades or transitions, maintain backwards compatibility where possible. Avoid breaking critical workflows and communicate any changes in advance.

Prove value early

Use field demos, pilot sites, and peer examples to demonstrate real benefits. Build success stories from across different user types and share them across the network.

10.6 Tracking and Communicating Progress

To fulfill the remit of this program, all the existing comms channels and media avenues should be deployed. This will ensure understanding and alignment with the broader Dairy community.

11.Value Model

While a full economic analysis would require deeper modelling and access to longitudinal data, the estimates below could represent a realistic and achievable starting point. They are grounded in behavioural targets identified through the audit process and reflect conservative assumptions based on existing industry patterns.

The goal is not to overstate potential gains, but to demonstrate that practical improvements in digital practices like sharing data, reducing rework, and enabling advisor access can deliver meaningful and measurable benefits. These benefits extend beyond productivity to include reduced admin burden, improved decision timeliness, and a more digitally confident workforce.

This model provides a foundation for prioritising digital investment, guiding implementation sequencing, and tracking return on effort over time.

11.1 Objective

Estimate the value to the industry of an implementing recommendations, based on improvements in:

- Data sharing behaviour
- Data quality and usability
- Time savings and workflow efficiencies
- Cross-farm and advisor access
- Readiness for future analytics, compliance, and ESG systems

A. Behavioural Uplift Metrics

Indicator	Current Est.	Post-Intervention Target	Value Realisation
% of farms sharing data to CDR/DataVat	~25%	60%	Enables integration, benchmarking, compliance readiness
% of farms with standardised, complete herd data	~35%	70%	Reduced error, faster support, higher trust
Avg labour/admin time spent on data entry or chasing info	4–6 hrs/week	2–3 hrs/week	Time savings = flexibility, cost reduction
% of farms using >1 digital tool in active workflows	~30%	65%	Engagement indicator, unlocks compound value
% of farms enabling advisor access to live data	~20%	50%	Drives better decisions + shared accountability
% of farms with baseline digital capability assessment	0%	70% (via DGA)	Targeting + tracking readiness over time

B. Industry Impact Proxies (Conservative)

Metric	Uplift	Est. Industry-Level Benefit
Labour/admin hours saved	~2 hrs/week × 48 weeks × 2,000 farms	~$3.3M/year
Reduced rework or data error costs	10% error reduction across 2,000 farms	$1–2M/year
Faster access to insights	~3–5-day reduction in decision lag	~$1–2M/year (est.)
Improved advisor efficiency	1 hr/week per farm × 500 advisors	~$875k/year
Reduced onboarding/friction	10% less onboarding time; better staff retention	~$300–500k/year (est.)

Estimated Cumulative Uplift

Area	5-Year Cumulative Value (conservative)
Labour/admin time savings	$15–18M
Support cost avoidance / rework	$5–7M
Advisor time efficiency	$4–5M
Platform and integration readiness (future-proofing value)	Strategic benefit
Total (quantified)	$25–30M over 5 years

11.2 Opportunity Cost

Every decision to delay or defer action on digital improvement carries an opportunity cost the benefits that are foregone by not acting sooner. In the context of the dairy industry, this includes:

- Time that could have been saved through better data entry workflows
- Insights that could have supported improved herd decisions
- Advisor efficiency that remains untapped due to poor data access
- Missed chances to align with evolving compliance or ESG requirements
- Lack of innovation in new technology, products and processes
- Integrated and industry wide research opportunities.

As farms and systems remain disconnected or underutilised, the industry continues to incur hidden costs in duplicated effort, lost productivity, and diminished confidence in data. Investing in foundational digital capability now helps avoid these costs and positions the sector to capture value that would otherwise be lost to fragmentation, inaction, or reactive change.

Appendix 1: Glossary

Term	Definition
ADP (Approved Data Partner)	A proposed recognition model for farmers, advisors, vendors, and processors who meet defined technical and behavioural standards for high-quality data contribution and integration.
Advisor	A person or organisation who provides on-farm technical or strategic advice. This may include agronomists, herd testers, nutritionists, financial consultants, or breed society reps.
AI (Artificial Intelligence)	Technology that simulates human intelligence to perform tasks such as data analysis, pattern recognition, predictive alerts, and personalised support. Examples include virtual assistants and anomaly detection tools.
API (Application Programming Interface)	A set of rules that allows different software systems to communicate and share data or functionality.
CDR (Central Data Repository)	DataGene's primary database that receives and stores animal event data, milk testing results, and genomic information for analysis and evaluation.
DairyBase	A Dairy Australia platform used to analyse and benchmark financial and performance data at the farm level, supporting business decision-making and comparative reporting.
DataVat	The platform through which farmers, advisors, and other authorised users can access reports, genetic evaluations, and herd-level insights derived from CDR data.
DGAF (Digital Gain Assessment Framework)	A structured tool to assess digital maturity across farms and advisors, focusing on behaviours, system use, data quality, and training needs. Helps target support and benchmark progress.
Digital Maturity	The extent to which a farm or advisor uses digital tools effectively, shares data in structured formats, and integrates systems into everyday workflows.
ESG (Environmental, Social and Governance)	A framework for measuring sustainability and ethical impacts of farming operations, often used in carbon reporting, compliance, or supply chain certification.
Farm Management Software	Digital platforms used to record and manage farm operations. Examples include EasyDairy, Mistro, and UniformAgri.
GESNP (Genetic Evaluation System New Platform)	DataGene's advanced genetic evaluation software, integrating Australia's dairy data into a centralised system to deliver accurate, science-based breeding values and support data-driven herd improvement decisions
GPT (Generative Pre-trained Transformer)	An advanced AI model that generates human-like text by predicting and assembling words based on patterns learned from vast datasets.
Herd Test Centres	Organisations that collect and analyse milk samples from farms to assess milk quality and production data. Examples include HICO and Herd Improvement Co-ops.
Integration	The technical process of connecting two or more software platforms or databases to allow for data flow, synchronisation, and shared functionality.
IoT (Internet of Things)	On-farm devices and sensors that collect data in real time, such as milk meters, cow collars, or climate monitors, which can be integrated into decision support tools.
IP (Intellectual Property)	Creations, such as inventions, designs, trademarks, and artistic works, that are legally protected to give creators exclusive rights to their use.
National Data Objective (NDO)	A proposed public statement of intent and alignment on the role of data in delivering productivity, sustainability, and transparency across the dairy supply chain.

Platform	A digital environment that supports users to input, access, and use data. In this report, platforms include DataVat, DairyBase, farm management tools, and advisory portals.
Processor	A dairy company that purchases milk from farms, processes it into dairy products, and may collect farm data for quality assurance, traceability, or ESG reporting.
Utility Layer (Trusted Integration & Reuse Layer)	A proposed architecture that enables permissioned data access, identity management, data provenance tracking, and integration across systems. Acts as a data infrastructure backbone without replacing the CDR.
Vendor	A commercial provider of digital software or data services to dairy farms or advisory partners. May develop farm management systems, APIs, or decision support tools.

Appendix 2: Data Collection Methods

For this review DataGene classified the participants into the specific roles for the functional area that they operate within the supply chain, e.g., Vets are in 'Pre-Farm', Farm Management software provider 'On-Farm. Over an eight-week period, sessions were available Monday to Friday for a one-hour one-to-one interviews. In some cases, the interviewee attended with others that they felt would add value to conversation.

The interviews, analysis and generating of this report occurred on a very tight timeline. Interviewees were not always available within the available window; however, we feel this report has included enough variety of actors throughout the supply chain to be representative. In addition to the collected data there is also a large body of knowledge within the DataGene Board, leadership team and colleagues at DA, all who have provided significant formal and informal input to this process since the establishment of DataGene. This is further supported by the projects that DataGene has conducted locally and internationally across agriculture.

This method made every attempt to include representation from all levels of the supply chain, but it recognised that a small sample set may not provide the breadth of the supply chain, and the findings and recommendations should be tested with a broader audience.

Name	Organisation
Matthew Shaffer	DataGene
John Penry	Dairy Australia
Helen Quinn	Dairy Australia
Chris Antilla	Dairy Australia
Chris Murphy	Chris Murphy Consultancy
Luke Morison	Apiam
Tim Jelbart	Jelbart Dairy/DataGene
Corrie Goodwin	Dairy Food Safe Victoria
John	Jantec
David Chandler	Easy Dairy
John Morton	Jemora (Vet)
Clare Hill	VDIA
Gavin Hunt	Fonterra
Daniel Espinosa	Allflex
Glen Barrett	Jersey Australia
Renelle Jeffrey, Anna Ly	Integrity system (eNVD, NLIS, LPA)
Janine Lau	MSA R&D Strategy and Integrity Systems Manager
Geoff Schaller	ArcoFlex
Ruairi McDonnell	Pasture Smarts
Daniel Abernethy	Zoetis genotyping lab
John Crowther and Ally Bird	Holstein Australia
Wolfie Wagner	SmartSense Agtech Pty Ltd
Phil Wren	National Herd/HICO/Yarram
Jack Holden	Fonterra
Janine Waller	Australian Dairy Products Federation (ADPF)
Elizabeth Morse-McNabb	Agvic - DEECA
Jim Bruce	Viking Genetics
Ross Anderson	Anderlea Dairy
Ruidong Xiang	Agvic
Robyn Lindsay	Lindale Pastoral

Peter Mulcahy	Inionba Pastoral
Rose Philipzen	Australian Fresh Milk Holdings
Cameron Clark	DairyUp Project