

final report

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Developing eNVD Capability for Coles Beef Supply Chain

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Executive summary

The National Vendor Declaration (NVD) provides food safety assurances with every movement of livestock along the supply chain, as well as acting as a movement waybill. Since the introduction of the NVD there have been updates to the paper-based version and more recently an industry based electronic version was released. As traceability and greater assurance of red meat products has become more important in satisfying domestic and export requirements, the NVD has become increasingly critical to verifying these claims.

For Coles to continue to provide the high degree of assurance required by their customers, accuracy of information on the NVD and timely access to the information was key. Prior to the implementation of this app Coles was not in a position to access the NVD's routinely, as the paper based versions remained at the processors. Coles decided to build on the industry platform by developing a specific supply chain electronic NVD (eNVD) that would be mobile, fully electronic and easy to use.

Coles engaged with Sapien Technology to build an eNVD mobile application that would integrate with Coles existing livestock booking system whilst still utilising the Integrity Systems Company (ISC) industry platform and comply with Livestock Production Assurance requirements.

In scoping the project Coles bought together feedlot suppliers from across four states to discuss the opportunities and issues that would be relevant to the introduction of the proposed Coles eNVD. The feedback gained from these suppliers was essential to the the development of the app. Particularly that a strategy be put in place to communicate with relevant stakeholders and that the software/IT developed was user friendly. Consequently, Coles then met with numerous industry stakeholders and supply chain members informing them of the app's development and seeking feedback on the implications for each sector at all levels to ensure requirements were met. Satisfying regulatory obligations was a major focus as each state has different legislation in relation to the NVD. Connectivity and meeting waybill requirements for transporters were also considered problematic, however both issues were subsequently overcome.

The first version of the Coles eNVD was made available to Queensland feedlot suppliers. Queensland was chosen as the piloting state as it had the majority of potential obstacles. Over the next twelve months the Coles eNVD was introduced to producers across five states, with consignments regularly delivered to seven different processors. Over the course of this time the eNVD has had various enhancements to improve useability and is being used to consign all categories of Coles cattle, including grain fed, grass fed, export and supplementary fed. Additional declarations have been added to the app depending upon the requirements of individual processors, for example breed declarations. Approximately 70% of all cattle consignments to Coles are completed with the eNVD. Where updated declarations are being proposed, such as changes to the current version of the NVD and Meat Standards Australia declaration, these will appear in the app for suppliers when released for use by ISC to ensure currency is maintained.

Feedback on use of the app from within the Coles supply chain and others within the wider industry has been very positive. No suppliers have been unable to use the app once shown how to and no issues have arisen from the process used to complete the app by regulatory authorities. The processors receiving the eNVD have all accepted the process readily, making their receivals more efficient with earlier access and improved accuracy of the eNVDs.

For Coles and Coles suppliers the benefits from the introduction of the eNVD app have been substantial. Greater accuracy of information, timely access to consignment data, ease of use and a paperless solution have been the most noteworthy benefits. In the future Coles will work with their

supplier network to communicate other information through the app to make it a practical two-way data transfer tool. Summary consignment feedback will be initially provided through the app. For industry the app has demonstrated that provided with an opportunity to use a paperless NVD solution, livestock producers will embrace the new technology and adapt where efficiencies can be gained. Industry stakeholders will also accept the electronic version where engagement has been effective, and all necessary steps taken to ensure compliance for regulators and market access.

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1 Background

The intent of this project was to develop a Coles mobile native electronic National Vendor Declaration (eNVD) software application and integrate eNVD data within Coles' Livestock booking system (CLBS).

The development of these capabilities would enable Coles to implement an electronic declaration/waybill paperless solution within their supply chain that will satisfy Coles' quality assurance needs and meets industry, market access, and regulatory requirements.

As the initial phase of this eNVD adoption program, Coles rolled out the solution to their feedlot beef suppliers, who assisted in the development and piloting of the Coles mobile application (app). As a second stage to the project, the app would then be gradually rolled out to other remaining Coles' beef suppliers based on the lessons learned from the initial implementation.

Coles and Integrity Systems Company (ISC) planned to collaborate on the development and piloting of the eNVD adoption and communications strategy. Coles recognised early in the scoping and planning phase that engagement with supply chain members and industry stakeholders to ensure the paperless solution satisfies industry, market access, and regulatory requirements was going to be critical. Supply chain members included state and federal departments, enforcement agencies, transport associations, beef suppliers, processors, stock agents, auditors, industry policy makers, and software solution providers.

Existing industry declarations would be made available through the Coles application, namely the National Vendor Declaration and Waybill (NVD), the Meat Standards Australia (MSA) declaration, and the National Feedlot Accreditation Scheme (NFAS) declarations.

In this project, the Coles farm program declarations (i.e. Grass-fed, Grain-fed) would also be made available through the Coles eNVD app. Coles' service kill processors would need to receive the industry and program declaration PDFs through email from Coles. These processors would also be able to access industry declarations through the NLIS website or their own systems if they are eNVD enabled. Beyond this project, ISC worked with Coles to assess the feasibility of incorporating the Coles program declarations and the Coles user accreditation statuses within the ISC central platform. Coles livestock team would be able to access industry and Coles program declaration data through the LSBS.

The intended benefits of implementing the electronic declaration/waybill paperless solution within Coles' supply chains included:

- Ability for Coles and their suppliers to respond quicker and more decisively to quality control issues, which in turn will reduce supply chain costs associated with incorrect or incomplete declarations and invalid product specifications;
- Ability for the industry to better trace and respond quicker to potential disease outbreaks;
- Ability for Coles and their suppliers to make better decisions for their businesses through greater insights from data received;
- Ability for a greater level of data sharing along the supply chain through a streamlined, paperless process, which in turn will build a greater trust among supply chain members in the sharing of other useful data through a trusted system;

- Ability for Coles to directly integrate and access declaration data within their Coles booking system;
- Supporting and enhancing a messaging system that enables end-to-end, paperless data flow along supply chains, whilst meeting industry, market access and regulatory requirements; and
- Supporting the objective set out within the Meat Industry Strategic Plan (MISP) 2020 for "livestock consignments accompanied by an eNVD to increase to 50%" by 30 June 2020.

2 Project objectives

- Develop a Cole's mobile native software application with eNVD/waybill capabilities.
- Develop capabilities that integrate eNVD industry and Cole's program declaration data within the existing Coles computer booking system.
- Obtain ISC eNVD licences for the Coles mobile native software application and the Coles computer booking system.
- Obtain access to the NLIS database (in collaboration with ISC and processor partners) to ensure robust and timely information gathering
- Coles in collaboration with ISC will develop and implement an initial communications strategy to communicate the upcoming changes to Coles' feedlot supply chain stakeholders.
- In collaboration with ISC, Coles will develop and implement a pilot change management strategy to educate Coles' feedlot supply chain stakeholders on the upcoming changes, to equip them with the necessary skills, tools and knowledge to handle the changes, and to support them throughout the change period.
- Provide Coles feedlot suppliers with access to the Coles eNVD application.
- Capture lessons learned from the MDC project

Outside the scope of this MDC project, Coles will achieve the following program objectives to prepare for and conduct the initial roll-out of the electronic declaration/waybill paperless solution:

- Work with Coles' supply chain stakeholders to develop business processes to implement the electronic declaration/waybill paperless solution that meet industry, market access and regulatory requirements.
- In collaboration with ISC, obtain official endorsement from supply chain stakeholders that express support for the implementation of the electronic declaration/waybill paperless solution.
- Provide the appropriate Coles staff with access to declaration data through Coles' computer booking system and their Quality Assurance program through 'Muddy Boots'.
- Conduct the initial roll out of the electronic declaration/waybill paperless solution to Coles' feedlot beef suppliers and their respective supply chains.

3 Methodology

3.1 Software Development

As per the agreement between Sapien Technology (ST) and Coles detailed in the eNVD Phase 1 – Workflows and Architecture document (Appendix 1) software development was completed, consisting of three components:

- Enhancement to the Coles Booking system and Livestock Buying App.
- A new public facing hosted database known as "Sapien Cloud"
- A new publicly available "App" available through the Google Play store and the Apple App Store.

3.2 Design test plan and system testing

The design test plan has been developed collaboratively between ST, Coles IT and Coles Livestock. Appendix 2 details the requirements for System testing within the Coles test environment. Sapien Technology conducts their own testing between Coles IT systems, Integrity Systems Company (ISC) and the Sapien Cloud.

Coles Livestock system testing confirmed (February 2019) the eNVD satisfies all the requirements for Phase 1 delivery. The App met all industry and regulatory requirements for the completion of the Livestock Production Assurance NVD, Meat Standards Australia declaration and both National Feedlot Accreditation Scheme declarations. The app also delivers the required declaration for the Coles Farm Program and specific processor requirements such as the Harvey angus declaration and the Teys angus declaration.

Coles Livestock system testing has confirmed log in requirements are met and the eNVD when completed on the app connects to the Sapien Cloud syncing the initial required information to accept bookings in CLBS. Testing was completed on both an android and iOS device. Further internal testing has been completed regularly to demonstrate all the systems required to work together are functioning as required.

3.3 Coles beef supply chain stakeholder collaboration and consultation

Consultation began within the Coles beef supply chain. A supplier workshop was held in early 2018 with eight of Coles feedlot suppliers, represented from across Queensland, NSW, Western Australia and Victoria. The workshop covered a range of topics in relation to current use of the National Vendor Declaration, specific state regulations, transporters, connectivity and mobile devices. The workshop agenda is detailed in appendix 3. Facilitated discussion during the day produced recommendations on how the eNVD could work, what the potential issues were and suggestions on what could be changed to make the Coles eNVD work. Connectivity was considered to be a major issue, however each supplier presented options for how that could be overcome where it was an issue. Overwhelmingly the response was positive towards progressing with the planned eNVD app.

It was recognised very early in the planning and development of the Coles eNVD app that consultation with the wider livestock industry was also essential to the success and implementation of the Coles eNVD. The beef industry needed to be on board with the use of this tool, including all segments of the production supply chain, including processors and livestock agents as well as regulatory authorities and industry representative groups i.e. Australian Lot Feeders Association (ALFA). As Coles source cattle from across five states it was also recognised that different states have different requirements for livestock movements and interpret the current National Livestock Vendor Declarations to have variations of meaning and subsequent regulations. It was necessary then to ensure within each state the app was agile enough to capture all the relevant intricacies.

Over a period of months meetings were held with stakeholder organisations in each state to communicate the intent of the Coles eNVD app, gain feedback on the requirements and obtain support for the delivery of the app that would be implicated in its use. The following table lists many of those consulted. Without the assistance and acceptance of each of these organisations the app would not have succeeded. Of importance was getting the waybill section of the app to comply with QLD, NSW and WA legislation. Input and continued feedback from the relevant authorities in each of these states ensured the final result was compliant and would be accepted by Police Officers on the ground interacting with suppliers and transporters.

Organisations consulted with	development of the Coles eNVD App		
State agriculture departments	State police departments/rural stock squads		
• QLD	• QLD		
• NSW	NSW		
Victoria	Victoria		
Western Australia	Western Australia		
State transporters associations	Australian Lot Feeders Association		
Victoria	Aus-Meat		
Western Australia	Coles service kill processors		
• QLD			
• NSW			
National livestock transporters association			
Victorian farmers federation			
Martins transport Oakey			

Table 1. Industry stakeholders engaged with while undertaking development and planning for the

 Coles eNVD

3.4 User acceptance testing

User acceptance testing was completed early in 2019. This involved Coles Livestock ensuring the eNVD works within its own IT systems and then taking the app to 2-3 individual feedlots within Victoria and NSW for full supplier testing with particular consignments. This testing occurred prior to conducting a full launch and roll out across the network. The user acceptance testing also involved engagement with industry and regulatory bodies implicated by the introduction of the eNVD across both states.

3.5 Conduct roll out

Due to the delays late in 2018 with system testing, the roll out of the eNVD commenced after full system testing in mid-January 2019. The supplier roll out involved gradually introducing the eNVD to 1-2 of the supplier network feedlots across Victoria and NSW considered by the livestock team to be the most eNVD ready. When the livestock team and initial suppliers were confident the eNVD and

piloted one on one training sessions were satisfactory, the roll out across all Coles Queensland supplier feedlots commenced followed closely by a national release.

Over the course of 2019 the eNVD app was introduced to other segments of the Coles beef supply network, including grass fed suppliers and irregular suppliers consigning cattle seasonally. By late 2019 the app was being used across five states, consigning cattle to seven different processors.

An important element of conducting the roll out was to revisit with supply chain and industry stakeholders to demonstrate the app's capabilities and instigate a communication strategy to ensure everyone along the chain, including distant industry participants had confidence in the new tool.

The App was also demonstrated at a small number of industry forums and field days over 2019 showcasing the technology and capability of the app.

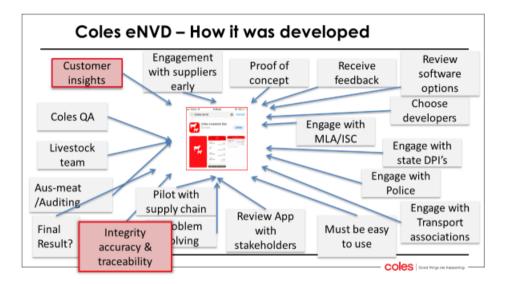


Fig 1. Part of a presentation used to describe the process of developing the Coles eNVD app at the Harvey Beef Gate to Plate Field Day 2019.

3.6 Develop and implement pilot communications and training strategy

Early in the roll out of the eNVD app it was identified that one on one training with the supplier was going to provide the most successful outcome. As suppliers were identified by the livestock team as being capable of using the technology the buyers' demonstrated the app in person with each producer or team member prior to consignment. The buyers then supported use of the tool with follow up and resources to assist.

A short video demonstrating the use of the eNVD was produced and has been widely disseminated across the Coles supply chain and to Industry stakeholders supplementing training and communication. (Appendix 3)



Fig 2 and 3. Filming the eNVD video on farm in central NSW early March 2019

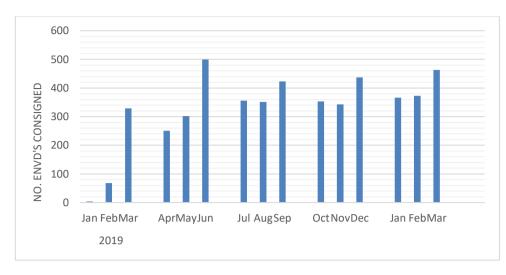
In addition to the one on one training provided by the livestock team, a user guide was produced detailing the steps involved in using the app, this resource is available to all Coles eNVD users and has been reviewed and updated as improvements have been made to the app. (Appendix 4) Figure 3 below, provides an example page from the Coles eNVD user guide.

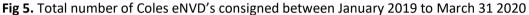
	Col	es eNVD User Guidelines	
LOG IN FIRST TIME To set up the eNVD the first time y ✓ PIC /s ✓ LPA User ID & password	Phone go to the App store and s indroid devices go to Google Pla ou will need your:	search for Coles eNVD	et two: V Rame P 200 Concet
 ✓ NFAS Certificate number (i ✓ MSA Registration number 	f an accredited feedlot)		
While you remain logged into the <i>i</i> 1. Enter your LPA credentials 1. Joins 9 283 pm 275 Login to Coles Livestock Dec	Enter the details as per your registration with	Basis a Stape Despatched From Please enter the property details where catle will be despatched from	 Property of despatch details The despatched from screen requires the addres details from where the cattle are being moved
Property Identification Code (PIC) This number is supplied by the State Department Of Agriculture. LPA User ID	LPA. Press the Login button when completed	PIC 3GMRH987 Trading Name Hillside Cattle Co Address Line 1 20 Hillside Lane	This screen also asks for your • Email • MSA Registration number • NFAS number (if an accredited feedlot)
Your Livestock Production Assurance User ID is listed on the tax invoice provided with purchased LPA NVDs and your original registration emails. Password	\longrightarrow	Address Line 2 Town/Suburb Hillside Bate Post Code	When completed press Next in the top RH corner of the screen
Login Version: 10.4 build 65		NSW 2055 Phone Number Fixed 02963852 Phone Number Fixe	

Fig 4. Page one of the Coles eNVD User guide for suppliers.

4 Results

Since the introduction of the Coles eNVD in February 2019 over 5000 consignments have been made using the app. Those 5000 consignments have been made up of in excess of 390,000 head. Figure 5 below shows the numbers consigned per month between January 2019 and March 31, 2020.





The eNVD was introduced to different areas of the supply chain over time and as new service kill processors commencing processing for Coles over the later part of 2019. Figure 6 provides an indication of the number of eNVD's consigned to individual processors between January 2019 and March 2020. Each processor was consulted with in relation to the process for accepting the Coles eNVD into their plant, all relevant staff (i.e. Drovers, QA staff, livestock administration) were met with and a procedure agreed upon.

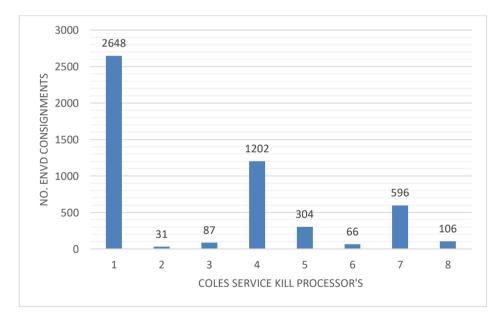


Fig 6. Number of eNVD consignments per Coles service kill processor's between January 2019 and 31 March 2020

Suppliers who have been using the eNVD app since initial implementation have provided feedback. A northern feedlot operator said 'I would rather use this than the paper based NVD, I love it, I can have all the information pre organised and it saves an enormous amount of time'.

5 Discussion

The Coles eNVD app has been received by producers, transporters and service kill processors very favourably and is now the preferred method for consigning cattle into Coles. The success of the app has demonstrated how perceived obstacles to this type of technology working across the livestock industries has been speculative. In scoping the project, major blocks to success were thought to be connectivity issues, access to 'smart' mobile devices, transporters, state legislation and processor acceptance. The initial pilot of the app at a large feedlot consigning multiple loads of cattle daily dispelled many of the perceived blocks while increasing efficiency.

Poor connectivity in regional areas allowing for online submission of the eNVD has not resulted in failure of the app to work for consignors. As the app works over multiple devices and can be completed almost in full offline, every supplier using the app has found a way to work within the constraints of their mobile or WIFI service. A procedure for transporters requiring the eNVD to meet waybill legislation was determined in consultation with NSW, WA and QLD Police and State Agriculture Departments. A lack of suitable devices amongst producers or transporters has also not been relevant as most suppliers have either a smart phone, a tablet or used the app as a valid reason to upgrade. Suppliers of all ages have embraced the app for its ease of use and lack of paper.

Processors have readily accepted the eNVD into their livestock delivery systems. Receiving the emails early prior to receiving the cattle allows them to reconcile their deliveries and numbers, whilst checking for errors prior to the cattle arriving. Errors are minimised through destination and consigned to sections being prefilled along with reducing the repetitiveness of many of the other questions where multiple declarations are required to be sent. Ongoing enhancements to the app are continuing to reduce errors further and increase useability.

5.1 Meeting Project Objectives

Develop a Cole's mobile native software application with eNVD/waybill capabilities. Develop capabilities that integrate eNVD industry and Cole's program declaration data within the existing Coles computer booking system.

The Coles eNVD app was developed by Sapien Technology in collaboration with Coles Livestock, it has been successfully integrated across the Coles beef supply network as the preferred method for consignment. The app works across both mobile iOS and android devices, phones and tablets. The app meets all state regulatory requirements for the waybill section of the NVD. The Coles eNVD is integrated with the ISC LPA program platform for NVD verification as well as the CLBS. Additional Coles specific declarations and processor declarations are also integrated with the app, making for a completely paperless solution to providing the required declarations. Although the declarations are not submitted directly into the individual processor's IT systems, the delivery of the declarations via email has provided a successful interim result.

Obtain ISC eNVD licences for the Coles mobile native software application and the Coles computer booking system.

All necessary ISC licences have been obtained from ISC.

Obtain access to the NLIS database (in collaboration with ISC and processor partners) to ensure robust and timely information gathering

Access by Coles to the NLIS database has not been achieved. Various discussions initiated by Coles with both ISC and state departments have not been successful. While Coles continue to pursue this access, Coles livestock continue to have to fix issues of ownership, chemical residues and misinformation after cattle are slaughtered that would otherwise be resolved through pre slaughter checks.

Coles in collaboration with ISC will develop and implement an initial communications strategy to communicate the upcoming changes to Coles' feedlot supply chain stakeholders.

The communication strategy commenced with the bringing together of eight supplier feedloters with the livestock procurement team and Sapien Technology to workshop the development of the Coles eNVD. Once the app was ready for piloting the livestock team were brought together again, demonstrated the app and provided instructions for introducing the app to their producers. Integrity Systems Company also assisted in the development of a short video demonstrating each step of the app with the relevant persons involved. The video was then widely distributed amongst stakeholder groups including State Police, transporters and the feedlot supply base.

In collaboration with ISC, Coles will develop and implement a pilot change management strategy to educate Coles' feedlot supply chain stakeholders on the upcoming changes, to equip them with the necessary skills, tools and knowledge to handle the changes, and to support them throughout the change period.

The user instructions, one on one training and the video have been used as formal training for suppliers. For the large majority of suppliers though the opportunity to move away from paper based or web based – printed NVD's to using the app was an easy change to make. The app itself is intuitive enough that after being used once or twice the producers were familiar enough with it to continue without formal training. The most successful support for users when issues with usability of the app occur has been their buyer, who has been able to talk through how to fix most issues. Where other faults have occurred, the problem is referred further within the livestock team. Supplier feedback on the app has also resulted in enhancements being made to the app over the last twelve months to further improve useability, these improvements are ongoing.

Provide Coles feedlot suppliers with access to the Coles eNVD application.

Not only Coles feedlot suppliers but all other buying categories have been introduced to the app over the last 14 months. Around seventy five percent of all Coles cattle are now consigned with a Coles eNVD.

6 Conclusions/recommendations

The success of the Coles eNVD has dismissed many of the myths and inaccuracies associated with industry thinking around an electronic solution to the NVD. In the planning phase of the eNVD it was immediately evident that due to the breadth of service kill operators used by Coles to process cattle, data integration with each processors IT system would not be feasible in the required timeline. An

essential element of the eNVD was to develop a system that would be otherwise entirely electronic. The Coles eNVD app subsequently developed in collaboration with Sapien Technology has proved to be a successful tool, currently used to consign three quarters of Coles weekly cattle supply.

The Coles eNVD needed to achieve a set of objectives, including using existing industry platforms. During the original scoping phase of the project potential third party software providers were met with to investigate a solution that would meet Coles needs. Ultimately a Coles specific eNVD system was built, integrated into the Coles Livestock booking system. The tool was built to integrate with ISC technology platforms to allow for verification and recording of Coles eNVD's as per all other accredited vendor declarations. Use of the tool also allowed for Coles to have easier access to the declarations and be able to work with suppliers to remedy consignment errors prior to slaughter where necessary.

Acceptance of the app across the Coles supply chain has been the result of continued communication and engagement with suppliers and stakeholders from the scoping and development phase through to implementation. Subsequently the usability of the app and its compliance with regulations has ensured no significant issues with any segment of the supply chain implicated by use of the app.

Coles will continue to bring more of its beef supply chain onto the eNVD over the coming months, while continuing to work on a system of delivering information back to consignors through the app. Overall the eNVD has been received very positively by all suppliers and supply chain stakeholders, the key to the success has been in the simplicity of completing the eNVD on a mobile device, without printing or needing to purchase a third-party software package to run the program.

7 Key messages

- The livestock industry is very adaptable and accepting of new technology where there is a simple, timely process and the advantages are tangible. The Coles eNVD app has worked because it's an improvement on the current process for completing NVD's, it improves accuracy and has simplified the process for completing consignment declarations.
- Communication and collaboration amongst supply chains and wider industry stakeholders at all levels is essential to ensure innovation is understood and meets the needs of all implicated in the change.
- Delivering an eNVD option that is not built in as part of an on-farm management software package and is of no cost to the producer is advantageous in its acceptance and ease of useability.
- Access to the NLIS database for pre slaughter checks of individual devices would enable further enhancement of the Coles eNVD. Industry bodies responsible for access to the database should continue to collaborate with Coles in actioning this project objective.
- The major benefits from use of the Coles eNVD app have been the improvement in accuracy of the declarations and the ability to receive the consignment information prior to the cattle arriving at the abattoirs. These two benefits have resulted in a more efficient process for

delivery at plant level and have reduced significantly the number of NVD errors required to be resolved by Coles livestock team.

- The Coles eNVD app is an example to other livestock supply chains that could implement a simple similar system into their own supply network at a low cost.
- Some of the perceived barriers to adoption of new technology amongst the livestock industry need to be reconsidered, as the uptake of the Coles eNVD has demonstrated connectivity, use of mobile smart devices, and technological agility are not impediments to success.

8 Appendix

- 8.1 Workflow and architecture details
- 8.2 System testing and UAT builds
- 8.3 eNVD Video link

8.4 Coles eNVD User guide



9 Acknowledgements

Coles livestock team would like to recognise Sapien Technology for their work in building the eNVD app and continued support in communicating the outcomes to industry through attendance at industry forums and workshops.

Coles would also like to acknowledge their beef supply chain including; producers, livestock agents, transporters and service kill processors for their agility in accepting the app and their positivity in adapting to and overcoming technology challenges.