final report

Project code: P.PSH.1057

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Date published: 20 February 2020

PUBLISHED BY
Meat and Livestock Australia Limited
PO Box 1961
NORTH SYDNEY NSW 2059

Hitachi-MLA Co-Innovation Officer
Public Version

This is an MLA Donor Company funded project.

Meat & Livestock Australia acknowledges the matching funds provided by the Australian Government to support the research and development detailed in this publication.

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Abstract

Australian Country Choice (ACC) and Australian Cattle and Beef Holdings (ACBH) are developing expertise and resources to enhance digital capability, specifically through the provision of advanced analytics of datasets in order to gain new insights for the business. ACC and ACBH are currently reviewing and looking to integrate their data capture and analytical capabilities aligned with their data transfer needs. Hitachi Consulting Australia (HCC) provides solutions and services in digital transformation and partnered with ACC and ACBH to co sponsor an Innovation Officer to support digital transformation in the business. The purpose of the role, and the specific programs and projects that the Innovation Officer was allocated to, was to facilitate innovation in data and process analytics, leveraging the global capabilities that Hitachi has developed in this area. One focus was to provide resourcing to develop and deliver data management and analytics solution using Process Intelligence[1] to allow the Australian Meat and Livestock Industry to define the various processes, technologies and required metrics for optimal running of meat and livestock value chains at best practice levels.

The Innovation Officer was directed by the Steering Committee (MLA, ACC, ACBH and Hitachi Consulting), to facilitate the final documentation of requirements for the development of the Cattle Management Intelligence System (here after referred to as CMI). The development process used Agile Project Methodology, as described in Section 2, Figure 1, which required significant collaboration between future users of the system and the business analysts and developers building the system. Working models were created based on user requirements which were then demonstrated to the users who in turn provided further feedback. The ACC Cattle Management Intelligence solution ingests all crush side data from all properties from ProTrace and digitally prepares daily cattle records, stock movement advices, paddock books and the various required management accountant reports such as purchase, transfer and sales report as well as inventory reconciliation report. Previously these advices and reports are processed manually via Excel spreadsheets and Access Data Bases.

The system collects over 70 data points per animal. The launch and implementation of the Cattle Management system across ACC & ACBH businesses co-incides with the introduction of the broader supply chain project (ACC's Sixth Sense project "Demonstrating the value of an end to ned feedback system for the beef supply chain, P.PSH.1238"). With the integration of the broader supply project, it will provide deeper capabilities for ACC to analyses the animal data across the value chain from consumer to breeding.

The significant contribution that the Hitachi – MLA Innovation Manager has been able to make to the Cattle Management Intelligence solution has proven the value of focusing innovation where the industry challenges are i.e. on the properties, crush side as well as at the desks of the livestock co ordinators and management accountants. By deeply emdedding such a role in business true innovation can occur. The development of the Cattle Management Intelligence solution is innovative and a maor step forward in individual animal management and analytics. This achievement has now paved the way for further innovation across the extended value chain.

[1] https://www.hitachi.com.au/products/product-categories/agriculture/Hitachi-process-intelligence.html

Executive summary

Due to the significant change that CMI will bring to ACC a high level of change management is required across the full spectrum of CMI users. Property Managers will need to ensure that their team members pay attention to data accuracy and business rules when moving and managing cattle.

The next phase ACC plan is to undertake a number of connectivity initiatives in Yr2018-19 to connect all properties & the feedlot to allow seamless flow of livestock data (priority #1):

- March IT solution (Feedlot)
- ProTrace will be the platform that underpins the ACC Cattle Management System with overlay by Hitachi Process Intelligence system as the process management platform.

To achieve the overall objectives of the cattle management system, for the next phase, the key deliverables that the Innovation Officer will be responsible for are:

- Mapping the "Master Data Set" to CMI, this includes the Indexes of all suppliers, buyers, agents as well as all cost codes.
- Finalisation of UI (User Interfaces) and UX (User Experience)
- Preparation of UAT (User Acceptance Testing)

Change management will be fundamental to the required practice change at ACC.

Due to the significant change that CMI will bring to ACC a high level of change management will be required across the full spectrum of CMI users. Property Managers will need to ensure that their team members pay attention to data accuracy and business rules when moving and managing cattle.

General Managers and the CEO's will be required to promote the management practices required to ensure data integrity is maintained and support the ongoing training and empowerment of team members.

In order to support and facilitate the change management process, the Innovation Officer proposed the following Steering Committee charter (see Figure 9). This was endorsed and accepted by the Steering Committee on the 14th October 2019.

Table of contents

1 Introduction 7
1.1 Background 7
1.2 Purpose and scope 9
1.3 Digital Officer - Roles & responsibilities 9
2 Project objectives 10
2.1 Objectives 10
2.2 Expected outcomes 11
2.3 Key measures of success 12
2.4 Commercialisation / Dissemination Strategy 12
2.5 Develop tools, processes and systems 12
3 Methodology 12
3.1 Partner Engagement & Assessment (Stage 1) 13
3.2 Co-Creation with Value Chain Partners (Stage 2) 13
3.3 Transformation and Facilitated Adoption (Stage 3) 13
3.4 Enterprise level visualisation (Stage 4) 14
3.5 Initial report generation and approval (Stage 5) 14
3.6 Financial analysis and project benefit rationale (Stage 6) 14
3.7 Final report delivered (Stage 7) 14
4 Results 15
4.1 Co-Innovation processes & systems 15
4.1.1 Finalise position description 15
4.1.2 Commence recruitment 15
4.1.3 Form Company / MLA steering committee 15
4.1.4 Set overarching goals, metrics and outline 15
4.1.5 Systems & processes 15
4.2 Cattle management system 16
4.2.1 Project Plan 17
4.2.2 Current Build 18
4.2.3 New Processes 20
4.3 Develop tools, processes and systems 20
4.4 Change Management 20
4.5 Resourcing and Stage Gate approval 21
4.6 Potential Challenges and Suggested Mitigation 21
5 Discussion 22

5.1 Developing Innovation Capability 22
5.1.1 Digital Strategy 22
5.1.2 Networks & industry updates 23
5.2 Cattle Management System (key priority focus area) 24
6 Hitachi-MLA co-innovation evaluation – Independent review 26
6.1 Background 26
6.2 Methodology 27
6.2.1 Desk study of the model and how partners engage with it 27
6.2.2 Interview with Co-innovation partner enterprises 27
6.2.3 Online surveys to understand future needs 27
6.2.4 Case studies to demonstrate innovation impact 28
6.2.5 Hargraves Innovator Awards to recognise outstanding partner contributions 28
6.3 Findings 28
6.4 Conclusions & recommendations 28
7 Conclusions/recommendations 29
7.1 Conclusions 29
7.2 Recommendations 30
7.3 Next Steps 31
7.4 Key Messages 32
8 Appendix 33
8.1 Hitachi-MLA Co-innovation evaluation – Independent review 33
8.2 Hitachi-MLA co-innovation evaluation – Case study 36
8.2.1 The problem or opportunity 36
8.2.2 The solution 36
8.2.3 The process for implementation 36
8.2.4 Doing different things 36
8.2.5 The value 37
8.2.6 Insights 37
8.3 Hitachi-MLA co-innovation Position Description 39
8.3.1 Position Summary 39
8.3.2 Most Frequent Contacts 41
8.3.3 Accountabilities 41
8.3.4 Qualifications and Licenses 43
8.3.5 Skills and Competencies 44
8.4 Process documentation 45
8.5 Prototype Screen Flow of Cattle Management System 46

1 Introduction

1.1 Background

Innovation and collaboration has been at the core of the Hitachi – ACC/ACBH partnership since the first co creation project which commenced in February 2017. ACC participated in the initial data process intelligence project with early pilot being designed, built and commissioned at the ACBH's Croydon property (P.PSH.0815). The innovation captured in this project was globally recognised when ACBH's Ben Dwyer joined MLA's Nigel Tomkins and Dean Gutzke to accept the Hitachi Global Transformation Award in 2017. Finalists for this award were CPFL Energia, a large enery company in Brazil, Curtin University, Western Australia, Spin Master, the world's fourth largest toy maker from Canada and Wiggle, a leading e-commerce sports retailer from England. Having a cattle business from Australia win such an award was a testament to the level of innovation created by Hitachi, MLA and ACC working collaboratively.

Photograph 1: The MLA- Hitachi Consulting team at NEXT2017 after being presented the Hitachi Global Digital Transformation Award (L-R); Michael Teytaud, Owen Keates, Ben Dwyer, Nigel Tomkins, Phil Townsend, Dean Gutzke, Tyler Young.

In partnership with MLA Donor Company (MDC), Hitachi will shortly be running a value chain pilot of Process Intelligence (PI) solution with Australian Country Choice (ACC). This pilot is aligned to MLA's Digital Value Chain Strategy with the objective of sourcing and analysing user friendly integrated data and trends that will enable more informed and agile decision making across multiple value chains.

ACC has agreed to progress to Stage 2 as an active participant in a Collaborative Process Intelligence program across their entire operations over a two-year period commencing in March 2020 [see project P.PSH.1238 - Evaluating Process Intelligence for data capture and predictive analytics for red meat value chains (Case Study 1: ACC)].

Process Intelligence (PI) is a solution that combines advanced process and data analytics to support business decisions and accelerate digital transformation. PI uses open source software and during this

pilot a customised Process Intelligence for the meat and livestock industry (i.e. PI M&L) will be developed. Utilising PI M&L, the full value chain will be mapped. A breeding and backgrounding farm, feedlot and processing facility will be identified for inclusion in the pilot study.

Following selection, a deep dive analysis of the value chain and business will be conducted in collaboration with the business owners. These deep dive analyses will enable Hitachi to identify the key business drivers, analysis of data requirements to improve decision making in important agribusiness areas

PI dashboard and collaborative open source portals will be configured on enterprise level and deployed to collect and analyse data as well as facilitate the business process assessment and continuous improvement process towards the future state design. Hitachi will integrate data from existing sensors which will be integrated into the PI M&L control centre.

In collaboration with the business managers and MLA, the Hitachi team will configure appropriate Decision Support algorithms in the PI Control Centre – these algorithms will monitor the sensor and business process data and recommend actions when certain conditions arise.

The outcomes of the data and process management, decision support and agribusiness transformation process will be evaluated for the specific value chain which can be extrapolated across their broader businesses on a commercial basis.

Collaboration with Hitachi as part of MLA's Value Chain Digital Strategy will aim to create an open access digital environment that facilitates relevant sharing and mining of production and process data with assessment and benchmarking capability.

- Cloud based portal that accommodates diverse data sources (on farm sensors/ data providers; BoM, ABARES, NLRS) and formats.
- Integration within a dedicated Digital Agriculture Transformation system for the beef industry.
- Identification of process efficiencies and inefficiencies along the supply chain.
- The open access digital environment will also have the capability of collecting suitable data for Big Data analytics in order to provide deep insights into efficiencies and productivity within the red meat value chain.
- The PI M&L digital platform will also have predictive analytics, decision modelling and decision support capability.

The participation in the project is contingent of resourcing consistent to the scope of R&D. During the 2-year period, a range of strategy development and implementation activities are planned including (but not limited to):

- Documentation of key objectives and innovation initiatives in each of the above key business areas.
- Quantifiable innovation performance targets in each of the key business areas, including the development of baselines and measurement systems to monitor progress.
- Development of an innovation skills and resources plan to build ACC's capability to effectively implement the innovation strategies.
- Initiatives to support the cultural change required across the business to deliver against innovation objectives.

The Collaborative Innovation Strategy program will be overseen by a joint ACC/MLA Steering Group and implementation will be managed by an ACC Co-innovation Officer (with additional internal and external resources as required). This project provides support for one full-time ACC Co-innovation Officer (considered necessary to support the volume and complexity of R&D/innovation projects expected within Stage 2 of the program). Resourcing of the dedicated ACC's Co-innovation Officers will be reviewed at the 6 month review meeting by ACC, Hitachi and MLA steering committee. It is noted that ACC may appoint other innovation 'leaders' as the program evolves, although these are unlikely to be full-time Co-innovation Officers.

1.2 Purpose and scope

Australian Country Choice (ACC) and Australian Cattle and Beef Holdings (ACBH) are currently reviewing and looking to integrate their data capture and analytical capabilities aligned with their data transfer needs. The purpose of the proposed project is to provide resourcing to develop and deliver data management and analytics solution using Process Intelligence to allow the Australian Meat and Livestock Industry to define the various processes, technologies and required metrics for optimal running of meat and livestock value chains at best practice levels. It is proposed that ACC-Hitachi Co-innovation officer be deployed to support the two-year proposed process intelligence work across the entire ACC value chain being funded through a collaborative project between Hitachi Consulting Australia and MLA [P.PSH.1238 - Evaluating Process Intelligence for data capture and predictive analytics for red meat value chains (Case Study 1: ACC)]. The Innovation officer will be responsible for management of all value chain initiatives undertaken under the two-year collaborative program. The role will also involve measuring and reporting business improvements and profitability across breeding, backgrounding, feedlotting and processing at the Australian Country Choice to forecast more profitable business outcomes ahead of time as a result of implementing PI and associated business metrics. A two-year pilot with ACC is proposed as the initial value chain pilot that will be extended a further year with technical support provided by Hitachi. It is expected that this one of several case studies required to demonstrate the PI effectively to be adopted widely across beef and lamb production enterprises.

The key focus of the capability development initiative will be through developing and implementing a Cattle Management initially piloted in the ACBH business.

1.3 Digital Officer - Roles & responsibilities

It is proposed that ACC-Hitachi Co-innovation officer be deployed to support the two-year proposed process intelligence work across the entire ACC value chain being funded through a collaborative project between Hitachi Consulting Australia and MLA (P.PSH.1238 - Evaluating Process Intelligence for data capture and predictive analytics for red meat value chains (Case Study 1: ACC). The Innovation officer will be responsible for management of all value chain initiatives undertaken under the two-year collaborative program. The role will also involve measuring and reporting business improvements and profitability across breeding, backgrounding, feed-lotting and processing at the

Australian Country Choice to forecast more profitable business outcomes ahead of time as a result of implementing PI and associated business metrics. A two-year pilot with ACC is proposed as the initial value chain pilot that will be extended a further year with technical support provided by Hitachi. It is expected that this one of several case studies required to demonstrate the PI effectively to be adopted widely across beef and lamb production enterprises.

The primary focus of the Digital Officer role is the implementation of the agreed ACC/MLA Digital Strategy across the ACC's business. It is anticipated that this Digital Officer will focus particularly on managing on the ACC digital priorities and will also co-ordinate the livestock production focus areas of the Digital Strategy.

The major activities to be undertaken by the full-time Digital Officer include:

- Facilitate the development of a comprehensive ACC Digital Strategy across the key business areas.
- Assist in developing and monitoring key performance indicators and other measures of impact as agreed.
- Manage innovation idea generation and filtering and feedback processes with a specific focus on data capture, management and analytics.
- Develop and co-ordinate an agreed suite of R&D/innovation projects related to the digital strategy and priorities.
- Manage and monitor the ACC's innovation portfolio to manage expenditure and track benefits from outcomes generated from ACC R&D/innovation projects and activities.
- Participate in the development and implementation of ACC's innovation skills and resources plan.
- External relationship management as appropriate.
- Participate in innovation skills development activities as agreed.
- Prepare regular project reports and quarterly innovation reports.

The Digital Officer satisfactorily undertakes the full range of activities as described above (or as varied and agreed by ACC and MLA). It will provide an invaluable case study for the remainder of industry. The process, tools and material developed would become available for use in the wider industry. Industry will also be able to feed into this project tools and extension materials for testing and verification. Critically this project will allow for the impact of the adoption of feedback to be quantified which will help drive similar models across industry.

The key focus of the capability development initiative will be through developing and implementing a Cattle Management initially piloted in the ACBH business. Once proven, the cattle management system will be rolled and launched throughout both ACC & ACBH agribusinesses.

2 Project objectives

2.1 Objectives

The primary objective of this work will be to evaluate the feasibility and commercial options of data capture, management and analytics across the businesses.

The overall objective is to provide support in the form a dedicated Co-Innovation Officer resource to deliver a data capture and analytics platform to allow the Australian Meat and Livestock Industry to define the various processes and required metrics for running farms, feedlots and processing. By providing supply and demand visibility across the value chain a further objective is to provide decision support to produce "the right animal for the right market at the right time", as well as maximising the value of the animal.

2.2 Expected outcomes

The expected outcomes of the project in providing a dedicated Co-Innovation officer role will include:

- Detailed data capture and management mapping exercise of Australian Country Choice, using existing evaluation tools developed by Hitachi.
- Identify gaps in existing capabilities and capacities in data capture and management. Design and develop a cloud based (open access) system that accommodates diverse data sources and formats.
- Evaluate adoption of "Digital Agriculture" through a value chain pilot to enable farmers feed-lotters and processors to manage their businesses more efficiently
- Provide appropriate access to the data through an enterprise level visualisation system (end to end value chain, farm, feedlot and processor control centre)
- Provide a clear Journey Map to Digital Agriculture Transformation for each participant in the red meat supply chain.
- Provide Decision Support algorithms where appropriate
- Evaluation of greater insights into market demand and supply, pricing trends, consumer trends.
- Evaluation of the outcomes of the on-farm pilot data management system and extrapolation across the value chain.
- Co-Create, Design and Develop a cloud based (open access) Process Intelligent system that accommodates diverse data sources and formats in real time.
- Advise on a series of identified new data sensing devices and analytics to fill current data sensing gaps.
- Evaluation of the outcomes of the on-farm/feedlot/processor data management system and extrapolation across and integrated value chain where applicable.
- Third party independent review of the feasibility, cost benefit and business case associated with adoption of integrated data management system for adoption on-farm and across the entire value chain.

Collaboration with Hitachi is essential in this project as they are investing in the development of the value chain analytics platform (Digital Agriculture Transformation Accelerator) applying their Hitachi Process Intelligence capabilities. This project will bring new data streams to this platform significantly increasing its impact.

The key focus of the capability development initiative will be through developing and implementing a Cattle Management initially piloted in the ACBH business.

2.3 Key measures of success

The contribution of the ACC Co-Innovation Officer to the overall success of the Innovation Strategy will be determined by:

- Evidence of effective implementation of ACC innovation strategy in agreed areas
- Evidence of improvement in company innovation culture and capability
- Quantifiable improvements in company innovation measures (as agreed)
- Efficient project delivery in accordance with budgets and timelines
- Quality of reports
- Contribution to Co-Innovation Officers Network

2.4 Commercialisation / Dissemination Strategy

The project outcomes will be communicated via dissemination of the research report with other CISP clients, at MLA events, and by uploading on the MLA website.

In addition, the ACC-Hitachi Co-Innovation Officer will contribute to the annual Innovation Report which will be jointly prepared by ACC and MLA for consideration by the joint ACC/MLA Steering Group (and will be the basis for the go/no go decision each year).

MLA is committed to demonstrating transparency and communication of our R&D activities to stakeholders. The intention is this project is to develop the VC improvement system where companies including ACC or others can further customise for their specific supply chain priorities.

Hitachi is prepared to invest upfront in industries and have a very robust IoT platform. Project enablers/tools would be offered to the sector on a subscription basis (SaaS or software as a service), ideally through MyMLA with minimum access as a free service. It is a long-term investment by Hitachi but they are confident that farmers in the red meat industry will willingly pay a subscription service as a result of the significant value to be gained.

2.5 Develop tools, processes and systems

ACC-Hitachi Co-Innovation Program development and implementation. Deliver key functions such as:

- Develop strategic portfolio of Process intelligence and data opportunities
- Manage collaborative R&D projects in this theme.
- Review and provide input into new R&D proposals.
- Track and report on quantifiable benefits of ACC projects.
- Participate in internal and external networks to accelerate outcomes.
- Action steerting committee tasks

3 Methodology

The following staged process will be implemented:

3.1 Partner Engagement & Assessment (Stage 1)

Rapid Assessment of ACC red meat value chain using Hitachi agribusiness tools and analytics. Review and determine the feasibility of implementing new data capture on-farm options across selected beef-production value chains, including farms, feedlot and factory. Form a technical working group with a defined scope and work schedule.

Develop project schedule and timelines. A rapid assessment and mapping exercise will be undertaken across the identified properties in the value chain using Hitachi Process Intelligence Rapid Assessor. Selected value chain data will be collected and collated and gaps identified in existing capabilities and capacities in data capture and management. Work will be driven by the appointed Innovation officer who will interact directly with identified value chains and funded equally by ACC and Advance Queensland.

Assessment of existing data capture, analyses and management systems currently being utilised by beef on-farm and processing enterprise. The methodology and approach used in the early value pilot specifically focus ACBH on-farm at the Croydon property will be replicated more broadly across the participating participants in the value chain of ACC. The outcomes will be documented in the form of a preliminary report and include new data capture methods available to on-farm and processing businesses. Recommendations on ongoing improvement in livestock production and turnoff potential, animal welfare and husbandry will be provided to working group for approval.

On contract execution, the position description (See Appendix) was finalised and recruitment commenced. Recruit and appoint suitable Co-Innovation candidate. Define Data process intelligence priorities to pursue. Consider metrics and resource planning and innovation approaches such as design led thinking to achieve business strategies for PI porfolio. Form ACC / MLA / Hitachi steering committee and set overarching goals, metrics and outline.

3.2 Co-Creation with Value Chain Partners (Stage 2)

Analyses of preliminary farm, feedlot and processing data. Detailed VC mapping and configurations. Assess all functionality of data capture and analytics. Design and build initial PI M&L Control Centres from preliminary analyses. Analyses of preliminary feedlots data. Detailed VC mapping and configurations. Assess all functionality of data capture and analytics. Design and build initial PI M&L Control Centres from preliminary analyses. Analyses of preliminary processor data. Detailed VC mapping and configurations. Design and build initial PI M&L Control Centres from preliminary analyses.

Integrate and provide technical support to VC companies. Design – build and implement solution for SME companies. Strategic industry updates on outcomes.

3.3 Transformation and Facilitated Adoption (Stage 3)

Alignment of performance measures across the value chains. Develop PI M&L Decision Support models to optimise the value chain balancing demand and supply. Continue to support and evaluate Digital Transformation for Value Chains and on-Farm operations. Conduct independent cost benefit analysis across the two value chains and the two SME farms. Strategic industry updates on outcomes.

3.4 Enterprise level visualisation (Stage 4)

Hitachi's Development Centre will work to generate the visualisation of the operations monitor by taking the system requirements and creating a dashboard display for all functions. The PI M&L Control Centres will provide the scope of requirements to be used in the dashboard. In addition, Hitachi Big Data Labs will perform next-level analysis for advanced decision support of operations. This will provide the algorithms needed to further the advancement of decision support functionality.

With the complete development of functionality, the dashboard will be linked to all site data collection points and decision support functionality with advanced data analytics. The integration will also be performed by Hitachi Consulting's development team,Hitachi Development Centre. The outcome of integration will encompass ACC's enterprise-wide requirements as previously scoped.

3.5 Initial report generation and approval (Stage 5)

The examination of overall project productivity and profitability during period of extended technical support will begin by using Hitachi's big data analytics platform to provide meaningful project insights. The consulting team will compile a report with project findings that will then be shared with project working group.

The working group in collaboration with consulting team will finalise findings and approve report on productivity and profitability during period of Hitachi's extended technical support. In conjunction with such report, an additional report concluding overall facilitated technological adoption will also be generated. This additional report will be compiled by consulting group and will examine the level of technological adoption across ACC's operations. It will also be shared, analysed and finalised by working group.

Collaborative Innovation Program development and implementation. Each quarterly milestone required submitting Quarterly Reports to MLA for review and approval. Quarterly report should include details of study tours, development of new innovative products, packaging and processes, skills development, participation in insights to innovation networks. Program review by ACC and MLA.

3.6 Financial analysis and project benefit rationale (Stage 6)

Consulting team will examine project information regarding implementation of data collection and usage of data capture and project management systems. A financial benefit analysis will be performed in concurrence with the system implementation analysis.

This internal project review will produce the groundwork for an independent cost-benefit and business case report which will be generated through the additional interfacing of consulting and working group. Through the systems & financial analysis data, the project's value chain report will be generated and delivered to operations & business owners.

3.7 Final report delivered (Stage 7)

Final project review from all associated groups compiled and analysed for findings. These findings will then be compiled into final report and will feature a detailed evaluation of all project stages and collaborative activities. The findings will be reviewed by project team and approved. The final approved report will be submitted to Meat and Livestock Australia.

The Innovation Officer captures requirements during user workshops, including a weekly all-day workshop with ACC's Project Manager.

A public final report that will be approved by MLA & ACC for industry release. Lessons learnt on innovation approaches used to identify business improvemetns and growth opportunties through data and Process Intelligence. ACC to deliver one industry workshop and update to ACC & MLA senior management.

4 Results

4.1 Co-Innovation processes & systems

The project was successfully completed with the following deliverables being achieved:

- Finalise position description
- Commence recruitment
- Form Company / MLA steering committee
- Set overarching goals, metrics and outline.
- Progress report submitted to MLA for review and approval.

4.1.1 Finalise position description

- Finalise position description – Achieved.

4.1.2 Commence recruitment

- Recruitment of Digital Officer - Achieved.

4.1.3 Form Company / MLA steering committee

Company / MLA steering committee formed - Achieved.

At the conclusion of Milestone 4 is a critical Go/No Go decision point. The Go/No Go review meeting was conducted as part of the routine project update meeting on the 10/04/19 where all outcomes of the project to date (ie Milestone 1-3) were presented and reviewed. The outcome of the review meeting was that the steering group approved continuation of the program to Milestone 4 including the next 12 months priorities.

4.1.4 Set overarching goals, metrics and outline

- Set overarching goals, metrics and outline (to be presented to the Project steering group for input and signoff) with consideration of data availability, metrics and resource planning for digital portfolio.
- A primary focus of the role to date has been development of the Cattle Management system (one component of the overall ACC-ACBH Intelligence value chain system)

4.1.5 Systems & processes

Systems & processes for R&D portfolio management – Achieved & ongoing

- Digital officer commenced the development of a framework and processes for implementation of red meat digital strategies & R&D projects portfolio.
- Develop strategic portfolio of digital opportunities
- Data analysis and insight generation process
- Track and report on quantifiable benefits of digital projects.
- Participate in internal and external networks to accelerate outcomes.
- Action steering committee tasks:
    - Preliminary list of target digital applications underway. A spreadsheet capturing all data and digital R&D has been drafted and used to capture all R&D project concepts.
    - Update ACC's project spreadsheet with past, current & pipeline projects to include digital & data projects.
    - Providing input (with input from ACC's Co-Innovation Manager & Hitachi Innovation Officer) into the Draft ACC-ACBH Collaborative Strategy page & priorities to present to the project steering group for signoff.
    - A primary focus of the role to date has been development of the Cattle Management system (one component of the overall ACC-ACBH Intelligence value chain system). See Appendix (See section 6.10).
    - Developed a Learning & Development plan for the Digital Officer ()

4.2 Cattle management system

The focus of the Innovation Officer, as directed by the Steering Committee (MLA, ACC, ACBH and Hitachi Consulting), has been to facilitate the final documentation of requirements for the development of the Cattle Management Intelligence System. The development process is using Agile Project Methodology, which requires significant collaboration between future users of the system and the business analysts and developers building the system. Working models are created based on user requirements which are then demonstrated to the users who in turn provide further feedback. The ACC Cattle Management Intelligence solution will ingest all crush side data from all properties from ProTrace and digitally prepare daily cattle records, stock movement advices, paddock books and the various required management accountant reports such as purchase, transfer and sales report as well as inventory reconciliation report. Currently these advices and reports are processed manually via Excel spreadsheets and Access Data Bases.

The Innovation Officer captures requirements during user workshops, including a weekly all-day workshop with ACC's Project.

70 individual data points are captured from each animal including the various regulatory information (NVD's and PIC's). Each data point must be mapped from the ProTrace database to the CMI system – the Innovation Officer is responsible for the work samples. Not only is there a requirement to map data to the core Daily Cattle Record, Stock Movement Advice and Paddock Book processes there is also a requirement to ensure that these processes have the additional fields required to capture all of the management accounting data.

The Innovation Officer has also been responsible for the management of the project plan.

4.2.1 Project Plan

The Innovation Officer has also been responsible for the management of the project plan. The latest version, which was presented to the Steering Committee, is shown in Figure 1 below.

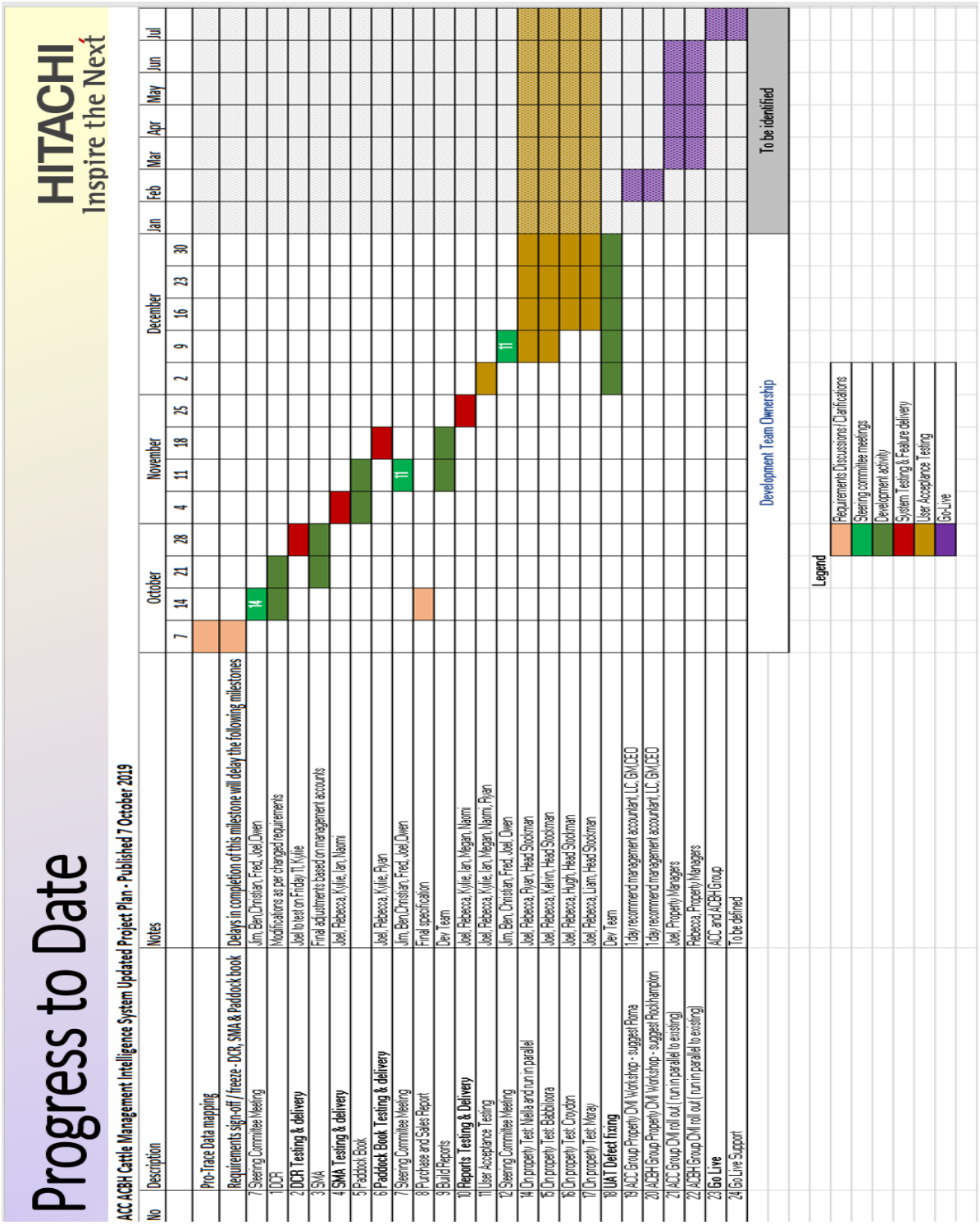

Figure 1: Project Plan

4.2.2 Current Build

Example of one of the Daily Cattle Record screens (Refer to Figure 2):

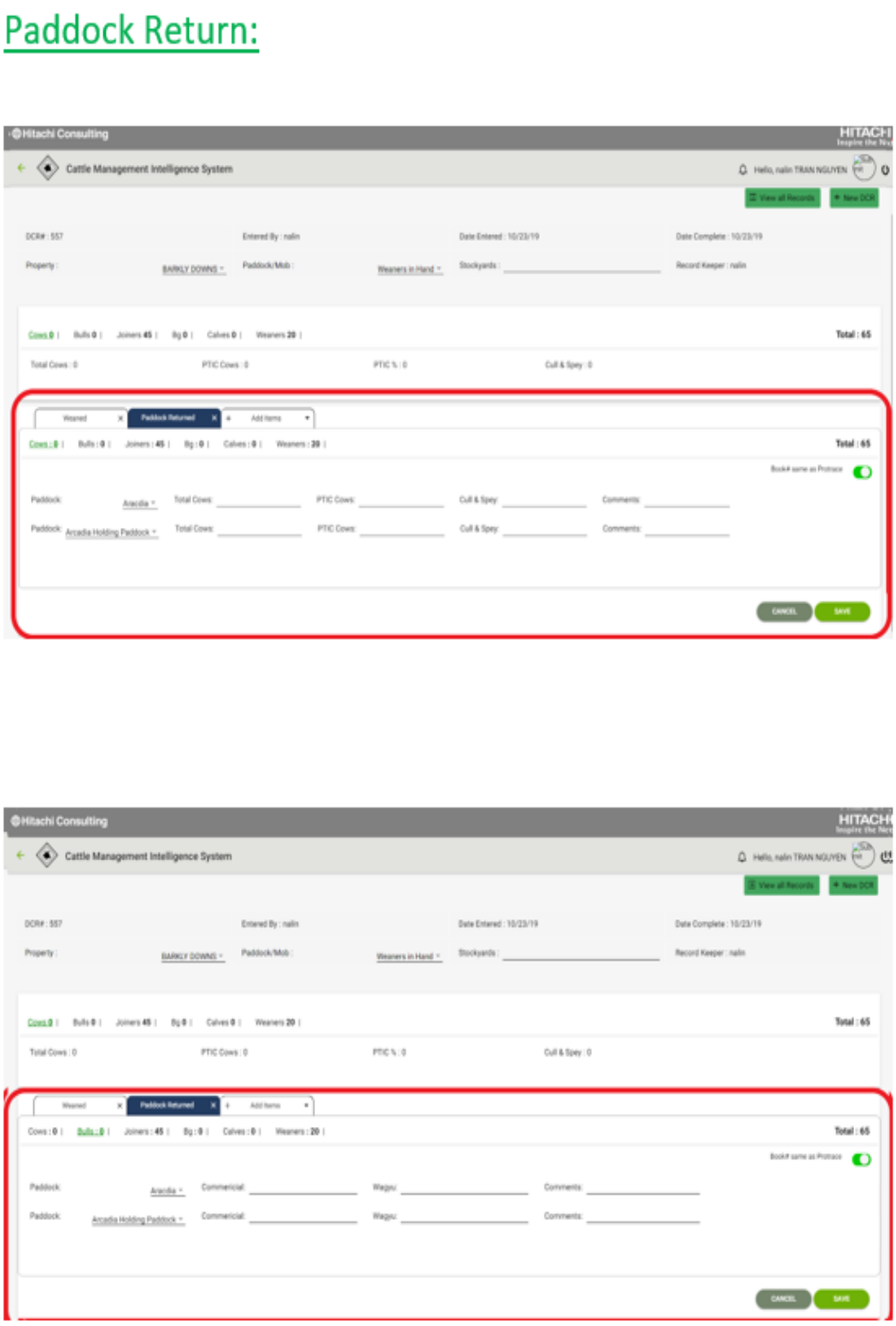

Figure 2: Example of the DCR Screen.

Example of one of the Stock Movement Advice Screens (Figure 3):

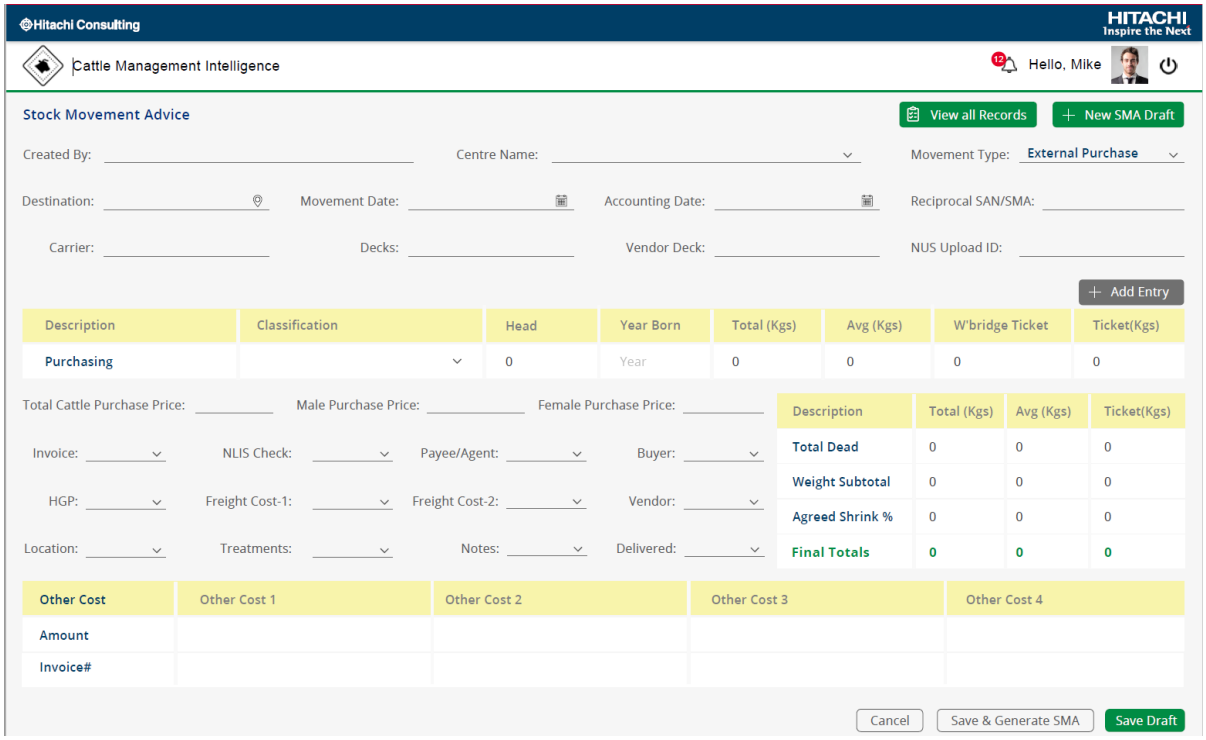

Figure 3: Example of the SMA Screen.

Example of one of the Paddock Book Screens (Figure 4):

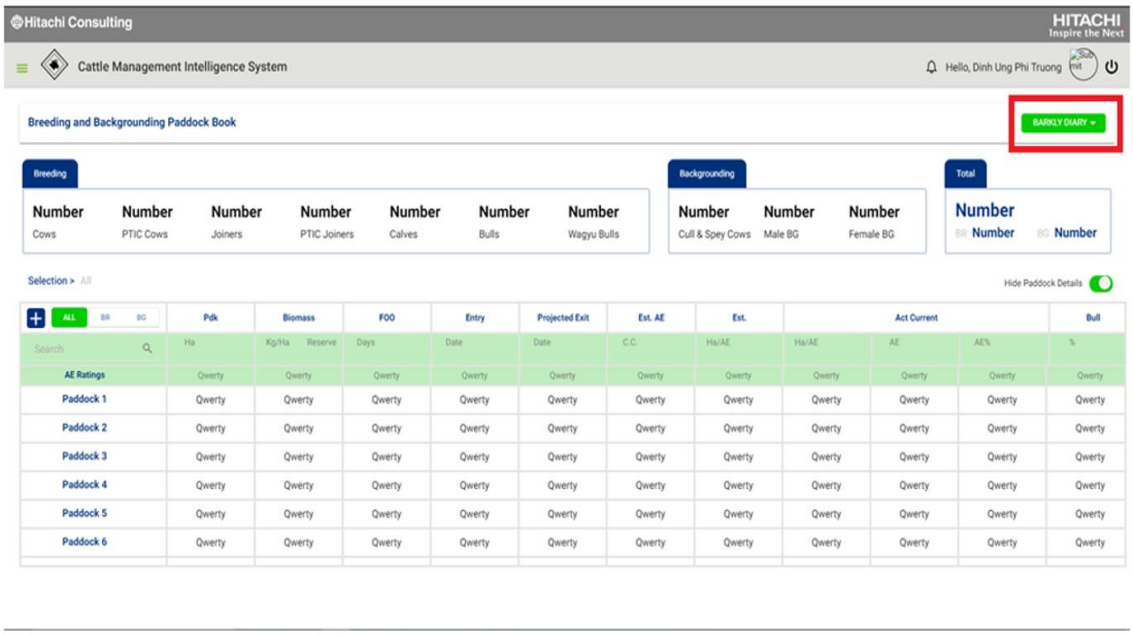

Figure 4: Example of the Paddock Book Screen.

4.2.3 New Processes

The Cattle Management Intelligence solution is designed to process reports daily. CMI will synchronise with ProTrace every hour, this will enable the Livestock Coordinators to process SMA's daily and avoid the very significant period spent at month end reconciling SMA's, as illustrated in Figure 5 below.

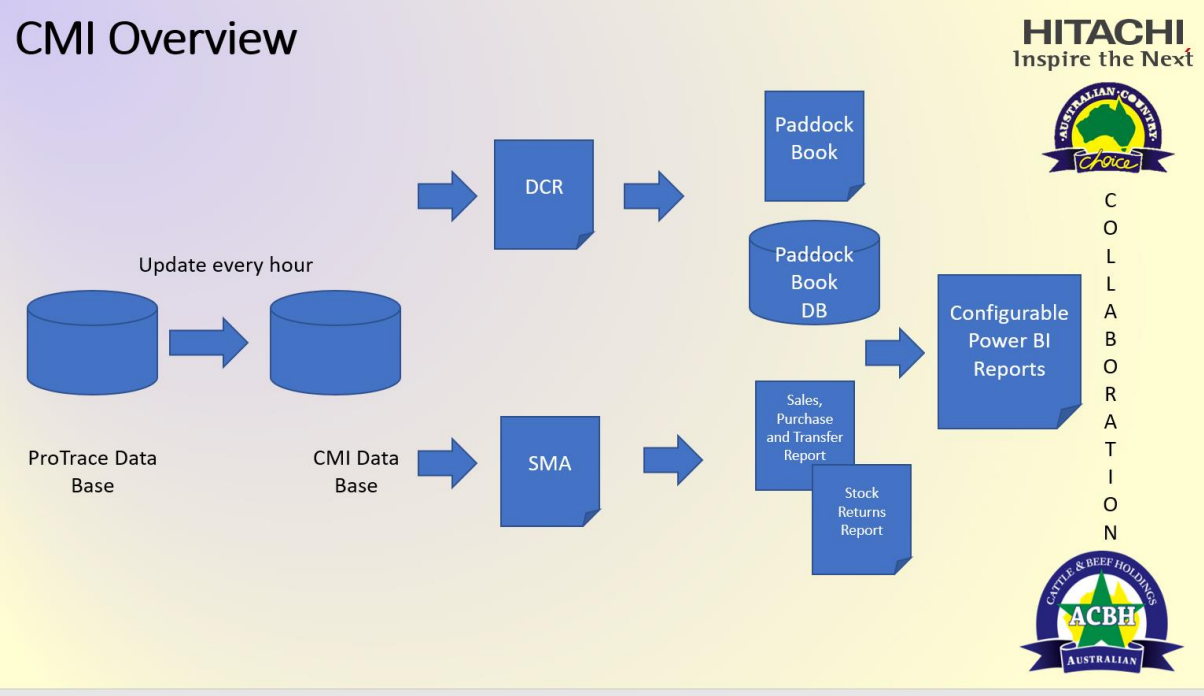

Figure 5: Overview of the new CMI process.

4.3 Develop tools, processes and systems

ACC-Hitachi Co-Innovation Program development and implementation. Deliver key functions such as:

- Develop strategic portfolio of Process intelligence and data opportunities
- Manage collaborative R&D projects in this theme.
- Review and provide input into new R&D proposals.
- Track and report on quantifiable benefits of ACC projects.
- Participate in internal and external networks to accelerate outcomes.
- Action steerting committee tasks

4.4 Change Management

Due to the significant change that CMI will bring to ACC a high level of change management will be required across the full spectrum of CMI users. Property Managers will need to ensure that their team members pay attention to data accuracy and business rules when moving and managing cattle.

General Managers and the CEO's will be required to promote the management practices required to ensure data integrity is maintained and support the ongoing training and empowerment of team members.

In order to support and facilitate the change management process, the Innovation Officer proposed the following Steering Committee charter (see Figure 6). This was endorsed and accepted by the Steering Committee.

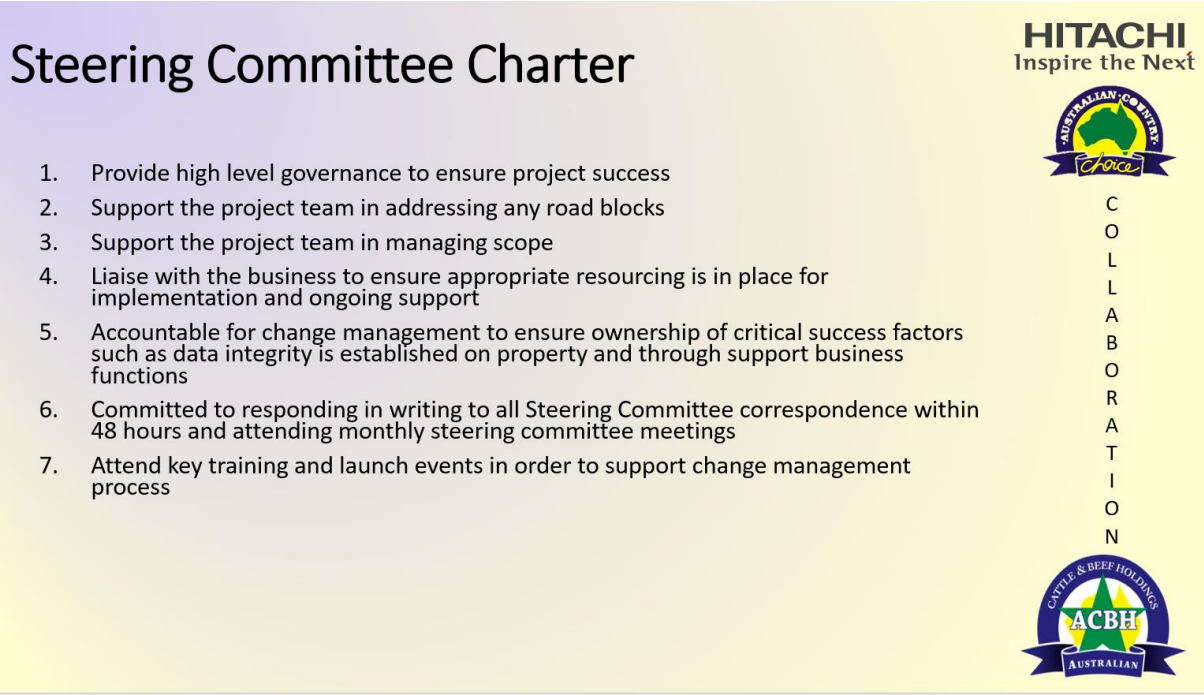

Figure 6: Steering Committee Charter.

4.5 Resourcing and Stage Gate approval

It is noted that the successful recruitment of the ACBH-Hitachi Innovation Officer has been completed. . The Project Steering Group agreed the primary focus will be on the ongoing development, implementation and commercial proving of the Cattle management System potentially for the life of the project (until re-directed by the project steering group).

The Project Steering Group endorsed the Hitachi Innovation Officer focus to continue to be on the development and implementation of the ACC-ACBH Cattle Management System.

4.6 Potential Challenges and Suggested Mitigation

The Innovation Officer raised a potential challenge with the Steering Committee which is the ownership of CMI post the implementation phase. While Hitachi Consulting will be providing technical support to the solution, it does not supply "business support" i.e. ACC is responsible for the ongoing management of business training relating to the use of CMI as well as any internal issues related to the use of CMI e.g. data accuracy issues. The Innovation Officer strongly recommended that an

Administration Officer be appointed to manage these internal business matters and liaise with ProTrace and Hitachi Consulting should any technical matters arise. The Innovation Officer presented Figure 10 to the Steering Committee to further illustrate the importance of an Administration Officer. The Steering Committee agreed that such a role was key to managing a critical solution such as CMI and the two CEO's agreed to take the matter further.

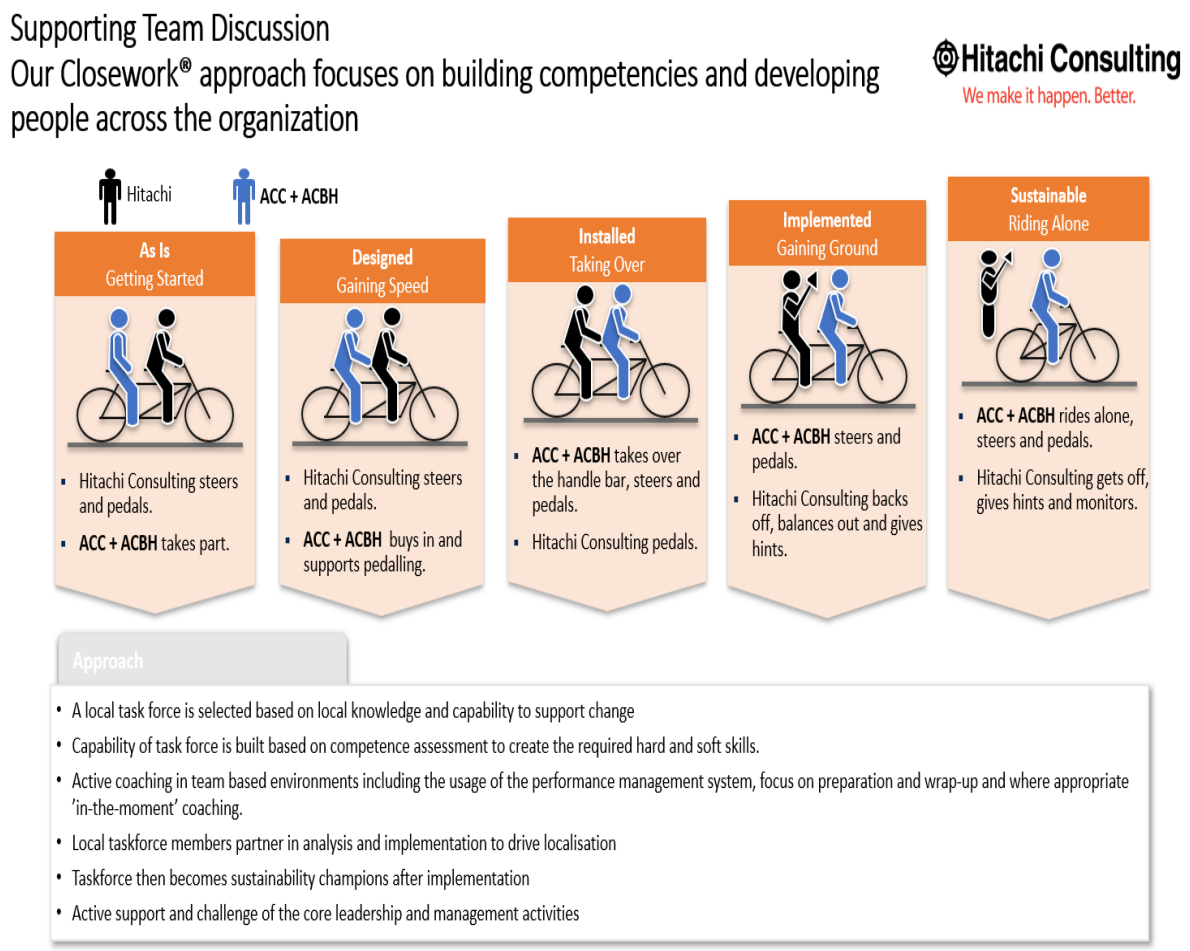

Figure 7: The Journey to Taking Ownership of a new System.

5 Discussion

5.1 Developing Innovation Capability

5.1.1 Digital Strategy

The overall objective of this work will be to develop a digital strategy and evaluate the feasibility and commercial options of data capture, management and analytics across the businesses. The primary goal is to provide support in the form a dedicated Digital Officer resource to deliver a data capture and analytics processes to allow the Australian Meat and Livestock Industry to define the various processes and required metrics for running red meat value adding production facilities through to the

(domestic and export) customers. Power BI has been a major focus to deliver information to ACC Agribusiness more efficiently. This will replace majority of excel reporting in the business, improving labour efficiencies. But more importantly getting information to decision makers promptly, to allow them to make proactive decisions rather than reactive decisions.

Specific objectives of the project in providing a dedicated Digital Officer role will include (but not exclusive):

- Detailed data capture and management mapping exercise of ACC using existing evaluation tools developed by various providers.
- Identify gaps in existing capabilities and capacities in data capture and management.
- Design and develop a cloud based (accessible) system that accommodates diverse data sources and formats.
- Evaluation of greater insights into market demand and supply, pricing trends, consumer trends.
- Evaluation of the outcomes of the production pilot data management system and extrapolation across the value chain.
- Advise on a series of identified new data sensing devices and analytics to fill current production data sensing gaps.
- Evaluation of the outcomes of the production data management system and extrapolation across and integrated value chain where applicable.
- Manage third party independent review of the feasibility, cost benefit and business case associated with adoption of integrated data management system for adoption across the entire value chain.

This project will bring new data streams and significantly increasing its impact across the business.

5.1.2 Networks & industry updates

Hitachi presented at various industry events and provided updtes on the PI systems, including :

- Supply Chain Forum (26 February 2020)
- Beef Up forum
- Industry Update
- Several events fo the Northern Supply Chian groups.

5.2 Cattle Management System (key priority focus area)

The primary focus in the current quarter's activities has been on the development and implementation of the ACBH-MLA co-funded Cattle Management System and Power BI reporting Appendix – Supporting documents. The Cattle Management System is progressing well and will be live tested on ACC & ACBH properties come January 2020. Current project timeline for Cattle Management System is that it will be live across the group July 1st 2020.

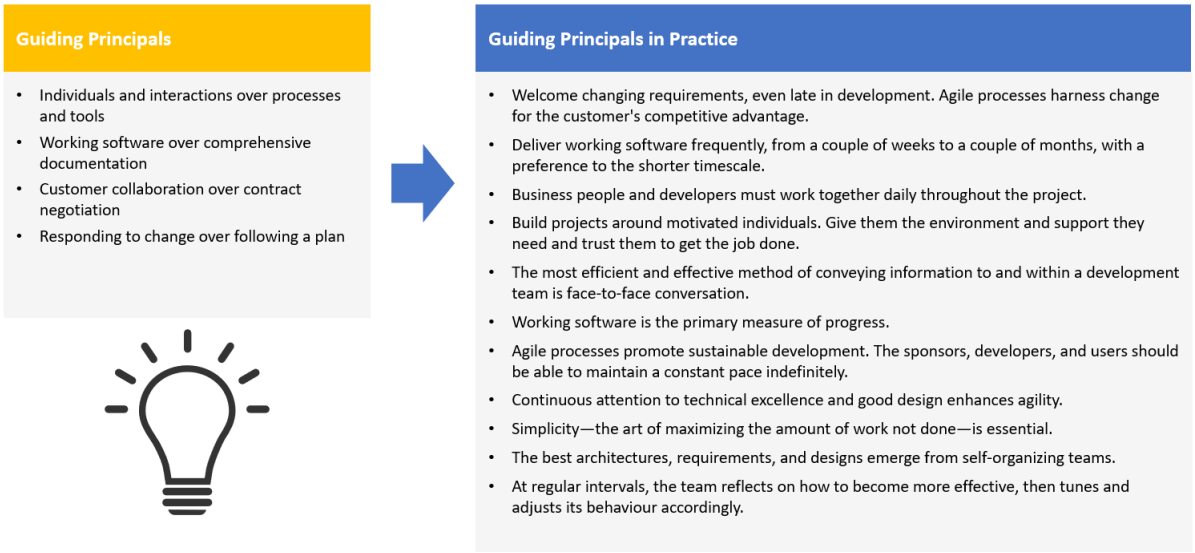

Figure 8: Agile Methodology applied various prjects including ACC.

Total of 70 individual data points are captured from each animal including the various regulatory information (NVD's and PIC's). Each data point must be mapped from the ProTrace database to the CMI system – the Innovation Officer is responsible for this work samples of which are illustrated in Figure 9 below.

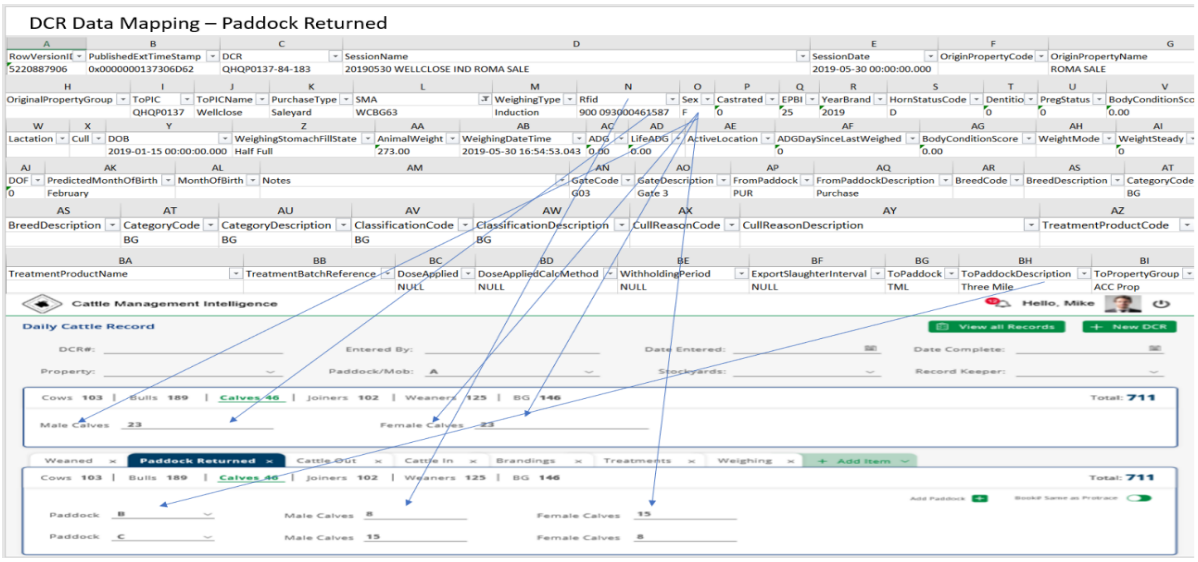

Figure 9: Data mapping DCR and Pro Trace.

Not only is there a requirement to map data to the core Daily Cattle Record, Stock Movement Advice and Paddock Book processes there is also a requirement to ensure that these processes have the additional fields required to capture all of the management accounting data as illustrated in Figure 10 below:

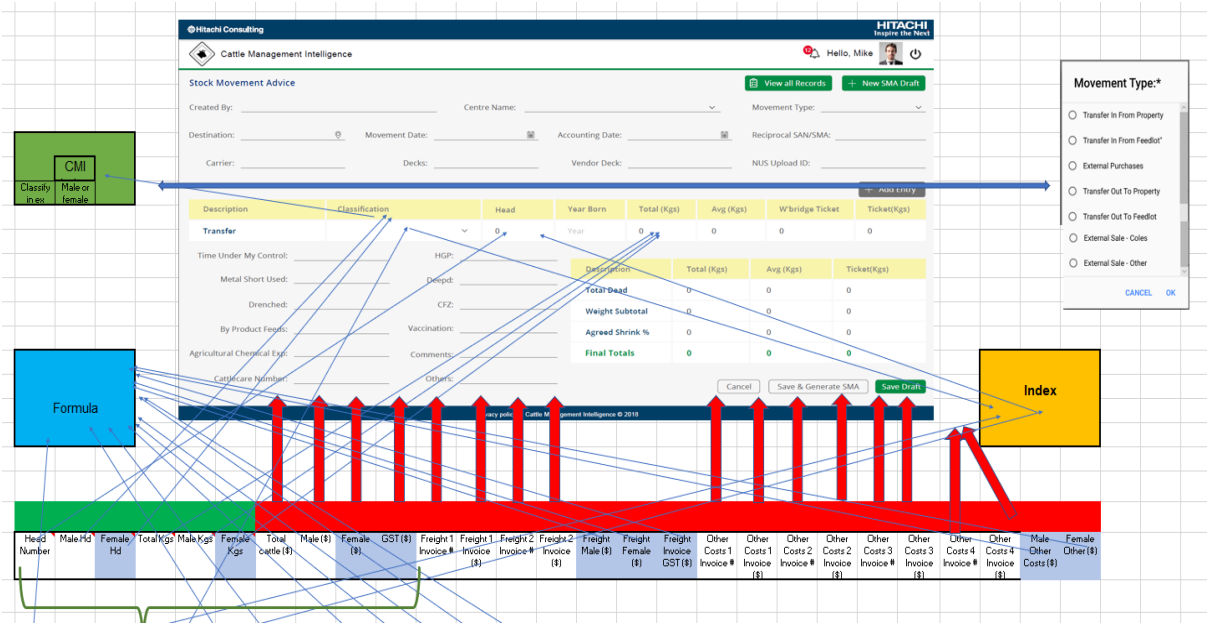

Figure 10: Identifying additional management accounting data entry fields.

6 Hitachi-MLA co-innovation evaluation – Independent review

6.1 Background

Meat & Livestock Australia (MLA) launched the Collaborative Innovation Strategies Partnership Program (now called the Co-Innovation Program) in 2007. It involves the co-development of comprehensive innovation strategies with individual enterprises which meet commercial imperatives in addition to focusing on the implementation of key industry and government innovation priorities.

The objective of the collaborative innovation model is to catalyse the growth of an innovation culture within enterprises and to support the development of effective innovation strategies.

The Co-Innovation program has delivered genuine value to individual companies and the industry overall. It was last evaluated in 2009-10 and the report demonstrated the value of the program through outcomes in: professional development, collaborative innovation strategies, value chain innovation, customer alignment, innovation networks and employee capability and mindset.

This evaluation will involve:

- Collecting and analysing existing information to capture both quantitative and qualitative benefits that they describe as well as other insights into the programs
- Collecting and analysing up to date feedback on current and past programs by interviewing participating enterprise representatives
- Auditing innovation effectiveness in individual enterprises and recommending strategies for further growing the innovation capability and outcomes
- Surveying selected employees to capture the broader impact on culture and mindset within the companies and the industry and other intangible benefits, as well as areas for improvement
- Collecting the stories of innovation from different enterprises to illustrate the impact and value of the program (in conjunction with a communications company who will provide video success stories.)
- Recognising the innovators, those people who have made a contribution to an innovative outcome, through the Hargraves Innovator Awards
- Providing feedback to companies about enhancing their innovation strategies, using insights from member companies of the Hargraves Institute
- Providing recommendations to MLA about future interventions to support innovation and growth across the industry.

This project will review and evaluate the outcomes of the investment made by MLA in Co-innovation collaborative activities with Enterprises within the red meat industry. In addition, there is an opportunity to concurrently develop Innovation Case studies derived from the current & past collaborative programs, proposed as short video clips to showcase specific innovations derived for the program (ie separate concurrent research). The outcome will be a report of consultations and employee engagement of past and present participating companies with a summary of outcomes and recommendations for improving organisational strategies and MLA strategic investments in the ongoing program. The report will provide up to 10 innovation stories or case studies to highlight the impact of the Co-Innovation program.

6.2 Methodology

6.2.1 Desk study of the model and how partners engage with it

There is a substantial amount of background materials which has been reviewed to inform this evaluation. Each company provides quarterly Milestone Reports and final reports which have been accessed in preparation for site visits, as well as to review outcomes and impact

6.2.2 Interview with Co-innovation partner enterprises

In consultation with Relationship Managers interviews with relevant people in organisations currently or recently engaged in the program were conducted. The interviewees were innovation managers, operations managers, CEOs and mostly included the MLA relationship Manager. The interview template was emailed in advance to prepare interviewees.

A timeslot of one and a half hour was allocated for the interview.

The interviews sought to explore:

- The nature of the engagement between MLA and the company and the Stages completed
- The investment (when the figures were available)
- The quantitative outcomes (when available)
- The qualitative outcomes
- The impact of MLA engagement
- Recommendations for the future

The interview summary was sent back to the company for endorsement.

Summaries of the interviews are included in the attached document and the full transcripts of the interview, approved by each company, will be attached in the final report.

Interviews have been completed, endorsed and analysed for the Co-Innovation Partners including Hitachi Consulting

6.2.3 Online surveys to understand future needs

Companies were invited to complete online surveys to gather insights into:

- Innovation Maturity
- Innovation Priorities
- Innovation Mindset.

The data generated and the insights from these are included in the attached document.

6.2.4 Case studies to demonstrate innovation impact

As part of the interview process, case studies which address industry wide challenges were identified. Ten were selected to be showcased. One is included and the other nine will be presented as part of the final report.

A proposed case study was selected for Hitachi / ACC partnership

Topic	Title	Impact	Partners
Digital	Digital agriculture	Doing different things	Hitachi/ACC partnership:

6.2.5 Hargraves Innovator Awards to recognise outstanding partner contributions

Those who drove innovation in individual companies were nominated to receive a Hargraves Innovator Award to recognise their specific contribution. These awards are externally assessed through an interview with the individual and aligned to Deakin University credentials.

Hargraves Innovator Awards focus on the people and how they contributed. It is not so much about the outcome, although that provides important context.

Through the Awards process, innovators tell their story and reflect on how they contributed through their mindset, that is, the beliefs, perspective, behaviour and actions that they brought to the innovation. They are encouraged to examine their unique strengths. They talk about their resilience, their bravery, their helpfulness, how they connected or influenced or imagined. These are the attributes which make for great performance but are rarely acknowledged. Making them explicit builds confidence, engagement and pride in individuals and their work.

Each story is written by the interviewer and assessed against Deakin.Co credentials for Professional

Practice from Certificate 3 to Master's level.

Award winners receive a certificate with their story on the back, a digital badge and a step-up to a

credential if they choose to progress. The Award presentation event is to be decided.

6.3 Findings

The results and outocmes of the independent review by Hargraves Institute are detailed in the Appendix (Refer to section 9.1).

6.4 Conclusions & recommendations

Refer to Appendix

7 Conclusions/recommendations

7.1 Conclusions

The focus of the Innovation Officer for Milestone 7, as directed by the Steering Committee (MLA, ACC, ACBH and Hitachi Consulting), has been to facilitate the final documentation of requirements for the development of the Cattle Management Intelligence System. The development process is using Agile Project Methodology, as described in Section 2, Figure 1, which requires significant collaboration between future users of the system and the business analysts and developers building the system. Working models are created based on user requirements which are then demonstrated to the users who in turn provide further feedback. The ACC Cattle Management Intelligence solution will ingest all crush side data from all properties from ProTrace and digitally prepare daily cattle records, stock movement advices, paddock books and the various required management accountant reports such as purchase, transfer and sales report as well as inventory reconciliation report. Currently these advices and reports are processed manually via Excel spreadsheets and Access Data Bases.

The initial stage of the Digital strategy development & implementation (Milestone7) was successfully completed with the following deliverables being achieved:

- The development of the Cattle Management Intelligence system has progressed significantly with the initial ACBH concept piloted now completed with positive support from users (ACC Agribusiness).
- Hitachi has deployed expertise in the form of full-time developers to facilitate and expedite the solution.
- The go live of the Cattle Management solution is likely to be effective from 1 July 2020.
- The system will be capable of collecting (by CMI) over 70 data points per animal.
- The launch and implementation of the Cattle Management system across ACC & ACBH businesses will co-incide with the introduction of the broader supply chain project (ACC's Sixth Sense project).
- With the integration of the broader supply project, it will provide deeper capabilities for ACC to analyses the animal data across the value chain from consumer to breeding.
- The focus of the next phase will be mapping the "Master Data Set" to CMI, this includes the Indexes of all suppliers, buyers, agents as well as all cost codes.

The initial stage of the Digital strategy development & implementation was successfully completed with the following deliverables being achieved:

- Finalise position description & commence recruitment.
- Recruitment of the Digital officer.
- Company / MLA steering committee formed
- Set overarching goals, metrics and outline (to be presented to the Project steering group for input and signoff) with consideration of data availability, metrics and resource planning for digital portfolio.

- Digital officer commenced the development of a framework and processes for implementation of red meat digital strategies & R&D projects portfolio.
- Preliminary list of target digital applications underway. A spreadsheet capturing all data and digital R&D has been drafted and used to capture all R&D project concepts.
- Develop strategic portfolio of digital opportunities
- Data analysis and insight generation process
- Track and report on quantifiable benefits of digital projects.
- Participated in internal and external networks to accelerate outcomes (including the Co-Innovation & Digital / Supply Chain managers networking event (26 March 2019).
- Actioned steering committee tasks

The primary focus has been on the ongoing development and implementation of the Cattle Management System pilot. The Protrace system has been developed and implemented as part of the co-funded MLA–ACC on-farm module package (p.psh.1096 - ACC's Integrated Information Management Digital system" developed as part of a concurrently R&D project). Other related projects being incorporated in to the design of the Cattle Management System are other concurrent ACC-MLA co-funded projects:

- p.psh.0826 - ACC eNVD
- p.psh.1056 - ACC connectivity S1&2
- p.psh.1057 - Hitachi-MLA Co-innovation officer
- p.psh.1147 - NLIS replacement
- p.psh.1215 - ACC Marketing Insights Supply Chain Manager
- p.psh.1223 - ACC Digital Factory Officer

Overall, ACC has continued to make significant progress in the development of digital strategy & business analytics systems. Steering group consisting of ACC-ACBH and MLA is formed. The Digital strategy and priorities has been further refined awaiting steering group approval. A number of R&D opportunities have been identified and implemented to enhance ACC's capability.

7.2 Recommendations

Due to the significant change that CMI will bring to ACC a high level of change management will be required across the full spectrum of CMI users. Property Managers will need to ensure that their team members pay attention to data accuracy and business rules when moving and managing cattle.

General Managers and the CEO's will be required to promote the management practices required to ensure data integrity is maintained and support the ongoing training and empowerment of team members.

The recommendation is to review new agribusiness data/digital opportunities, specifically Integrated Cattle Management system across ACC & ACBH agribusinesses.

The primary focus in the current quarter's activities has been on the development and implementation of the ACBH-MLA co-funded Cattle Management System and Power BI reporting Appendix – Supporting documents. The Cattle Management System is progressing well and will be live tested on ACC & ACBH properties come January 2020. Current project timeline for Cattle Management System is that it will be live across the group July 1st 2020.

In addition, ACC has a proposed broader vision of developing internal end to end supply chain capability (ie data lab). Australian Country Choice (ACC) is looking to build expertise and resources to enhance digital capability, specifically through the provision of advanced analytics of datasets in order to gain new insights for the business. Goals are to analyse the value in linking existing and new company data with other data sets and mining the data in order to generate value and new opportunities.

ACC is currently reviewing and evaluating options to integrate their data capture and analytical capabilities aligned with their data transfer needs. ACC is in the process of linking all their disparate systems together to enable them to have improved real time reporting systems to make better informed business management decisions. In addition, ACC's business as a dedicated supplier to a single client is transitioning with an opportunity for ACC to develop business with new customers. To enable ACC to tailor their business they are setting up a data lab that will include a data analytics and insights team covering agribusiness, processing and marketing. This will enable ACC to make sure their beef products are providing what their customers' needs are as well as making sure their animals are meeting marketing specifications. The purpose of the project is to provide resourcing to develop and deliver data management and analytics solutions and build on current capabilities in data capture, management and analysts to allow ACC to define the various processes, technologies and required metrics for optimal running of meat and livestock value chains at best practice levels. It is proposed that a Digital Officer for the Processing Operations be deployed to develop and implement ACC's digital strategy especially focusing in the processing area. The Digital Officer will be responsible for management and implementation of all digital initiatives undertaken over the initial three years. These end to end value chain roles are expected to inform the digital strategy for the ACC's supply chain.

Critical to developing Australian Country Choice's capability is to implement a marketing strategy using data and insights. In addition, a Digital factory role has been proposed to create an entire end to end data capability to mine, capture, analyse and derive commercial decisions right across the business. These roles will also involve analysing data sets to identify more profitable business outcomes. The proposition to develop and implement Stage 1 co-funded roles has been approved by ACC and MLA and has been contracted, including the following two new co-funded roles:

- ACC Marketing Insights Supply Chain Manager (Project P.PSH.1215)
- ACC Digital Factory Officer (Project P.PSH.1223)

Both new roles and responsibilities are currently being scoped during the recruitment process. These end to end value chain roles are expected to inform the digital strategy for the ACC's supply chain.

7.3 Next Steps

The next phase as a priority ACC is to undertake a number of connectivity initiatives in Yr2018-19 to connect all properties & the feedlot to allow seamless flow of livestock data (priority #1):

- March IT solution (Feedlot)
- ProTrace will be the platform that underpins the ACC Cattle Management System with overlay by Hitachi Process Intelligence system as the process management platform.

To achieve the overall objectives of the cattle management system, for the next phase, the key deliverables that the Innovation Officer will be responsible for are:

- Mapping the "Master Data Set" to CMI, this includes the Indexes of all suppliers, buyers, agents as well as all cost codes.
- Finalisation of UI (User Interfaces) and UX (User Experience)
- Preparation of UAT (User Acceptance Testing)

The key deliverables that the Innovation Officer will be responsible for are:

- Mapping the "Master Data Set" to CMI, this includes the Indexes of all suppliers, buyers, agents as well as all cost codes.
- Finalisation of UI (User Interfaces) and UX (User Experience)
- Preparation of UAT (User Acceptance Testing)

The Innovation Officer raised a potential challenge with the Steering Committee which is the ownership of CMI post the implementation phase. While Hitachi Consulting will be providing technical support to the solution, it does not supply "business support" i.e. ACC is responsible for the ongoing management of business training relating to the use of CMI as well as any internal issues related to the use of CMI e.g. data accuracy issues. The Innovation Officer strongly recommended that an Administration Officer be appointed to manage these internal business matters and liaise with ProTrace and Hitachi Consulting should any technical matters arise. The Innovation Officer presented Figure 10 to the Steering Committee to further illustrate the importance of an Administration Officer. The Steering Committee agreed that such a role was key to managing a critical solution such as CMI and the two CEO's agreed to take the matter further.

7.4 Key Messages

Change management will be fundamental to the required practice change at ACC.

Due to the significant change that CMI will bring to ACC a high level of change management will be required across the full spectrum of CMI users. Property Managers will need to ensure that their team members pay attention to data accuracy and business rules when moving and managing cattle.

General Managers and the CEO's will be required to promote the management practices required to ensure data integrity is maintained and support the ongoing training and empowerment of team members.

In order to support and facilitate the change management process, the Innovation Officer proposed the following Steering Committee charter (see Figure 9). This was endorsed and accepted by the Steering Committee on the 14th October 2019.

8 Appendix

8.1 Hitachi-MLA Co-innovation evaluation – Independent review

Hitachi Consulting

mla MEAT & LIVESTOCK AUSTRALIA

Partner Snapshot- Hitachi

Leveraging decades of business process, industry and leading-edge technology experience, Hitachi Consulting Australia partners with clients to bring their business visions to life through industry-led services and solutions in technology.

Hitachi works in manufacturing, rail, energy, motor industry components, chemicals, electronics.

The focus of Hitachi Consulting is on digital transformation and helping customers on the journey, including companies in agriculture.

Hitachi is working with Australian Country Choice (ACC)to develop data capture and analytics solutions for managing land, stock and water, and is co-funded through the MLA Co-Innovation Program.

They have worked with MLA since 2015 and have focussed on developing smart farm solutions using data capture technologies and supplying a dashboard for easy management.

Project	Benefits
Early bird	The initial deployment of IoT (Internet of Things) devices on Croydon (ACC property) to capture new environmental data to use across the value chain. The producer was able to access the data through a dashboard to make decisions. Of importance was the geospatial view so that you can see conditions on the farm. It has been rolled out using drones to collect data on biomass. There's an active smart farm (a caravan) that collects data from multiple sources and can be located on any farm. The possibility to integrate data from multiple sources and display on one dashboard.
Autonomous drone solution	To create imaging of various infrastructure and paddocks and determining biomass. Has just been completed.
Cattle management	To capture data from all Australian Country Choice (ACC) properties (52,000 lines of data).
Next project—Sixth Sense	The integration of all the data with a view to optimising the overall value chain
Outcomes of all four projects	• Capturing information about genetics, estimated breeding value, fattening on grass, for use in the feedlot and the processing plant. • Giving feedback to producers on individual animals through data analytics (DEXA), which provides new insights into their business model. An automated process—very valuable to the industry and increasing value of individual animals. Producers can license the package to get more sophisticated data. • Drone solutions cost-benefit ratios vary between 4.9:1 and 3.1:1, depending on which drone you choose—reduces water runs.

Commercial-in-confidence Hargraves Institute Pty Ltd 22

Project	Benefits
	• Calliope—connecting every water point created significant savings by reducing the water runs required from weekly to bi-weekly; having real-time information allowed them to organise their day more productively • Local weather is now available streaming live and now able to start putting forecasting algorithms in place. • Promoting best practice—top 25% are delivering all the profit—average $80 rather than $40—which they attribute to the adoption of best practice. This is an enabler for that.

Impact

Improved productivity: Potentially huge productivity benefits for farmers. Reduction in the need for water runs on large properties.

Improved sustainability and environmental impacts: Water and land management data definitely has the potential to increase environmental impacts.

Increased quality: Cattle management data will definitely increase red meat quality.

Improved customer experience: Absolutely, traceability gives customers choices and security about their choices.

Improved safety: For producers—yes, decreasing the manual work required.

New markets: There will also be increased markets for producers because they will have new data tools to promote their products.

New products: Yes—this is like the skunkworks developing solutions, which can be applied in other industries.

External collaboration: Partners with Google and Vodaphone—an enormous network that they can tap into.

Partnering with ACC.

Internal collaboration: Hitachi provides an enormous depth of expertise internationally—technical, marketing, technological. They have a quick turnaround with 24/7 service provided.

Increased R&D: Ongoing R&D partnerships with the industry specifically with ACC and MLA.

Greater strategic focus on innovation: Helping producers to focus on innovation and also providing the tools for digital transformation.

Improved industry innovation: Provides a model of using data to improve business operations.

Increased innovation maturity: Potentially transformational for producers.

Improved supply chain relationships: More information for buyers, processors and retailers.

Elevating practices within the wider industry: This will have a potentially huge impact on practices across the agricultural industry providing easy access to technology for data capture and analytics.

MLA's contribution

"We would never have got here without the help of the MLA Co-Innovation Program. Came about through a chance meeting and it came together at the right time. They have provided access to the agriculture industry and companies. They helped us develop the core engine with the deeply embedded process analytics. So, it has been good for us globally. We became the skunkworks.

Edge computing—huge amount of data we get from the drone. The latest development is being able to process it on the drone to reduce the volume of data (developed internationally)."

Introducing research/technology: MLA co-funded the smart farm and partnered with Hitachi to explore and develop farm, water and animal management technologies.

Access to technologies: Hitachi provided the technologies; MLA provided the opportunity to customise the technology for agriculture.

Access to expertise: Access to agricultural expertise.

Scaling or replicating technology: MLA likes the idea that a company can start small and build on it. The smart farm can be sent out "in a box". Can be customised to meet specific needs of producers—water sensing, gates.

Building capability: Co-funded Digital Officers.

Building confidence: Hitachi is a lean team. MLA has provided support to work with producers.

Building collaboration: Yes, collaboration between Hitachi, MLA and producers.

MLA has opened the doors.

Connecting to resources: Yes, MLA farmers and producers.

8.2 Hitachi-MLA co-innovation evaluation – Case study

Digital Agriculture (Hitachi Case study)

8.2.1 The problem or opportunity

Data provides facts to inform farm business decisions. Much of past practice has relied on "eyeballing" and gut instinct to assess the condition of animals, the water levels in tanks and dams and the quality and quantity of pasture. Feedback to suppliers of red meat has been generalized, relying on impressions. New technologies provide the opportunity to capture granularized data - the single source of truth- as the basis for commercial decisions, to monitor animal and land health, to provide constructive feedback to suppliers and to reassure customers about provenance.

Hitachi Consulting Australia, whose focus is on digital transformational and helping customers on the journey has partnered with Australian Country Choice (ACC). They are developing digital solutions for animal management which will eventually become a holistic farm business management product for land and pastures. The Co-Innovation Program has provided financial support for the project.

8.2.2 The solution

Hitachi is unique in that it is sensor agnostic. In this case, they used a combination of IOT (Internet of Things) drones, RFID and DEXA to capture environmental and animal data on ACC's property, Croyden. Hitachi developed algorithms to analyse the data to be displayed on an interactive dashboard with a geospatial view to display actual conditions on the farm.

They have also produced an autonomous drone solution for imaging infrastructure and paddocks for determining biomass.

8.2.3 The process for implementation

While the development of elements of the system have been co-designed with ACC, the final package with flexible options will be available for producers.

Hitachi will offer a subscription service ranging from $500-$2000.00 per month, depending on what data is needed. It is becoming possible to send IOT devices to farms and the analysis of data is done through the Hitachi package in the background. The system is open core so that users can uplift their data and aren't locked into the Hitachi package.

8.2.4 Doing different things

Digital solutions are transforming farm business, animal and land management. Not only will for better decisions there is the opportunity to increase productivity and improve work conditions. Already the Hitachi/ACC partnership can identify significant outcomes, for example:

- Capturing information about genetics, estimated breeding value, fattening on grass, into the feedlot and into the processing plant.
- Giving feedback to producers on individual animals through the data analytics (DEXA), which provides new insights into their business model. An automated process – very valuable to the industry and increasing value of individual animals.
- Drone solutions cost benefit ratios vary between 4.9:1 and 3.1: 1, depending on which drone you choose -reduces water runs
- Connecting every water point created significant savings by reducing the water runs required from weekly to bi-weekly, having real time information allowed them to organise their day more productively
- Streaming live local weather with the imminent possibility of forecasting as algorithms are being
- Promoting best practice – the top 25% are delivering all the profit – average $80.00 in profit rather than $40.00 - which they attribute to adoption of best practice.

8.2.5 The value

ACC has been piloting the system and they report significant outcomes. Most importantly they have witnessed a complete change in the culture in ACC in relation to the use of data. The co-funded ACC Digital Manager has worked tenaciously to help people use both the system and the data and the benefits of digitization have become evident.

Paul Gibson, the Co funded Innovation manager at ACC says: “Data has improved quality of our livestock and our business operations- with measurement comes comparison and targeted improvements. We have worked to improve on farm practices and procedures,

Sensor water management has reduced the need for manual water checks, reducing travel and increasing staff safety. Animal data has also reduced the risk of injuries for employees.”

8.2.6 Insights

Owen Keates from Hitachi says: We would never have got here without the help of the MLA co-innovation program. They have provided access to the Agriculture industry and companies.

They have helped us develop the core engine with the deeply embedded process analytics.”

Paul Gibson from ACC says: We help MLA achieve their KPIs- delivering against a meat industry plan. ACC is a valued resource for MLA and are requested to participate for facilitating and testing, trialling and truthing propositions…we road test and get the confidence we have a proposition that it worth pursuing. It is a symbiotic relationship. The Co-Innovation program was the catalyst for R&D and lots of other activities. It has led to a better understanding of the business. Many of the projects would not have happened without the Co-Innovation support.

8.3 Hitachi-MLA co-innovation Position Description

POSITION DESCRIPTION

(Subject to ACBH, ACC, Hitachi Consulting & MLA input)

Position Title: ***ACBH-Hitachi Innovation Officer***	
Incumbent: _____ (Name)	_____ (Signed)
Date: *June 2018*	
Business Unit: *Australian Beef Cattle Holdings Pty Ltd*	
Location: *ACBH & ACC Operations*	
Reports to:	

8.3.1 Position Summary

What is the purpose of this role? Why does the role exist? What is the scope, outputs and responsibilities?

Australian Country Choice (ACC) and Australian Cattle and Beef Holdings (ACBH) are currently reviewing and looking to integrate their data capture and analytical capabilities aligned with their data transfer needs. Specifically, ACC-ACBH is looking to build expertise and resources to enhance digital capability, specifically through the provision of advanced analytics of datasets in order to gain new insights for the business. It is proposed that ACC-Hitachi Co-innovation officer be deployed to support the two-year proposed process intelligence work across the entire ACC value chain being funded

through a collaborative project between Hitachi Consulting Australia and MLA (P.PSH.1238 - Evaluating Process Intelligence for data capture and predictive analytics for red meat value chains (Case Study 1: ACC). The role of the innovation officer is to provide resourcing to develop and deliver data management and analytics solution using Process Intelligence to allow the Australian Meat and Livestock Industry to define the various processes, technologies and required metrics for optimal running of meat and livestock value chains at best practice levels.

The Innovation officer will be responsible for management of all value chain initiatives undertaken under the two-year collaborative program. The role will also involve measuring and reporting business improvements and profitability across breeding, backgrounding, feedlotting and processing at the Australian Country Choice to forecast more profitable business outcomes ahead of time as a result of implementing PI and associated business metrics. A two-year pilot with ACC is proposed as the initial value chain pilot that will be extended a further year with technical support provided by Hitachi. It is expected that this one of several case studies required to demonstrate the PI effectively to be adopted widely across beef and lamb production enterprises. The primary objective of this work will be to evaluate the feasibility and commercial options of data capture, management and analytics across the ACC-ACBH businesses.

The goals are to analyse the value in linking existing and new company data with other data sets and mining the data in order to generate value and new opportunities. The purpose of this initiative is to support (ACBH & ACC) producers in utilising existing and new feedback as it becomes available through objective measurement technology and other sources. The ACBH-Hitachi Innovation Officer will have oversight and manage the collaborative Hitachi-MLA project initiatives undertaken across ACBH and ACC value chains. There will be a specific focus on improvement and profitability of ACBH's agribusiness. The Innovation Officer role will proactively explore new opportunities for the profitable development of ACC's Agribusiness. The position will act as the conduit for knowledge transfer across ACC's value chains with a specific focus on data capture, management and analytical using Hitachi Process Intelligence. A primary objective will be to further develop ACBH's Cattle Management system. The role will enhance agribusiness's digital capabilities, specifically through the provision of advanced analytics of data sets in order to generate new insights for the ACBH business.

The position will be employed to analyse the value in linking existing and new company data with other data sets and mining the data in order to generate value and new opportunities. The position will also support and develop feedback systems and associated extension materials to assist producers in using feedback and data to improve decision making and management practices to enhance on farm productivity.

The position will provide ACC-ACBH with new expertise and resources to ensure that digital opportunities are identified, investigated and where relevant implemented.

The program will include:

- Individual professional development as required
- A structured group development process where numbers support this
- Support for adoption and extension materials
- Support for monitoring and evaluation
- Access to subject matter experts

8.3.2 Most Frequent Contacts

Contacts	***Nature or Purpose of Contact***
ACBH CEO (Direct Report)	*Hitachi-ACC project initiatives and priorities*
ACC Operations General Managers & key business unit specialists / contacts	
Hitachi Consulting Australia	*Hitachi-ACC project initiatives and priorities*
Meat & Livestock Australia	
Service Providers & Universities	*Engage with Sensors, Data Capture & Management and Connectivity solution providers on the latest technological developments for integration in ACBH's priorities & initiatives*
Universities	*Engage with Sensors, Data Capture & Management and Connectivity solution providers on the latest technological developments for integration in ACBH's priorities & initiatives*

8.3.3 Accountabilities

The major activities to be undertaken by the full-time ACC Co-innovation Officer include:

- *Participate in the development of a comprehensive ACC Innovation Strategy across the key business areas identified above.*
- *Assist in developing and monitoring key performance indicators and other measures of impact as agreed.*
- *Instigate innovation idea generation and filtering and feedback processes with a specific focus on operational efficiency and processing technologies.*
- *Develop and co-ordinate an agreed suite of R&D/innovation projects.*
- *Manage and monitor the ACC innovation portfolio to manage expenditure and track benefits from outcomes generated from ACC R&D/innovation projects and activities.*
- *Participate in the development and implementation of ACC's innovation skills and resources plan.*
- *Support and coordination of site project teams.*

- *Participate in the development and implementation of cultural change initiatives required across the business to deliver against innovation objectives.*
- *External relationship management with research partners, research providers, equipment suppliers, processing sector and value adding sector as appropriate.*
- *Participate in innovation skills development activities as agreed.*
- *Prepare regular project reports and quarterly innovation reports.*

The primary objective of this work will be to evaluate the feasibility and commercial options of data capture, management and analytics across the ACC-ACBH businesses.

Key Area	***Objective***	***Means***
	What is the role expected to achieve in this area? How will success be measured?	• *How are they measured and/or what activities are required to deliver the objective?*
Digital & Analytics capabilities	• Stocktake all data within the company • Conduct a series of analyse projects to undercover the value of linking data pools within the organisations • Provide recommendations for how data can be more used efficiently and be responsible for the implementation of the agreed recommendations • Work with customers and suppliers to identify data sharing arrangements for mutual benefit	
Extension & feedback	• Enhance the usage of existing feedback systems by producers in the supply chain • Identify opportunities to collect additional data and report on issues that could affect quality and yield grading outcomes • Develop tools that farmers can use to maximise the benefit of feedback • Identify relevant existing tools and systems and implement in the supply chain	

	• Identify producer champions who are willing to trial innovative practices • Instigate and manage a benchmarking study to assess productivity improvements and provide case studies for other producers to follow • Develop extension materials as required	
Cattle Management system development		
R&D business development	*Any new opportunities for the business may be eligible for R&D funding support through the Meat Donor Company &/or other funding mechanisms. The role will assist in facilitating development of such R&D proposals.*	• *Successful application for R&D funding and support* • *Engagement with providers*
Health, Safety & Wellbeing; Quality & Environment	*To operate safely, in line with policies, procedures and best practice to avoid adverse impact on people, the environment or food safety and quality* *Adherance to Quality & Environmental policy, procedures & legislation within.*	• *Take all reasonable steps to ensure health, safety and wellbeing of self and others at work.* • *Maintain Workplace Health & Safety obligations and requirements, whether stated in law or in ACC Policies and Procedures* • *Identify & report hazards* • *Report incidents & injuries* • *Ensure own actions and behaviour adheres to workplace health and safety legislation ACC policies and procedures.*

8.3.4 Qualifications and Licenses

Relevant tertiary qualifications? Courses? Licences
Car license (Class A),
Agricultural Science, Economics or equivalent ??

Data and data analytics experience, with agribusiness experience preferred
etc

8.3.5 Skills and Competencies

Consider the objectives and accountabilities – what are the skills, competencies & experience someone requires to deliver these?
Systems experience?
Industry experience?
Leadership?
Specific technical expertise?

8.4 Process documentation

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Process Documentation Workshop

Why is Process Documentation Important?

The purpose of process mapping is for organizations and businesses to **improve efficiency**. Process maps provide insight into a process, help teams **brainstorm ideas** for process improvement, increase communication and provide process documentation. Process mapping will: **Identify bottlenecks**, repetition and delays. They help to define **boundaries**, **ownership**, **responsibilities** and **effectiveness measures** or metrics.

What does Process Documentation Achieve?

The following are the specific criteria that you are looking for in every process:

- Responsibilities
- Objectives
- Activities
- Inputs
- Outputs
- Customers
- Risks and controls
- Key performance indicators

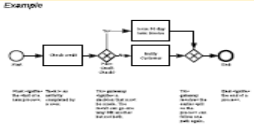
What do I need to know when designing a business process?

Tasks are the basic activities that a user undertakes. Always start with a **verb** and end with a **noun**.

Gateways show when multiple actions can occur after a preceding action. ✥ Means one task, or another. ✥ means one or more tasks. ✥ means all tasks.

What do I need to know when designing a business process?

Example



Hold on, this is for software. What about the data?

Data and databases are connected next to activities. Data can either be an input or output of the activity.

What does all of this mean for the Cattle Management System?

The process definitions for the cattle management system aren't just nice pictures. Each process will be used to define effective workflow for each user and define meaningful manual tasks where others activities cannot be automated, and will be executable.

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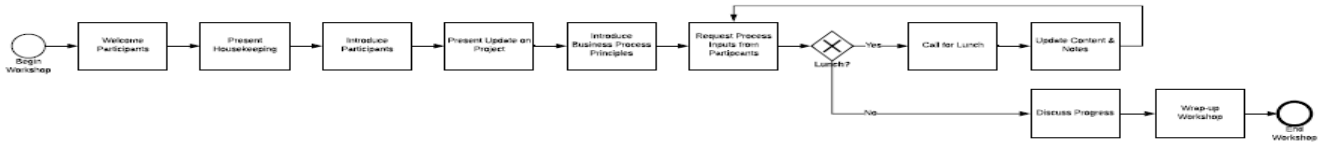
Today's Agenda as a Process. Can you follow it?



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Thank you.

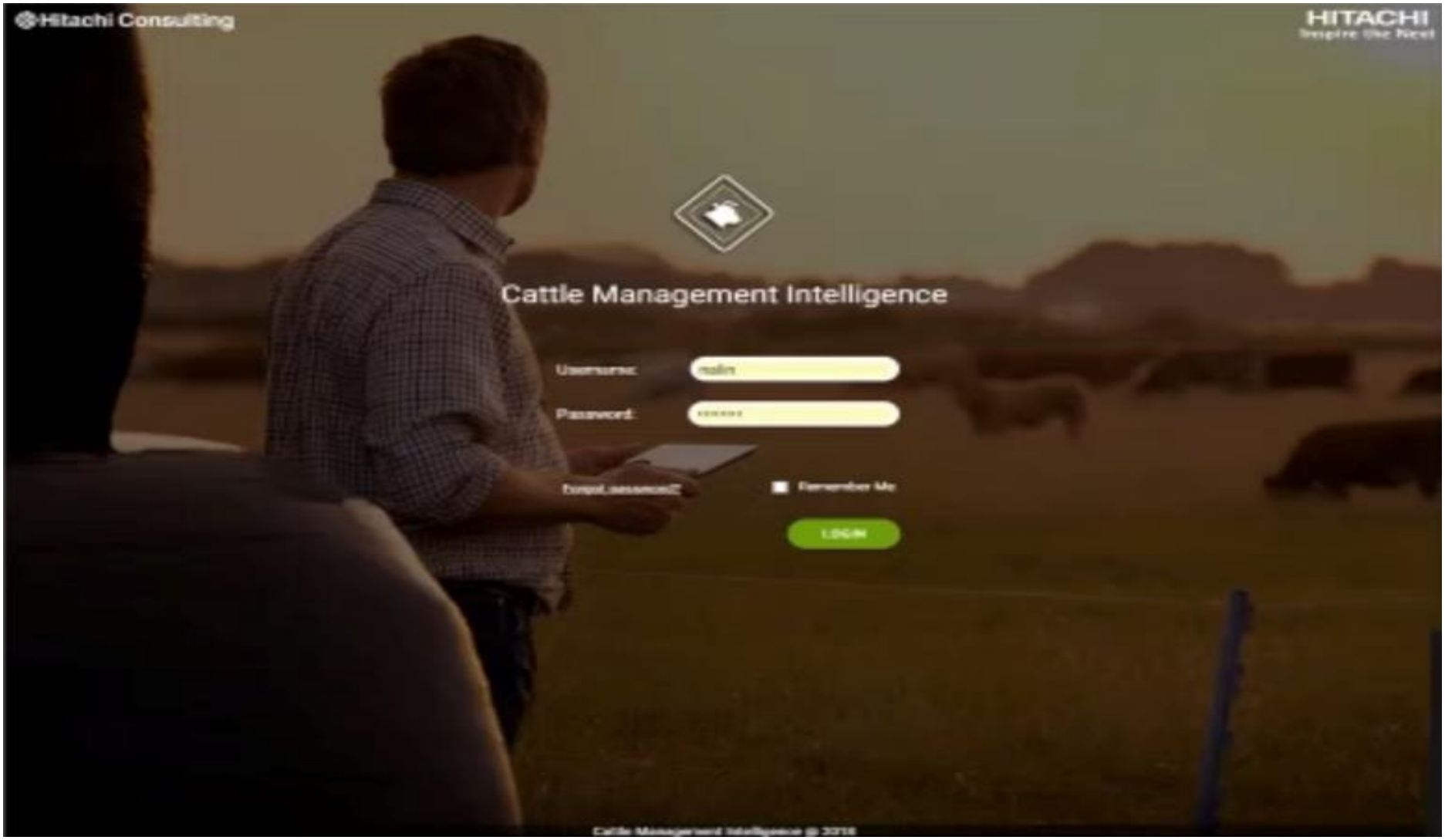
Building Software is About User Stories

While defining the process, we also want to capture what the user wants to do when completing the tasks on the system.

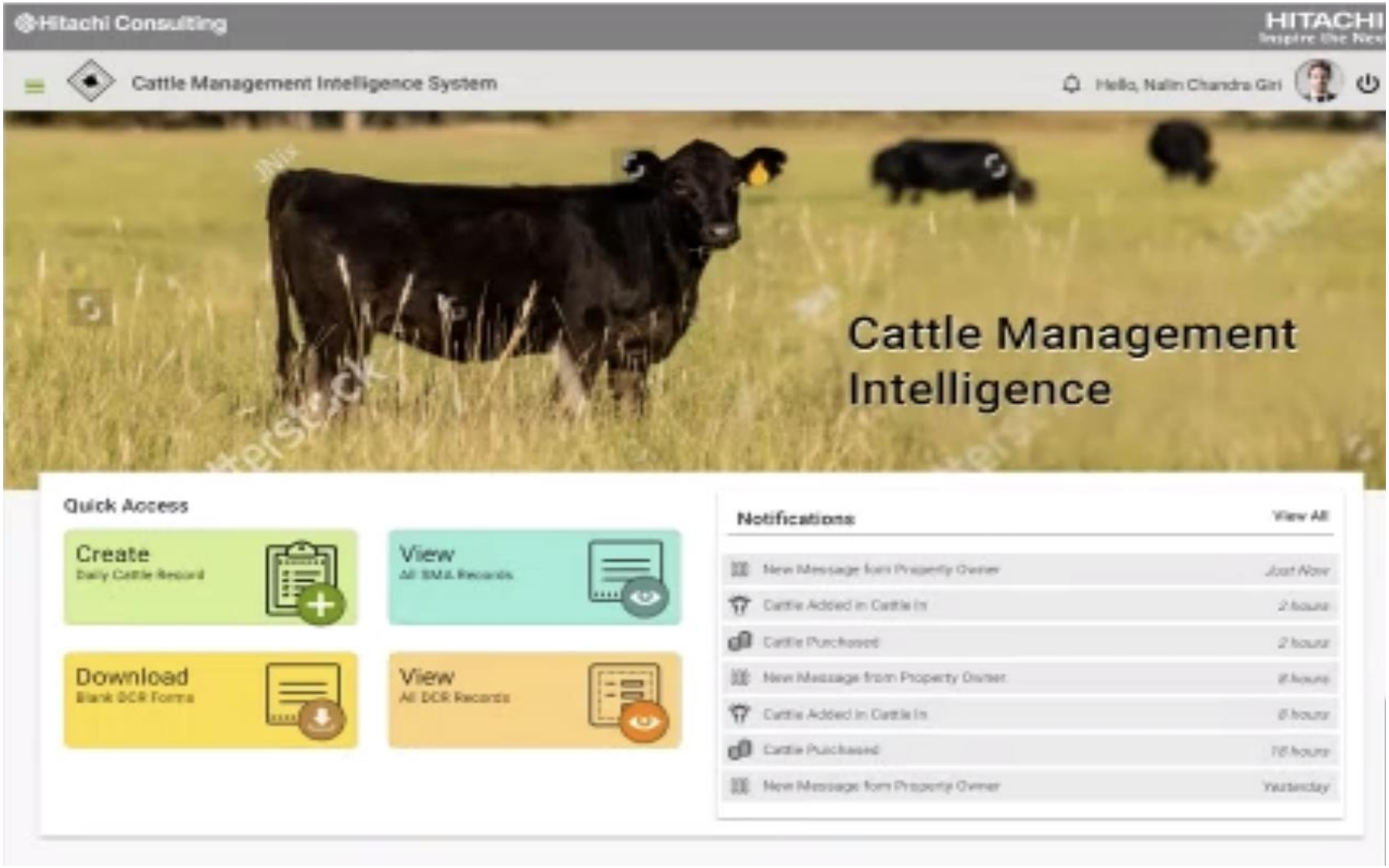
Users can help in defining these using phrases like:
"I want to be able to ... (download the output as a CSV, PDF)."
"**I'd** like for the function to calculate automatically and prompt me to check it."

8.5 Prototype Screen Flow of Cattle Management System

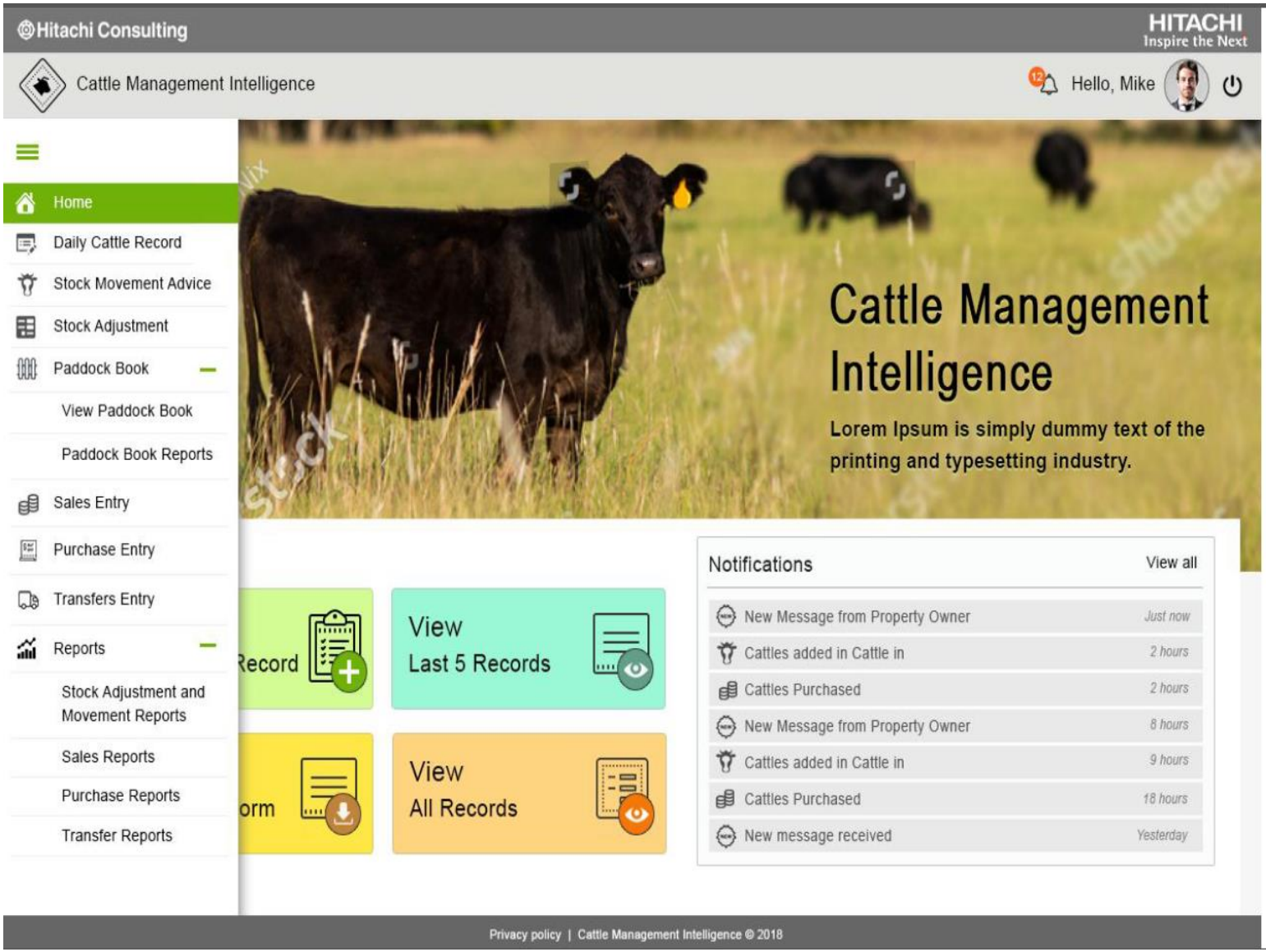
Screenshot 1: Login screen - Each user will have different access rights based on their user profile / role.



Screenshot 2: Front Home page - Shows a summary of notifications for the user to acknowledge and check. Quick access for common tasks. Menu can be expanded for more options.



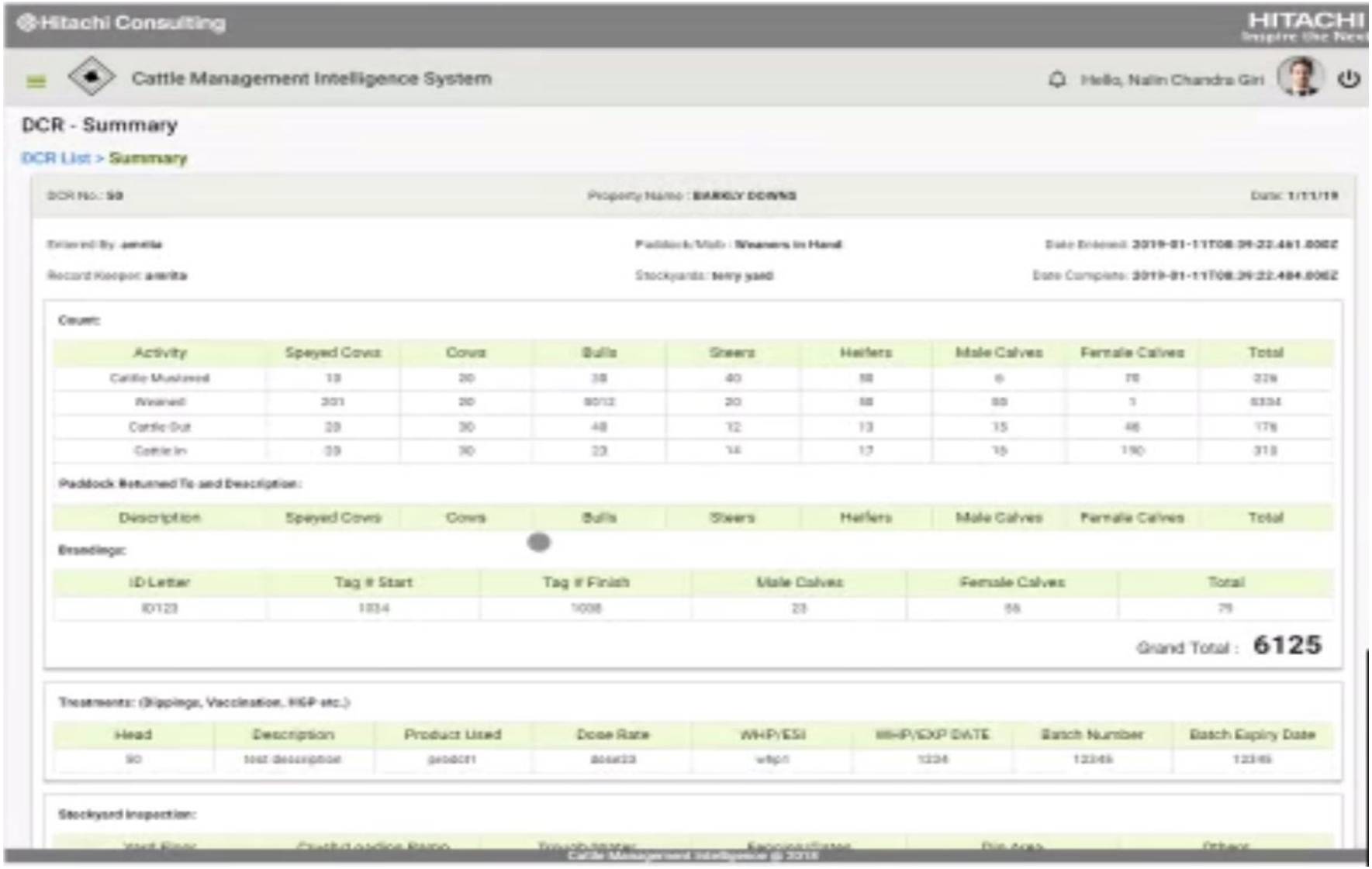
Screenshot 3: DCR Summary -All fields shown after having completed the DCR form.



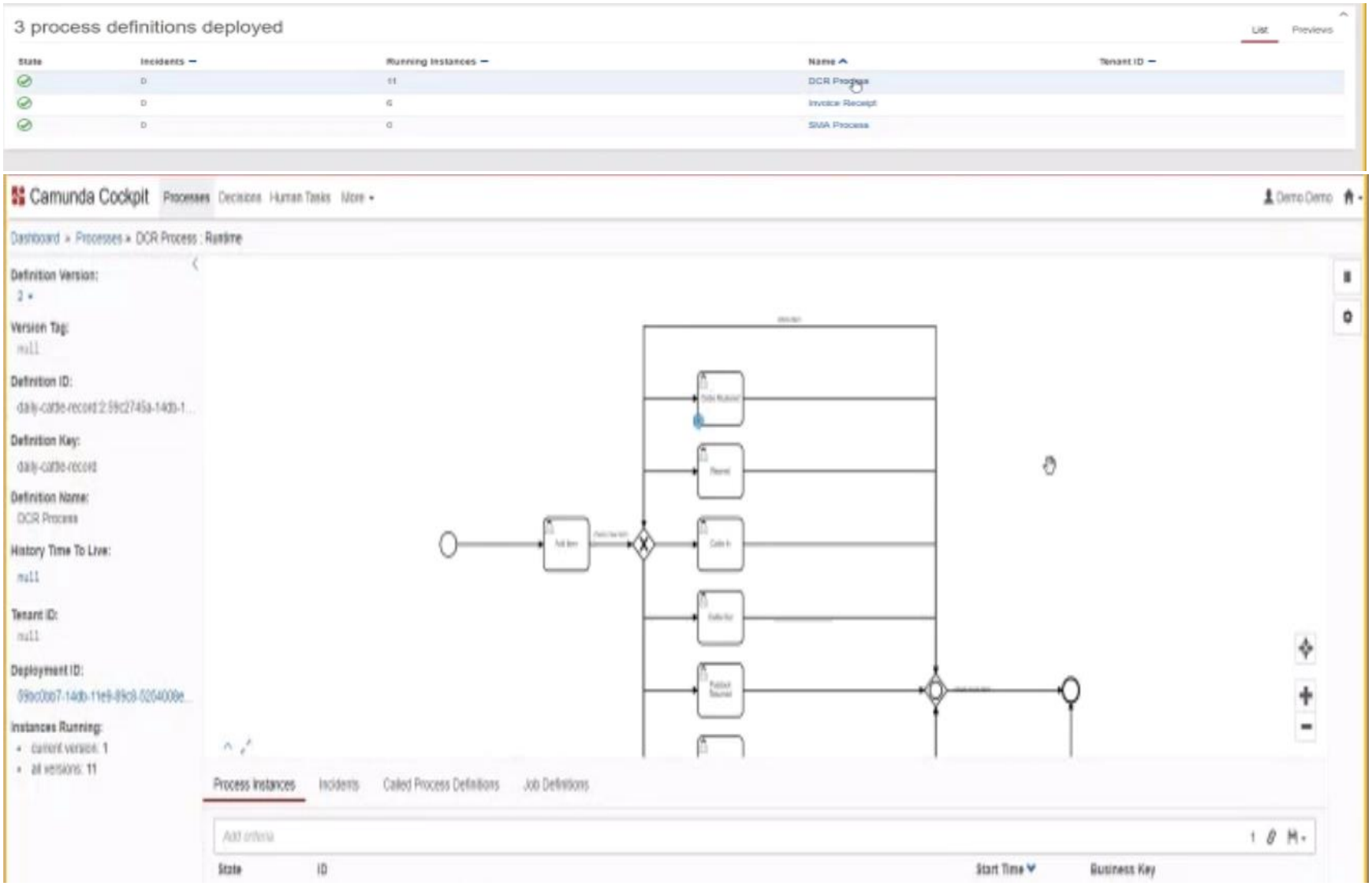
Landing Screen

1. User will be navigated to the landing page after login.
2. The content on this page will differ based on the user roles.
3. The Banner Image used here is the sample image.

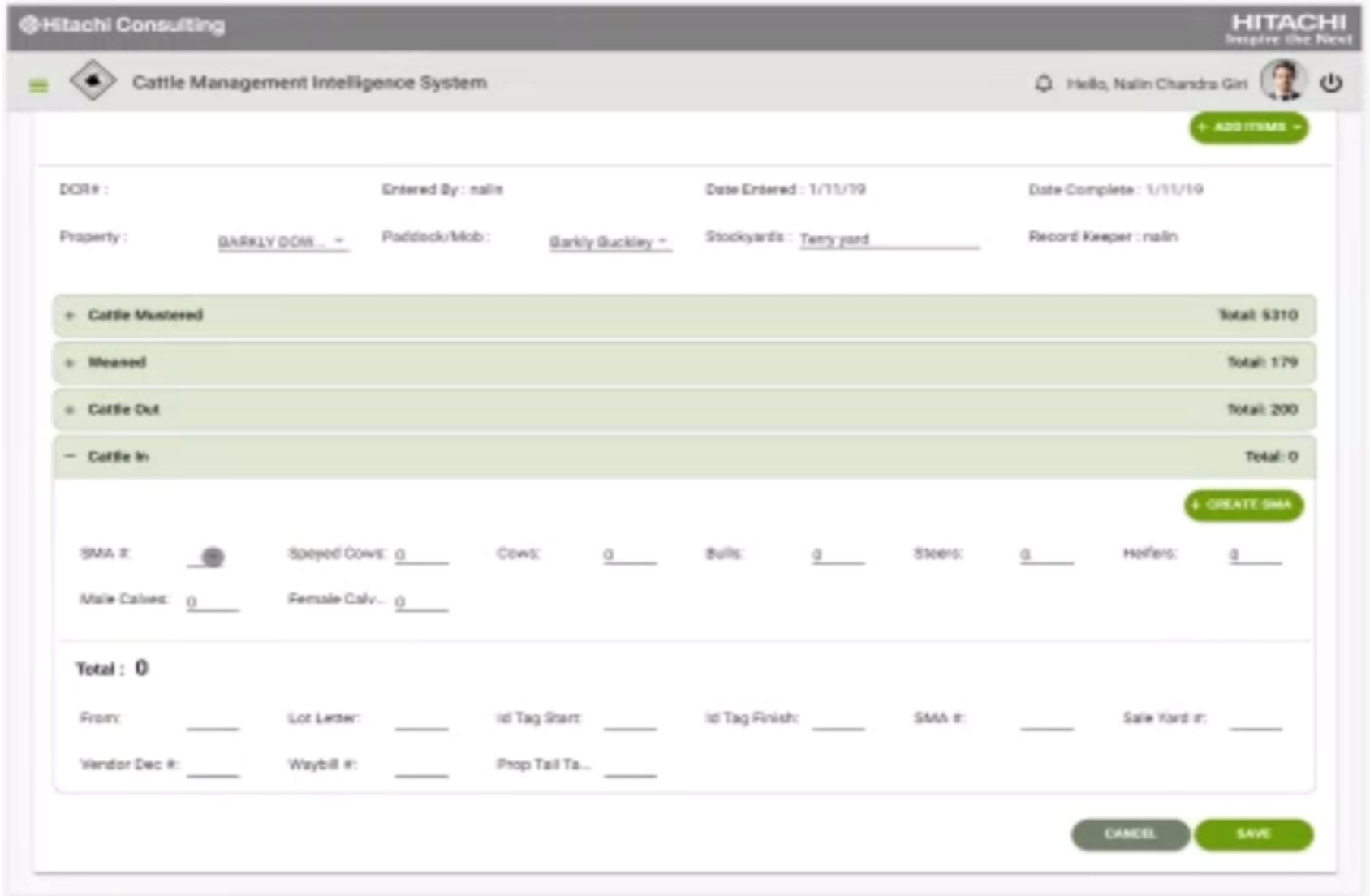
Screenshot 4: DCR Summary – expanded fields.



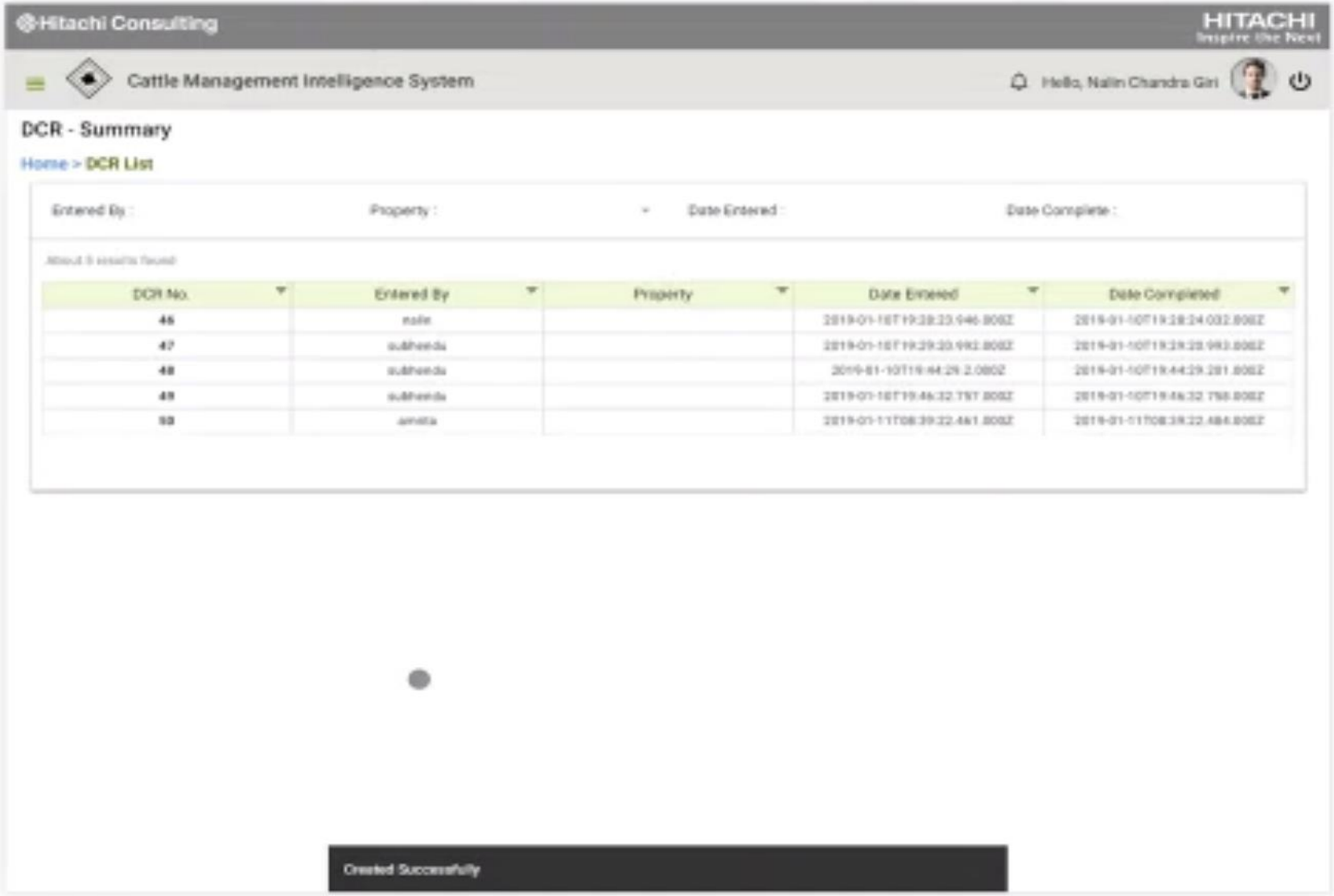
Screenshot 5: Back-end Process Orchestration of the DCR.



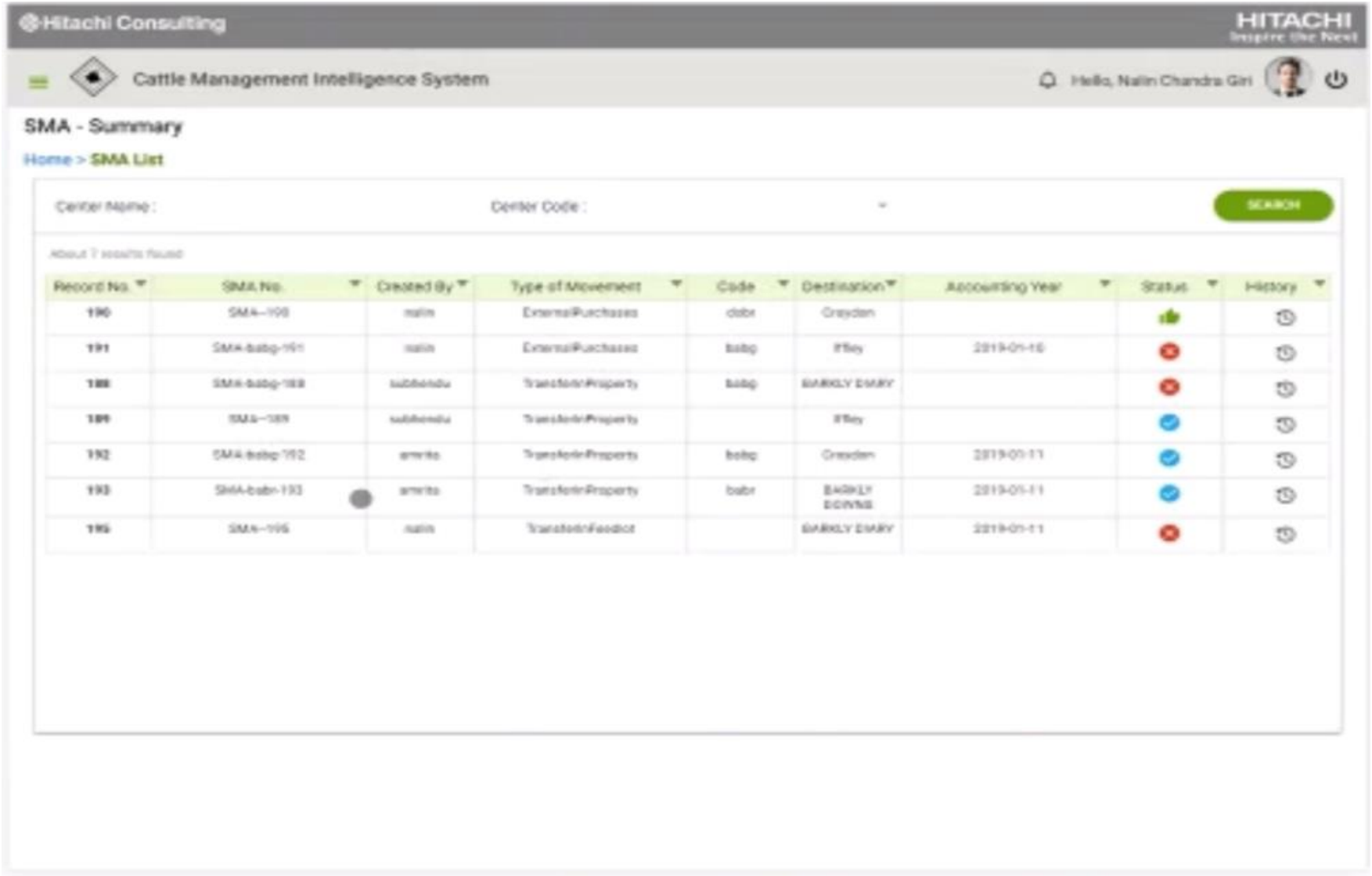
Screenshot 6: Expanding and collapsing DCR segments to view what the user needs to see and enter



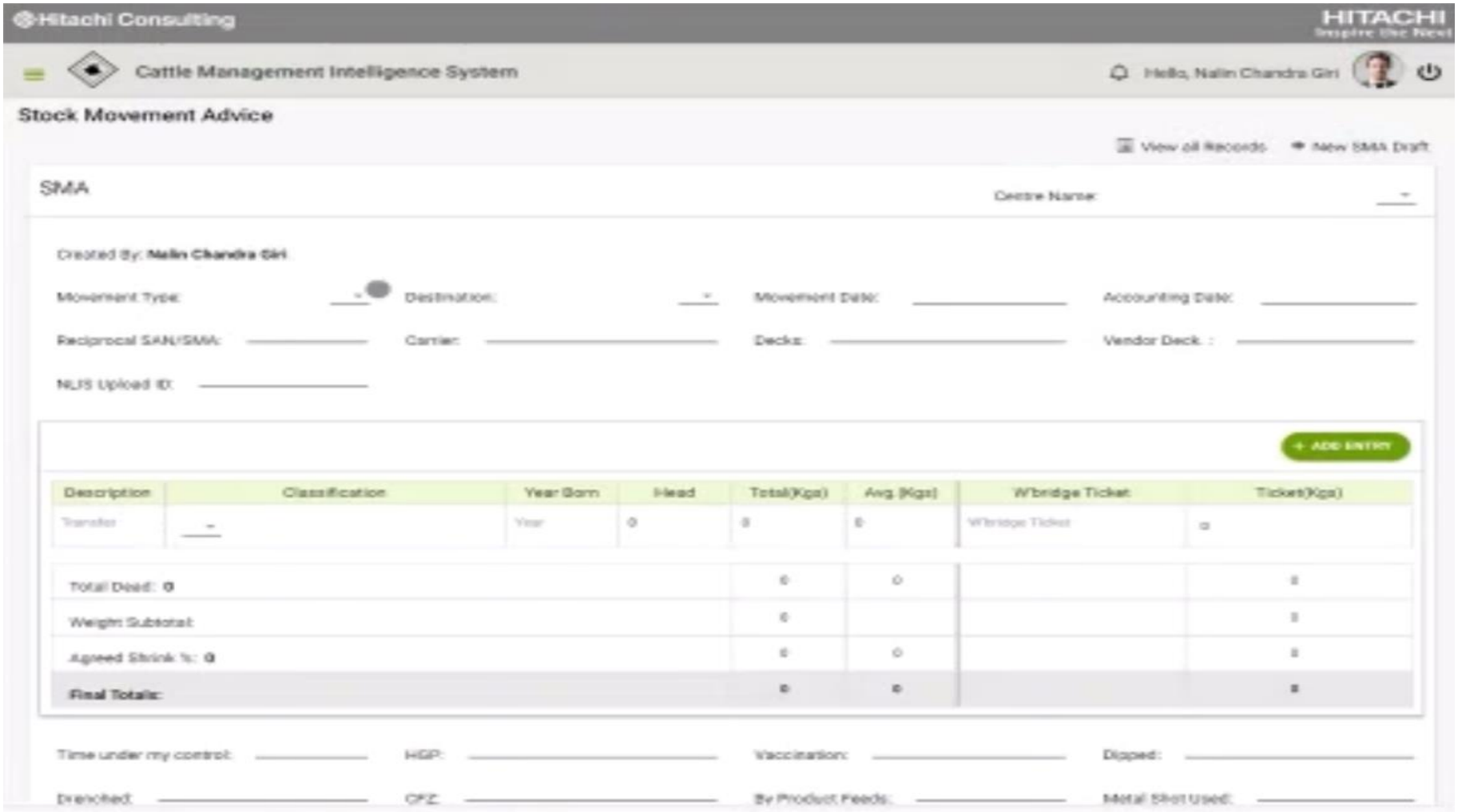
Screenshot 7: DCR List, a summary of DCR records



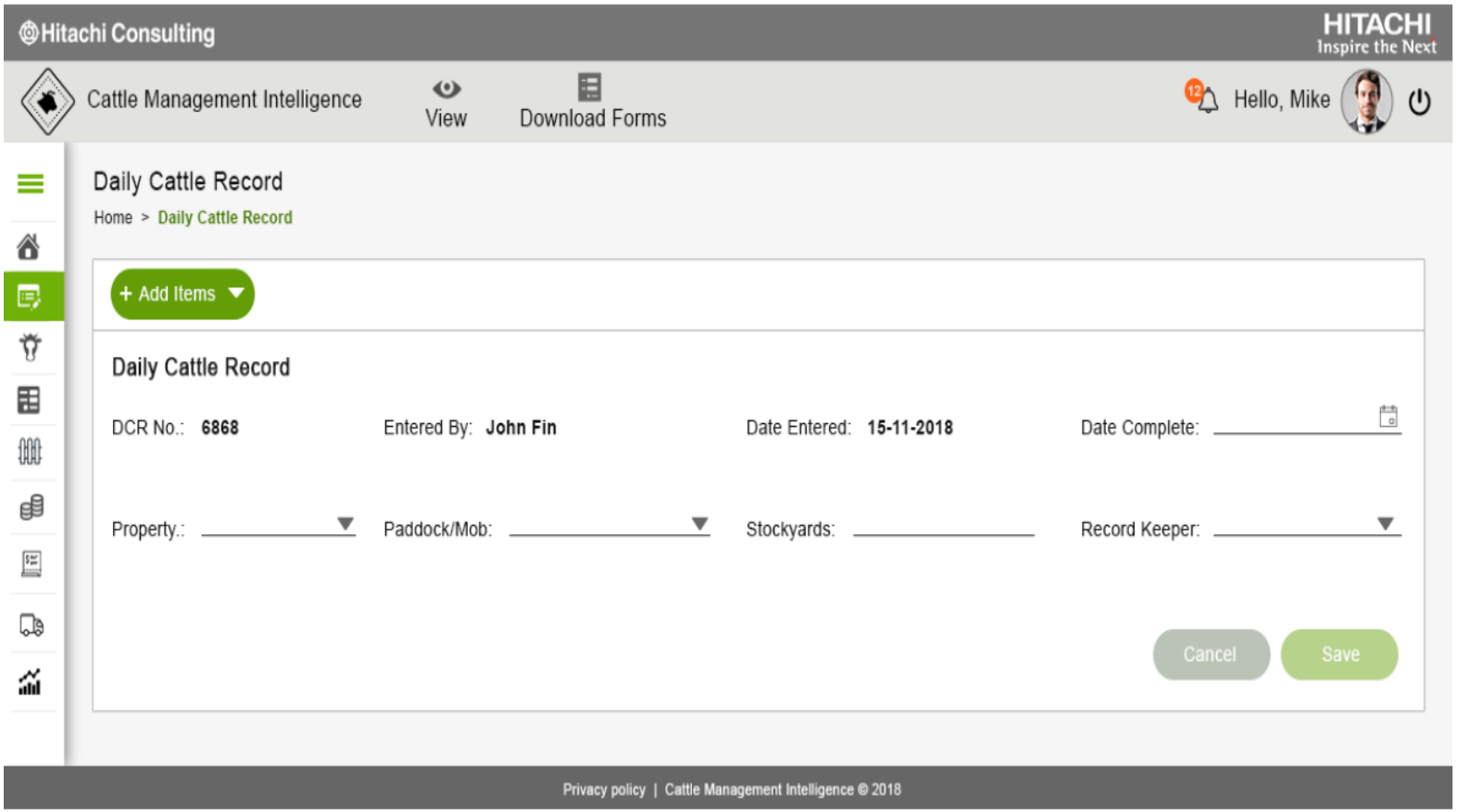
Screenshot 8: SMA List, A summary of SMAs completed or in progress



Screenshot 9: The SMA Form.



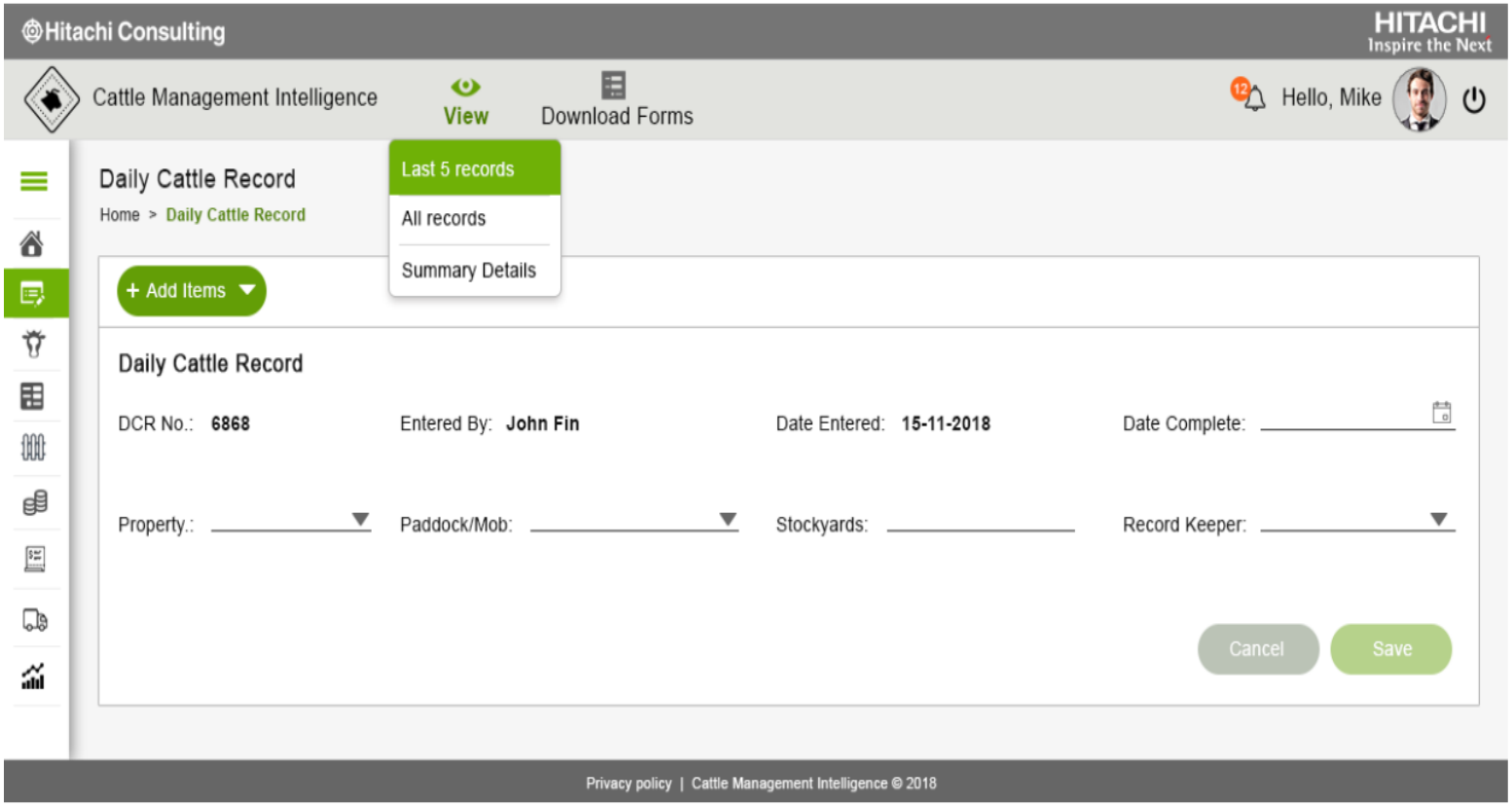
Screenshot 10: Stock movement advice.



Daily Cattle Record (DCR) Screen

1. From the left navigation user can select DCR.
2. This is a blank page with default form controls.
3. Save and Cancel buttons will be disabled until the user enters any value in form.

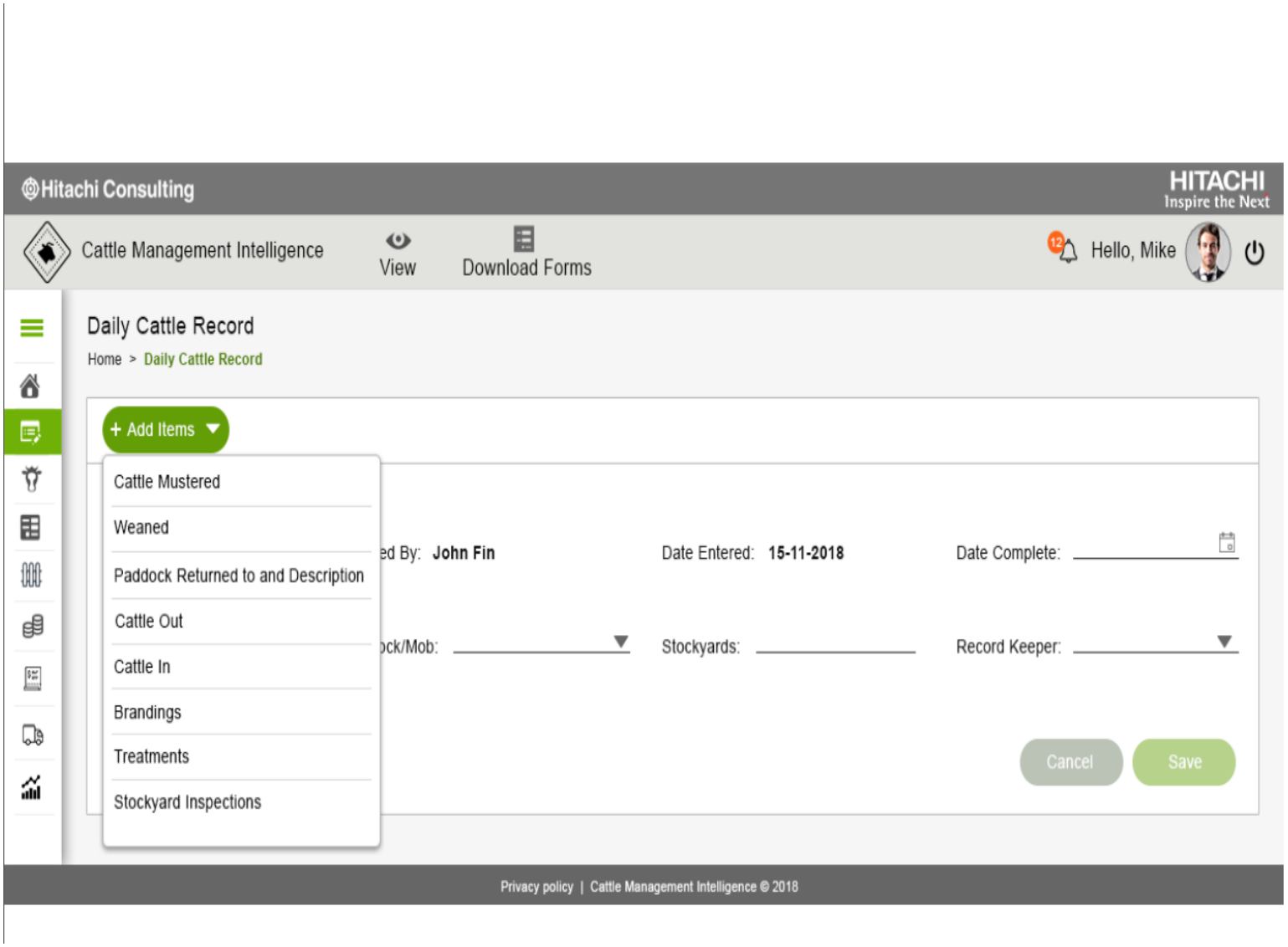
Screenshot 11: Daily cattle record.



Horizontal Menu Section

1. User can access top horizontal menu sections.
2. Download forms will give an option to download blank forms.

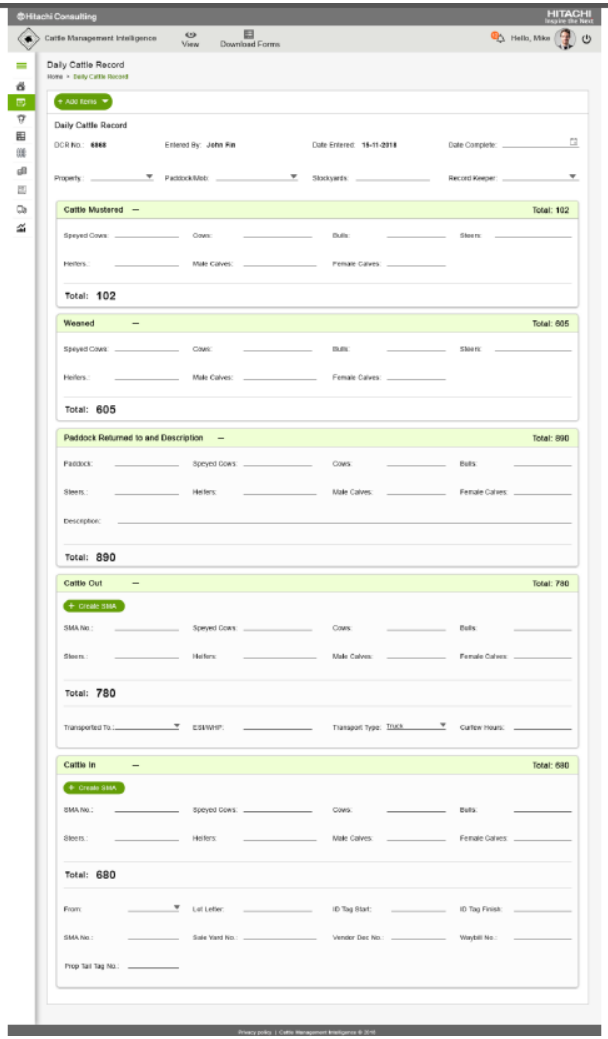
Screenshot 12: Daily cattle record.



Add items:

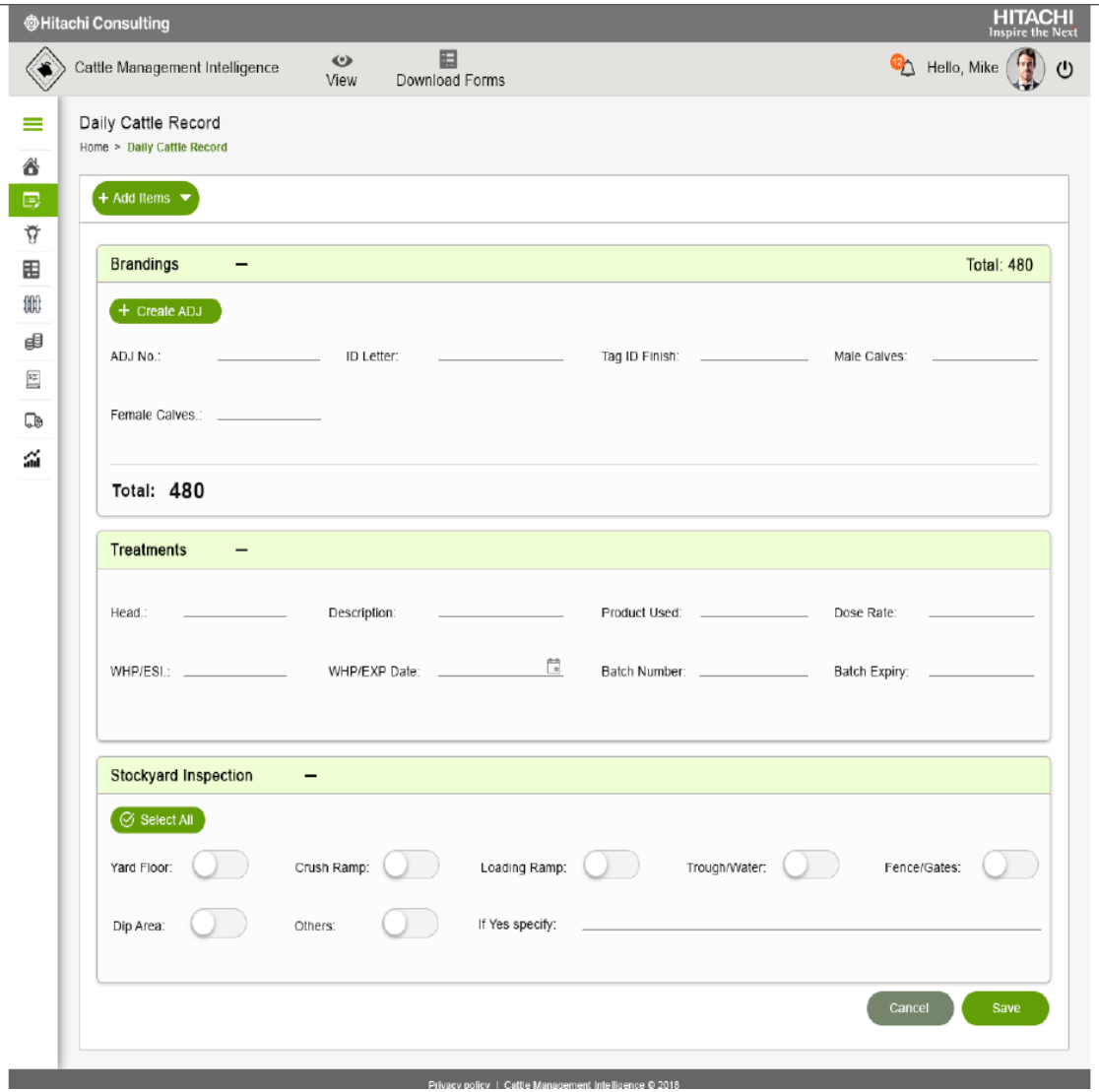
1. User can start filler the related data by using the dropdown menu.

Screenshot 13: Daily cattle record.



Daily Cattle Record Form

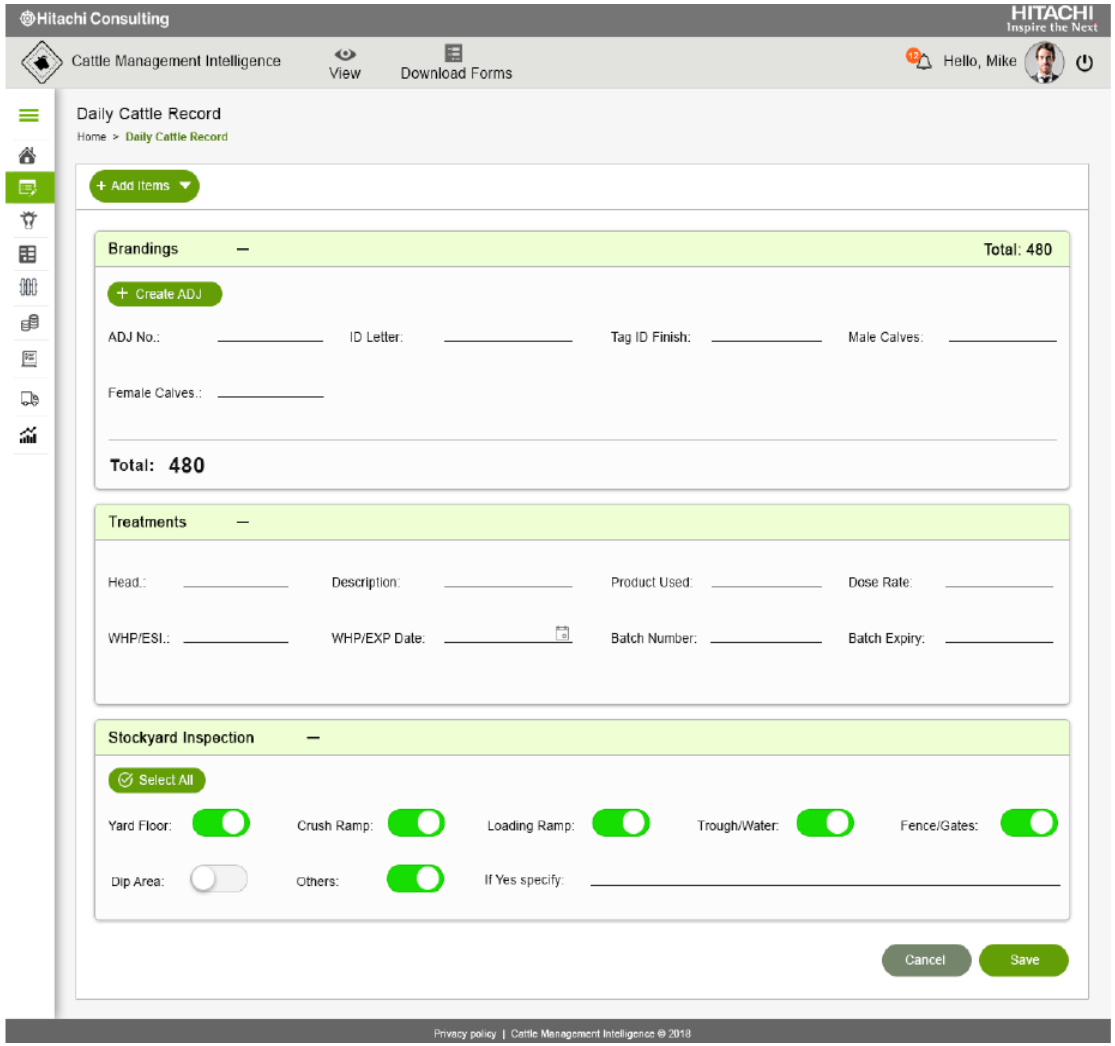
Screenshot 14: Daily cattle record.



Daily Cattle Record Form

Continue page of the same DCR form

Screenshot 15: Daily cattle record.

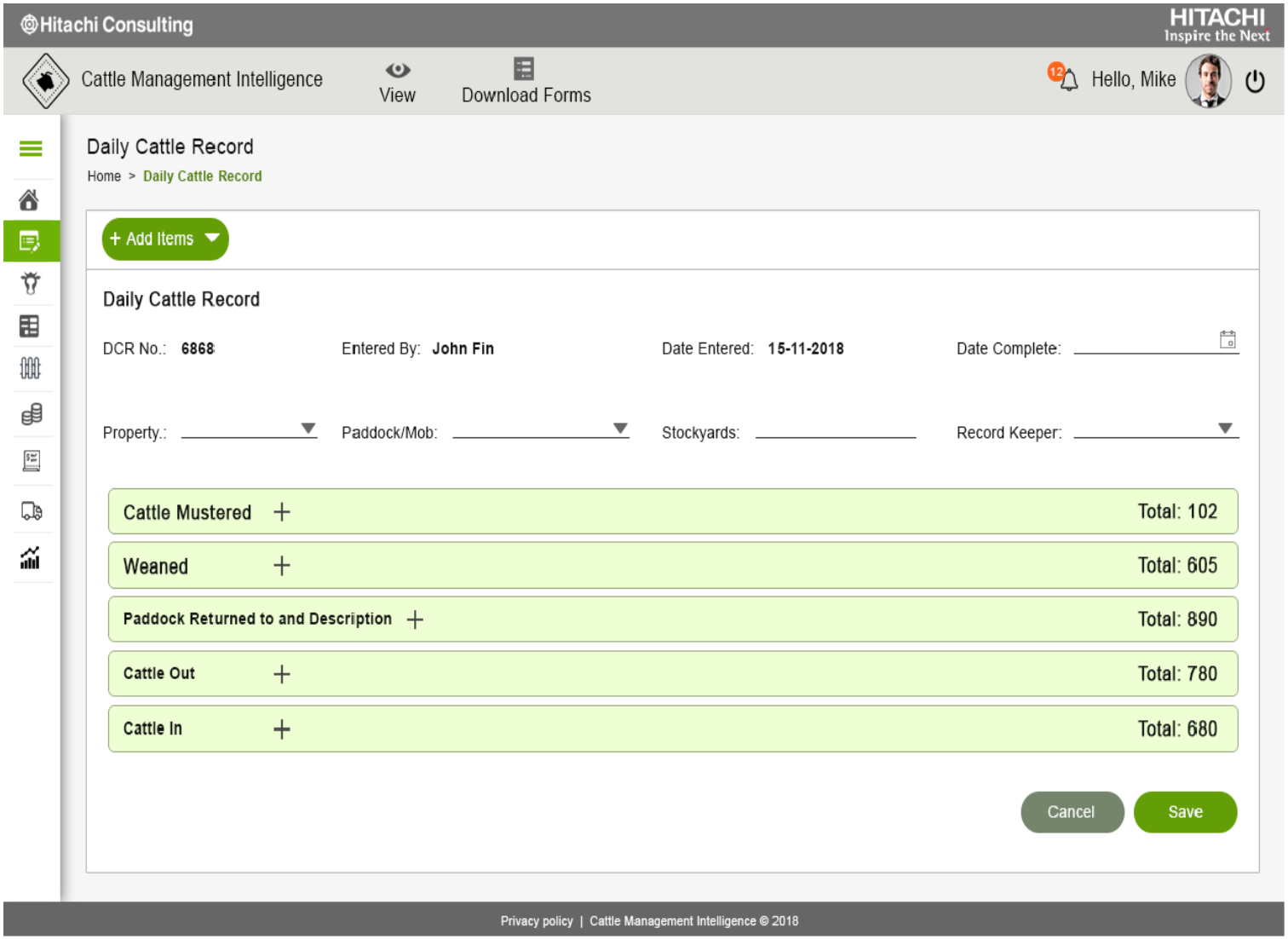


Daily Cattle Record Form

Stockyard Inspection

1. Select all buttons will turn all toggle to 'Yes' state.
2. If user miss to check any one toggle and click on save button user will be notified by a confirmation window.

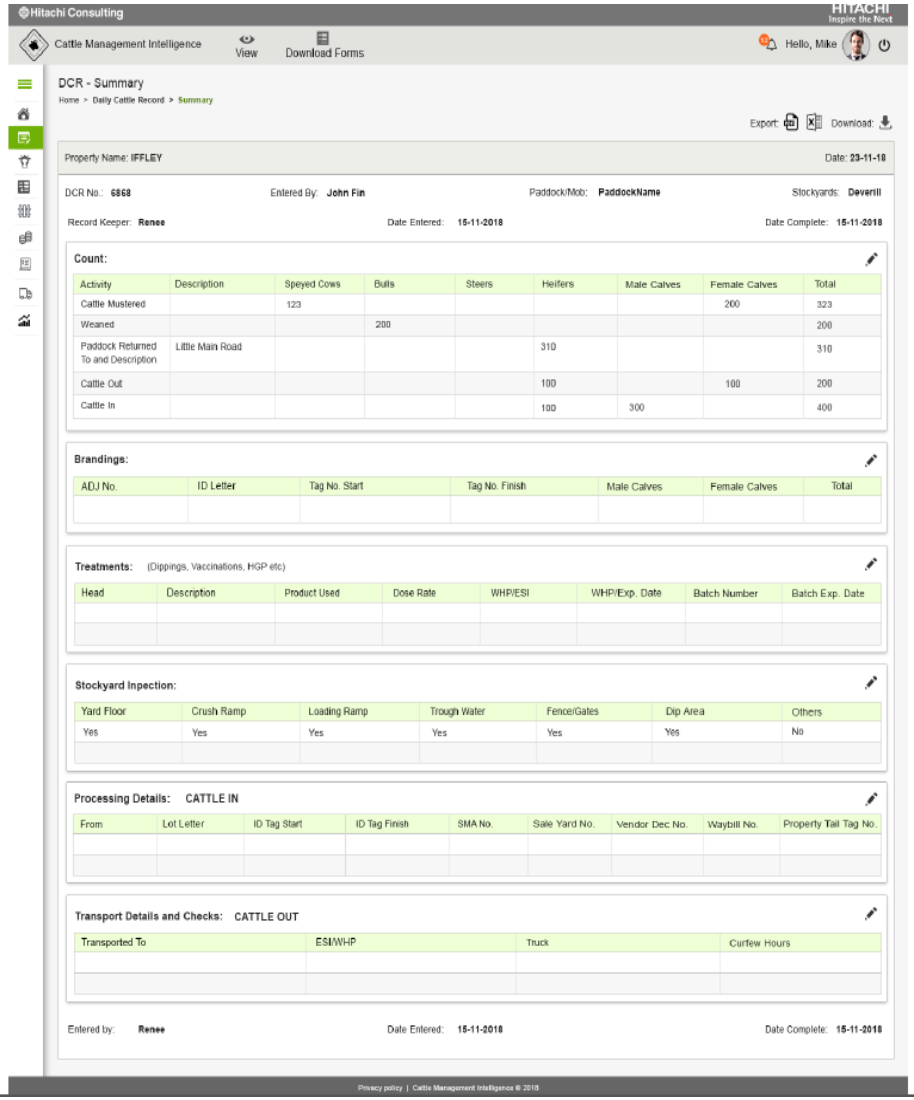
Screenshot 16: Daily cattle record.



DCR Form - Collapsible

User can collapse the sections to view all totals all together.

Screenshot 17: Daily cattle record.

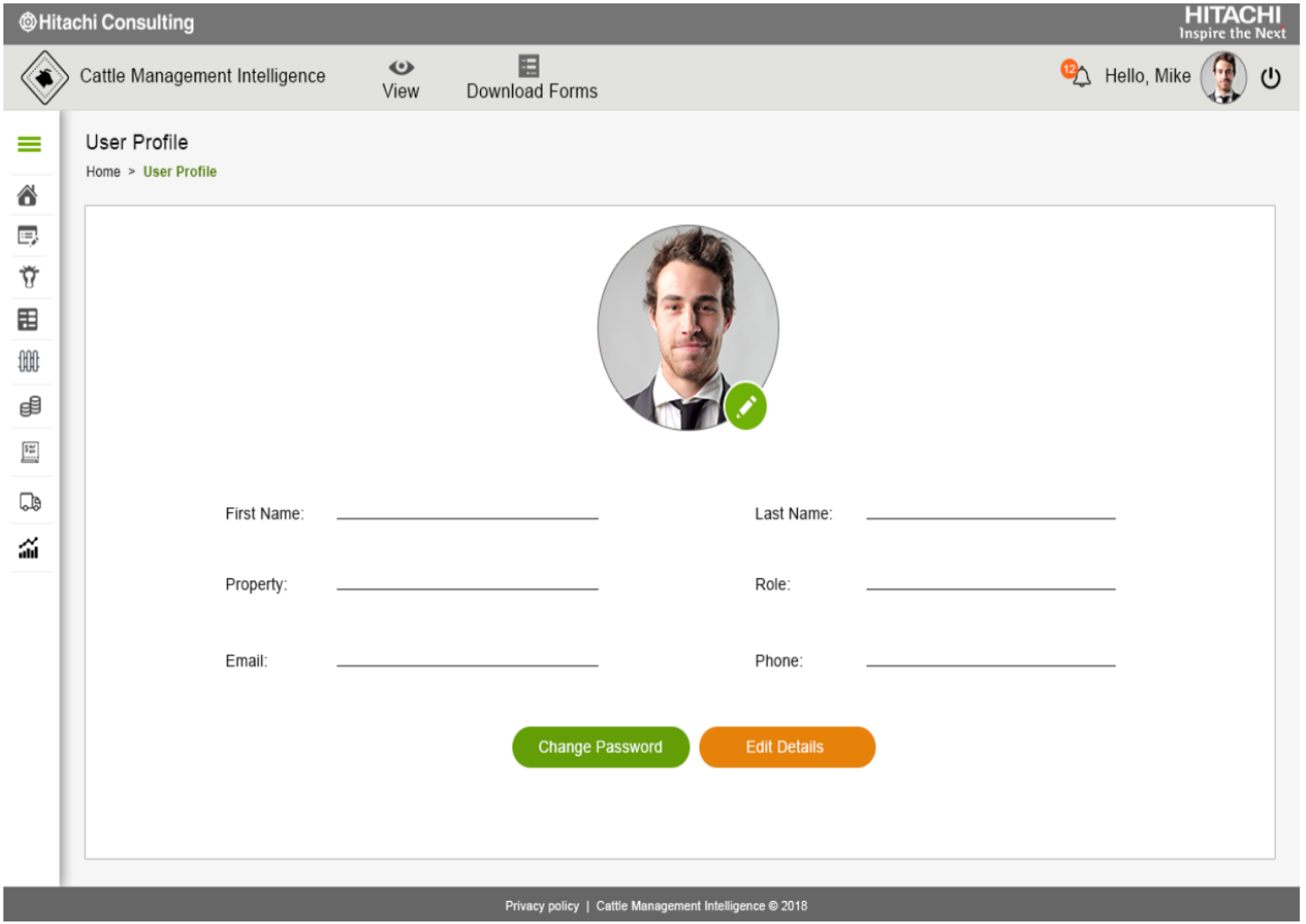


DCR Form

Summary Screen

User can edit each section by clicking on Edit icon to the right side of each section.

Screenshot 18: DRC summary form.



User Profile Screen

Screenshot 19: User profile.