Google Cloud

HITACHI
Inspire the Next

Driving New Levels of Operational Efficiency

Process Intelligence on Google Cloud Platform drives productivity, quality and transparency

Background

Australia is among the world's largest and most successful producers of livestock and a global leader in the final result export of beef, sheep, lamb and goat meat. To support the industry's profitability, sustainability and global competitiveness, Meat & Livestock Australia (MLA) delivers research, development and marketing services to Australia's cattle, sheep and goat producers. MLA's key stakeholders are their 50,000 livestock producer members.

To drive leading-edge innovation, MLA engages in strategic partnerships aimed at increasing on-farm productivity and developing industry leadership skills through the use of digital technologies that will drive productivity, quality and transparency. Hitachi and Google Cloud worked with MLA on a co-creation project to develop a data-driven solution that provided the visibility and analytic insights to improve performance and drive a competitive advantage.

Business Challenge

Integrating data across the value chain to drive decision making

To meet the business challenges faced by the red meat industry in both domestic and international markets, integration of data along the value chain is required not only from a supply and demand perspective but also a quality perspective so that farmers can continuously improve and provide the right product at the right time to the right markets.

Given that it supports 50,000 farms on over 5.2 million acres, MLA needed collaboration from solution and cloud partners with a deep understanding of the challenges within the meat and livestock industry and the expertise to develop a new internet of things (IoT) digital strategy for collecting data and making data-driven decisions across the value chain.

Solution

Hitachi Process Intelligence for Smart Agriculture and Google Cloud

To enable its IoT journey, MLA turned to Hitachi and Google Cloud. With more than 105 years in operational technology and more than 55 years in the IT sector, Hitachi understands what is needed to create IoT digital transformation for a global organization. After working to understand MLA's business objectives, Hitachi delivered Hitachi Process Intelligence (HPI) for Smart Agriculture, which allowed MLA's stakeholders to visually represent individual farm operations and provide insight to decision-making and establish best practices across the supply chain.

Together with Google Cloud, Hitachi provides new levels of operational efficiency to vast and remote properties and farms with creative solutions to address connectivity, and collaboration to help meet the demands of changing climates, markets and populations. Using simple, easy to consume services from Google Cloud, MLA's stakeholders can begin aggregating and analyzing data including integration with Google Maps and high-speed data ingestion

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Summary

When Meat & Livestock Australia (MLA) wanted to integrate data across the value chain, it turned to Hitachi and Google Cloud to deliver an industry-focused, data-driven solution. Using RFID tags, on-farm sensors and unmanned aerial vehicles to collect data, Hitachi Process Intelligence (HPI) for Smart Agriculture hosted on Google Cloud provided the visibility and analytic insights to improve performance across the supply chain, boost revenues and drive a competitive advantage.

Business Challenges

- Improve product quality, productivity and global market share
- Drive the adoption of best practices across the industry
- Improve the collection of data for enhanced decision making

using Google Cloud Compute and Storage capabilities.

The solution combines advanced process and data analytics to support business decisions and accelerate business performance. Beyond data visualization, HPI matches livestock operations against best practice frameworks, which combine industry-standard practices with farm-specific solutions to address unique needs. This provides decision support through projections and predictions that are developed using artificial intelligence and machine learning algorithms.

To effectively design and deliver HPI for Smart Agriculture to MLA's stakeholders, data regarding farm operations and individual cattle had to be collected and validated. Hitachi went on site to allocate optimal points for data collection. They provided a data repository to collect individual animal history and provide a record of the animal's life, including weight, locations and health. Hitachi also implemented a repository of on-site weather data tracking, as well as a knowledge repository of best practices hosted on Google Cloud, which are represented through a farm control center.

The data collection plan included radio-frequency identification (RFID) tags in cattle across a broad range of locations. Collaboration between MLA and Hitachi allowed livestock owners to provide cattle insights, which became the foundation for big data analytics to form best practice models. Hitachi also created a connected network providing linkage from sensors on the ground and unmanned aerial vehicles (UAVs) to the HPI platform. From field to sky, Hitachi and Google Cloud help Australia's livestock industry to deploy sensors and capture advanced imaging to provide detailed biomass estimates, cattle head count and high-resolution surveys.

The future is even more exciting. MLA stakeholders can look forward to new initiatives, such as leveraging G Suite for smaller farms, Google Hangouts to connect producer groups and Google Assistant to focus farmers and ranchers on priority needs. Additional initiatives include adding intelligence to the data using Google AI, making collaboration easier with other farmers via G Suite and Google Assistant, and a more robust integration with Google Maps.

Benefits

Data-driven insights improve quality and boost revenues

Implementing smarter processes across the red meat supply chain with HPI for Smart Agriculture and Google Cloud has added value for Australia's livestock industry. The solution has helped to improve the quality of meat and has generated added revenue, enabled entire-life traceability for individual animals, and created a central data repository and on-site management system for each livestock owner.

From a financial and operational perspective, MLA achieved a large-scale increase in value. Studies across the beef industry have shown that the top 25% of beef farmers are achieving double the profit of the average beef farmer, with the key difference being the adoption of best practice. It is recognized that HPI for Smart Agriculture can play a significant part in facilitating greater adoption of best practice in farm operations and helping drive increased profit.

Solution

- Hitachi Process Intelligence for Smart Agriculture and Google Cloud
- Data repository for animal histories, weather tracking and best practices
- UAVs with advanced imaging capabilities, integrated with Google Maps

Results

- Open-data ecosystem provides transparency across the entire supply chain, improves decision-making
- Massive and easily accessible data repository hosted on Google Cloud and on-site management system improve manageability for each individual farm
- Google Cloud Compute and Storage provides reliability and scalability with a high-speed data ingestion engine
- HPI for Smart Agriculture enables traceability for the entire life of individual animals

The combination of HPI for Smart Agriculture and Google Cloud has enabled the creation of innovative IoT strategies for data transmission and communication and cultivated a more agile decision-making environment.

Hitachi Process Intelligence for Smart Agriculture is powered by Google Cloud's world-class dynamic technologies to drive growth, improve processes and increase agility.
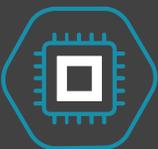
Compute
Leverages high-speed data ingestion utilizing Google Cloud Compute

Storage
Uses Google Cloud Storage to host large data sets from UAV and IoT sensors

Cloud AI
Applies Google AI to analyze imagery captured from UAVs

Conclusion

Hitachi leverages decades of industry experience to provide practical business strategies and digital solutions. With Hitachi Process Intelligence for Smart Agriculture and Google Cloud, we helped facilitate the MLA digital transformation journey and allowed the solution to expand from prototype to production to implementation without MLA having to think about capacity, reliability or performance.

About Hitachi Consulting

Hitachi Consulting is the global solutions and professional services organization within Hitachi, Ltd., a global innovation leader in industrial and information technology solutions and an early pioneer of the internet of things. Hitachi Consulting is a business integrator for the IoT era and a catalyst for digital transformation. Using our deep domain knowledge, we collaborate with clients to help them innovate faster, maximize operational efficiency and realize measurable, sustainable business and societal value. As a consulting-led solutions company, we can help you leverage data as a strategic asset to drive competitive differentiation, customer loyalty and growth. To learn more, visit www.hitachiconsulting.com.

"Hitachi Process Intelligence with Google Cloud is enabling Meat & Livestock Australia's vision of digital transformation across the red meat value chain."

- Dr. Nigel Tomkins
Research and Development Manager
Meat & Livestock Australia

Hitachi Consulting