

Final report

Environmental Credentials Information Technology Platform Build

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Abstract

The Environmental Credentials for Australian Grass-fed Beef system (ECGB) is an initiative created by MLA to allow producers to assess and understand the environmental impact of their production. It is an assessment of geographical and on-farm contributors, along with an eLearning component, that can inform producers on how to strategically reduce their environmental impact.

Executive summary

Background

Cognizant Servian has been contracted to build the web platform of the Environmental Credentials for Australian Grass-fed Beef system (ECGB). A project jointly developed with MLA, CSIRO, CIBO and RMCG to allow producers to assess and understand the environmental impact of their property and demonstrate their sustainable practices on farm.

Cognizant Servian oversaw the technical design of the ECGB web platform targeting beef producers and processors for data aggregation and representation.

Objectives

The main objectives were to design and develop a web platform capable of:

- Hosting a learning platform based on modules developed by RMCG.
- Creating a tier system to facilitate user progression.
- Producing a data report.

Methodology

The team operated in an agile manner with a focus on the objective outcomes, with daily and fortnightly meetings ensuring all milestones had been delivered in a timely manner or if necessary, delayed to allow alignment with other partners of the projects.

Results/key findings

All milestones have been successfully delivered and the platform has been released on a production environment after a pilot testing phase followed by a refinements phase.

Benefits to industry

The beef industry now has access to the Environmental Credentials platform which hosts a learning platform, a tier system and a reporting component; ready to ingest more data sources and learning content.

Future research and recommendations

Stakeholders should continue improving the platform by adding more data sources as well as learning modules to keep users engaged and the tool relevant.

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1. Background

Cognizant Servian has been contracted to build the web platform of the Environmental Credentials for Australian Grass-fed Beef system (ECGB). A project jointly developed with MLA, CSIRO, CIBO, and RMCG to allow producers to assess and understand the environmental impact of their property.

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2. Objectives

The following personas, user stories and scenarios have been established to guide the development of the platform and can be considered as original objectives.

2.1 Persona

The Environmental Credentials platform has two main types of users: **Producers** (beef producer) & **Processors** (beef processor)

- Users can join using single sign on with their MyMLA account.
- Users with an associated PIC ID will qualify as a Producer.
- Producers can generate credentials for their property each year.
- Producers can share the credentials with processors.
- Processors can request access to view credentials of a specific property.
- Producers & processors have access to a learning library.

2.2 Tier system

Users progress through the platform following a tier system, allowing them to access different levels of commitment, the first tier consists of completing all basic learning modules. The second tier requires more learning modules, data collection using external applications (MLA Carbon Calculator and Cibo Labs) and filling of the self-assessment checklists. The third tier requires further data commitment for the last three consecutive years.

2.3 Credential tasks

The ECGB requires users to use external applications and fill self-assessment quizzes to reach the highest tier of credentials:

- Cibo MyFarmKey: A web tool to map the geographic boundaries of a property.
- MLA Carbon Calculator: A web application to compute GHG emissions from a Sheep meat / Beef / Crop producing property.
- Biodiversity Stewardship self-assessment checklist
- Drought Resilience self-assessment checklist

2.4 Learning library

All ECGB users have access to a learning library hosting modules for the three different themes:

- Biodiversity Stewardship & Tree Cover
- Drought Resilience
- Carbon Balance

Users have their progress and bookmarks tracked individually.

3. Methodology

The team operated in an agile manner with a focus on the objective outcomes, with daily and fortnightly meetings to align with the development sprint. Each sprint outcome has been reviewed with MLA during a sprint review where objectives have been reshaped when needed.

4. Results

The platform has been provisioned and deployed on AWS, managed by MLA, and is accessible to the public at www.envcred.com.au.

4.1 Login flow

Users can join the platform using their MyMLA account. After the initial login the system reaches to LPA to determine if the current user is linked to one or many properties. If so the user is identified as a 'Producer' and all their PIC numbers are imported as properties in the ECGB "My Properties page".

A similar system was planned to identify processors, but this could not be setup as NLIS is not capable of identifying MyMLA users yet.

4.2 Learning library

The learning library has been built following xAPI standard allowing RMCG to write the modules using authoring tools following the same standard, each module is exported as a package ready to be served in the ECGB library. Using standards allowed for easy integration of modules from different providers and better tracking of user progress.

4.3 Tier system

Following recommendation from CSIRO property, credentials have been split into three tiers. Each year a property can reach Tier 1, 2 and 3 by completing the following tasks:

- Complete learning modules (at least for one user linked to the property*)
- Self-assessment checklists
- External data provider setup
 - o MLA Carbon Calculator
 - o Cibo Labs property boundaries

*Multiple users can work on the same property credential.

4.4 Data sources

Credential computation uses two different data sources to assess the environmental impact of the producer's property:

- Carbon calculations filled out by the user.
- Insights from Cibo Labs based on their farm boundaries.

4.5 Report

After reaching credential tier 2 or tier 3, a report is generated using data from the provider and the responses to the self-assessment checklists. Reports are split into four sections:

- Carbon Balance
- Forest Carbon
- Biodiversity stewardship
- Drought resilience

The report can be exported in PDF or shared to any user on the platform.

4.6 Guidance and recommendations

Cognizant Servian advises to always refer to the confluence documentation and maintain the tool following industry best standards.

Updates and maintenance:

Any update on the infrastructure should be applied in the dedicated version control repository **envcred-infra** to be deployed on the three environments. Updates on the database migration would need to be created following Liquibase documentation and pushed into version control.

The backend API has been develop using Dotnet and AWS Lambda functions, those functions should be regularly maintained to ensure the dotnet version is still supported by AWS and upgraded to latest LTS version before the support is stopped.

The frontend has been built using the REACT framework, the project dependencies need to be regularly checked against vulnerabilities then upgraded or replaced when vulnerable.

Licences cost:

At the exclusion of Cibo Labs, partner of the project, all the tools used on the ECGB platform are an open source and do not necessitate licencing.

Cloud cost:

The current and estimated monthly cost of cloud hosting are:

- dev and test environment: ~350 USD
- prod environment: ~250 USD

5. Conclusion

The ECGB platform provides a way for grass-fed beef producers to measure their impact on the environment through the collection of multiple data sources and learning resources to improve their practices.

5.1 Key findings

Not relevant.

5.2 Benefits to industry

The red meat industry now has a working web platform for environmental evaluation of beef producing properties that can be leveraged and improved to aggregate more data and cover different types of production systems.

6. Future research and recommendations

The red meat industry should improve the platform by:

- Extending the learning content to cover more animal types.
- Add more sources of data to improve the credential results.
- Add new tiers and progression to keep user engage.

7. References

Not relevant.

8. Appendix

Sprint reviews have been included on all milestone reports and documentation has been publish on MLA Confluence page.