INDLANDS - INFORMATION SYSTEM FOR RURAL AND INDIGENOUS COMMUNITIES

GROUP 22
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Executive Summary

The aim of this report is to analyse issues facing rural Queensland's farming and First Nations communities, such as poor infrastructure, digital exclusion and limited market access. The ideal solution is to propose IndLands, a digital platform that connects Indigenous and rural farmers with real-time data, ecological insights and financial tools.

The report uses several analysis frameworks, such as PESTLE, SWOT and root cause analysis to identify challenges such as low digital literacy and the erosion of traditional knowledge. IndLands offers multilingual, offline-accessible support with AI features to improve market connectivity and weather tracking.

The platform is feasible within a $20 million AUD budget, aiming to drive digital inclusion, economic resilience and sustainable agriculture in Queensland. It benefits both the Queensland Government as well as rural farming and First Nations communities.

Introduction

The report indicates the current issues surrounding farming and First Nations communities in rural Queensland. The report contains information about the domain of the current problem (the communities are under-served by current infrastructure), as well as any risks and opportunities the Queensland Government may face when addressing the issue.

A potential solution has also been included in the report, complete with an evaluation and detailed requirements to ensure that the product meets quality standards. IndLands, the proposed answer, is a technically viable and culturally sensitive information system that offers real-time market and weather data, details on government subsidies and a platform for conserving as well as sharing Indigenous agricultural expertise.

The demands of the stakeholders are thoroughly analysed in the report utilising frameworks like PESTLE, SWOT, and Root Cause Analysis. The report also describes how to utilise personas and interviews to extract user needs. Through interviews, personalities, and user experiences, the reader will learn how the perspectives of rural producers, Indigenous farmers, and community elders have influenced each demand. As a result, the system is not only emotionally rooted in the lives of those it serves, but it is also technically sound. Methods like user stories, use case diagrams, and a traceability matrix are used to support functional, non-functional, and business requirements. These are ranked, examined, and mapped. With a focus on fostering trust, cultural sensitivity, and moral interaction with Indigenous groups, a transition management strategy is used to guarantee the long-term acceptance of the system. Every part of this report, from transition planning to feasibility studies, from cultural integration to system scalability, has been written to support a future in which Indigenous and rural communities are not only leading the way in intelligent, sustainable, and sovereign agriculture, but are no longer left behind. This is more than

simply a report; it's a vision of what may be achieved when tradition, technology, and trust are combined.

Research

First Nations history is very large due to the age of the culture (60,000 years), but contemporary history is recent (Aboriginal Heritage Office, 2025). An important part about First Nations Australians is their practices revolving around country, belonging, and taking care of the land. These practices date back very far and are integral to First Nations culture, to the point where land usage and land rights are still large contemporary issues in Australia. Land is important to Indigenous peoples and must be considered when developing the solution. Land can inform many of our decisions when evaluating the needs and requirements of the project.

A large event in history is the colonisation of Australia that began with the landings in 1788. This colonisation had many negative effects on the existing First Nations population, some of which are still present today. The contemporary Australian Government has taken many steps to acknowledge the impacts of colonisation and provide solutions to current issues that First Nations Australians face.

Indigenous Australians, who have a younger population and a higher rural presence (48% vs. 17% for non-Indigenous people), are vital to regional economic growth but face significant inequalities, especially in rural areas. The unemployment gap is wider in rural regions (15% vs. 7% in urban areas and 21% vs. 6% in rural areas), OECD, 2025. Addressing these disparities requires a place-based policy approach supported by improved data, including better Indigenous business statistics, Indigenous-led data collection, and the integration of Indigenous perspectives in statistical frameworks.

The agricultural stats of Australia can provide very valuable insight into the backdrop of Australian rural communities and what can be done to address their concerns. As Australia is a large area with a comparatively low population, many rural areas are underpopulated, underdeveloped and underserved by government spending/policies (DAFF, 2024).

As this is an information system, internet connectivity is very important for research to create the best solution possible. There is currently a connectivity plan (Australian Government, 2022) in place by the Australian government in order to improve the infrastructure throughout rural parts of Australia (OECD, 2025). This will improve internet access and usability in those parts of Australia which will have several positive effects on the current information system plan.

This research highlights First Nations deep land connection, ongoing impact of colonisation and rural inequalities. It uncovers the need for a culturally sensitive solution addressing the gap between individuals and communities accessing modern information and communication technologies. It also should solve economic disparities and land rights while leveraging government connectivity initiatives for an inclusive agricultural information system. This research

generates the need for protecting Indigenous knowledge from the combined forces of historical oppression and modern pressures like industrial farming and technology.

Needs Assessment

PESTLE

A PESTLE analysis helps assess external factors that could impact the success of the solution. It provides a broad perspective for making smart decisions. It identifies Political, Economic, Social, Technological, Legal, and Environmental influences, allowing companies to anticipate risks.

Political	Economic	Social
• Recent Voice referendum impacts (NIAA, 2024) • US tariff strategy (Claughton, 2025) • First Nations data rights (DCCEEW, 2021) • Subsidies (Greenville, 2020) • Indigenous cultural protection	• Farming export industry affecting local data (DAFF, 2024) • High transport and input costs affecting rural communities (Australian Farm Institute, n.d.)	• Rural communities isolated from infrastructure (Rural Aid Australia, 2025) • Digital literacy limited (Mindspot, 2023) • Rural population decline (Beyond Blue, 2019)
Technological	**Legal**	**Environmental**
• Low rate of internet usage (Khawaldeh, 2022) • Progress made on rural Infosys (Agriculture Victoria, 2019) • First Australian Digitisation Fund providing First Nations communities more access to tech (Google, 2022) • Agriculture R&D (DAFF, 2024) • AI and Automation (Mana et al., 2024)	• Land rights legislation (Cawthorn, 2020) • Environmental laws impacting agriculture (Australian Government, 2025) • Fair market pricing and labour laws might impact agriculture (ACCC, 2023) • Cultural protection legislation (Australian Government, 2022)	• Inclement weather might impact the uptime of information systems • Increasing tech use in rural areas might pollute vital natural resources (Au, 2016) • European farming practices are unsustainable for the Australian climate in the long term (Gillies, 2017) • Deforestation risk (Kanungo, 2023) • Renewable energy in agriculture and Infosys (Sustainable Agriculture, 2024)

Figure 1 PESTLE

The external variables influencing rural and Indigenous agriculture are identified by this PESTLE analysis (*Library Guides: Business: PESTLE Analysis*, n.d.). It involves economic pressures (export and transportation costs), social issues (isolation, low digital literacy), technological gaps (low internet use), legal frameworks (land and cultural rights), political actions (subsidies, data rights), and environmental challenges (deforestation, climate risks).

SWOT

A SWOT analysis is valuable because it provides a clear, structured framework for evaluating both internal and external factors that influence a project. SWOT helps leverage strengths, address internal weaknesses, capitalize on opportunities, and mitigate potential risks.

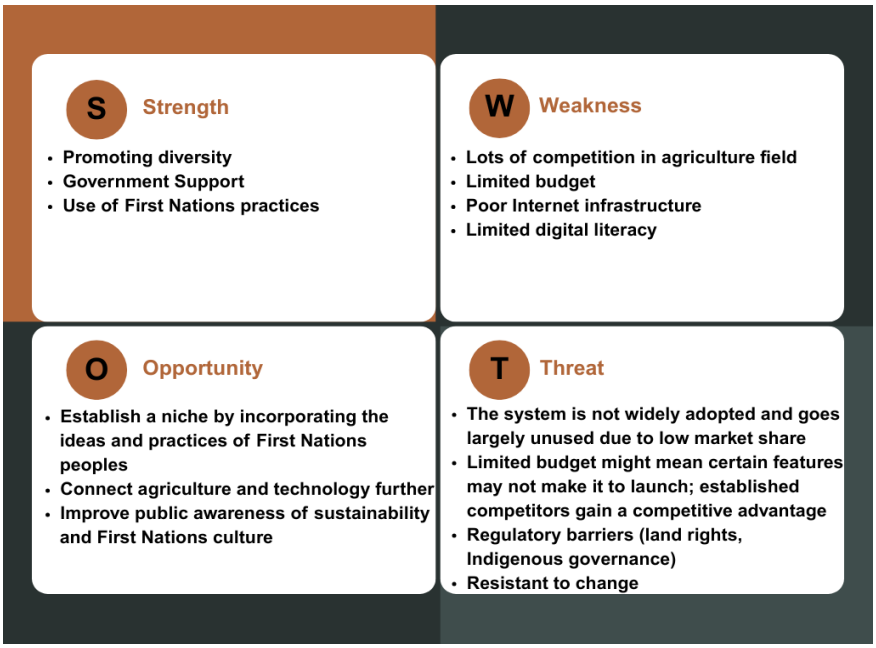

Figure 2 SWOT

SWOT analysis suggests that Strong government support and the use of First Nations practices provide cultural relevance and diversity. Limited budget and poor digital infrastructure weaken competitiveness and support capacity. High competition in agriculture introduces a risk of losing market share. Opportunity to create a niche by blending Indigenous knowledge with agricultural technology. Adoption barriers and regulatory issues may hinder implementation and user uptake.

Stakeholder Identification

Stakeholders	***Role in project***	***Interest level***	***Power of influence***
Farmers	End users and main beneficiaries of the project rely on the system for market data, weather, and farming insights.	High	High
Rural Residents	Secondary users benefit from improved infrastructure, access to information, and community support services.	High	Medium
Indigenous communities	End users and main beneficiaries of the project and users those seeking cultural preservation, economic empowerment, and digital literacy.	High	High

Universities & Indigenous Knowledge Researchers	Ensure that both Western science and Indigenous ecological knowledge (TEK) are integrated.	Medium	Low
Agricultural & Environmental Research centres	Provide data and expertise on farming sustainability. Support evidence-based solutions for farming efficiency and sustainability.	Medium	Low
Rural Development NGOs	Support digital access, community training	High	Medium
Environmental & Land Conservation Groups	Ensure sustainability and biodiversity protection.	Medium	Medium
Queensland Government	Funding bodies, sponsor, offer regulatory oversight, agricultural best practices, and environmental insights; Ensure Indigenous rights, inclusion, and cultural sensitivity	High	High

Table 1 Stakeholders

This table outlines key stakeholders where Farmers and Indigenous communities are primary beneficiaries, while governments, NGOs, and research institutions provide support, funding, and expertise.

Root Cause Analysis

A fishbone diagram was used to perform the root cause analysis, as it is an easy-to-understand method of organising ideas and “tracking” problems. One of the flaws of the diagram is that it can oversimplify the problem, especially if it is a complex problem with many underlying factors.

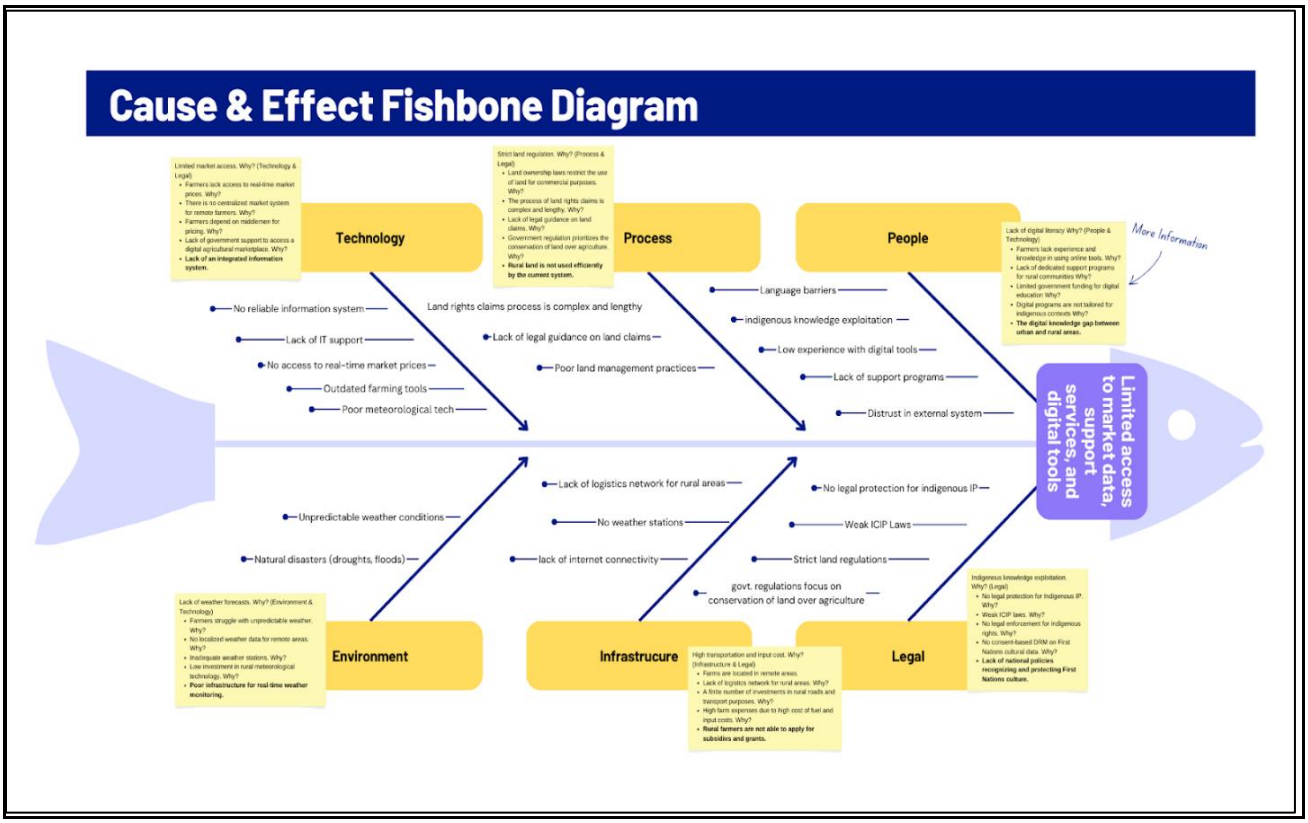

Figure 3 Fishbone diagram

The root cause analysis revealed many of the issues that were underpinning the initial problem. These issues involve the technology and infrastructure gap between rural and urban areas, as well as the lack of information-driven logistics and market solutions. Many of these issues affect people living in rural communities, especially First Nations peoples who are already underserved by the Queensland Government.

Gap Analysis

Gap analysis is a strategic tool used to identify the differences between the current state of a system and its desired future state. In our project, we use gap analysis to pinpoint the specific challenges rural farmers and Indigenous communities face, such as poor infrastructure, limited digital literacy, and lack of cultural integration, and compare them with the goals of accessible, culturally informed, and technology-driven agricultural support. This helps us clearly define what needs to change, prioritize actions, and ensure our solution directly addresses the most critical needs.

GAP ANALYSIS

Category	Current State	Desired State	Gap	Action Required
Technology	Outdated tools, lack of IT support, no real-time market data.	Smart agri-tech, real-time data	Tech capacity & digital tools	Integrate environmental and market data into one central, user-friendly platform; provide mobile/offline access tools
Infrastructure	Poor internet connectivity, limited logistics and transport services.	Reliable transport, logistics, and weather forecasting systems.	Connectivity and transport funding	Leverage open-source platforms for cost-effective deployment.
Cultural Integration	Indigenous practices underrepresented in tech and farming systems	Co-designed systems with Indigenous input	Indigenous knowledge inclusion in system design	Integration of Indigenous knowledge in land and farming practices.
Legal	Complex land rights processes, weak IP protection for Indigenous knowledge.	Streamlined land rights, strong legal protections for Indigenous IP.	Policy alignment & protection	Develop platform that align with existing policies; involve Indigenous legal experts to approve indigenous content.
Support	Low digital literacy, few training programs	Accessible, localized training & support	Digital literacy gap	Partner with local universities and NGOs for training and outreach.

Figure 4 Gap Analysis

This gap analysis outlines key challenges and opportunities in developing a digital platform to support rural farmers and Indigenous communities. It highlights five critical areas: **Technology**, **Infrastructure**, **Cultural Integration**, **Legal**, and **Support**. Currently, these areas face issues like outdated tools, poor connectivity, underrepresented Indigenous practices, complex legal systems, and low digital literacy. The desired state envisions smart farming tools, reliable infrastructure, culturally inclusive systems, streamlined legal protections, and accessible training. The analysis identifies the gaps in each area and proposes practical actions such as integrating Indigenous knowledge, using open-source tools, and partnering with local institutions to bridge these gaps and build a more inclusive, efficient, and supportive system.

The needs assessment highlights significant challenges, including outdated infrastructure, limited digital literacy, lack of cultural integration, and legal complexities affecting rural and Indigenous communities. Moving forward, we will brainstorm solutions designed to address these key issues through innovative, inclusive, and sustainable digital strategies tailored to community needs.

Proposed Solution

The Lotus Blossom Technique is a creative problem-solving method that starts with a central issue and expands outward into related ideas and potential solutions. It helps break down complex challenges into smaller, manageable parts by organizing thoughts visually and thematically. This technique is being used to propose solutions because it allows exploring a wide range of ideas systematically, leading to more inclusive, innovative, and effective outcomes for rural and Indigenous communities.

Lotus Blossom

Figure 5 Lotus Blossom

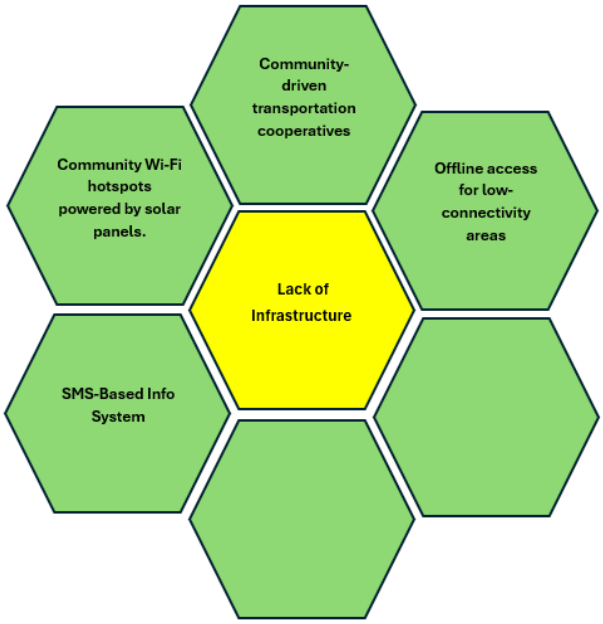

Figure 7 Lotus Blossom 1.2

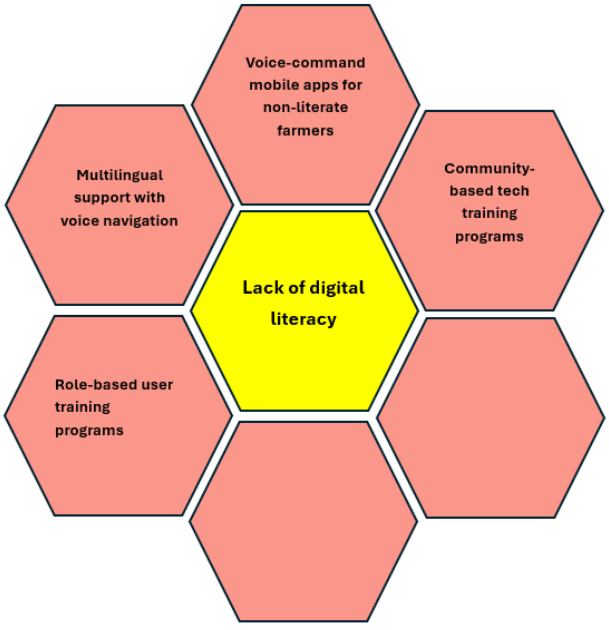

Figure 6 Lotus Blossom 1.1

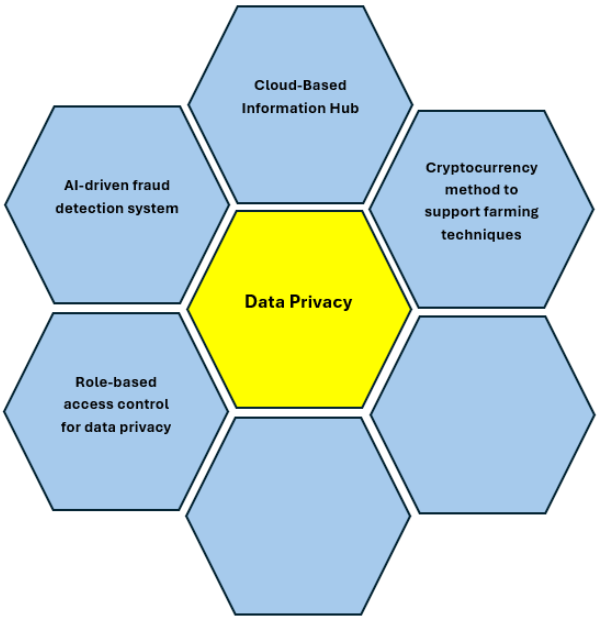

Figure 9 Lotus Blossom 1.4

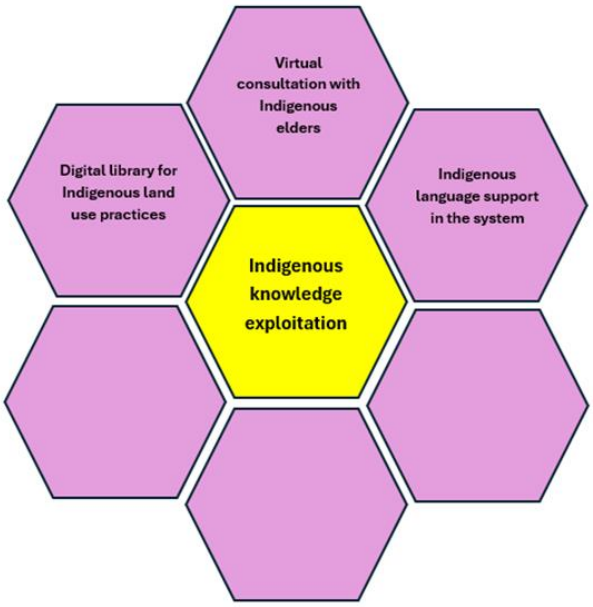

Figure 8 Lotus Blossom 1.3

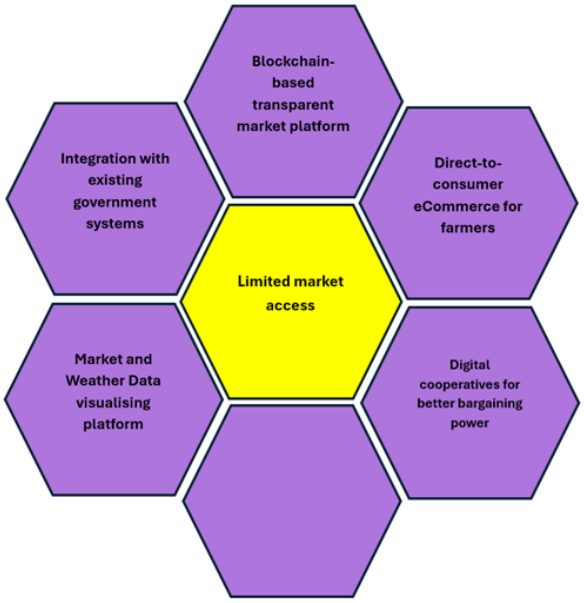

Figure 11 Lotus Blossom 1.6

Figure 10 Lotus Blossom 1.5

This analysis explores challenges faced by rural and Indigenous communities, especially access to vital agricultural, economic, and cultural information. The key issues identified include limited market access, lack of digital literacy, exploitation of Indigenous knowledge, inadequate infrastructure, and concerns related to best agricultural practices and data privacy. These challenges form the "blossom" from which multiple related problems and potential solutions expand outward.

To address these issues, many solutions were proposed in the lotus blossom. The main and realistic ones were determined to be:

1. **Limited Market Access:**

- Use Blockchain technology(application) for farmers to track record of crop price, transportation costs.
- Government-linked portal within app for updates on subsidies, loans, and grant application status.
- Market and Weather Data visualisation platform

2. **Indigenous knowledge exploitation**

- Digital library for Indigenous land use practices
- Provide translations for sites like BoM in first nations languages using AI.
- Virtual consultation with Indigenous elders

3. **Agricultural practices and training**

- AI chatbot for farming guidance
- Automated weather and cultivation calendar
- Peer-to-peer network where farmers can share their knowledge of agricultural practises
- Deploy IoT sensors to monitor Soil moisture & nutrient levels

4. **Infrastructure**

- SMS-Based Information System for weather, crop alerts, and market prices.
- Offline access for low-connectivity areas
- Community-driven transportation cooperatives

5. **Data privacy**

- Develop a Cloud-Based Information Hub
- Create a cryptocurrency method to support farming transactions.

6. **Digital literacy**

- Partnership with NGOs to provide training and literate poor farmers
- Voice-command mobile apps for non-literate
- Role-based user training programs

Using the lotus blossom technique produced many solutions. These solutions are filtered based on criteria such as Business value, Risk, Implementation Difficulty, Likelihood of success, Compliance, Urgency and Cost.

Solution Prioritised Table

Market Access	**Business Value**	**Risk**	**Implementation Difficulty**	**Likelihood of Success**	**Compliance**	**Urgency**	**Cost**
Blockchain for Price Transparency	Medium	Medium	High	Medium	High	Medium	High
Government-linked Portal	High	Medium	Medium	High	High	High	Low
Market & Weather Data Visualization	High	Medium	Medium	High	Medium	High	Medium
Justification: The Market and Weather data visualisation app brings greater long-term business value by empowering Indigenous farmers to make culturally informed decisions. It integrates environmental awareness with traditional knowledge, offering immediate urgency due to climate impacts, and supports deep engagement with First Nations perspectives.							
Infrastructure	**Business Value**	**Risk**	**Implementation Difficulty**	**Likelihood of Success**	**Compliance**	**Urgency**	**Cost**
SMS-Based Information System	High	Medium	Low	High	High	High	Low
Community Transportation Cooperatives	Medium	Medium	High	Medium	Medium	Medium	High

Offline Access Capability	High	Low	Medium	High	Low	High	Medium
Justification: SMS-Based Information System addresses the digital divide by delivering key updates (weather, market prices, alerts) via SMS, which works even on basic phones. It's low-cost, low-risk, and easy to deploy, making it ideal for remote regions with limited infrastructure and low digital literacy. High compliance and urgency levels make this a practical foundational step that supports broader digital transformation.							
Data Privacy	**Business Value**	**Risk**	**Implementation Difficulty**	**Likelihood of Success**	**Compliance**	**Urgency**	**Cost**
Cloud Based Info Hub	Medium	Medium	High	High	Medium	Low	Medium
Cryptocurrency for farmers	High	High	Medium	Low	Medium	Low	High
Justification: A cloud-based hub allows farmers and agencies to store and retrieve critical farming, pricing, and weather data securely. It supports centralized analytics, reduces data silos, and lays the groundwork for advanced tools like AI and ML in future phases. While it has moderate implementation difficulty, it offers long-term benefits in data ownership, security, and scalability.							
Digital literacy	**Business value**	**Risk**	**Implementation difficulty**	**Likelihood of success**	**Compliance**	**Urgency**	**Cost**
NGO Partnerships for Training	High	Low	Low	High	Low	High	Low
Role-based Training Programs	Medium	Medium	Medium	Medium	High	Medium	Medium

Voice-command Apps for Non-literate Users	Medium	Medium	High	Medium	High	Medium	High
Justification: NGO partnerships bring local credibility and grassroots presence to digital literacy initiatives. With low cost and high likelihood of success, this approach helps build trust and capabilities among farmers, especially in vulnerable and Indigenous communities. It also ensures better uptake of other digital solutions by empowering users with practical skills and ongoing support.							
Agricultural practices and training	**Business value**	**Risk**	**Implementation**	**Likelihood of success**	**Compliance**	**Urgency**	**Cost**
Automated weather and cultivation calendar	High	Medium	High	High	High	High	Medium
AI Chatbot for Farming Guidance	High	Medium	Medium	High	Medium	High	Medium
Peer-to-peer Knowledge Sharing	Medium	Low	Low	Medium	Medium	Medium	Medium
IoT Sensors for Soil Monitoring	High	Medium	High	Medium	High	Low	High
Justification: The Automated Weather and Cultivation Calendar is a high-priority feature because it provides significant value to Indigenous and rural farmers by aligning weather forecasts with crop cycles, improving planning and productivity. It supports key project goals like delivering real-time farming data and empowering users with actionable insights. Technologically feasible and cost-effective through existing APIs, it offers high user acceptance due to its clear, practical benefits.							

Indigenous Knowledge exploitation	Business Value	Risk	Implementation Difficulty	Likelihood of Success	Compliance	Urgency	Cost
Digital Library (Land Use Practices)	High	Low	Medium	Medium	Medium	Medium	Medium
Virtual Consultation with Elders	High	Medium	Medium	Medium	High	Medium	Medium
BoM Translation to Indigenous Languages	Medium	Medium	High	Medium	High	Low	High
Justification: Digital Library (Land Use Practices) preserves and shares traditional land use knowledge from Indigenous communities, integrating it into sustainable agricultural practices. It strengthens cultural identity, promotes biodiversity, and supports intergenerational learning. With medium cost and risk, it's a valuable long-term investment in culturally inclusive development.							

The overall analysis shows a balance between immediate impact and long-term sustainability. The prioritised solutions are Market & Weather Data Visualisation App, Government linked portals, SMS-Based Information System, Cloud-Based Information Hub, a Digital Library for Indigenous practices, Automated weather and cultivation calendar for farming guidance and NGO Partnerships for Training - are designed to create a connected, inclusive, and data-driven support ecosystem for farmers.

To determine the most suitable solution, a comprehensive feasibility analysis is conducted, evaluating technical, operational, and financial aspects of each option to identify the optimal choice.

Solution Scope and Feasibility

Operational Feasibility of the above filtered solutions

1) **Market & Weather Data Visualisation App**

A market & weather data visualisation app supports rural and Indigenous farmers by offering accessible, culturally relevant weather forecasts and market prices. It reduces reliance on outdated information, enables data-driven planning and functions in low-connectivity areas. Strategically, it aligns with Australia's digital transformation, climate resilience, and rural empowerment goals. Culturally, it respects traditions by integrating Indigenous knowledge, offering multilingual support and tailoring content to regional needs. It helps reduce losses from extreme weather events by providing timely alerts and allowing time for better emergency response.

2) **SMS-Based Information System**

A SMS-based information system provides rural and Indigenous farmers with vital updates like pest alerts, market prices, and weather forecasts via simple mobile phones, ensuring accessibility even without internet. It supports real-time decision-making for those with limited digital literacy and addresses information gaps in remote areas. Strategically, it aligns with national goals for digital inclusion and connectivity. Culturally, it builds trust by offering multilingual, voice or text messages tailored to community preferences.

3) **Cloud-Based Information Hub**

A cloud-based information hub would securely store and share critical agricultural data, enhancing collaboration and enabling data-driven decisions. It aligns with government goals for digital modernization and supports future AI integration. Culturally sensitive, it promotes Indigenous data sovereignty through controlled access and ethical management.

4) **NGO Partnerships for Training**

NGO partnerships for training boost digital literacy among rural and Indigenous farmers, empowering them to confidently use technology and adopt digital solutions. This approach supports inclusive development by targeting underprivileged groups and offering ongoing, community-based support. Strategically aligned with national goals for rural education and digital inclusion, it leverages trusted local NGOs to deliver culturally appropriate, intergenerational training.

5) **Automated Weather and Cultivation Calendar**

An automated weather and cultivation calendar provides region-specific planting schedules and real-time weather updates, helping farmers align activities with climate patterns to boost yields and reduce risks. It supports climate adaptation, precision farming and efficient

resource use. Culturally, it integrates Indigenous seasonal knowledge and offers accessible, multilingual, and visual guidance.

6) **Digital Library (Land Use Practices)**

A digital library (Land Use Practices) preserves and shares traditional Indigenous agricultural ways of knowing, blending these with modern practices to improve sustainability and empower communities. It supports cultural continuity, climate resilience, and national goals for Indigenous inclusion. Culturally respectful, it ensures community control, uses multimedia to honor oral traditions, and involves elders in content creation.

The best fits from operational feasibility analysis:

No	Solution	Justification
1	**Market & Weather Data Visualization App**	Gives farmers access to localized, real-time data to help them make better decisions and incorporates Indigenous knowledge for cultural significance.
2	**SMS-Based Information System**	Ensures that important updates are distributed quickly, cheaply, and inclusively to remote, low-literate consumers without internet access.
3	**Automated Weather and Cultivation Calendar**	Enables climate-smart farming by coordinating crop planning with Indigenous seasonal cycles and weather patterns.
4	**NGO Partnerships for Training**	Fosters trust and digital literacy through community-led, culturally aware education, which is essential for system adoption over the long run.
5	**Digital Library (Land Use Practices)**	Encourages sustainable land use, maintains Indigenous agricultural expertise, and strengthens cultural identity.

IndLands is a web-based and mobile application with the aim of empower Indigenous and rural agricultural communities throughout Australia. This solution takes aspects from the best-fit components outlined above to address important issues including poor digital literacy, restricted connectivity, market inaccessibility, and the loss of traditional expertise.

- Fundamentally, the Market & Weather Data Visualisation App gives farmers localised, real-time information on crop prices and weather, empowering them to make well-informed choices.

- An SMS-based information System makes critical information available to everyone by sending notifications via simple phones, ensuring inclusiveness in places with limited internet access.
- Farmers are further assisted with an Automated Weather and Cultivation Calendar, which provides region-specific advice based on Indigenous seasonal cycles and meteorological data.
- NGO Partnerships for Training will provide culturally relevant digital literacy instruction catered to a range of reading levels in order to promote adoption and foster community trust.
- A Digital Library of Indigenous Land Use Practices will conserve and share traditional agricultural knowledge, facilitating intergenerational learning and cultural continuity.

These elements work together to create a unified, approachable, and culturally sensitive system that supports digital inclusion, sustainable development, and economic resilience in addition to increasing agricultural output. For Australia's most marginalised agricultural communities, IndLands is more than a platform; it's a sustained commitment in equity, empowerment, and cultural preservation.

Solution Scope

IndLands - Empowering Indigenous agriculture through knowledge and data.

Goals- To support Indigenous and rural people by providing an easy-to-use digital system that delivers real-time farming data, protects traditional knowledge and helps communities access markets, subsidies and training- all in a way that respects their culture and language.

Expected Business Value:

- Farmers gain a higher yield and better decision-making with real-time data.
- Communities benefit from easier access to grants.
- Safeguarded Indigenous knowledge.
- Strengthen economic resilience (farmers no longer dependent on one bad harvest and middleman prices to survive)
- Improved disaster management
- Strengthen cultural heritage

Operational feasibility for InLands

How IndLands meets the business needs:

- Integrates real-time market prices (via APIs from agricultural boards), weather forecast (Bureau of Meteorology), so that farmers do not rely on fragmented and outdated sources such as word of mouth. This also helps in preventing loss from extreme weather like

flooding, which indirectly aids the government as it will minimize financial burdens from future damages.

- Ability to save posts or videos for offline viewing (especially for areas with low or no internet), so that rural areas with internet issues can access the knowledge and training being shared.
- Many farmers lose income due to middleman exploitation and a lack of market visibility. Therefore, real-time market prices will allow better decision-making.
- Knowledge hub- Anyone with traditional knowledge can share relevant traditional farming practices in compliance with cultural preservation to prevent the loss of traditional wisdom and sustainable use of land.
- Collaboration with the internet provider to solve the issue of internet connectivity.

Strategic fit:

- Align with government priorities, as it directly supports Australia's digital transformation strategy (Australian Government, n.d.) by bridging rural connectivity gaps via SMS and by collaborating with an Internet provider (100% reach).
- Provides relevant grant information and automates subsidies workflows (cutting processing time by 50%), fulfilling civil service efficiency goals (Queensland Audit Office, 2022).
- Embeds closing the gap target by preserving Indigenous knowledge and boosting agricultural income (Australian government , n.d.).
- As this is the only system combining real-time agricultural data and a traditional knowledge hub, it gives a competitive advantage of being the first movers.

Cultural fit:

- Language integration – Offers First Nations language options for all features.
- Community-owned knowledge – traditional farming practices are stored with access controls.
- Cultural calendar- Syncing the traditional seasonal cycle with modern farming plans will help in preventing crop loss and the loss of the Indigenous seasonal cycle.
- Storytelling format where knowledge is shared via videos, voice notes, diagrams and not just text to match oral traditions.

IndLands meets business needs with real-time agricultural data and offline access, aligns strategically with the government digital goals and embeds cultural fit via knowledge sharing and Indigenous-language support. Therefore, boosting productivity, income, and heritage preservation.

Technical Feasibility

Key Hardware Requirements	• Cloud Servers: For hosting the app and managing data securely. • User Devices: Mobile phones (iOS and Android) and desktop computers. • Storage Devices: For data backups and disaster recovery.

Software (Licenses, Subscriptions, Cost)	• App development tools (Android Studio, Xcode) • APIs: Weather, crop prices, and multilingual support (AUD 2,000/year for API subscriptions) • Database Management Systems (SQL/NoSQL).
Networking Equipment Needed	• Firewalls: To secure the network infrastructure. • Load Balancers: To distribute traffic efficiently. • VPN: For secure remote access data by developers
Technical Skills and Number Needed	• Mobile App Developers: 3~4 professionals skilled in (iOS and Android) system development. • Web Developers: 1~2 professionals skilled in web developing and API tools • Database scientist: 1~2 professionals skilled in customer data analysis and behavioural modelling • UX/UI Designers: 1~2 professionals skilled in front-end design and UX/UI tools. • Project Manager: 1 professional skilled in managing the project with excellent communication skills. • Indigenous Consultants: 1~2 professionals skilled in cultural alignment and well understanding Indigenous culture.
Other Considerations	• Integration: Seamless connection with government databases and APIs. • Scalability: Cloud-based for expanding user base and data volume. • Data Security: Ensure to privacy standards, especially for Indigenous data.
Assumptions	• Reliable mobile/internet connectivity • Government cooperation for API access (price, weather and crops)

Financial Feasibility

Expenses

The overall budget is $20 million AUD. The solution's expenses will need to stay under this to complete.

Memory Intensive System:

The mobile app will need to handle lots of data. In the case of a small memory intensive system, the Azure cost per month is 254.77 (assuming 730 hours of usage per month), resulting in a yearly running cost of $3057.24 AUD (Microsoft Azure, n.d.).

Storage:

The cost of storage also varies, depending on how much data needs to be stored. Estimate is 20TB per year, costing around $1,000 AUD annually if using hard disk drives for storage (Officeworks, n.d.).

API Licenses:

Software licences will also need to be purchased, with translation APIs being required to meet customer needs. Assuming the application translates 85 million characters, the yearly cost would be around $2000 (Microsoft Azure, n.d.).

Overall, while this product can meet requirements, it may have high expenses. Some solutions have been considered to minimize the running costs of the software. These involve reducing the scope of the application in order to ensure that the project does not spend too much money.

Role	Team Size	Hours Per Week	Hours Per Year
Developers (Full Stack) (180k/dev)	2	37.50	3,600
Junior Business Analyst (70k/JBA)	2	37.50	3,600
UI/UX Designers (150k/designer)	1	37.50	1,800
Project Manager (136k)	1	37.50	1,800
QA Engineers (78k/engineer)	1	37.50	1,800
Accountant (90k/Accountant)	1	37.50	1,800
Operational Manager (140k)	1	37.50	1,800
Total	11	37.50	19,800

Administration	Cost/annum
Insurance	$24,000
Electricity	$18,000
Utilities	$36,000
Maintenance	$14,400
Total Admin Cost	$92,400

When considering the total salaries for all contracted employees on top of the administration costs, the total costs for the first year of production amount to $1,306,000. This value is the **Initial Investment** for the project.

Income

The average yearly farm income in QLD was $79000 during the 2023-2024 financial year. The projected average increase in this yearly income is roughly 15%. As the government takes 25% (under base rate threshold) from business income in tax, this will result in a monetary gain of $2962.50.

A total of $3.3 million is being spent by the QLD Government in agricultural grants for the 2024-2025 financial year (Queensland Treasury, 2024).

The projected impact is a 5% drop in government grant spending. With the assumption that future agricultural spending will also be around the $3.3 million range, this will result in a direct save of $165,000 per year.

This is projected to increase in the second year to 8%, and then to 10% in the third year as the program gains more adoption.

After this, the save will decrease to 3% and then 1% afterwards, as the project becomes normalised in communities.

When adding all these values up, these become the **Cash Flow** values obtained in the first 5 years.

Value

Dimension	Details	Measurement Plan
Benefits	Reduced government spending Boost to farm income Job creation in rural areas	Calculated from percentage of agriculture grant Calculated by taking tax rate from income increases Calculated by assessing positions created
Costs	Employee costs Facility usage Technical costs	Look at salaries on SEEK Assess usage of facilities Look at Azure service costs

Present Value = Cash Flow * 1/(1+0.2) ^(number of years)

$$PV = CF \cdot \frac{1}{(1+0.2)^n}$$

$NPV = \Sigma PV - x$ Where x = the initial investment.

The sum of all the present values in 5 years is around $602,55.80. The Net Present Value (NPV) is the difference between the initial investment and the current sum. This results in a loss of $703,447.20.

The Internal Rate of Return (IRR) is the discount rate that is required to make the NPV exactly 0.

0 = Cash Flow * 1/(1+IRR) ^ (number of years)

$0 = CF \cdot \frac{1}{(1 \cdot x)^n}$ Where x= IRR.

Payback Period	Cost		
Year 1	$ (1,306,000.00)	$(1,193,037.50)	
Year 2	$ (1,193,037.50)	$ (981,075.00)	
Year 3	$ (981,075.00)	$ (703,112.50)	
Year 4	$ (703,112.50)	$ (656,150.00)	
	42.35	months	
	$ 23,163.54		
Payback Period	2.847 Years		

Year	Cash Flow	Rate	PVF = 1/(1+r)^n	PV = (PVF x CF)
1	$ 112,962.50	2.00%	0.9804	$ 110,747.55
2	$ 211,962.50	2.00%	0.9612	$ 203,731.74
3	$ 277,962.50	2.00%	0.9423	$ 261,930.27
4	$ 46,962.50	2.00%	0.9238	$ 43,386.09
5	$ (19,037.50)	2.00%	0.9057	$ (17,242.85)
			ΣPV =	$ 602,552.80
			Initial Cost	$ (1,306,000.00)
			NPV	$ (703,447.20)

Year	CF	IRR	PVF = 1/(1+r)^n	PV = (PVF x CF)
1	$ 112,962.50	-26.22%	1.3554	$ 153,107.21
2	$ 211,962.50	-26.22%	1.8371	$ 389,387.25
3	$ 277,962.50	-26.22%	2.4899	$ 692,102.24
4	$ 46,962.50	-26.22%	3.3748	$ 158,488.08
5	$ (19,037.50)	-26.22%	4.5741	$ (87,079.65)
			S PV =	$ 1,306,005.14
			Cost	$ (112,962.50)
			NPV	$ 1,193,042.64

Overall, the Queensland State Government **may gain money** through this investment. However, as the cash flow beings to fall, the project will start **losing money** due to its **high upkeep costs**, potentially requiring another large investment to continue maintaining cash flow.

A negative IRR implies that the product will have some difficulty obtaining money in the first 5 years, as it means that the value of money would have to increase by $26.22 each year for the project to break even.

In summary, this section of the report analyzes the financial feasibility of the project within a $20 million AUD budget. It outlines potential costs, including Azure services, storage, API licensing and administration.

It also provides insights into the cost benefit analysis. As shown above, employee salaries account for the majority of the expenses. Therefore, cost control will be essential for the project's progress. Strategies such as narrowing the scope can help ensure the solution remains within financial limits.

In the next section, the report will present the requirement elicitation plan, including strategies for identifying requirements and conducting target user interviews.

Requirement Elicitation

A mix of qualitative and quantitative techniques was chosen to reflect the cultural preferences, practical constraints, and diverse roles of stakeholders. Indigenous engagement frameworks guided the ethical and respectful application of these techniques.

Sr. No.	Techniques	Stakeholder	Justification
1.	Interviews	Indigenous people, Farmers	It aligns with oral traditions; enables in-depth exploration of cultural practices and needs in a respectful setting.
2.	Personas	Indigenous people, Farmers	It helps to visualize diverse user needs, abilities, and goals in design stages.
3.	Observations	Queensland Government departments	Helped understand real-world processes, bottlenecks, and policy implementation gaps not captured in workshops or documentation. Provided insight into how grants and data are currently handled, informing integration design.

Interview

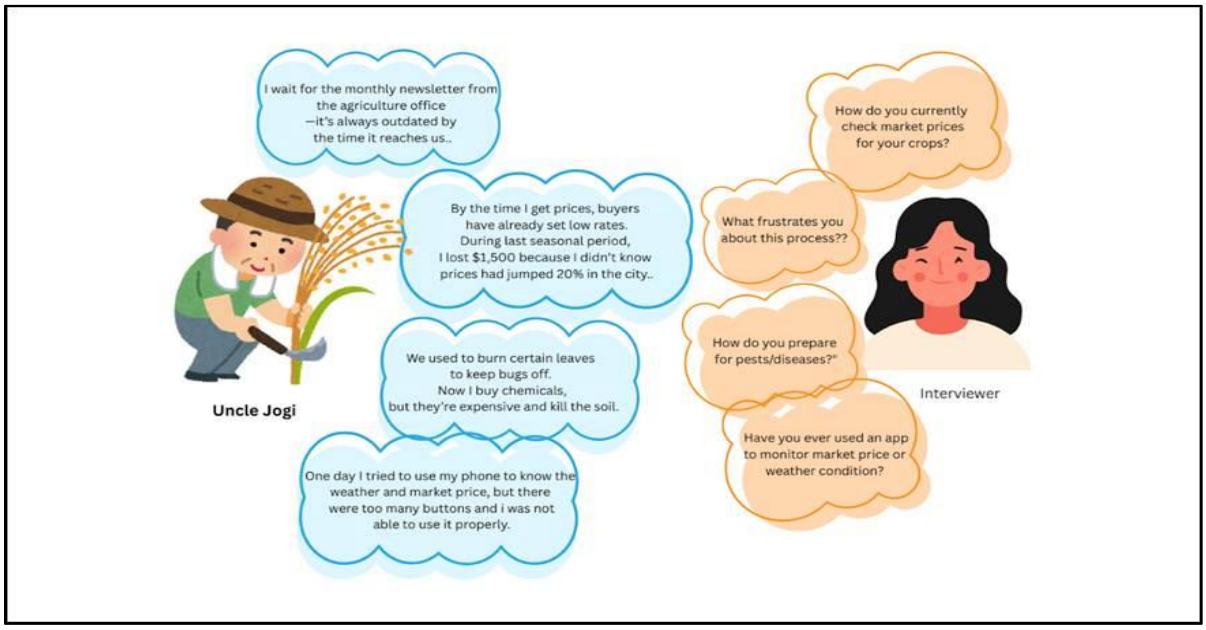

Figure 12 Interview 1: Farmer Jogi

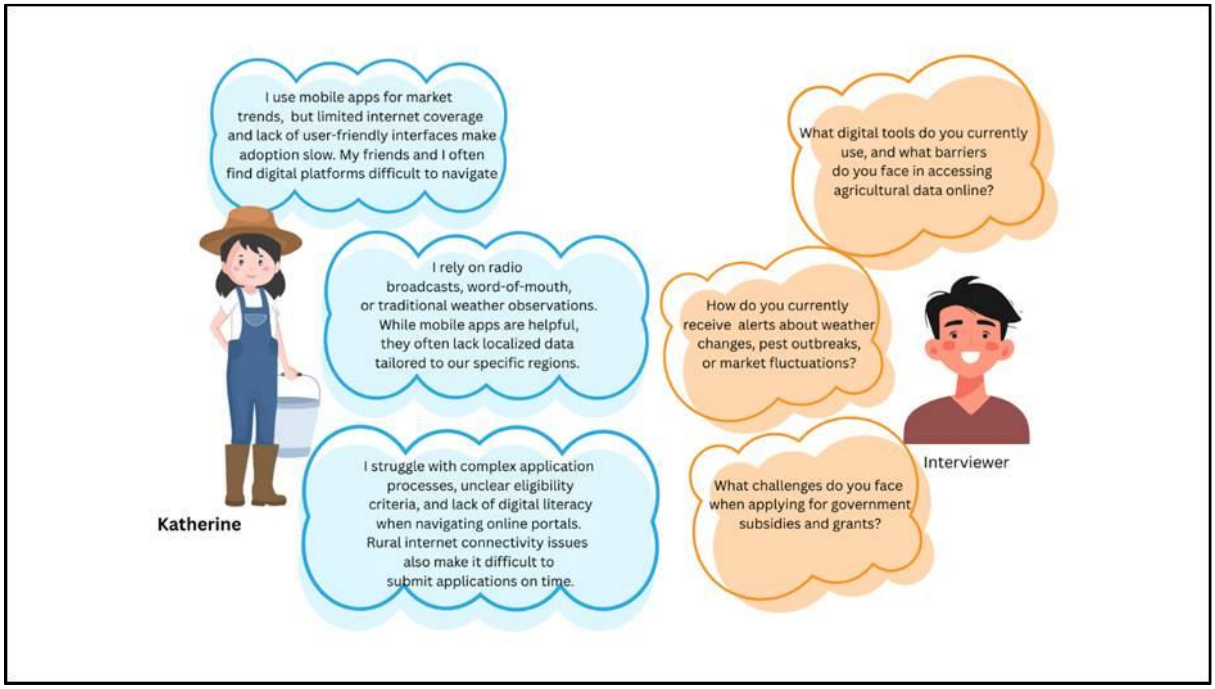

Figure 13 Interview 2: Farmer Katherine

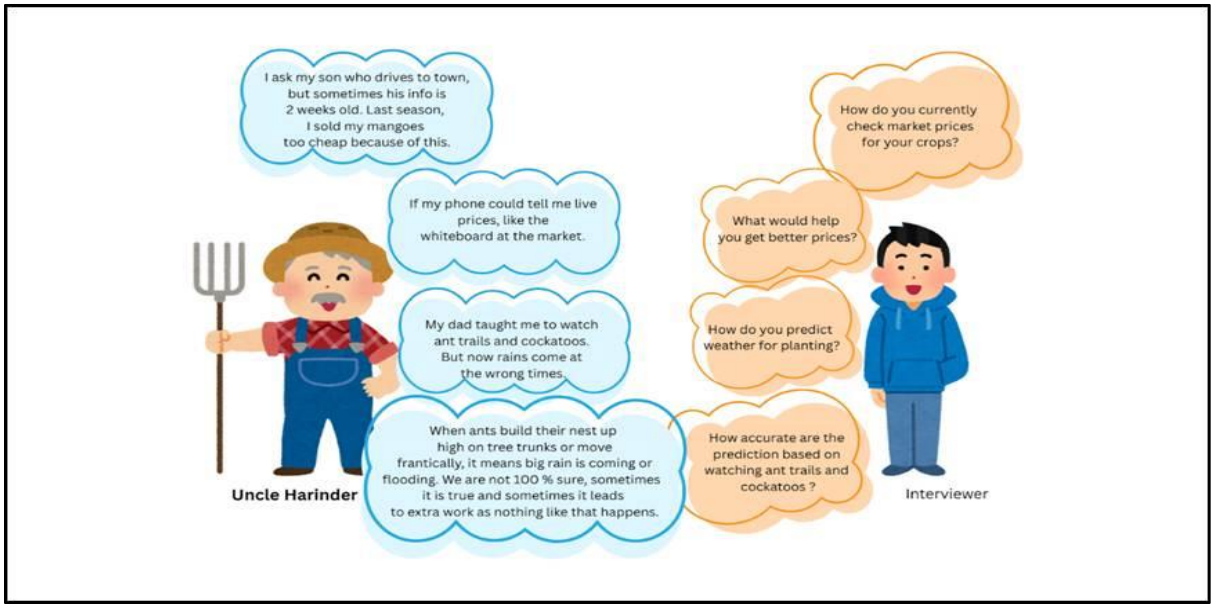

Figure 14 Interview 3: Farmer Harinder

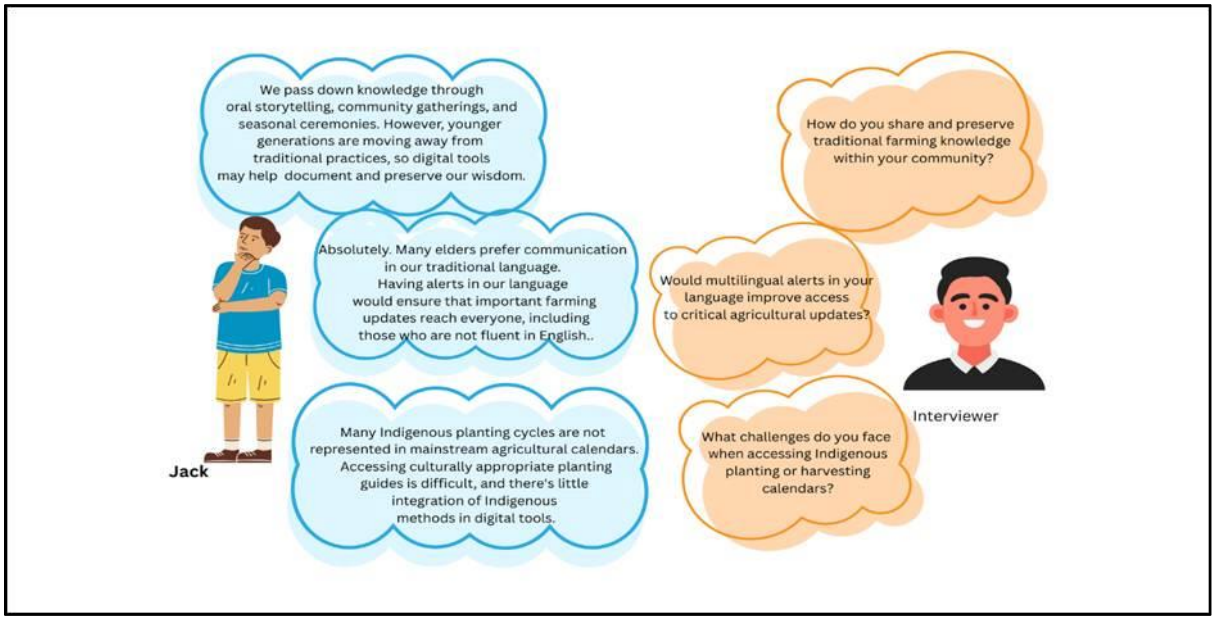

Figure 15 Interview 4: Indigenous person Jack

Interviews indicate that farmers and rural people face outdated price data, unreliable weather tools, and complex apps. They rely on word-of-mouth, traditional signs (ants/cockatoos), and need simple, offline-friendly tech with real-time updates, multilingual support, and elder-approved Indigenous knowledge integration. Further, we will use this data to create user stories.

Personas

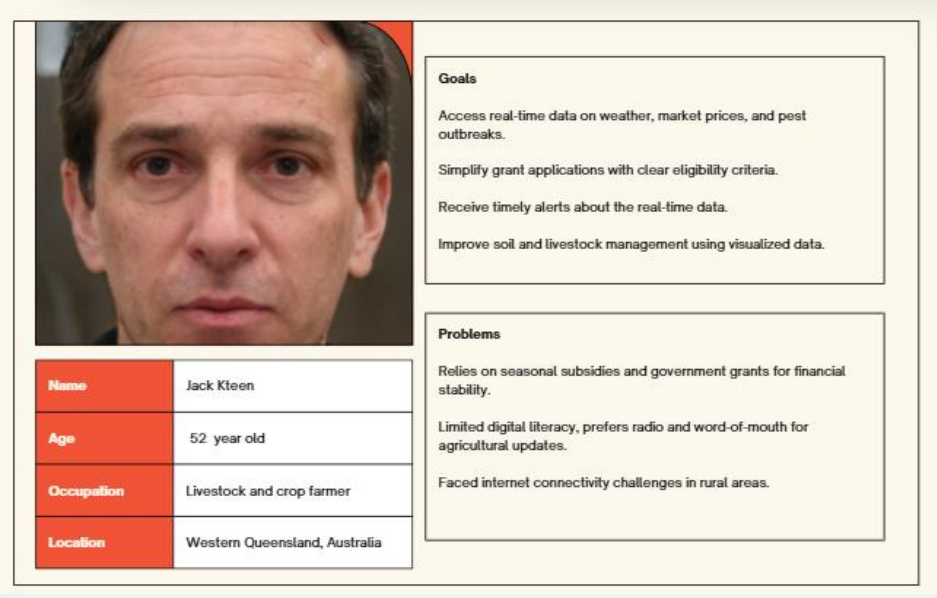

Figure 16 Persona 1: Farmer Jack Kleen

Figure 17 Persona 2: Indigenous person Jordan Parker

This Person Does Not Exist. (n.d.). AI-generated human faces. https://thispersonnotexist.org/

Using a persona helps the reader clearly understand who the stakeholder is and what they need. The former persona suggests that Jack Kleen seeks a digital tool that provides real-time information related to market price and weather, as well as automating the grant applications. Similarly, the latter shows that Jordan Parker seeks an information system that preserves traditional knowledge, enhances community collaboration and supports indigenous languages.

Based on the insights gathered from interviews, developed personas, and field observations, the following user stories have been created with clearly defined acceptance criteria to ensure they meet user needs effectively.

User Stories:

ID	Title	User story	Acceptance Criteria	
1	**Offline accessibility**	**As a Farmer, I want to save content offline so that I can access it even in remote fields or areas with less connectivity.**	1	The system has a dedicated “Saved” section in the navigation menu.
			2	The user can click the save icon to save the required content.
			3	Once saved, the entry is automatically downloaded and stored locally on the device.
			4	The user can also view the saved content without the internet.
2	**Review content**	**As an Indigenous affairs department, I want to review the traditional knowledge content before it is shared in the system so that it aligns with cultural protocols.**	1	The Indigenous Affairs department can access a dedicated "Reviewer Dashboard" to view all the pending submissions.
			2	When a user submits traditional knowledge content, it should be flagged as "Pending Approval."
			3	The content should not be visible to the public or general users until approved.
3	**Approve or Reject content**	**As an Indigenous affairs department, I want to review the traditional knowledge content before it is shared in the system so that it aligns with cultural protocols.**	1	The Indigenous Affairs Department should have the right to approve or reject the pending content.
			2	The Indigenous Affairs Department should click the approve or reject button to make the decision.
			3	If approved, the content should be uploaded for the public to view.
			4	If rejected, the content should not get uploaded.
			5	The system should send notifications to reviewer when new content is submitted.
4	**View government subsidies**	**As a farmer, I want to view a list of available government subsidies with their deadlines, so that I can apply on time and access financial support for my farming activities.**	1	The system should display a list of all currently available government subsidies relevant to the user’s region.
			2	Each subsidy entry should include the name, a short description, eligibility criteria, and application deadline.
			3	The system should highlight upcoming deadlines within 30 days.
			4	The system should update the grant list automatically from integrated government data sources at least weekly.

5	Apply for government subsidies	**As a farmer, I want to apply directly for a subsidy through the system, so that I can save time and avoid travelling to government offices or filling out paperwork manually.**	1	The system should pre-fill known user information (e.g., name, farm location, registration ID) to simplify the application form.
			2	The user should be able to upload required documents (e.g., ID, land ownership proof) through their phone or desktop.
			3	The system should display a success message and reference number once the application is submitted.
			4	The user should be able to track the status of their application (e.g., Submitted, Under Review, Approved, Rejected).
6	Alerts via SMS	**As an Indigenous person living in a remote area, I want to receive important alerts via SMS so that I am not left out due to limited or no internet access.**	1	The system should allow users to choose to receive essential alerts (e.g., weather warnings, subsidy deadlines, pest outbreaks) via SMS.
			2	The system should send SMS messages in the user's preferred language, including First Nations languages where available.
			3	Users should be able to configure which types of alerts they want to receive via SMS (e.g., grants, weather, prices).
			4	When internet connectivity is restored, the system should automatically sync new data and update the offline content.
7	Spoken content in local language	**As an Indigenous person, I want important information to be read out loud in my local language, so that I can easily understand what action to take.**	1	The system should provide a text-to-speech feature that reads weather alerts, market prices, and grant notifications out loud in supported First Nations languages.
			2	The user should be able to select their preferred spoken language during app onboarding or in settings.
			3	The system should provide a "Listen" button next to all critical data points and alerts, which triggers the audio playback.
			4	The voice content should be clear, culturally appropriate, and spoken in a way that is understood by the local community.
			5	If content is unavailable in the selected language, the system should fall back to English with a notification and provide a request option for translation support.
8	Contribute traditional knowledge	**As an Indigenous person, I want to share traditional agricultural knowledge through voice recordings or storytelling to benefit the future generation.**	1	The system should allow users to submit written narratives or audio recordings to the platform.
			2	The system should give theme tags (such as soil, seasons, and planting customs) for group uploads.
			3	The system should examine stories before publication.
			4	The system shall provide a special "Traditional Knowledge" section where other users can read or listen to stories.
9	Cultural calendar for harvesting	**As a farmer, I want to have access to cultivation schedules based on cultural cycles to get traditional knowledge.**	1	The system should provide the availability of calendars to all system users according to their geographical areas.
			2	The calendar should provide seasonal planting and harvesting advice on the site
			3	The system should allow the user to filter the calendar by crop type or seasonal event.
			4	The system should also give traditional knowledge-based explanations.

			5	The system should allow users to set notifications or reminders for important information.
10	Shared space for farmers	As a farmer, I want a place where I can ask questions about farming so that I can keep in touch and learn from them.	1	The system could provide a community forum with sections dedicated to various subjects.
			2	The system could allow users to respond to postings, leave comments, and submit questions.
			3	The system could allow users to have the option to be upvoted and designated as "Most Helpful."
			4	The system could control conversations to ensure civil discourse.
11	Secure Biometric and Login	As a farmer, I want to safely access my personal dashboard without having to remember a password by logging in using biometric or SMS verification.	1	The system should allow users to have the option of SMS code verification or biometric login (facial ID or fingerprint).
			2	The system should ask new users to specify their preferred login method.
			3	The system should encrypt and safely save the phone number and biometric information.
			4	The system should allow users to change or reset their verification method.
			5	The system should record any suspicious behaviour and login attempts and alert the user.
12	Monitoring weather using real-time data	As a farmer, I want to be able to see the weather conditions for my area in real time so that I can make informed decisions related to irrigation and harvesting.	1	The system should be able to access the location or be entered manually.
			2	The system should be able to access recent weather predictions for the chosen place via collaboration with BOM.
			3	The system must show important environmental variables on the system dashboard.
13	Digitise Grant Applications	As a government, I want users to submit grants electronically through the platform so that we can reduce manual paperwork, speed up approval times, and achieve at least a 50% reduction in paper-based submissions.	1	Users should complete and submit grant applications through the system
			2	Documents should be uploaded via phone camera or file upload.
			3	Forms should auto-fill user profile data to save time.
			4	The system should achieve a 50% decrease in paper applications and a 30% faster processing rate.
14	Increase Awareness and Access to Subsidies	As a government, I want to simplify the grant application process so that we reduce the number of missed subsidy opportunities by 60%.	1	The system should identify user eligibility and sends alerts for new or expiring grants.
			2	SMS and push notifications shall deliver in real-time to system users.
			3	The system should show at least a 60% reduction in unclaimed subsidies.
15	Deliver Real-Time Data for	As a government, I want farmers to	1	The system should provide weather forecasts and E72:E84pricing data by location.

	Farming Decisions	**receive real-time weather and market data so that they can make timely and accurate crop planning decisions, leading to a 30% improvement in outcomes.**	2	The system should show ideal planting windows based on real-time data.
			3	Users could log planned vs actual harvest results.
			4	The system should show a 30% increase in planning accuracy (based on user logs and field outcomes).
16	**First time user**	**As a first-time user, I want a clear and intuitive interface so that I can learn to use the system without training.**	1	The system shows the onboarding tutorial during first login.
			2	Icons and labels are easily understandable.
17	**Performance**	**As a system user, I want the platform to scale with increasing users and data so that performance remains stable.**	1	System supports up to 10,000 concurrent users.
			2	Performance degradation is <10% during high usage periods.
18	**Literacy**	**As an NGO facilitator, I want to provide region-specific digital literacy programs so that local farmers can confidently use the system.**	1	Materials are provided in multiple languages and formats
			2	Users can enrol in localized training sessions.
			3	Training completion is tracked in user profiles.

Use case

After defining user stories, use cases are developed to describe how users interact with the system step-by-step to achieve specific goals.

1. **Login into the System**

Actor Name	Farmer/Indigenous Person/Rural Community Member
Use case name	Login into the System
Goal	Users successfully access the IndLands platform
Trigger	User enters credentials and confirms via SMS or biometric authentication
Preconditions	- User must be registered - User is connected to internet

Post conditions	Dashboard is displayed with personalized content.
Main Scenario	1. User enters login credentials.
	2. System verifies authentication details.
	3. If Valid, the user gets the access.
	4. Dashboard is displayed based on user profile and location.
Alternative Flow	Step 2: Invalid credentials entered
	2.1 Login Unsuccessful
	2.2 User is prompted to retry login.
Priority	High
Frequency	Frequently

2. View Dashboard

Actor Name	Farmer/Indigenous Person/Rural Community Member
Use case name	View Dashboard
Goal	Users access real-time weather forecasts and crop market prices.
Trigger	User logs in and navigates to the dashboard
Preconditions	System must get data from data sources such as BOM and Government APIs. Location of the user must be accessible.
Post conditions	Dashboard data is displayed according to user's region.
Main Scenario	1. System detects the user's location.
	2. System retrieves weather and price updates.
	3. Dashboard displays data visualization.
Alternative Flow	Step 1: Location not available
	1.1 User is prompted to enter location manually.

	1.2 Dashboard loads based on input.
	Step 2: Data source unavailable
	2.1 System notifies the user and shows last recorded values.
Priority	High
Frequency	Very Frequent (daily for insights)

3. Get subsidies Information

Actor Name	Farmer/Indigenous Person/Rural Community Member
Use case name	Get subsidies information
Goal	Users explore available grants, deadlines, and eligibility criteria.
Trigger	User navigates to the subsidy section to browse funding options.
Preconditions	System must fetch and update subsidy details from government sources.
Post conditions	Users gain insights into accessible funding opportunities.
Main Scenario	1. User selects “View subsidies info”.
	2. System retrieves and displays updated grants and deadlines.
	3. User reviews eligibility criteria and funding requirements.
Alternative Flow	Step 3: No available subsidies
	3.1 System notifies users about upcoming funding cycles.
Priority	High
Frequency	Occasionally

4. Apply for Subsidies

Actor Name	Farmer, Indigenous People, Rural People
Use case name	Apply for Subsidies

Goal	Users submit a subsidy application after reviewing available grants.
Trigger	User initiates the subsidy application process.
Preconditions	System must provide access to digital application forms. Users must provide necessary documents for verification.
Post conditions	Application is successfully submitted for processing.
Main Scenario	1. User selects "Apply for subsidies."
	2. System pre-fills the application with user details.
	3. Users upload required documents.
	4. Application is submitted to government portals
Alternative Flow	Step 3: Missing documents detected
	3.1 The system prompts the user to upload missing files before proceeding.
Priority	High
Frequency	Occasionally

5. Approve subsidies

Actor Name	Queensland Government
Use case name	Approve subsidies
Goal	Government reviews and approves subsidy applications submitted by farmers and Indigenous communities.
Trigger	Government officials process submissions received through IndLands.
Preconditions	Users must have submitted a subsidy application through the system. Application must meet eligibility criteria and include required documents.

Post conditions	Approved applicants receive subsidy funds. Users are notified of their application status (approval/rejection).
Main Scenario	1. Government portal receives submitted documents.
	2. Government reviews the documents and validates eligibility criteria.
	3. Approved applications are processed, and funding is allocated.
	4. System sends confirmation.
Alternative Flow	Step 2: Application incomplete or invalid documents.
	2.1 System flags the issue and requests missing information from the applicant.
	Step 3: Application does not meet eligibility criteria
	System informs the user about the rejection.
Priority	High
Frequency	Rare (first-time or manual change)

6. Access Learning resources

Actor Name	Farmer/Indigenous Person/Rural Community Member
Use case name	Access Learning Resources
Goal	Users can explore Indigenous best practices, training materials, and sustainable farming techniques.
Trigger	User selects the "Learning Resources" section.
Preconditions	System must store and present educational materials.
Post conditions	Users enhance agricultural skills and preserve traditional farming techniques.
Main Scenario	1. User opens Indigenous Best Practices section.
	2. Content is filtered by region or tribe.
	3. Users watch videos and read seasonal charts.
	4. User bookmarks or shares content.

Alternative Flow	Step 2: No content for user's region.
	1.1 System displays general content.
Priority	Medium
Frequency	Moderate (seasonally or weekly)

7. Participate in Community Discussion

Actor Name	Farmer/Indigenous Person/Rural Community Member
Use case name	Participate in Community Discussion
Goal	Users engage in discussions with experts, NGOs, and fellow farmers.
Trigger	User enters the discussion forum on the platform
Preconditions	- Users must be logged in to participate.
Post conditions	Knowledge is shared or conversation started, farmers may also ask problem related questions.
Main Scenario	1. User opens the community section.
	2. Choose to post questions or share stories.
	3. Enter text/audio/video.
	4. Post is reviewed.
Alternative Flow	Step 4: Post flagged by moderation
	4.1 User is notified
	4.2 User can revise or appeal
Priority	Medium
Frequency	Moderate (community-driven)

8. Approve Indigenous knowledge content

Actor Name	Queensland Government

Use case name	Approve Indigenous Knowledge content
Goal	Ensure authenticity and accuracy of Indigenous farming knowledge before it is published.
Trigger	Indigenous Affairs department reviews the pending content.
Preconditions	Users must submit Indigenous agricultural knowledge. Content must align with cultural practices and scientific accuracy.
Post conditions	Verified knowledge is published publicly on the platform. Users gain access to authentic Indigenous farming techniques.
Main Scenario	1. Indigenous Affair department reviews the pending submissions.
	2. Check if the content aligns with the culture.
	3. Approved content is published in the Learning resource section.
Alternative Flow	Step 2: Content is inaccurate or culturally inappropriate.
	2.1 The system flags the issue and request modification.
Priority	High
Frequency	Occasionally (first-time or manual change)

A use case description is a text-based narrative of a functionality comprised of detailed, step-by-step interaction between the actor and the system (Business Analysis Doctor, 2019). The above use case descriptions clearly indicate the core interactions between users and the data visualisation app. Each use case includes the goal, triggers, preconditions, main scenarios, alternative flows and postconditions, which provide a clear understanding of system behaviour.

Use Case Diagram

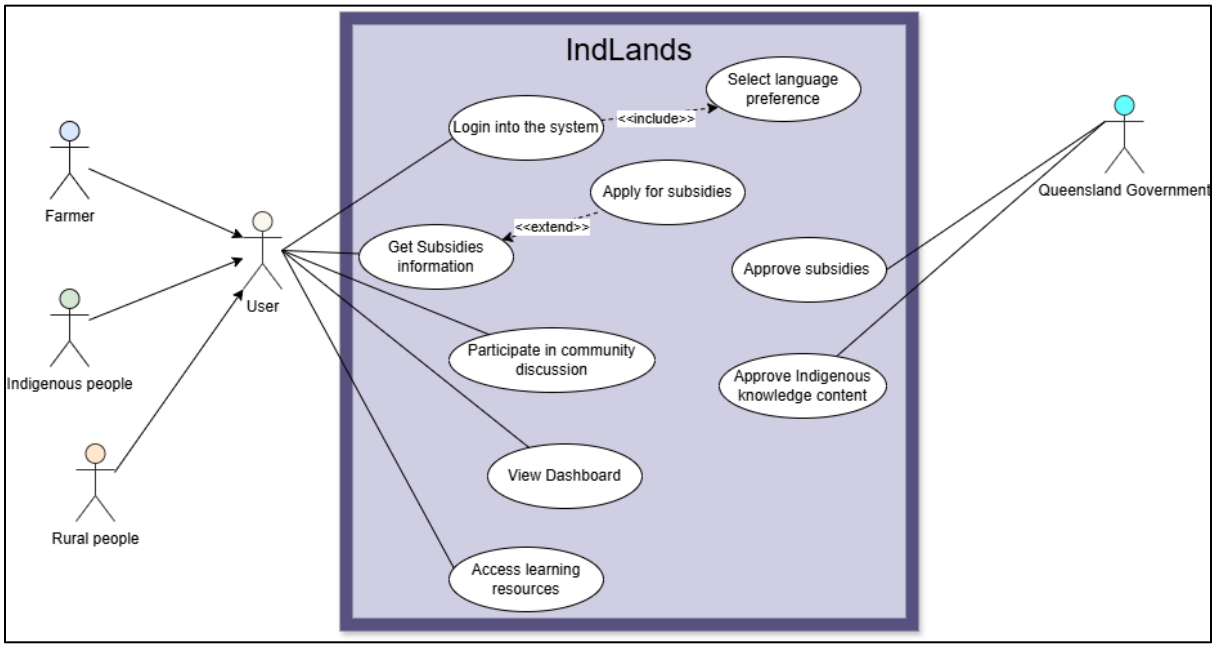

Figure 18 Use Case Diagram

The use case diagram illustrates the interactions between the actors and the system. Additionally, use case diagrams define the context and requirements of the entire system/important components (IBM, 2021). Therefore, understanding case diagrams can improve understanding of how the system and actors work and interact, providing a clear scope for the next section.

Requirement Analysis and Prioritization

Based on the user stories derived from interviews, personas, and analysis of system behavior through the use case diagram, system requirements have been identified and prioritizing using the **Moscow** technique (Must have, Should have, Could have, and Won't have for now). This method is well-suited as it supports clear stakeholder communication, aligns priorities with user and business needs, and helps manage time and resources effectively, ensuring the core features of the IndLands platform are delivered within constraints.

SR. no.	Requirement	Priority	Category
1	The system must provide a "Saved Entries" section accessible via the main navigation menu.	M	Functional

2	The system must allow users to bookmark content using a visible bookmark icon.	M	Functional
3	Upon bookmarking, the system must download the content for offline storage on the user's device.	M	Functional
4	The system must allow users to access saved entries without an internet connection.	M	Functional
5	The system must display all currently available government grants and subsidies relevant to the user's region.	M	Functional
6	Each grant listing must include the name, description, eligibility criteria, and application deadline.	M	Functional
7	The system must allow users to upload documents required for grant applications.	M	Functional
8	The system must provide a confirmation message and reference number upon submission.	M	Functional
9	The system must allow users to track the status of their grant applications.	M	Functional
10	Users must select a spoken language during onboarding or via settings.	M	Functional
11	If voice support is unavailable in a selected language, the system must fall back to English and notify the user.	M	Functional
12	The system must allow users to submit stories or audio files about traditional knowledge.	M	Functional
13	The system must provide access to planting and harvesting calendars by region.	M	Functional

14	The system must include seasonal advice in the calendar display.	M	Functional
15	The system must allow users to enable location tracking or manually enter a location to retrieve weather data.	M	Functional
16	The system must retrieve and display recent weather forecasts (e.g., precipitation, temperature, wind) for the selected location.	M	Functional
17	The system must display key environmental indicators on the user dashboard.	M	Functional
18	The system must allow users to choose between SMS code verification or biometric login (facial ID or fingerprint).	M	Functional
19	The system must ask new users to specify their preferred login method.	M	Functional
20	The system must encrypt and safely save the phone number and biometric information.	M	Functional
21	The system must allow users to change or reset their verification method.	M	Functional
22	The system must allow users to receive OTP via SMS.	M	Functional
23	The system must detect and notify users of pest outbreaks based on their current or manually entered location.	M	Functional
24	The system must display real-time pop-up alerts when significant changes occur in the market price of monitored crops.	M	Functional
25	The system must allow users to upload required documents via phone camera or file upload.	M	Functional
26	The system must show an onboarding tutorial on first login.	M	Functional

27	The dashboard interface must be mobile-optimized and load to the home page in under 3 seconds on 3G or slower connections.	M	Non-Functional
28	The system must ensure uptime of at least 99.5% for real-time data services.	M	Non-Functional
29	Alerts must be delivered within 10 seconds of data update from source APIs.	M	Non-Functional
30	In the event of an outage, a report must be sent to the developers within 1 minute.	M	Non-Functional
31	The system must allow users to navigate from one page to another page	M	Non-Functional
32	The system should allow Indigenous Affairs departments(Government) to review, approve, or reject user-submitted traditional knowledge.	S	Functional
33	The system should flag user-submitted traditional knowledge content as "Pending Approval."	S	Functional
34	The system should prevent public visibility of knowledge content until it is approved.	S	Functional
35	The system should provide a "Reviewer Dashboard" for Indigenous Affair department to manage content review.	S	Functional
36	The system should highlight grant deadlines that are within 30 days.	S	Functional
37	The system should auto-update the grants list weekly using integrated government APIs or data sources.	S	Functional
38	The system should offer a text-to-speech feature for alerts and critical data in First Nations languages.	S	Functional
39	Users should be able to categorize content by themes (e.g., soil, planting).	S	Functional
40	The system should have a section called “Traditional Knowledge” where approved content can be accessed.	S	Functional

41	Users should be able to filter calendars by crop type and seasonal event.	S	Functional
42	The system should allow users to schedule reminders and notifications for calendar events.	S	Functional
43	The system should send SMS in the user's selected languages, including First Nations languages.	S	Functional
44	The system should enable 30% faster grant processing time through automation.	S	Business
45	Enhance agricultural support and accessibility for indigenous and rural communities	S	Business
46	The system should warn users when they are making large alterations to their or others' data (submitting content, deleting content, etc.)	S	Functional
47	There should be an increase in the digital literacy of people in rural communities.	S	Stakeholder
48	Users should be able to configure which types of alerts they want via SMS.	S	Functional
49	The system could cache important data for offline access and automatically sync when the internet is available.	C	Functional
50	The system could include a "Listen" button for playing audio versions of content.	C	Functional
51	In the system, each calendar event could include traditional knowledge-based guidance.	C	Functional
52	The system could include a forum with categories for different discussion topics.	C	Functional
53	Users would be able to post questions, comment on threads, and respond to others.	C	Functional
54	Posts could be upvotable and taggable as "Most Helpful."	C	Functional
55	The forum could include a moderation feature to ensure respectful communication.	C	Stakeholder

56	The system could provide real-time soil temperature and moisture data along with the timestamp of the latest reading.	C	Functional

A total of 56 requirements have been identified, and a weighted criteria approach is now being applied to evaluate and prioritize those that deliver the greatest business value. This method is effective because it enables objective comparison by assigning weights to key factors such as value, cost, and risk. By quantifying requirements against these criteria, it ensures that high-impact, cost-effective, and low-risk features are prioritized.

Weighted Criteria Table:

Formulas used to calculate priority score:

$$Total\ Value = \sum (X_i \times W_i)$$

$$Priority = \frac{Value\ \%}{(Cost\ \% \times Cost\ Weight) + (Risk\ \% \times Risk\ Weight)}$$

		Value				Cost			Risk			
	Relative Weights (Wi)	3	1	Total Value	Value %	1.5	Total Cost	Cost %	0.5	Total Risk	Risk %	Priority
	Factor	Relative Benefit	Relative Time			Relative Cost			Relative Risk			
	Scale	1-------9	1-------9			1-------9			1-------9			
Id	User Requirements											
4	**Access saved entries Offline**	8	4	28	6.5%	5	7.5	6.1%	3	1.5	4.6%	**0.569**
5	**Display currently available Govt. Grants**	8	3	27	6.3%	4	6	4.9%	4	2	6.2%	**0.604**
10	**Select Preferred language**	5	2	17	4.0%	3	4.5	3.7%	2	1	3.1%	**0.563**
12	Submit Traditional Knowledge Stories	5	3	18	4.2%	3	4.5	3.7%	4	2	6.2%	0.489
13	Planting/harvesting calendar	7	4	25	5.8%	5	7.5	6.1%	3	1.5	4.6%	0.508
14	Calendar Seasonal Advice	8	4	28	6.5%	6	9	7.3%	4	2	6.2%	0.463
15	Location-Based Weather Info	8	4	28	6.5%	5	7.5	6.1%	5	2.5	7.7%	0.501
17	Environmental Dashboard Indicators	7	5	26	6.0%	5	7.5	6.1%	3	1.5	4.6%	0.528
18	Select between SMS/Biometric Login optior	6	4	22	5.1%	4	6	4.9%	4	2	6.2%	0.492
20	Encrypt Personal Data	9	5	32	7.4%	7	10.5	8.5%	6	3	9.2%	0.427
21	**Able to Change login method**	7	3	24	5.6%	4	6	4.9%	3	1.5	4.6%	**0.580**
23	Pest Outbreak Alerts	7	5	26	6.0%	5	7.5	6.1%	4	2	6.2%	0.495
24	Market Price Alerts	7	5	26	6.0%	5	7.5	6.1%	4	2	6.2%	0.495
26	Onboarding tutorial	4	2	14	3.3%	3	4.5	3.7%	1	0.5	1.5%	0.520
32	Review Traditional Knowledge Submission	5	4	19	4.4%	5	7.5	6.1%	4	2	6.2%	0.361
38	Text-to-speech feature for alerts	7	5	26	6.0%	6	9	7.3%	3	1.5	4.6%	0.455
48	**Alert Configuration SMS**	8	4	28	6.5%	4	6	4.9%	4	2	6.2%	**0.626**
52	Discussion Forum	4	4	16	3.7%	3	4.5	3.7%	4	2	6.2%	0.434
				430	100.0%		123	100.0%		32.5	100.0%	

A weighted scoring table is used to evaluate 18 user requirements for the proposed IndLands system. Each requirement is assessed based on value (benefit and time to implement), cost, and risk, using the weighted criteria method:

- Value: Weighted 75% (Relative Benefit × 3 and Relative Time × 1)
- Cost: Weighted 15% (Relative Cost × 1.5)
- Risk: Weighted 10% (Relative Risk × 0.5)

Top Prioritized Requirements (Priority Score ≥ 0.56)

These are high-value features with relatively lower risk and cost:

1. **Alert Configuration SMS** (0.626) – Highest priority feature for configuring SMS alerts.
2. **Display currently available Government Grants** (0.604) – Important for increasing awareness among farmers of accessible funding so that they will apply for it.
3. **Able to Change Login Method** (0.580) – Adds flexibility and user-friendliness.
4. **Select Preferred Language** (0.563) – It will ensure inclusivity across language groups.
5. **Access Saved Entries Offline** (0.569) – It will enhance usability in remote areas.

Following requirement analysis and prioritization, the next step involves creating the **Requirements Traceability Matrix and associated test cases** to ensure each requirement is verifiable and aligned with the project goals.

Requirements Validation and Traceability

Requirement Traceability Matrix								
Project Name**: InLands**								
Business Requirement		**Stakeholder Requirement**		**Functional Requirement**			**Test Case**	
BR ID	**Business Requirement**	**SR ID**	**Use Case**	**FR ID**	**Functional Requirement/Use Case**	**Priority**	**Test Case ID**	**Test Case**
BR1	Enhance agricultural support and accessibility for indigenous and rural communities	SR1	There should be an increase in the digital literacy of people in rural communities.	FR1	Alert Configuration SMS	S	TC# 1	Test users in rural communities can configure and receive SMS alerts successfully.

BR1	Enhance agricultural support and accessibility for indigenous and rural communities	SR2	The forum could include a moderation feature to ensure respectful communication.	FR2	Text-to-speech feature for alerts in First Nations languages	S	TC# 2	Test alerts can be converted into audio using text-to-speech in selected First Nations languages.
BR1	Enhance agricultural support and accessibility for indigenous and rural communities	SR1	There should be an increase in the digital literacy of people in rural communities	FR3	Reviewer looks at Management Dashboard	S	TC# 3	Test the authorized user can access and view the Management Dashboard.
BR1	Enhance agricultural support and accessibility for indigenous and rural communities	SR1	There should be an increase in the digital literacy of people in rural communities	FR4	Review Traditional Knowledge Submissions	S	TC# 4	Test users can access and review traditional knowledge submissions.
BR1	Enhance agricultural support and accessibility for indigenous and rural communities	SR1	There should be an increase in the digital literacy of people in rural communities	FR5	Onboarding tutorial	S	TC# 5	Test the new users receive an onboarding tutorial after signing up
BR1	Enhance agricultural support and accessibility for indigenous and rural communities	SR1	There should be an increase in the digital literacy of people in rural communities	FR6	Market Price Alerts	M	TC# 6	Test users receive real-time alerts about market prices for selected crops or livestock
BR1	Enhance agricultural support and accessibility	SR1	There should be an increase in the digital literacy of	FR7	Calendar Seasonal Advice	M	TC# 7	Test the seasonal calendar advice is

	for indigenous and rural communities		people in rural communities					displayed accurately according to the selected region.
BR1	Enhance agricultural support and accessibility for indigenous and rural communities	SR1	There should be an increase in the digital literacy of people in rural communities	FR8	Select Preferred language	M	TC# 8	Test users can select and view the application in their preferred language.
BR2	The system should enable 30% faster grant processing time through automation	SR1	There should be an increase in the digital literacy of people in rural communities	FR9	Display currently available Govt. Grants	M	TC# 9	Test users can view a list of currently available government grants.

The **Requirement Traceability Matrix (RTM**) helps the report track changes and manage project scope effectively. According to Project Manager (n.d.), "Tracing those features can ensure that none slip through the cracks, a process that's best completed by using a requirements traceability matrix." Overall, the RTM provides clear insight into the requirements and helps the report track all changes and scope.

Test Cases

Test cases are developed to demonstrate that each system requirement is measurable, verifiable, and can be validated through testing. The three different test cases for viewing governments subsidies requirement written below.

Test ID	Test Description	Expected Outcome
1	Display Grant Listings	While clicking on Govt. Grants section, a list of active government grants is shown with titles, brief descriptions, and application deadlines
2	Filter Grants by Category or Region	After applying filter, the system displays only the grants relevant to the selected filter criteria.
3	Real-Time Updates on Grant Availability	Newly added or updated grants appear in the list without requiring a manual app update.

Transition Management Plan

This transition plan guides the rollout of the *IndLands* platform. It ensures stakeholder engagement, ethical data practices, strong communication, and long-term sustainability.

The objective of the transition plan is to foster trust with Indigenous communities by ethically integrating traditional knowledge with modern agricultural data, ensuring secure and inclusive data practices. It aims to build digital readiness through targeted capacity building while minimising disruption and resistance by prioritising culturally respectful engagement and user-friendly technology adoption.

To launch IndLands, pilot approach is ideal for this project as it allows early testing of the system on a small scale to identify issues, reduce risks, and gather user feedback before full implementation. This method supports culturally sensitive engagement with Indigenous communities, accommodates varying levels of digital literacy, and enables iterative refinement of features. It also fosters community ownership, aligns with government and infrastructure partners, and ensures ethical, secure, and sustainable implementation tailored to real user needs.

The transition strategy plan is to do as follows:

Phase	**Activities**	**Key Stakeholders**
1. Preparation	• Conduct co-design workshops with Indigenous elders, farmers, and cultural knowledge holders to gather input on features, interface design, and content relevance. • Undertake a stakeholder mapping and engagement plan to identify regional influencers and cultural gatekeepers. • Perform a needs and digital readiness assessment in pilot communities. • Translate key app content and onboarding materials into local First Nations languages, ensuring cultural accuracy and accessibility.	Elders, Rural and Indigenous farmers, Indigenous organisation

2. Pilot Deployment	• Launch the *IndLands* app in 2–3 diverse pilot regions (e.g., coastal, inland, remote). • Monitor usage, gather real-time user feedback, and identify pain points or usability issues. • Refine app features and workflows based on pilot feedback, ensuring alignment with community needs and cultural sensitivities. • Establish local "digital champions" to support peer adoption and knowledge transfer.	Community leaders and elders, Local youth volunteers, Feedback coordinators and app developers
3. Training & Onboarding	• Deploy localised and culturally appropriate training programs focusing on digital literacy, app navigation, and data interpretation. • Host in-person and virtual workshops tailored for different user groups, including elders, youth, and women. • Develop and distribute multilingual audio-visual guides, including low-literacy and oral-friendly formats. • Encourage intergenerational learning, where tech-savvy youth mentor older community members.	Indigenous and rural farmers, Community IT facilitators, NGOs supporting digital inclusion
4. Full Implementation	• Launch the app nationwide with media coverage, community endorsements, and widespread availability. • Integrate with relevant government portals to provide real-time updates on subsidies, grants, and weather data. • Establish hotlines and multilingual support teams to handle queries, technical issues, and feedback. • Partner with internet service providers (ISPs) to provide affordable or free internet access in underserved areas.	All app users, Government agencies (e.g., Indigenous Affairs, Agriculture), NGOs and community service organisations

5. Ongoing Support	• Maintain open feedback loops with users through surveys, community meetings, and digital channels. • Conduct periodic data audits to ensure privacy, consent, and content accuracy. • Continuously update the app with new features, cultural content, and government data sources. • Establish community support networks—including Indigenous reviewers, moderators, and digital helpdesks—to maintain relevance and trust.	App developers and IT support teams, Indigenous content reviewers and moderators, Extension officers and cultural advisers, Community members and elders

Communication Plan

The communication and engagement plan for the IndLands project is built on a respectful, multilingual, and trust-based approach that reflects the cultural values of Indigenous communities. It leverages diverse channels such as community radio, face-to-face meetings, SMS updates, posters, and storytelling videos to ensure accessibility across different literacy levels and regions. Trusted messengers—including local champions, elders, and agricultural extension officers—will play a central role in delivering messages and building confidence in the platform. To support understanding and adoption, culturally adapted user manuals, visual onboarding guides for low-literacy users, and live Q&A sessions with local trainers will be provided, ensuring that all users feel supported, informed, and empowered throughout the transition.

Capacity building plan

The capacity building plan for the IndLands project focuses on empowering communities through inclusive and sustainable digital education. A train-the-trainer model will be implemented in each pilot region to ensure local ownership and ongoing support, with community members trained to guide others.

Special attention will be given to supporting elders and less tech-savvy users through hands-on assistance and culturally sensitive training. Partnerships with local schools will engage Indigenous youth, promote intergenerational learning and foster long-term digital resilience.

Additionally, practical workshops will be offered on topics such as navigating grant applications and using agricultural data, equipping users with the skills to make informed decisions and access vital resources.

Conclusion

In conclusion, this report provides an analysis aimed at addressing several key challenges:

- the lack of centralized and limited access to market information
- high input and transportation costs
- unpredictable weather conditions
- lack of connectivity and digital literacy

The proposed solution involves the development of an IndLands Information system that can deliver real-time market data, weather forecasts, agricultural best practices and training, as well as support for cultural and economic activities. The report also discusses the solution development process, including requirements analysis, financial analysis and a target user survey.

However, there are some limitations for the program development. The program has a high financial investment and requires a lot of upkeep; it has the potential to improve the lives of many farmers and First Nations Australians.

References

Aboriginal Heritage Office. (2025). A brief aboriginal history. https://www.aboriginalheritage.org/history/history/

Australian Government. (2022). Better Connectivity Plan for Regional and Rural Australia. https://www.infrastructure.gov.au/media-communications-arts/better-connectivity-plan-regional-and-rural-australia

Australia State of the Environment. (2021). Indigenous governance, rights and access. https://soe.dcceew.gov.au/overview/pressures/indigenous-governance-rights-and-access

Agriculture Victoria. (2019). AgTech programs and case studies on farms. https://agriculture.vic.gov.au/farm-management/agtech/agtech-for-farmers/agtech-programs-and-case-studies-on-farms

Agricultural research and development investment in Australia - 2022-2023 update - DAFF. (2024, February 18). https://www.agriculture.gov.au/abares/researchtopics/productivity/agricultural-research-and-development-investment-in-australia

Australian Government. (2025). Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) - DCCEEW. https://www.dcceew.gov.au/environment/epbc

Australian Competition and Consumer Commission. (2023). Legislation we enforce. https://www.accc.gov.au/about-us/accc-role-and-structure/legislation-we-enforce

Australian Government. (2022). A new National Cultural Policy. https://www.arts.gov.au/what-we-do/new-national-cultural-policy

Au, C. (2016). On the frontline: climate change& rural communities. https://www.climatecouncil.org.au/uploads/564abfd96ebac5cbc6cf45de2f17e12d.pdf

Business Analysis Doctor. (2019). Use case description basics. https://thebadoc.com/ba-techniques/f/use-case-description-basics

Beyond Blue's online forums are supporting rural Australians. (2019). Partyline. https://www.ruralhealth.org.au/partyline/article/beyond-blues-online-forums-are-supporting-rural-australians?form=MG0AV3&form=MG0AV3

Cawthorn, M. (2020). Native title, rights and interests. Native Title; PBC. https://nativetitle.org.au/learn/native-title-and-pbcs/native-title-rights-and-interests

Claughton, D. (2025). Trump's tariffs and the threat protectionism poses to Australian exporters. https://www.abc.net.au/news/rural/2025-02-04/trump-us-tariffs-australian-farmers-export-markets/104891042

DAFF. (2024). Snapshot of Australian Agriculture 2023 - DAFF. https://www.agriculture.gov.au/abares/products/insights/snapshot-of-australian-agriculture

DAFF. (2024). Snapshot of Australian agriculture 2023 - DAFF. https://www.agriculture.gov.au/abares/products/insights/snapshot-of-australian-agriculture

Fishtank. (2022). What are personas in Agile business analysis? https://www.getfishtank.com/insights/personas-in-agile-business-analysis

Full Report. (2025). OECD. https://www.oecd.org/en/publications/linking-indigenous-communities-with-regional-development-in-australia_ab4d8d52-en/full-report.html

Greenville, J. (2020). Analysis of government support for Australian agricultural producers - Department of Agriculture. https://www.agriculture.gov.au/abares/research-topics/trade/analysis-of-government-support-agricultural-producers

Gillies, C. (2017). Traditional Aboriginal burning in modern day land management. Landcare Australia. https://landcareaustralia.org.au/project/traditional-aboriginal-burning-modern-day-land-management/

IBM. (2021) Use case diagrams. https://www.ibm.com/docs/en/rational-soft-arch/9.6.1?topic=diagrams-use-case

Khawaldeh, K. A. (2022). “Digital divide”: report finds some Australian rural mobile data speeds 90% slower than urban. *The Guardian*. https://www.theguardian.com/australia-news/2022/dec/13/digital-divide-report-finds-some-australian-rural-mobile-data-speeds-90-slower-than-urban

Kanungo, A. (2023). The silent cry of the forest: How Deforestation Impacts Indigenous Communities. https://earth.org/the-silent-cry-of-the-forest-how-deforestation-impacts-indigenous-communities/

MindSpot Clinic. (2023). Meeting Australian where there are. https://www.mindspot.org.au/rural-mental-health/?form=MG0AV3&form=MG0AV3

Microsoft Azure. (n.d.). Pricing – Cloud Services. https://azure.microsoft.com/en-au/pricing/details/cloud-services/

Microsoft Azure. (n.d.). Pricing – Azure AI Translator. https://azure.microsoft.com/en-au/pricing/details/cognitive-services/translator/

Mana, A. A., Allouhi, A., Hamrani, A., Rahman, S., Jamaoui, I. el , & Jayachandran, K. (2024). Sustainable AI-Based Production Agriculture: Exploring AI Applications and Implications in Agricultural Practices. Smart Agricultural Technology, 7, 100416–100416. https://doi.org/10.1016/j.atech.2024.100416

Officeworks. (n.d.). WD 20TB Elements Desktop Hard Drive. https://www.officeworks.com.au/shop/officeworks/p/wd-20tb-elements-desktop-hard-drive-wdeldt20tb

ProjectManager. (n.d.). How to make a requirements traceability matrix (RTM): Example and template included. https://www.projectmanager.com/blog/requirements-traceability-matrixProjectManager

National Indigenous Australians Agency. (2024). Culture and Empowering Communities | NIAA. Www.niaa.gov.au. https://www.niaa.gov.au/our-work/culture-and-empowering-communities

Queensland Treasury. (2024). Queensland Budget 2024–25: Service Delivery Statements – Department of Agriculture and Fisheries. https://budget.qld.gov.au/files/Budget_2024-25_SDS_Department_of_Agriculture_and_Fisheries.pdf

Rural aid Australia. (2025). Rural Aid. https://www.ruralaid.org.au/servicesprovided/?form=MG0AV3&form=MG0AV3

Tracex. (2024). Farm Sustainability in Australia. https://tracextech.com/farm-sustainability-in-australia/

Turner., B. (2022). First Australians using tech innovation and digital smarts to improve community outcomes and grow businesses.. https://blog.google/intl/en-au/company-news/outreach-initiatives/first-australians-using-tech-innovation-and-digital-smarts-to-improve-community-outcomes-and-grow-businesses/

Transport Costs for Australian Agriculture. (n.d.). Australian Farm Institute. https://www.farminstitute.org.au/product/transport-costs-for-australian-agriculture/

This Person Does Not Exist. (n.d.). AI-generated human faces. https://thispersonnotexist.org/

Appendix

Customer Journey Map

Persona
- Oggy: traditional middle-aged farmer
- Jack: A leader in the Indigenous community
- Rural area
- Poor internet and infrastructures

Scenario
Using Technology in Digital Agriculture to Promote Sustainable Farming.

Goals and Expectations
- Dependable availability of agricultural technologies in isolated areas
- Solution for both economical and culturally sensitive
- Clear and stress-free travel

STAGES	Consciousness	Consideration	Adoption	Use and support	growth	Advocacy
Customer Activities	Finding out about market trends, government assistance, and digital farming tools	Assessing the platforms' price, accessibility, and cultural significance	Accessing training materials, creating profiles, and registering for the system	Making use of the system for market pricing, weather monitoring, and sustainable farming methods	Increasing agriculture operations' scope and efficiency	Sharing expertise and supporting community projects
Touchpoints	Government programs, farmer cooperatives, agricultural expos, and Indigenous cultural centres	Agricultural research centers, Indigenous networks, and digital advisory services	Multilingual training materials and digital platforms backed by the government	Committed customer service, mentorship initiatives, and forums that are inclusive of all cultures	Farmer cooperatives, financial advisors, innovation programs	Policy discussions, farmer forums, leadership development initiatives
Pain Points	Limited internet access, lack of awareness about available tools	Evaluating and comparing the available choices seems to be quite challenging.	Intricate registration procedures and a dearth of individualized assistance	Language obstacles, lack of real-time support, and technical difficulties	Expensive investment expenses and challenges in expanding operations	The government announced the policy aimed to address the current problems for the residents in rural area
Experience	Frustrated	Worried	Neutral	Worried	Neutral	Happy
Business Goal	Making people aware about new farming technology and sustainability	Making sure about accessibility, inclusivity and affordability	Simplify onboarding, training and registration	Continue to be involved, supportive and trustworthy	Promote economic stability and farm expansion	Encouraging enduring leadership and advocacy in agriculture
Opportunity / Solution	Create educational outreach initiatives for Indigenous and rural farmers.	Provide specialized solutions that combine conventional and contemporary methods.	Offer user-friendly platforms with offline and multilingual assistance.	Create peer support groups and provide immediate customer service.	Encourage agricultural innovation and funding initiatives.	Establish laws that promote sustainability, fair trade, and economic empowerment.

TOWS-

Strength–Opportunity (SO):
Integrate Indigenous farming methods with modern IT systems to create a culturally respectful and innovative product appealing to rural and Indigenous communities.

Weakness–Opportunity (WO):
Address tech barriers with user-friendly design, localized training, and support services; promote Indigenous agriculture as cultural tourism.

Strength–Threat (ST):
Use unique Indigenous knowledge as a competitive edge; offer culturally aligned digital literacy programs and market analytics to reduce risk.

Weakness–Threat (WT):
Cut costs via open-source solutions; form partnerships with Indigenous groups, universities, and tech firms to secure funding and policy support.

Full Name	**Student No.**	**Selected Department (for Default Scenario)**	**Signature**
Yatri Manishkumar Patel	N11676302	Agricultural	
Chaing Jui Sheng	N11555467	Agricultural	
Mehakpreet Kaur	N11756438	Agricultural	
Prishvith Patil	N11966882	Agricultural	
Ridhamba Onalsinh Sisodia	N11794631	Agricultural