

HACKX 2025

- **Industry Name -**

Agriculture & AgriTech Industry

- **Problem Statement Title-**

Transparency Gap in Agriculture

- **Theme -** Empowering Farmers,

Assuring Consumers 

- **Team Name -** Agri_Avengers



Agri_Avengers

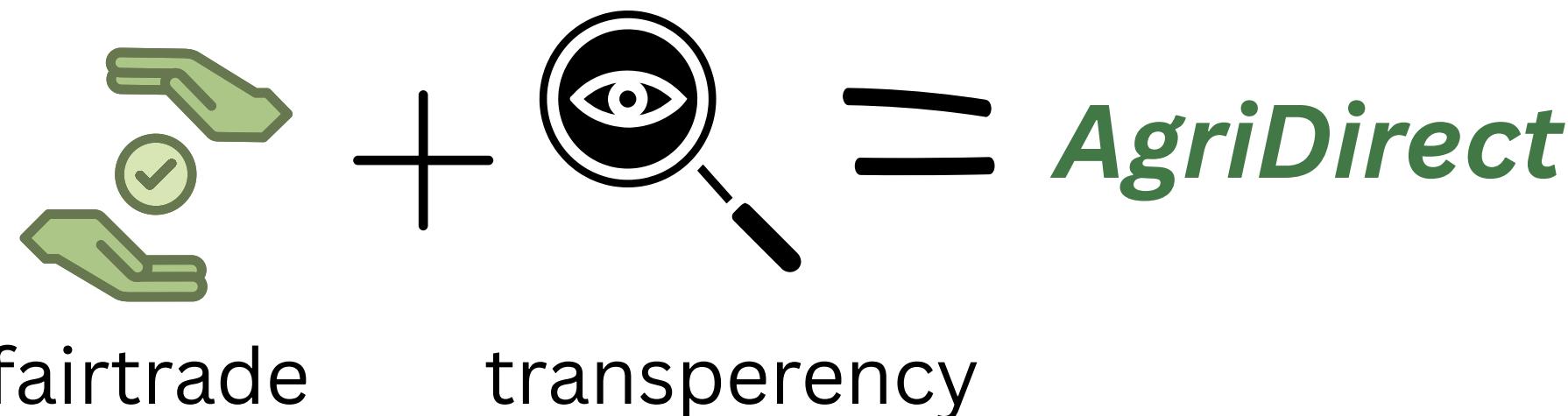
AgriDirect – Transparent QR-Verified Agri Marketplace



IDEA/SOLUTION

*Implementation of a **QR-based Transparent AgriTech Platform** connecting **natural farmers with consumers**:*

- **QR-based** farmer's multi factor authentication .
- **Dynamic pricing**, balances demand, supply, and fairness .
- **Community pre-booking** reserves harvests early and reduces waste.
- An **AI smart suggestion system** personalizes baskets and predicts demand.
- A secure **marketplace platform** connects farmers and consumers directly.



PROBLEM RESOULTION

- AgriDirect offers **QR-based transparency, dynamic pricing, and verified farmer stories** for trust and fairness.
- With **AI smart suggestions, community pre-booking, and a secure marketplace**, it connects farmers and consumers directly.

What We Have Built:

- **AI-Powered QR Verification** – Validates certificates, farming methods, and necessary documents, then generates QR codes.
- **Dynamic Pricing Model** – AI-based pricing for fair and optimized rates.
- **Personalized Marketplace** – Customers can choose specific categories (e.g., Jain groceries).
- **AI Assistance for Farmers** – Helps farmers with crop guidance and decisions.
- **Flexible Payment Options** – Supports online payments and cash on delivery.
- **Local Logistics Integration** – Empowers small farmers and ensures customers trust their purchases.

TECHNICAL APPROACH



Algorithm Development:

Python + Flask – AI model training, dynamic pricing (rule-based + ML), and smart suggestion system for personalized baskets and demand forecasts.

Application Development:

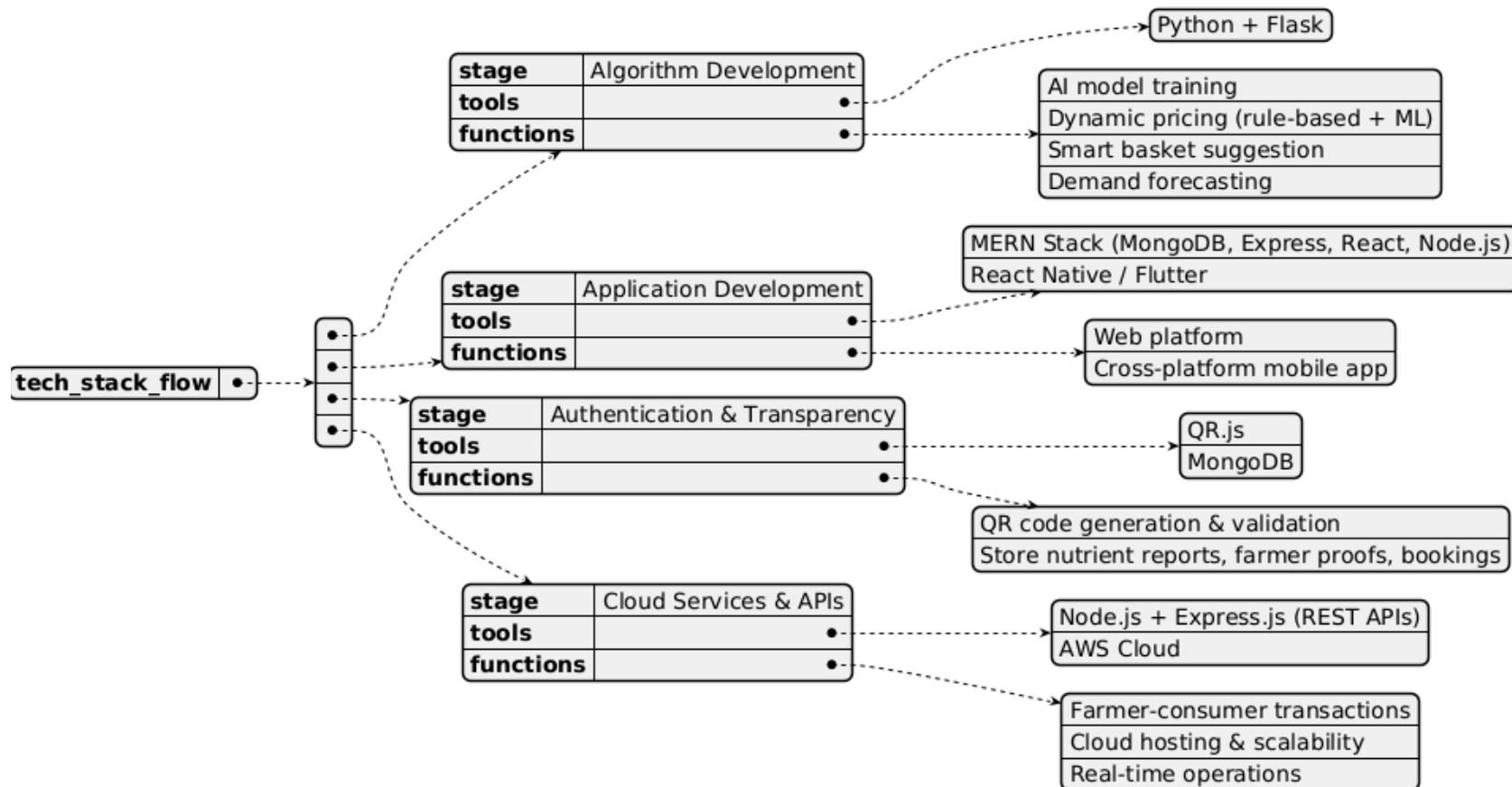
MERN Stack – Web platform. React Native / Flutter – Cross-platform mobile app development.

Authentication & Transparency:

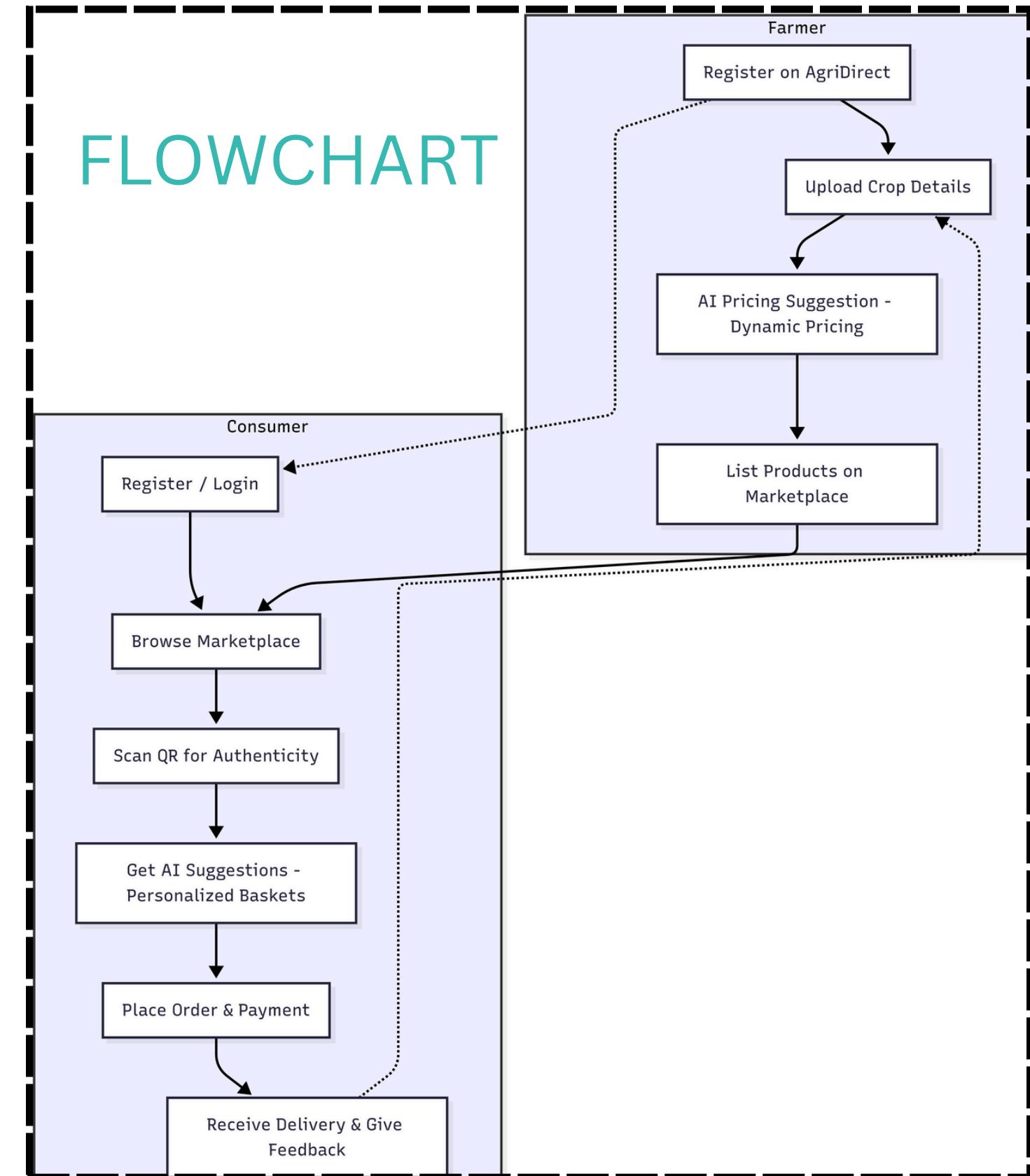
QR.js – QR code generation and validation. MongoDB – Storage for nutrient reports, farmer proofs, and bookings.

Cloud Services & APIs:

REST APIs (Node.js + Express.js) – Farmer-consumer transactions. AWS – Cloud hosting for scalability and real-time operations.



FLOWCHART





PRACTICALITY AND SUSTAINABILITY

POSSIBLE RISKS & LIMITATIONS

EVALUATION OF PRACTICALITY

1. Feasibility of Implementation:

- The proposed solution is technically achievable with currently available tools and resources. It can be integrated into real-world environments without requiring excessive infrastructure changes.

2. Cost Considerations:

- The overall cost of deploying and maintaining the system is reasonable compared to traditional alternatives. However, expenses may increase depending on scale and customization.

3. User Acceptance:

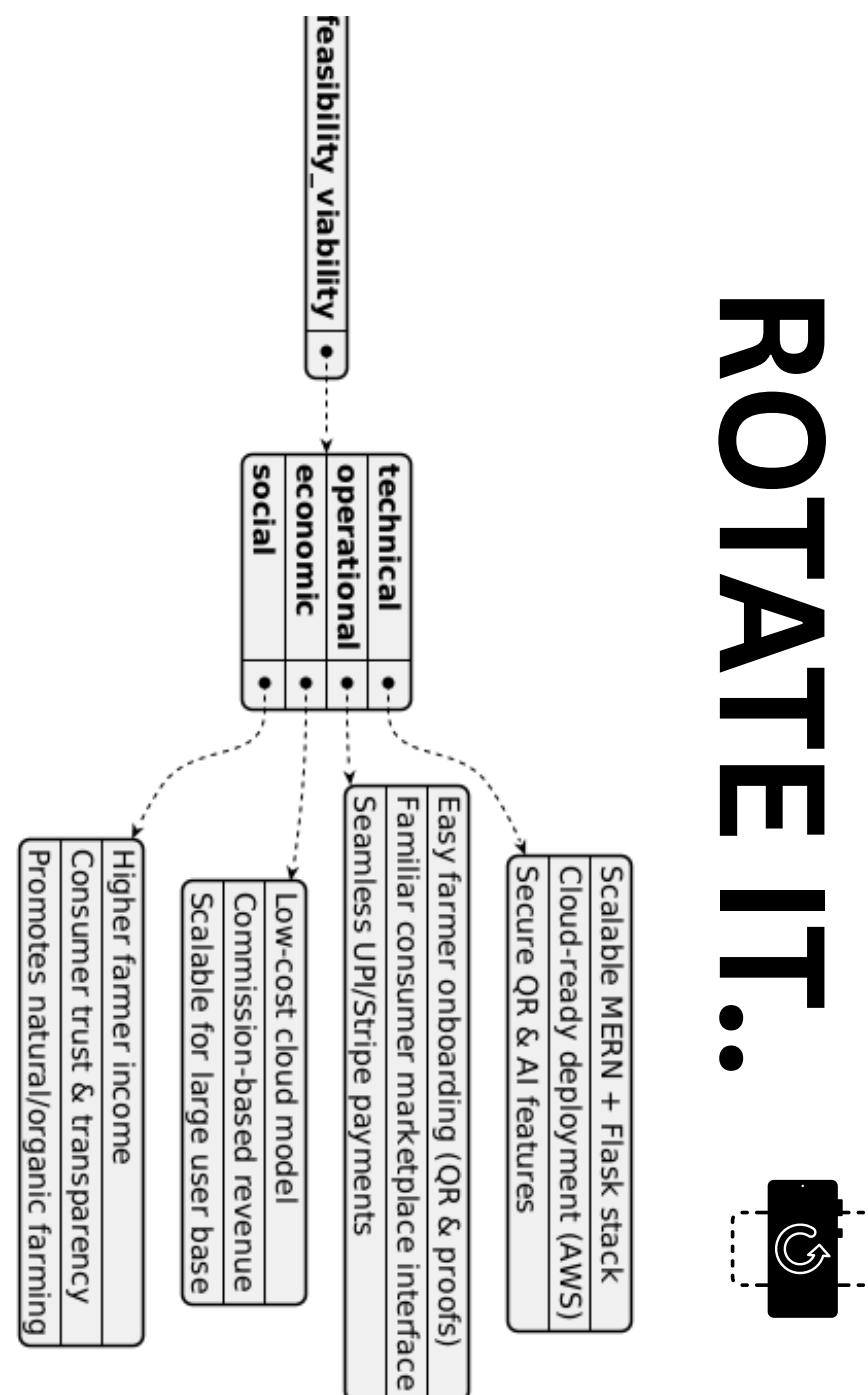
- Since the solution focuses on improving efficiency, transparency, or usability, end-users are likely to accept it, provided proper training and awareness programs are conducted.

4. Scalability:

- The design is flexible and can be expanded to handle larger datasets, more users, or additional features in the future.

5. Sustainability:

- Long-term use is practical as the system relies on reliable technologies and standard practices that can be maintained and updated with ease.



1. Technical Risks:

- System downtime or technical glitches may occur due to hardware/software failures but we are improving it.
- Compatibility issues with existing infrastructure.

2. Operational Risks:

- Resistance from users due to lack of training or adaptability we are thinking to put video or audio to perform it better.
- Errors in execution due to human negligence or inadequate supervision.

3. Financial Limitations:

- Budget constraints may prevent full-scale implementation.
- Ongoing costs for updates and maintenance might be underestimated.

4. Regulatory & Legal Challenges:

- Compliance with local laws, data protection policies, and industry standards.

5. Scalability Issues:

- System may face performance degradation if usage grows beyond initial estimates.

6. Environmental/External Limitations:

- Dependence on external resources such as internet connectivity, power supply, or third-party vendors.

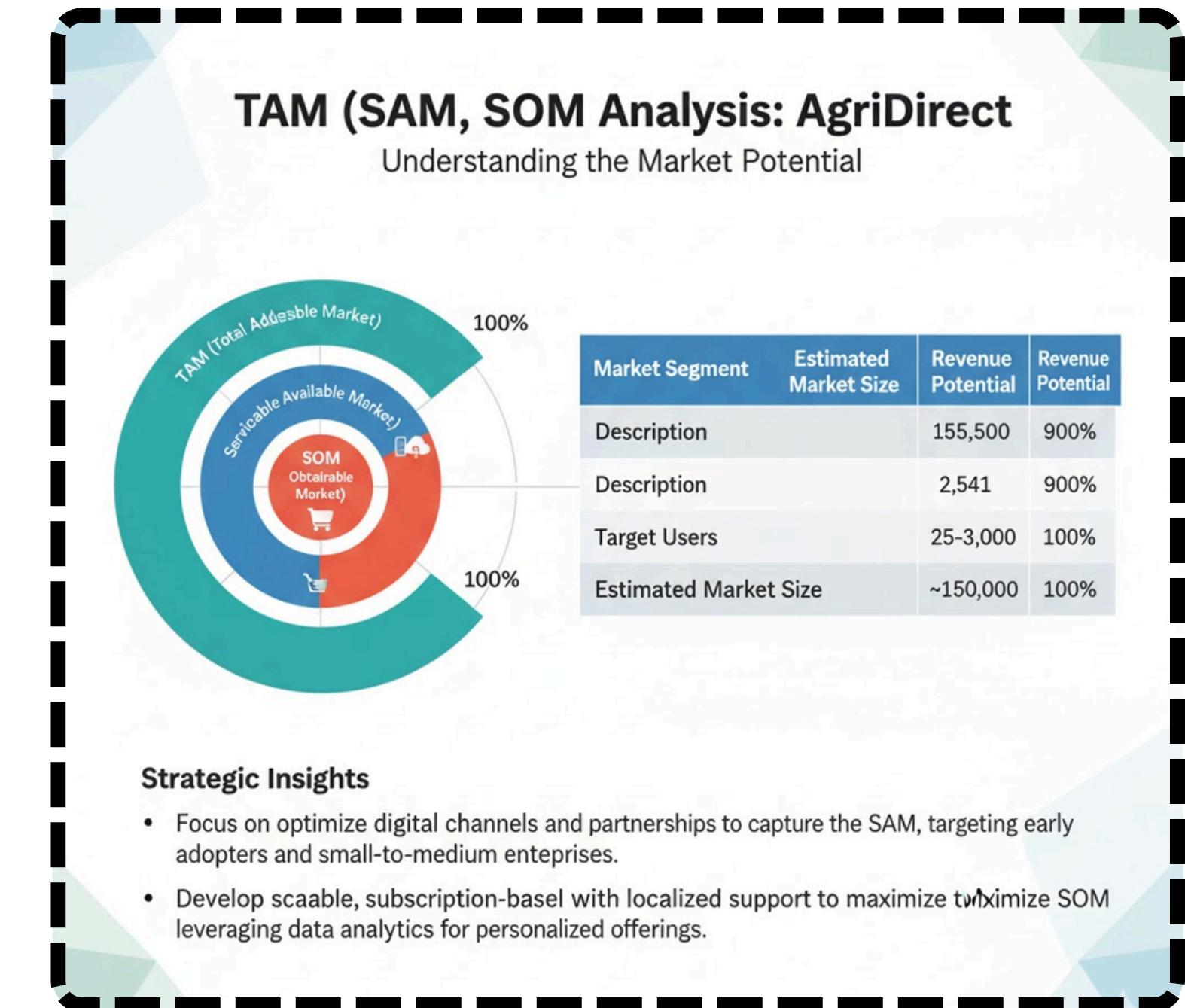
Business Model & Sustainability



Building a Self-Sustaining Agri Ecosystem

Revenue Streams:

- Transaction Fees: Small commission on successful farmer-consumer sales.
- Premium Farmer Subscription: Verified farmers get analytics dashboards & visibility boosts.
- Data Insights for NGOs & Institutions: Provide anonymized agri-trend reports for research and policy.
- Partnerships & Sponsorships: Collaborations with government, FPOs and agri startups.



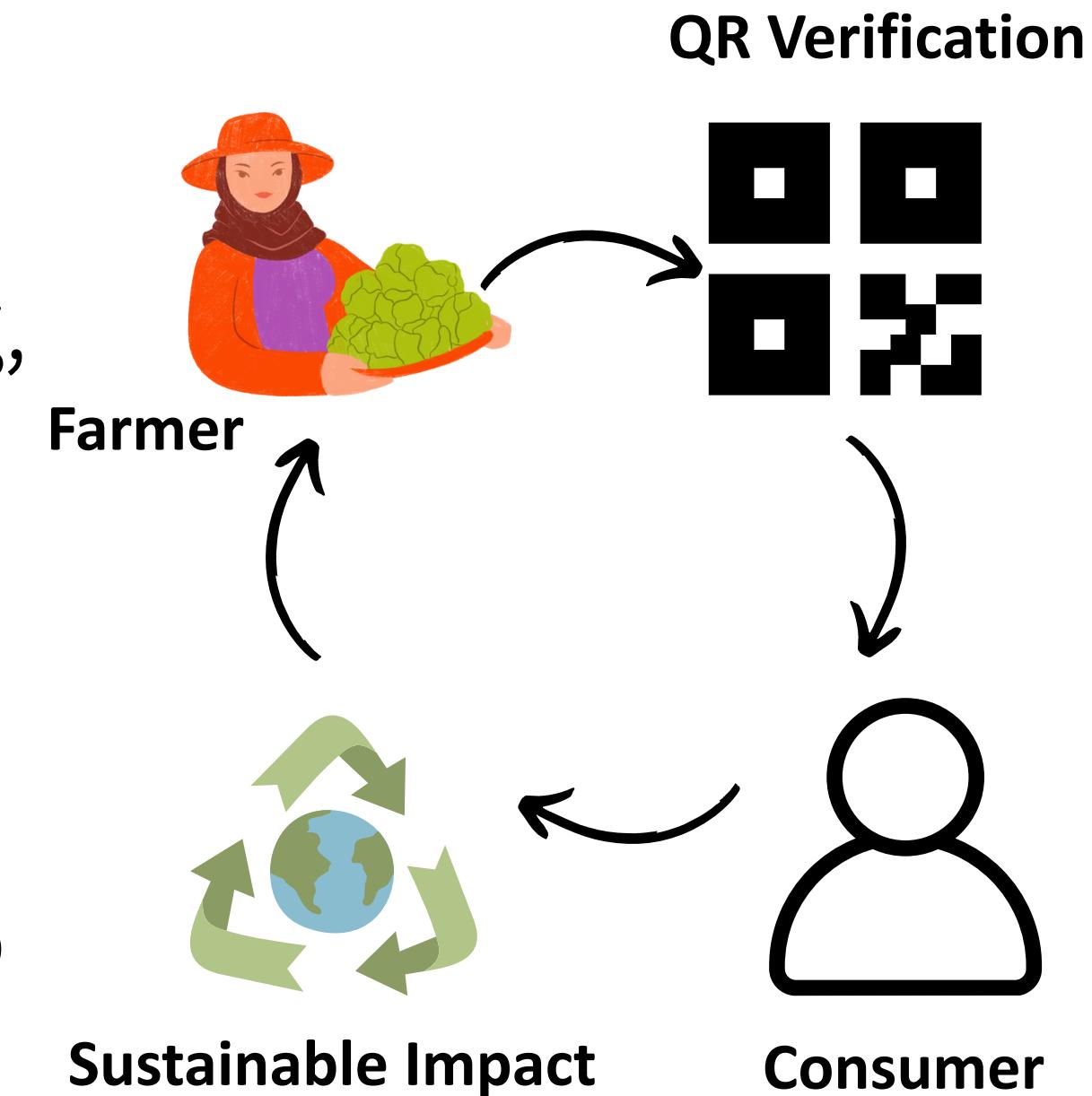
Business Model & Sustainability



“Empowering Farmers. Ensuring Transparency. Sustaining Nature.”

Sustainability Goals:

- **Environmental Health:** Promote natural farming, conserve water, restore soil & biodiversity.
- **Farmer Empowerment:** Fair pricing, direct market access, reduced middlemen.
- **Consumer Trust:** QR-verified produce, transparency from farm to table.
- **Resilience & Longevity:** Sustainable practices to withstand climate and ecosystem challenges.



Social & Environmental Impact



Title Beyond Technology – Real-World Change

- Farmer Empowerment: Direct access to market eliminates dependency on middlemen.
- Community Growth: Encourages rural digital literacy and cooperative farming.
- Sustainability: Supports organic and natural farming, reducing chemical dependency.
- Green Impact: Reduces food waste and carbon footprint through optimized logistics.

Results & Future Scope



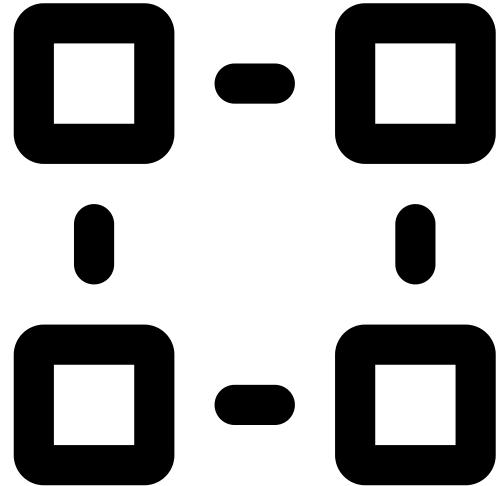
Results:

- **Empowered Farmers:** Increased income and direct access to consumers, reduced dependency on middlemen.
- **Verified Quality:** QR-enabled traceability ensures authenticity and safety of produce.
- **Consumer Confidence:** Transparent sourcing builds trust and healthier choices.
- **Sustainable Practices:** Promotes natural farming, soil health, and biodiversity conservation.
- **Efficient Supply Chain:** Reduced wastage and faster distribution from farm to table

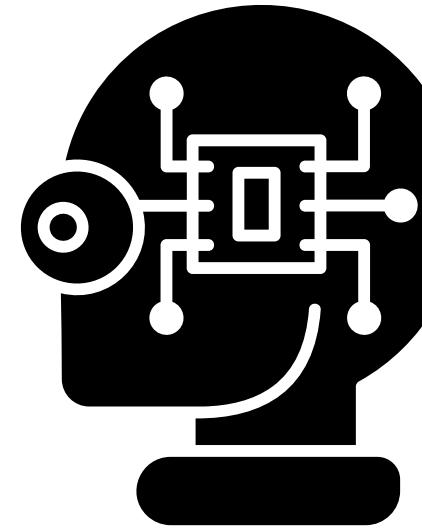
Results & Future Scope



Future Scope:



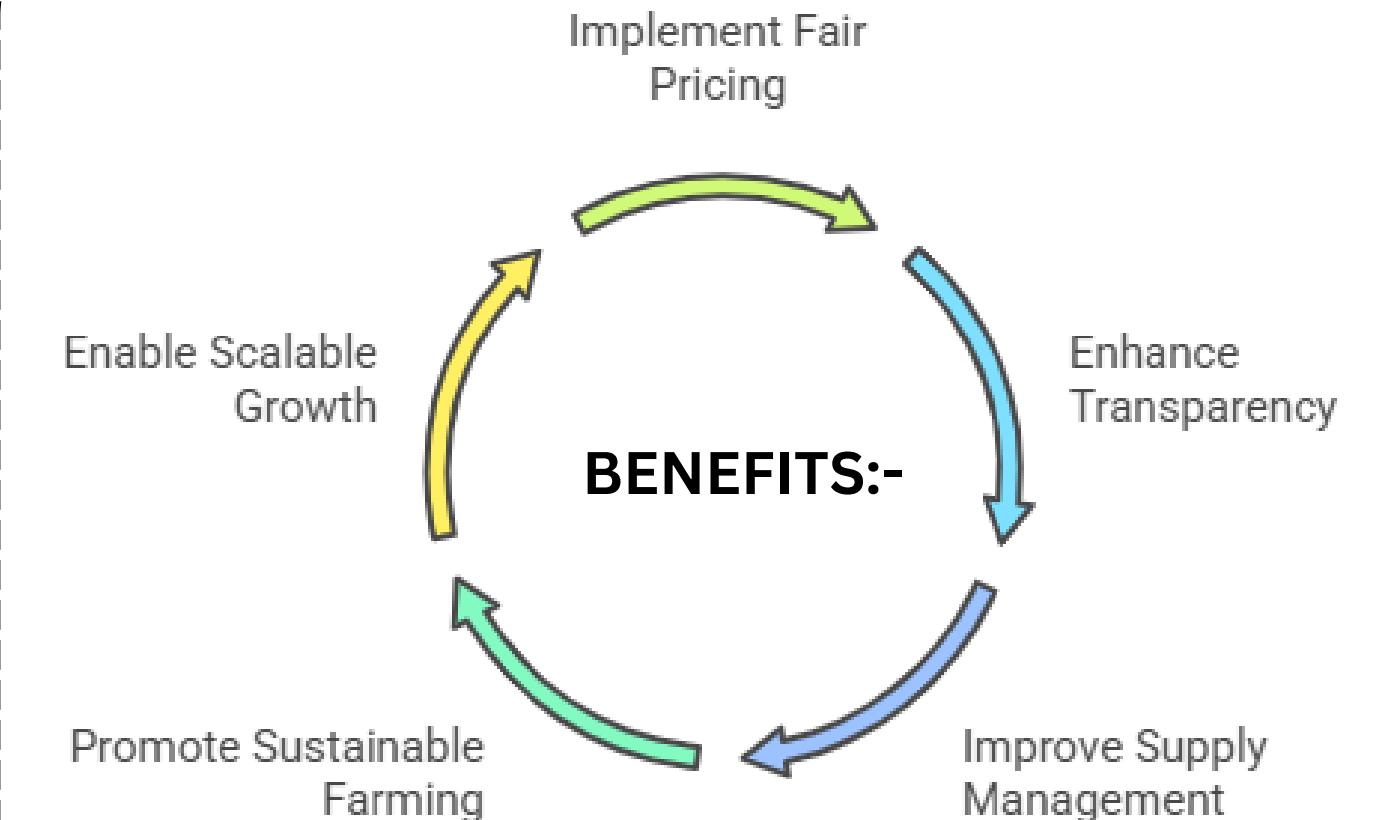
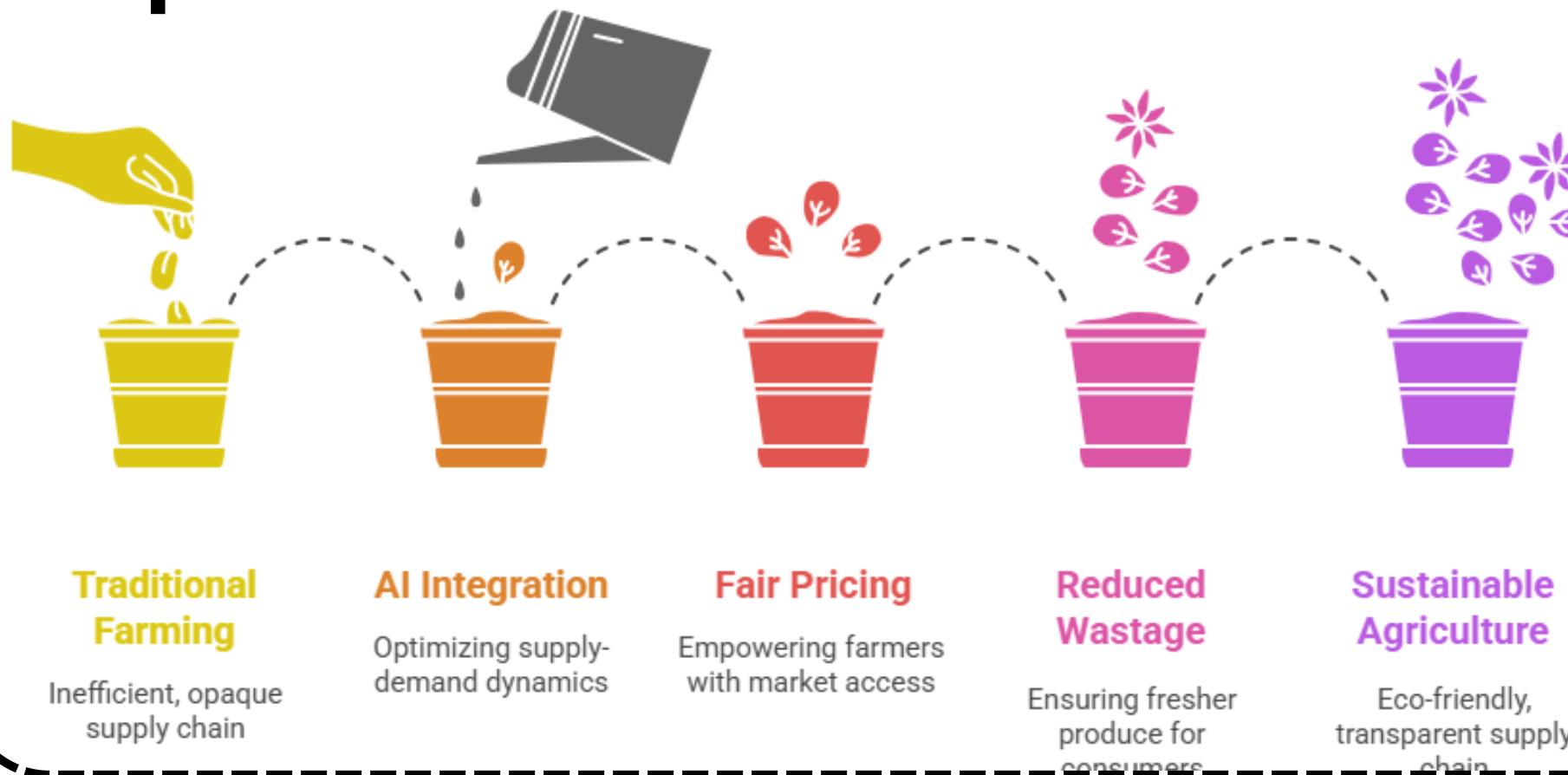
- **Blockchain Integration:** Immutable records for complete transparency and trust.
- **Multi-Language & Voice Interfaces:** Making the platform accessible to all farmers.
- **Policy & Cooperative Integration:** Collaboration with government schemes and farmer cooperatives.
- **AI-Driven Guidance:** Crop recommendations, market insights, and sustainability analytics.



IMPACT AND BENEFITS



impact:-



we are building trust and
transperancy here!! which lacks
in real world



prototype :- click on this

we hit our 50% mark! you can see it
right here, clear as day!



The collage consists of four screenshots from the AgriDirect platform:

- Top Left:** The homepage showing a QR code scanner and a grid of product thumbnails (Potato, wheat, ladyfingers).
- Top Middle:** A marketplace listing for Potato, Wheat, and Ladyfingers, each with a 'Buy Now' and 'Verify Farmer' button.
- Bottom Left:** A 'My Products' page displaying three items: Tomato, Potato, and white rice, with details like price, quantity, and location.
- Bottom Right:** A 'Consumer Dashboard' for user 'patel nisha!' showing options to 'Add Products' and 'View Your Bought Products'.

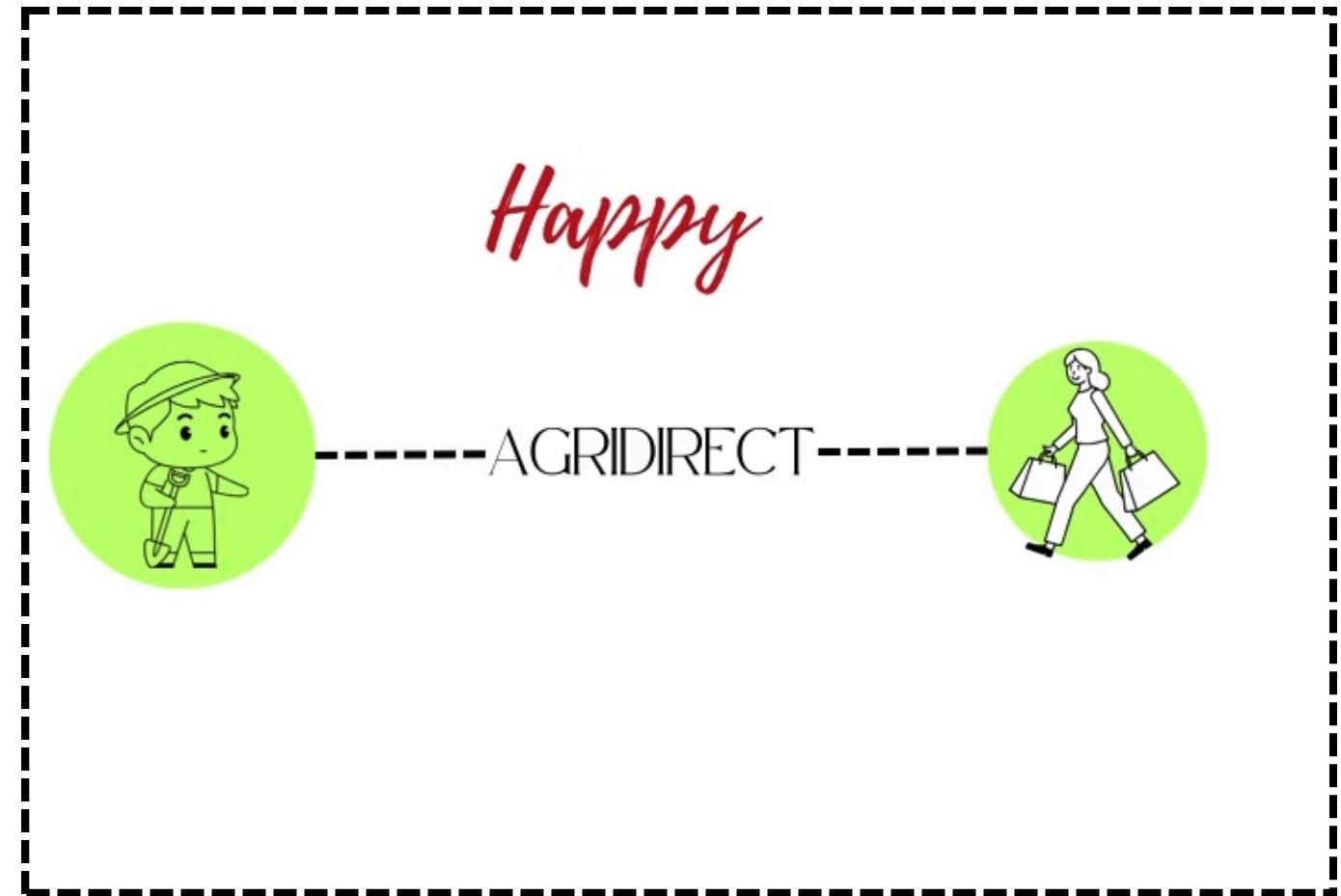
RESEARCH AND REFERENCES

- <https://agrimp.com>
- <https://chatgpt.com>
- <https://kisankonnect.com>
- [research paper on AI in agriculture](#)
- <https://www.sciencedirect.com/science/article/abs/pii/S0016718521003018>
- https://www.researchgate.net/publication/228149581_The_Indian_Farmer_Middlemen_and_the_APMCs
- <https://timesofindia.indiatimes.com/city/vijayawada/white-corn-yields-soar-but-middlemen-slash-farmer-profits/articleshow/123618741.cms>



Conclusion

- AgriDirect bridges the gap between farmers and consumers through trust, technology, and transparency.
- Our vision is to build a digitally empowered, eco-conscious, and fair agri ecosystem.
- With continued innovation, partnerships, and community support –
- we can transform agriculture into a transparent and sustainable future.



🌱 Thank You! Let's Grow the Future – Together ❤️