

# 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

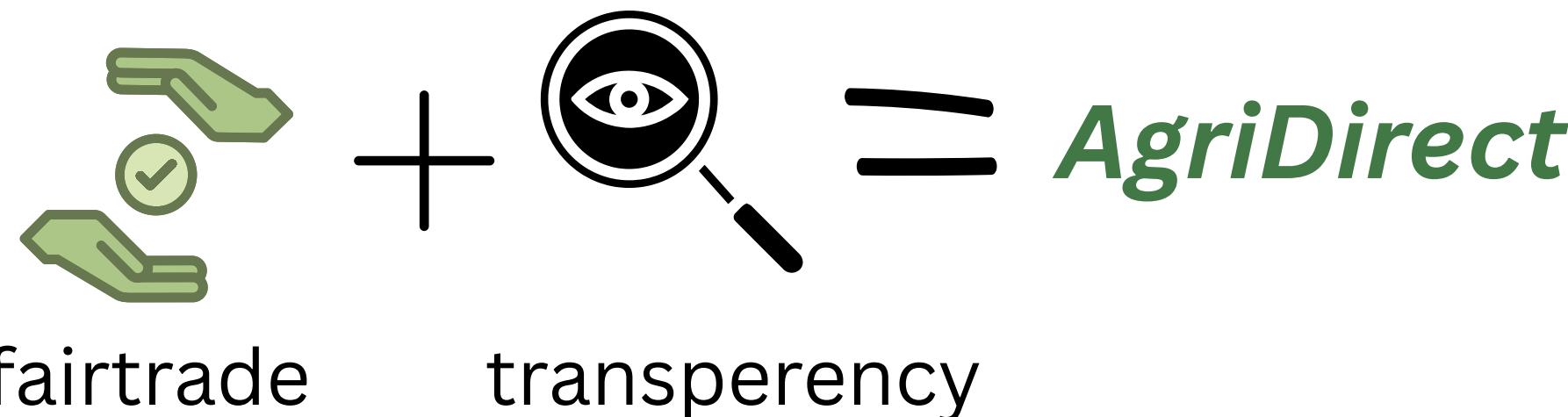
# AgriDirect – Transparent QR-Verified Agri Marketplace



## 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:

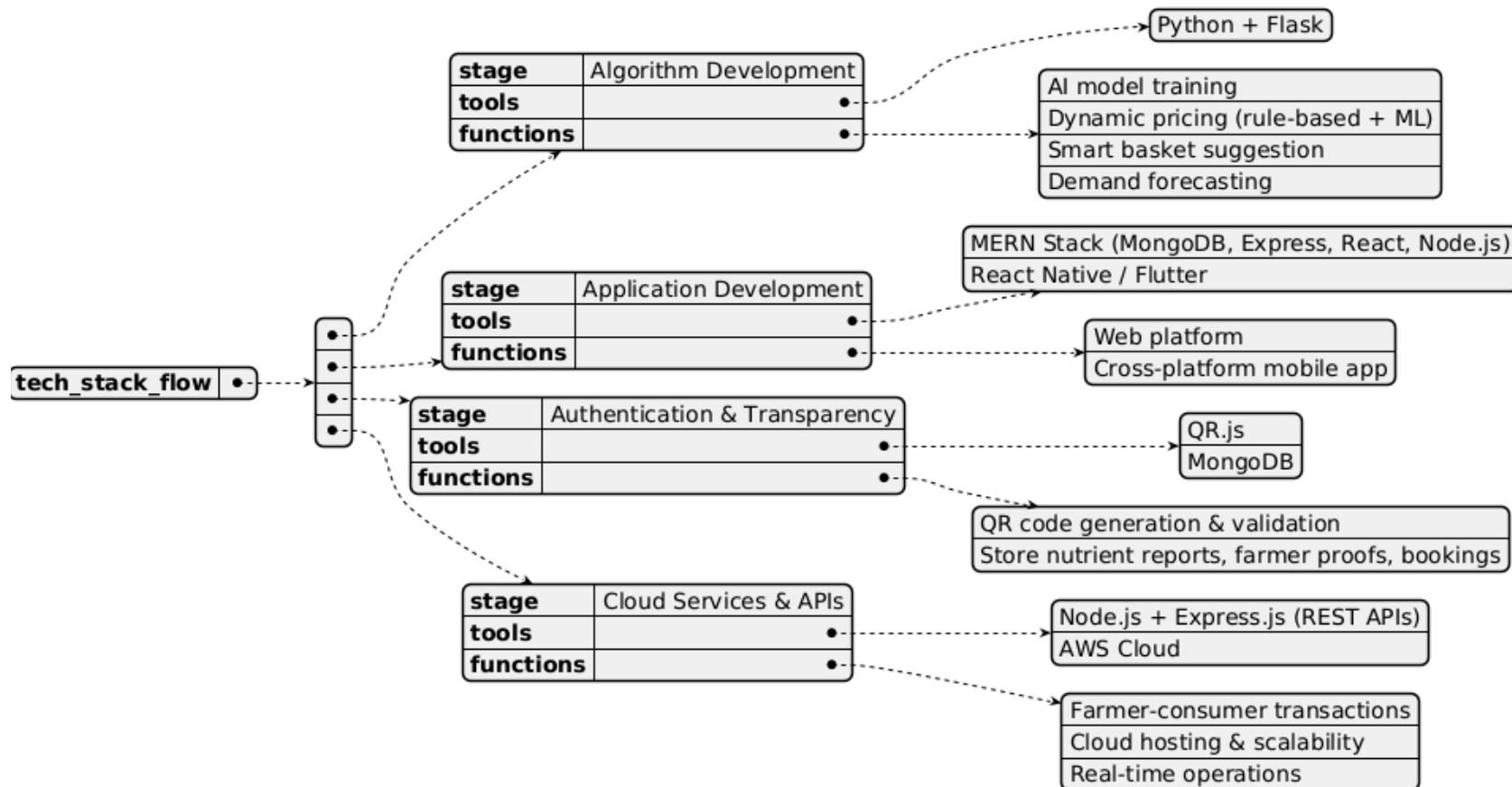
MERN Stack – Web platform. React Native / Flutter – Cross-platform mobile app development.

## Authentication & Transparency:

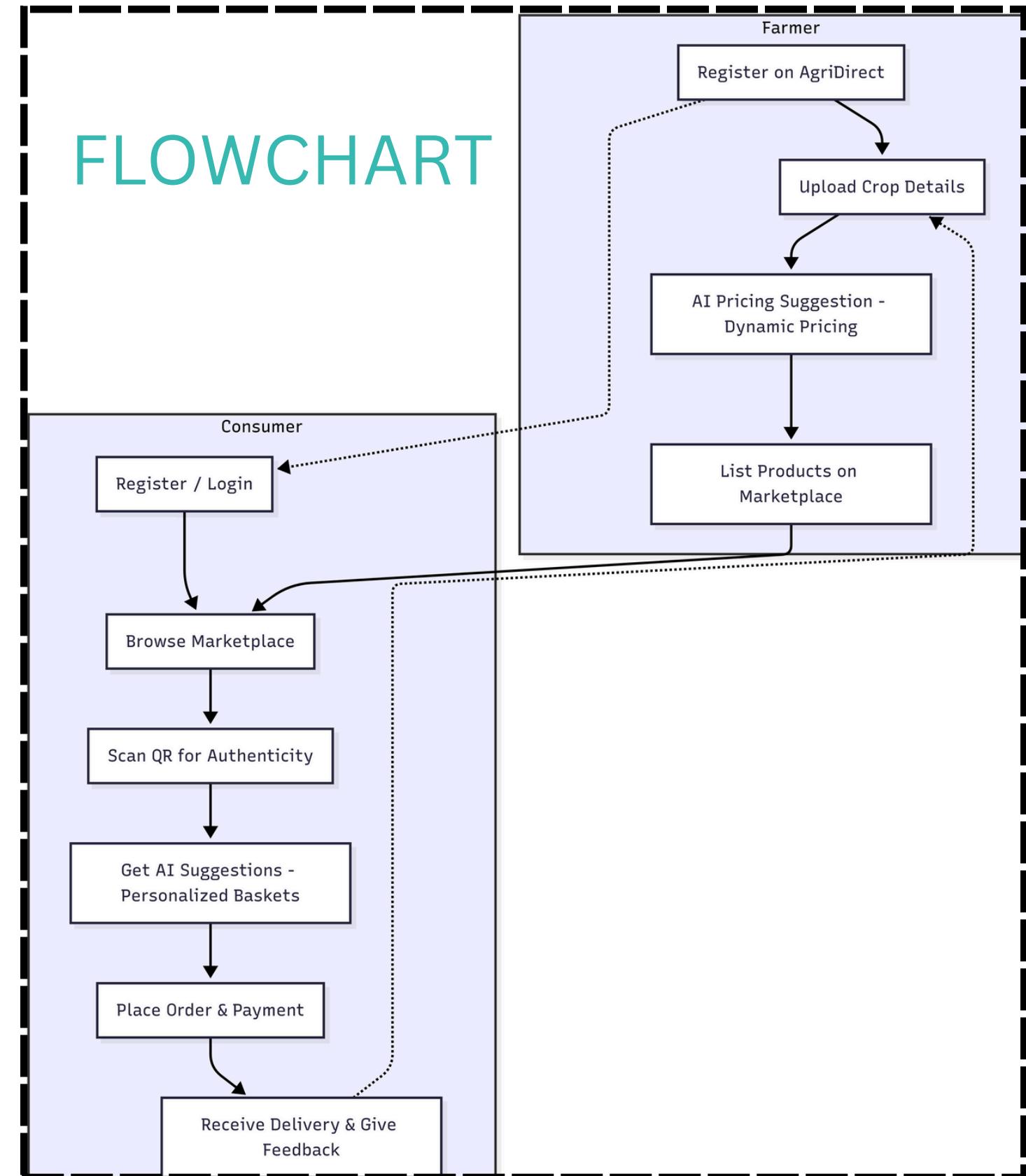
QR.js – QR code generation and validation. MongoDB – Storage for nutrient reports, farmer proofs, and bookings.

## 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:

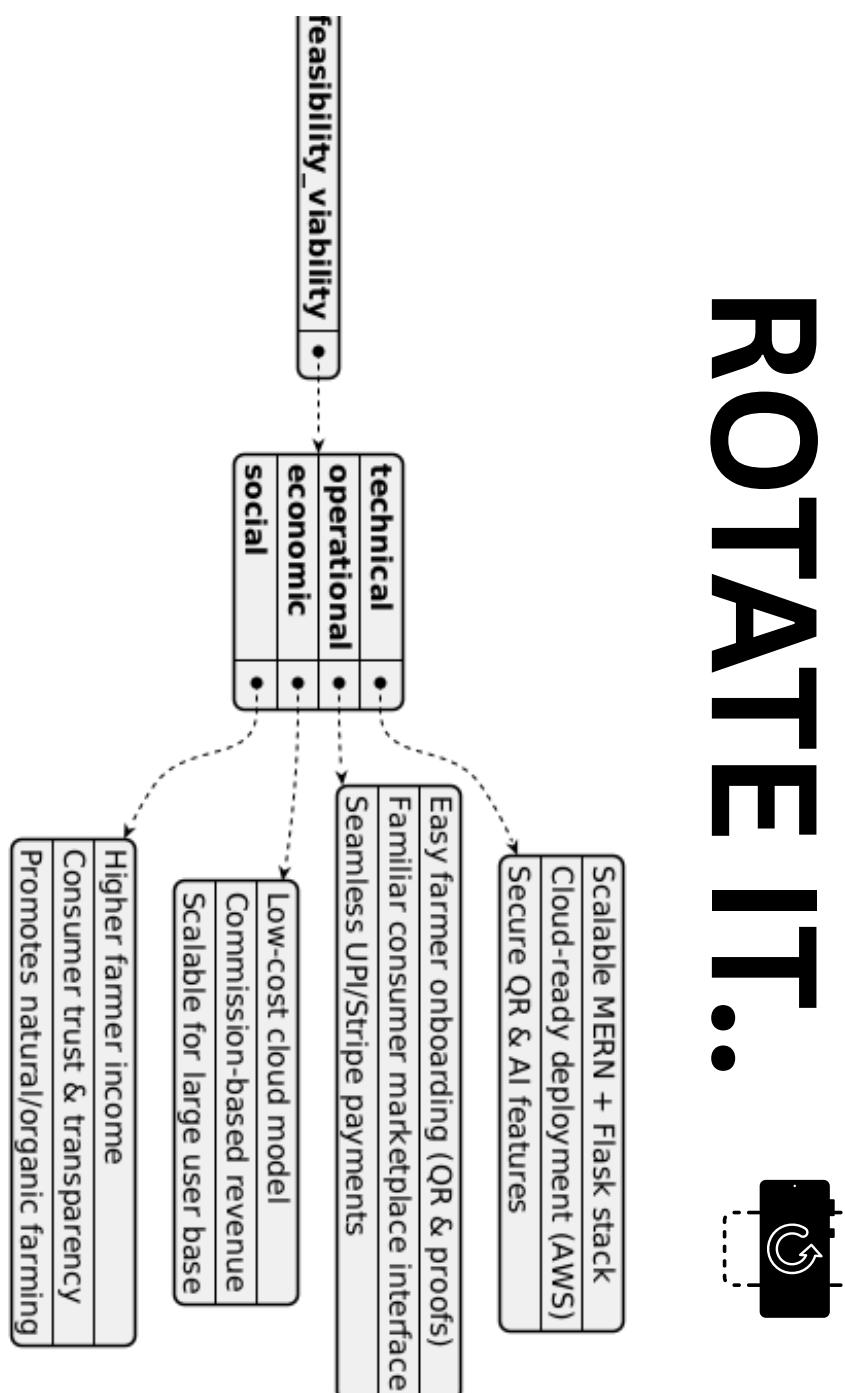
- Since the solution focuses on improving efficiency, transparency, or usability, end-users are likely to accept it, provided proper training and awareness programs are conducted.

#### 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.



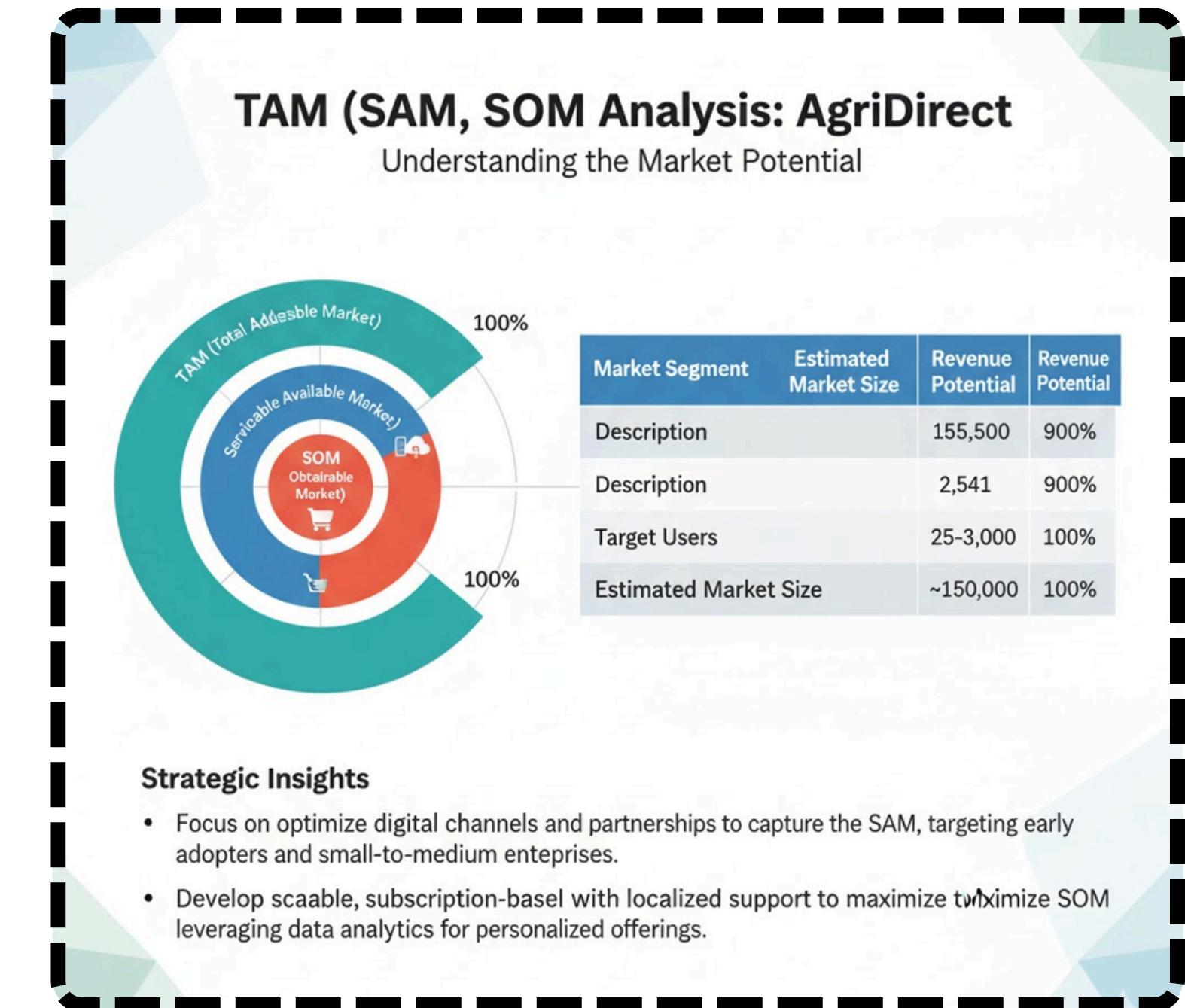
# Business Model & Sustainability



## 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.



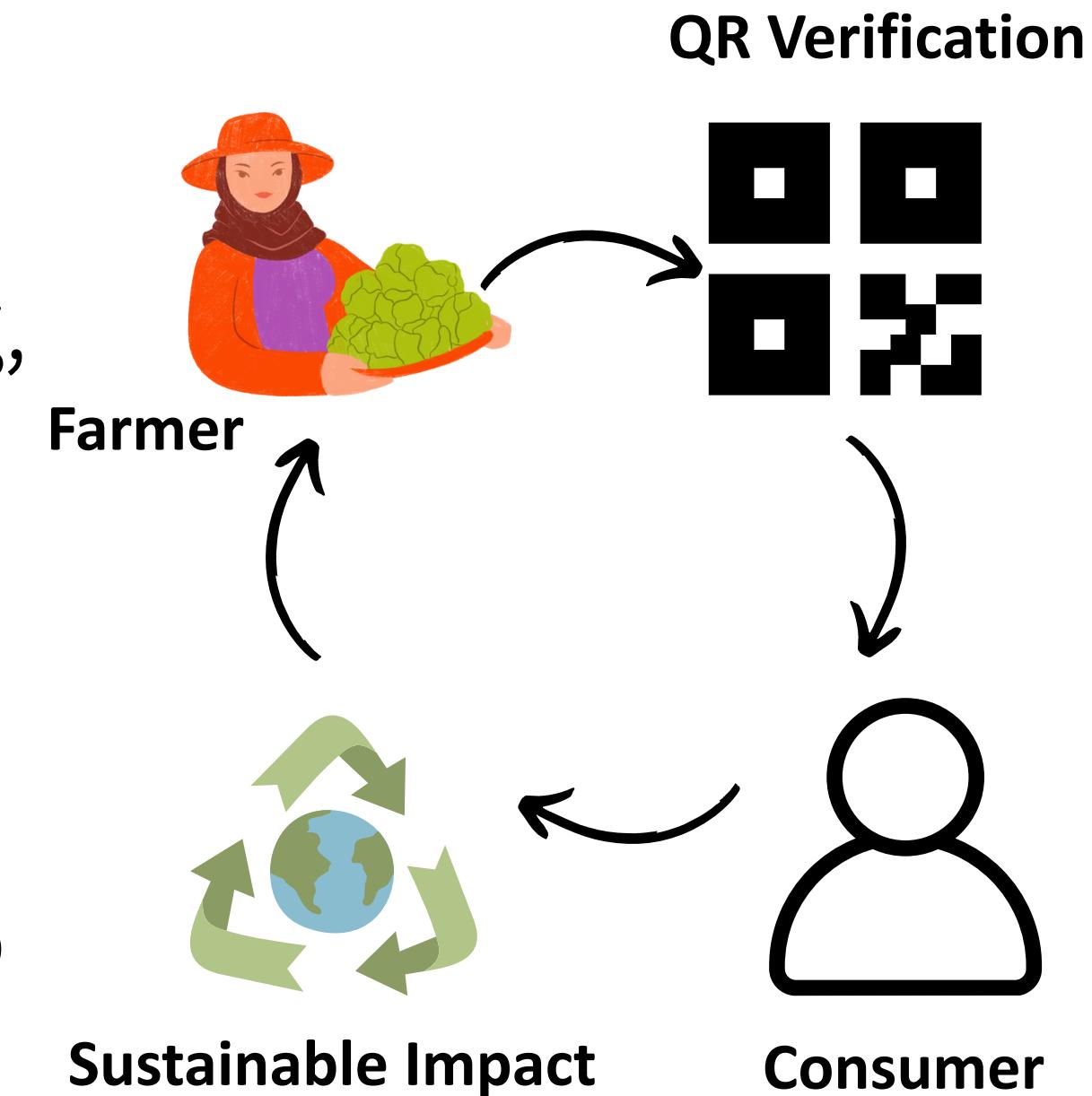
# Business Model & Sustainability



“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



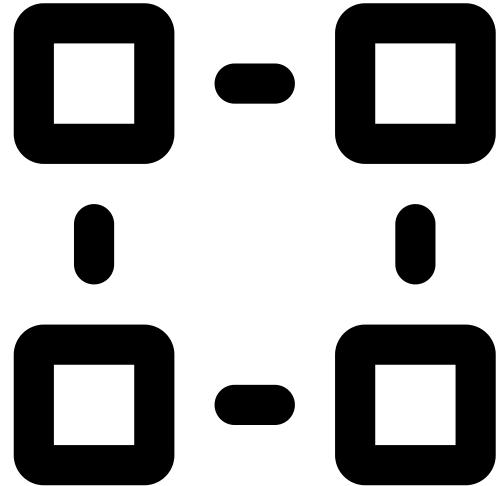
## Results:

- **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

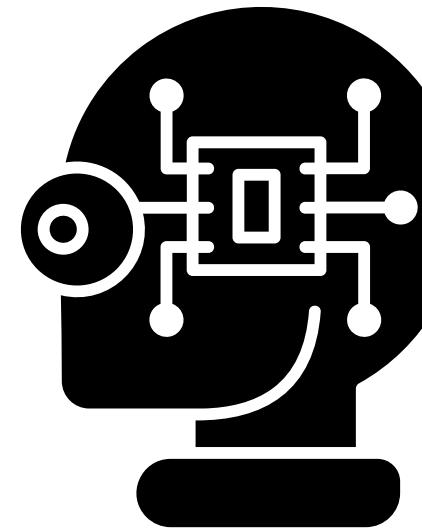
# Results & Future Scope



## Future Scope:



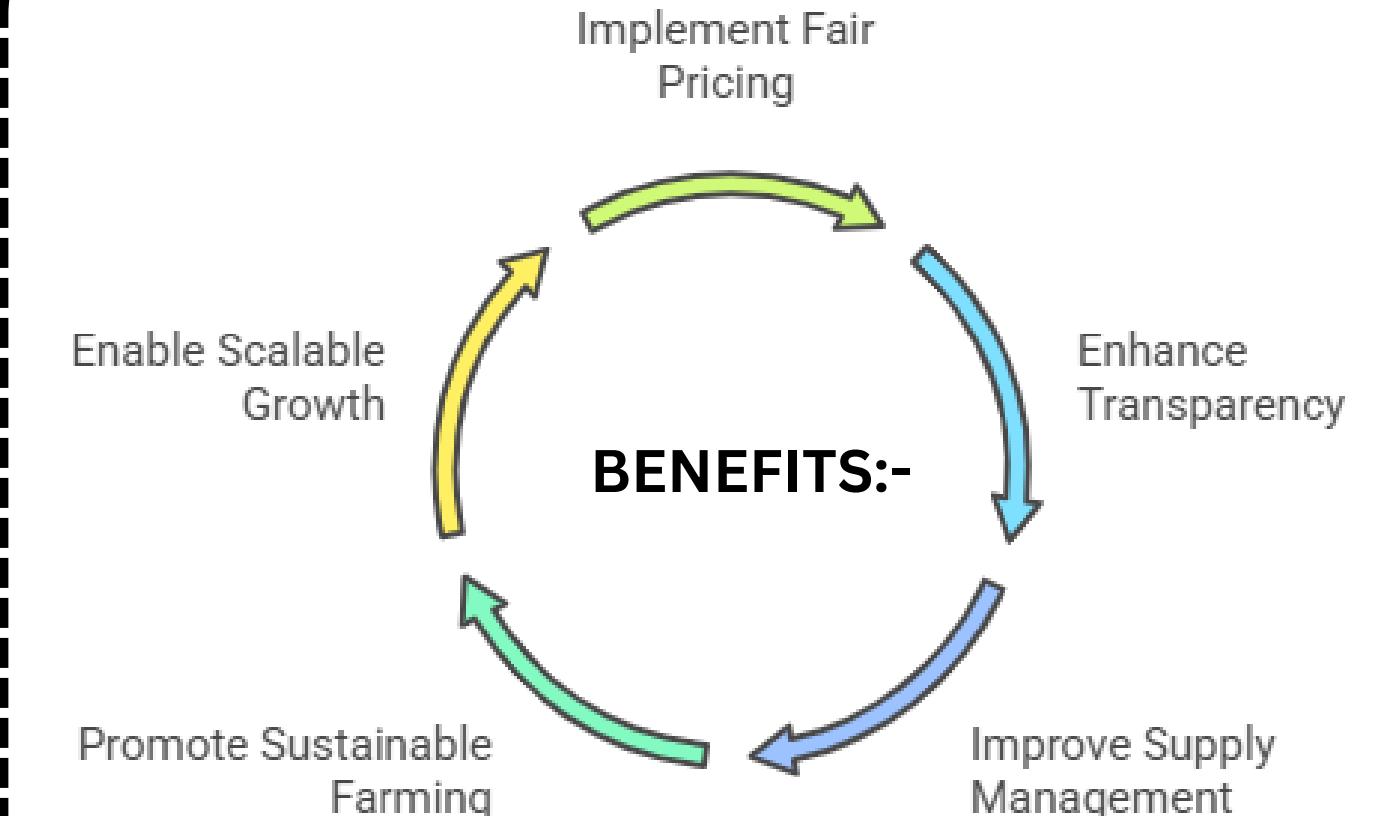
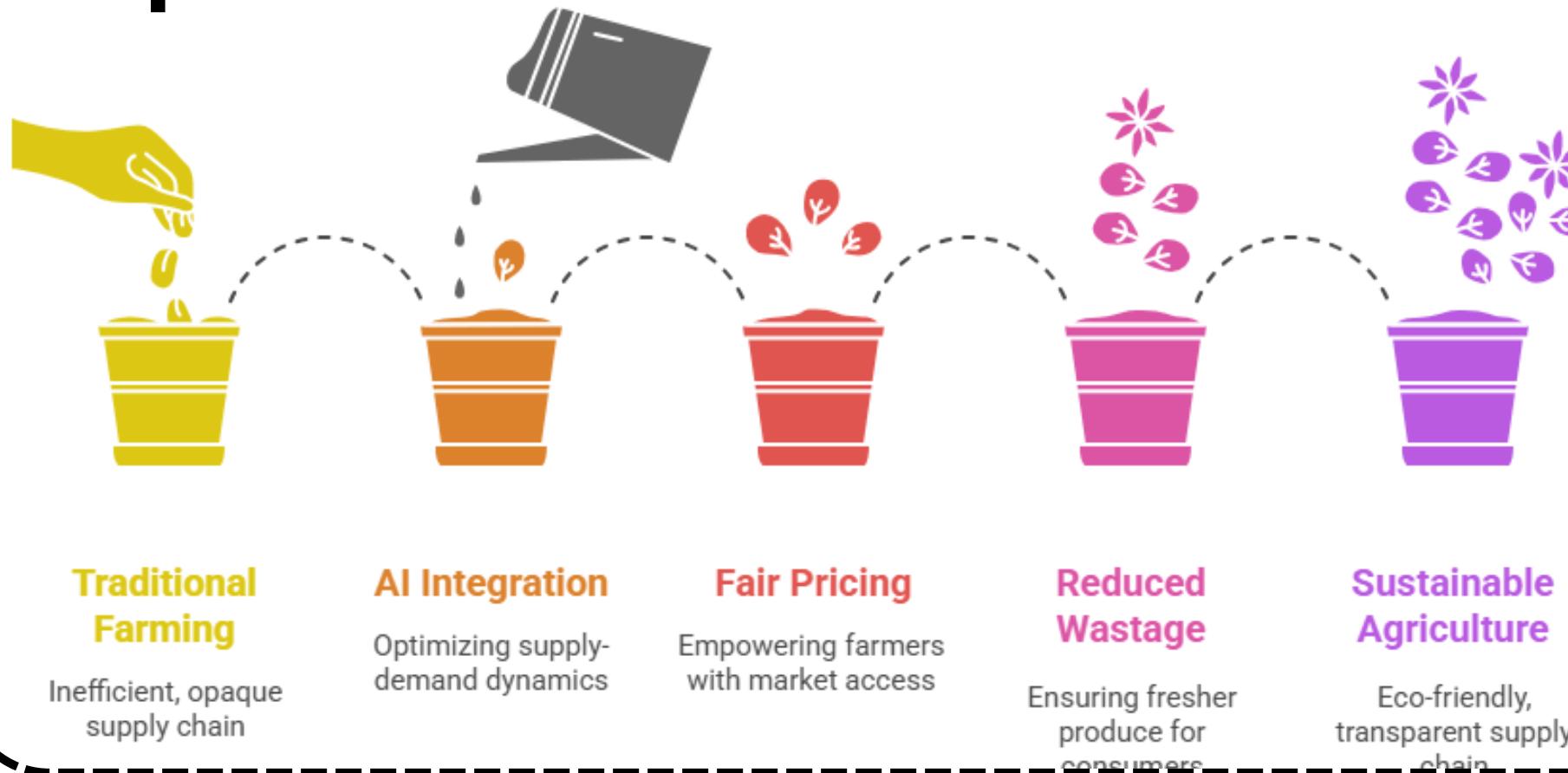
- **Blockchain Integration:** Immutable records for complete transparency and trust.
- **Multi-Language & Voice Interfaces:** Making the platform accessible to all farmers.
- **Policy & Cooperative Integration:** Collaboration with government schemes and farmer cooperatives.
- **AI-Driven Guidance:**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



# IMPACT AND BENEFITS



## impact:-



we are building trust and transparency 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 image displays four screenshots of the AgriDirect platform, illustrating its user interface and functionality:

- Top Left:** Marketplace - AgriDirect (localhost:3000/Marketplace.html) - Shows a QR code scanner and a grid of product cards for Potato, wheat, and ladyfingers.
- Top Right:** My Products - AgriDirect (localhost:3000/marketplacefarmer.html?farmerId=68c104fbdb13699e6d7bd3) - Shows a list of products added by a farmer, including Tomato, Potato, and white rice.
- Bottom Left:** AgriDirect - Bridging Farmers x (localhost:3000/shared\_homepage.html) - Shows the homepage with a QR code scanner and a mission statement about connecting farmers and consumers.
- Bottom Right:** Consumer Dashboard - AgriDirect (localhost:3000/consumer\_dashboard.html) - Shows a dashboard for a consumer named 'patel nisha' with options to add products and view bought products.

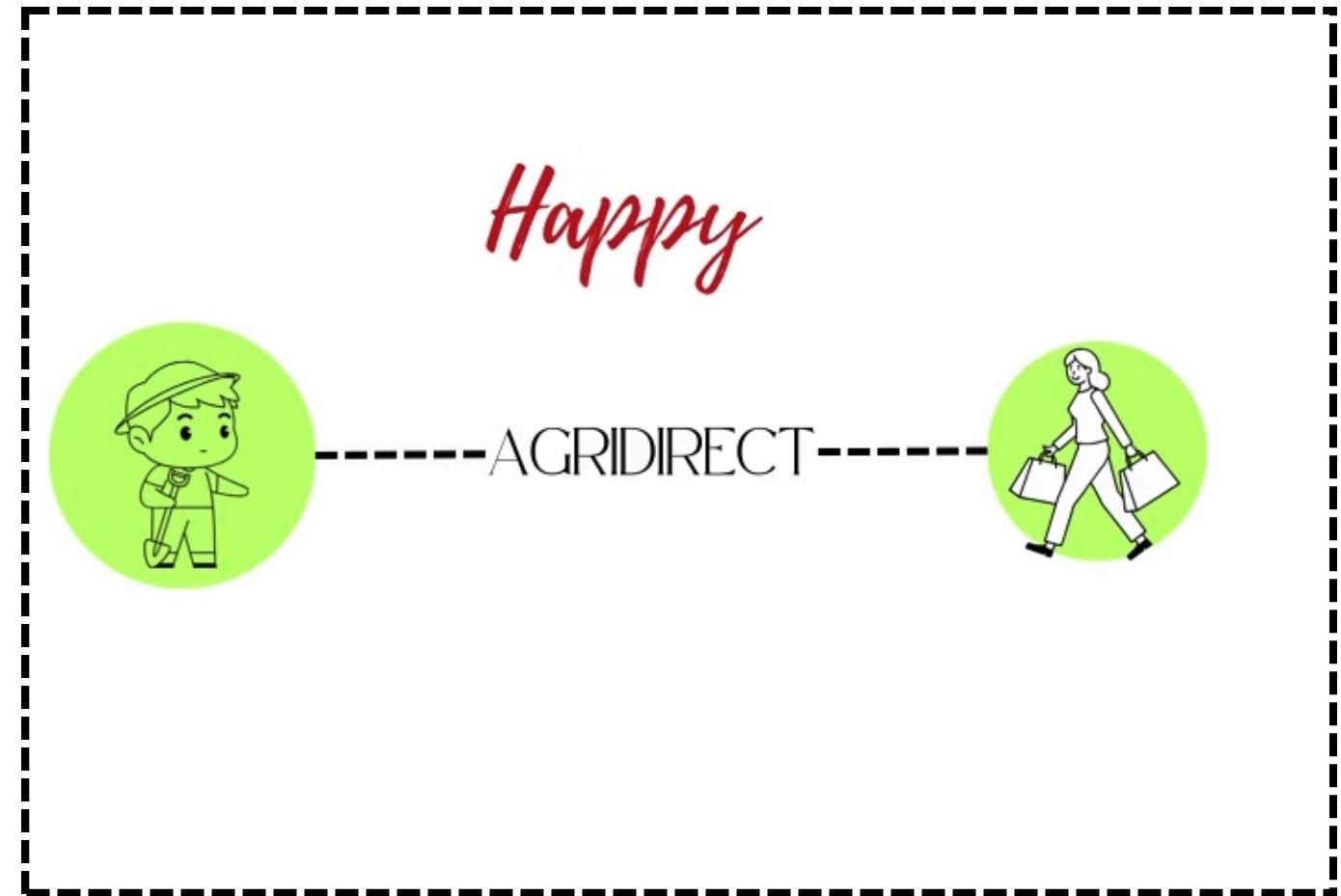
## RESEARCH AND REFERENCES

- <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://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 ❤️