POLIRURAL plus OUTREACH CALL

D3 User Needs and Innovation Solutions Report

PoliRuralPlus has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101136910.

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Funded by the European Union

Project title	AgriFusion - A_Fusion
Project short name	
Pilot Region	Malta
Organisation	The Veg Box Limited
Author(s)	Emanuela de Giorgio (The Veg Box Limited)
Submission date	23rd March 2025
Version	Include the version number of the report (e.g. 1.0, 2.0).

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1 Executive Summary

The Agrifusion Project, Malta's pilot within the PoliRural Plus initiative, seeks to transform the country's agricultural landscape by integrating digital innovation, policy reform, and stakeholder collaboration. This research report provides a comprehensive analysis of agricultural challenges, consumer trends, SME perspectives, and expert insights, offering strategic recommendations for sustainability, digital transformation, and rural-urban connectivity.

Key Findings

- Consumer demand for local and sustainable food is strong but hindered by limited availability, high costs, and distribution challenges. While most consumers are willing to pay more for sustainably produced goods, better accessibility and incentives are needed.
- SMEs in agriculture recognize the importance of sustainability, yet high operational costs, limited access to technology, and financial constraints prevent full adoption. Market access challenges and ineffective government policies further hinder growth.
- Technology adoption in agriculture remains low, particularly among older farmers, due to digital literacy gaps and infrastructure barriers. However, global case studies on AI, IoT, and blockchain demonstrate the potential for yield optimization, cost reduction, and improved market access.
- Young farmers face discouragement from entering the sector, citing financial instability, outdated perceptions of farming, and a lack of support structures. Education, mentorship, and digital entrepreneurship programs are essential to reversing this trend.
- Collaboration between rural producers and urban consumers is weak, with limited direct marketing opportunities. Models such as Community-Supported Agriculture (CSA) programs and digital market places have the potential to bridge this gap.
- Policy and financial support are insufficient, with many SMEs reporting difficulty accessing grants or incentives. More targeted policies for sustainability, technology adoption, and cooperative development are required.

Recommendations & Actionable Roadmap

- 1. Policy Alignment & Support Advocate for smart agriculture incentives, cooperative strengthening, and digital infrastructure investments. Policies should support smallholder farmers, simplify financial aid access, and integrate sustainability into agricultural subsidies.
- 2. Technology Integration & Training Implement pilot programs for AI, IoT, and blockchain, offering training and support to increase adoption. Improve rural internet connectivity and create digital advisory platforms.
- **3. Consumer Engagement & Market Expansion** Develop direct-to-consumer models like CSAs, farm-to-table initiatives, and digital marketplaces to enhance consumer access to local food. Support regional branding to highlight the value of Maltese agricultural products.
- 4. Financial Support & SME Development Expand access to grants, low-interest loans, and subsidies for sustainable agriculture. Facilitate regional networks for resource-sharing among farmers.
- 5. Bridging Rural-Urban Divides Strengthen rural-urban linkages through education, agritourism, and local food awareness campaigns. Encourage urban stakeholders to support regional agricultural initiatives.
- **6.** Multi-Stakeholder Collaboration Establish a national coalition bringing together farmers, policymakers, researchers, and business leaders to drive agricultural modernization.

2 Introduction

PoliRuralPlus extends and enriches the achievements of its predecessor, the PoliRural, by delving deeper into the complexities of rural and urban interconnectivity. It deploys a sophisticated suite of digital tools, including Artificial Intelligence, Geographic Information Systems, Internet of Things, and advanced data analytics. The project's core mission is to tackle prevalent issues such as administrative fragmentation, inequality, and inefficiencies in public service coordination, fostering an environment of enhanced cooperation and equal opportunities across rural and urban divides. Central to PoliRuralPlus are 9 pilot projects that serve as proving grounds for an EU-wide integrated approach to territorial planning and action foresight. PoliRuralPlus ambitiously expands its scope to include the urban dimension, thus embracing a broader perspective on development.

Overall objective

The PoliRuralPlus builds on the successful results PoliRural provided for rural regions. In this project, the project partners aim to address the research agenda established by PoliRural and broaden their foresight, planning and development scope to regions that include both urban and rural areas, and anything in between.

PoliRuralPlus specific objectives

O1 To develop and implement a foresight-based framework for interregional cooperation and coordination, aimed at overcoming policy barriers and improving governance arrangements to foster integrated and smart rural-urban development strategies

O2 To develop and implement integrated strategies and action plans that enhance the availability of business and innovation opportunities in rural areas, while promoting a more proximate, circular, and green economy and revitalising rural places through better connectivity, improved valorization of cultural and natural heritage, and stronger innovation ecosystems.

O3 To enhance mutual access to services and social connectivity between rural and urban areas, as well as build resilience and capacity for innovation through the implementation of regional action plans and pilot initiatives.

O4 Contribute to the implementation of the European Green Deal, with a specific focus on the farm-to-fork and biodiversity strategies, the organic action plan, the common agricultural policy (CAP), the long-term vision for the EU's rural areas, the flagship initiative "Research and innovation for rural communities," and the EU territorial agenda for 2030.

O5 To enhance cross-disciplinary collaboration and leverage the full potential of European Research Infrastructures, EOSC, EU Data spaces, INSPIRE, Copernicus, DIAS, Eurostat, FAO, and other relevant data sources for integrated rural-urban development.

O6 To facilitate mission-oriented experimentation and innovation by leveraging data-driven decision-making, collaborative analysis, and system dynamics to advance the development of a well-being economy based on proximity, circularity, green economy/society, services, culture, landscape and heritage, and mobility.

O7 To create synergies with the New European Bauhaus (NEB) and other EU-funded projects, facilitating ideas flows from urban to rural settings and vice versa.

About Agrifusion

The 'Agrifusion'project is the Malta pilot within the Polirural Plus Project. It is a stakeholder outreach initiative that emphasizes collaboration across relevant sectors in Malta as a step to transform regions into vibrant, resilient communities.

"AgriFusion" aims to contribute to the PoliRural Project and inter alia enhance sustainable agricultural practices and improve food security in Malta by conducting comprehensive stakeholder outreach and research. Our primary goal is to gather insights into the needs and challenges faced by local farmers and consumers, promote sustainable farming practices, and foster stronger connections between rural and urban communities. Through this research-driven approach, we seek to support local agriculture and promote sustainable consumption practices.

Our project aligns seamlessly with the objectives of the Malta regional pilot, which focuses on digital transformation and entrepreneurial capacity building in rural areas. The pilot aims to level up agricultural sectors through digitization, youth empowerment, and fostering collaboration between rural and urban stakeholders to bridge societal divides and promote circularity.

THE AGRIFUSION METHODOLOGY

"AgriFusion" directly addressed these goals through the following:

1. Digital Transformation and Entrepreneurial Capacity Building

While our primary focus was on stakeholder outreach and research, we explored opportunities for integrating digital tools and technologies to enhance agricultural practices and market access. By understanding the digital needs and capacities of local farmers, we have provided recommendations for future digitization efforts that align with the regional pilot's objectives.

2. Levelling Up Agricultural Sectors

Our research identified key challenges and opportunities within the agricultural sector, particularly in terms of sustainable practices and market access. By engaging with farmers, we gathered data on current practices and potential areas for improvement, which will inform strategies to enhance the agricultural sector's productivity and sustainability.

3. Empowerment of Youth

Engaging with young farmers and agricultural entrepreneurs was a crucial aspect of our stakeholder outreach. By understanding their needs, aspirations, and challenges, we have developed recommendations to empower youth in agriculture, promoting innovative practices and entrepreneurial ventures that align with the goals of the Malta regional pilot.

4. Bridging Societal Divides

Our project fostered collaboration between rural and urban stakeholders through inclusive outreach activities. By facilitating dialogues and workshops, we aimed to bridge the gap between producers and

consumers, ensuring that urban residents are more connected to and supportive of local agriculture. This approach has helped reduce societal divides and promote a more integrated community.

5. Promoting Circularity

Through our research, we explored ways to promote circular

economy practices within the agricultural sector. These included understanding how farmers can adopt sustainable methods that reduce waste, recycle resources, and create a closed-loop system. Our findings have contributed to strategies that align with the circularity goals of the Malta regional pilot.

By addressing these focus areas, "AgriFusion" aligned perfectly with the objectives of the Malta regional pilot. Our project not only enhanced rural-urban interactions but also contributed to the broader goals of sustainable rural development, youth empowerment, and community resilience in Malta.

To comprehensively understand and address the needs of our stakeholders, we employed a combination of qualitative and quantitative methodologies. Our approach has ensured inclusivity and thoroughness, capturing a wide range of perspectives from farmers, consumers, policymakers, and other relevant stakeholders.

3 Implementation

Provide a detailed account of the project's implementation, including key events, stakeholder interactions, and challenges faced, risks encountered and mitigation strategies applied. Specific Techniques and Tools deployed throughout this project included the following

1. Surveys

<u>o Online Surveys:</u> We distributed structured online surveys using Google forms. These surveys were designed to gather quantitative data on stakeholder needs, preferences, and challenges. <u>o In-Person Surveys:</u> To reach stakeholders with limited internet access, we conducted in-person surveys during community meetings and events.

2. Interviews

<u>o Semi-Structured Interviews:</u> We conducted one-on-one interviews with key stakeholders, including farmers, local government officials, and technology providers. These interviews provided in-depth insights into individual needs and experiences. <u>o Online Interviews:</u> For stakeholders who could not participate in face-to-face interviews, we conducted interviews over Zoom to ensure their perspectives were included.

3. Focus Groups

<u>o Targeted Focus Groups:</u> We organized focus group discussions with specific stakeholder groups (e.g., young farmers, consumer representatives) to facilitate detailed discussions and gather qualitative data.

<u>o Mixed-Group Focus Groups</u>: we brought together diverse stakeholders in a mixed-group setting, and this helped us identify common themes and areas of divergence, promoting a holistic understanding of user needs.

4. Workshops

<u>o Interactive Workshops:</u> We hosted workshops that included participatory activities such as brainstorming sessions, role-playing, and scenario planning. These workshops engaged stakeholders in identifying needs and co-creating solutions.

<u>o Thematic Workshops:</u> Focusing on specific topics (e.g., sustainable farming practices, market access), these workshops delved deeper into particular areas of interest.

Ensuring a Comprehensive and Inclusive Approach

• Diverse Representation: We ensured that our data collection methods reach a diverse range of stakeholders across different demographics, geographic locations, and socio-economic backgrounds. Special efforts were made to include underrepresented groups such as small-scale farmers and low-income households.

• Accessibility: All our data collection tools were designed to be accessible and user-friendly. Workshops were held in accessible locations at convenient times.

• <u>Continuous Feedback Loop</u>: We established* a continuous feedback loop by regularly updating stakeholders on the progress of the project and incorporating their feedback into our ongoing activities.

Data Analysis and Synthesis

• Qualitative Data Analysis: We analyzed qualitative data from interviews, focus

groups, and workshops to identify key themes, patterns, and insights. Artificial Intelligence was used for systematic analysis.

• <u>Quantitative Data Analysis:</u> Survey data was analyzed using software to identify trends, correlations, and significant findings.

• Integrated Reporting: The results from qualitative and quantitative analyses are being synthesized into this comprehensive report, highlighting key user needs and actionable insights.

Challenges and Mitigation Strategies

• <u>Resistance to Participation</u>: To address potential resistance, we clearly communicated the benefits of participation and ensured confidentiality and data security.

• Digital Literacy Barriers: For stakeholders with limited digital literacy, we provided support and alternative methods of participation.

• <u>Time & Logistical Constraints</u>: We carefully planned and scheduled our data collection activities to maximize participation and minimize disruptions to stakeholders' daily activities, whilst ensuring best outcomes in the limited timeframe available.

By employing these robust methods for collecting user needs, "AgriFusion" aimed to ensure that our project responded to the real challenges and opportunities faced by the community, leading to more effective and sustainable outcomes.

4 User Needs Assessment and Innovation Solutions

4.1 Identified Needs

The research results indicate that **consumers are highly aware of and interested in sustainable agriculture**, with strong preferences for locally sourced food. However, **availability and price considerations** remain key factors affecting their purchasing *decisions*.

The research also highlights a positive attitude toward sustainable agriculture, but challenges in **availability, affordability, and participation in sustainability initiatives** remain. By addressing these gaps through **policy interventions, technology, and community engagement**, sustainable consumption can be further promoted.

The SMEs survey reveals that **sustainability is a top priority** for many agricultural businesses, but financial constraints, market access challenges, and policy inefficiencies hinder their progress.

The workshops and focus groups provided clear evidence of the need for targeted interventions focused on simplifying regulatory frameworks, enhancing financial and technical support, improving market access, and facilitating collaborative networks. Participants demonstrated strong enthusiasm for innovation and sustainability, provided they receive tailored and accessible support. Addressing these concerns can significantly contribute to the sustainable growth and resilience of Malta's agricultural sector.

4.2 Innovative Solutions

Policy Recommendations: Global Best Practices

- Digital Transformation Strategies: Many countries are integrating digital technology into agricultural policy to drive efficiency and inclusivity. For example, China's government launched a national digital agriculture plan with specific targets (aiming for ~15% of agricultural output to be from the digital economy by 2025) and initiatives to digitize farming operations (Frontiers | Does government policy matter in the digital transformation of farmers' cooperatives?—A tripartite evolutionary game analysis). Similarly, the EU promotes farm digitalization to boost competitiveness and sustainability, emphasizing data-driven farming and rural internet connectivity (Digitalisation European Commission). Governments can support this by investing in rural broadband, digital skills training, and open data platforms for agriculture, enabling farmers to adopt precision tools and access markets online.
- Sustainability and Climate-Smart Policies: Effective policies align agriculture with environmental goals. The EU's Common Agricultural Policy (CAP) reforms, for instance, require higher green ambitions and dedicate at least 25% of farm support to eco-schemes that reward climate-friendly practices like organic farming and agroecology (CAP 2023-27 European Commission). Such measures incentivize farmers to adopt sustainable methods, conserve

biodiversity, and build climate resilience. Other best practices include redirecting subsidies from purely yield-focused inputs toward regenerative practices (e.g. cover cropping, water conservation) and funding research and extension for climate-smart agriculture. By tying financial support to environmental performance (as the EU does under the Green Deal) and implementing clear sustainability standards, policymakers encourage farms to modernize **and** become stewards of the land.

• Support for Cooperative and Smallholder Farming: Global success stories show that empowering farmer cooperatives and smallholders leads to stronger rural economies. Policies that promote cooperatives have enabled small producers to scale up, improve their productivity, and gain better negotiating power in markets (The successful agricultural cooperative model shows that there are alternatives to the prevailing model – Foro Rural Mundial). For example, numerous countries (from India to Spain) have used legal frameworks and grants to foster agricultural cooperatives, which help farmers pool resources, market collectively, and share in profits. Providing targeted support (e.g. credit access, technical assistance) to small farms and farmer alliances is also crucial. Ensuring that agricultural policies (and subsidies) reach smallholders – not just large agribusiness – creates a more equitable system. A proven approach is to facilitate cooperative marketing and resource-sharing networks: when farmers unite, they can access technology and financing that would be out of reach individually, leading to better incomes and resilience for the farming community (The successful agricultural cooperative model shows that there are alternatives to the prevailing model – Foro Rural Mundial).

Technological Innovations: Integrating AI, IoT, and Blockchain in Agriculture

- AI-Powered Farming: Artificial intelligence is being used for crop monitoring, predictive analytics, and decision support in agriculture. In India, an AI-driven advisory program (part of the "AI for Agriculture Innovation" initiative) helped chili farmers achieve a 21% increase in yields and reduced pesticide and fertilizer use by 9% and 5%, respectively (Farmers in India are using AI for agriculture | World Economic Forum). This pilot also doubled farmers' net income within one season, prompting the regional government to expand it to 500,000 farmers (Farmers in India are using AI for agriculture | World Economic Forum). Such case studies show how AI (e.g. machine-learning apps that give sowing recommendations or detect plant diseases from photos) can boost productivity and sustainability. AI can also optimize supply chains for example, algorithms that predict market demand help farmers plan crops to reduce gluts and shortages. The key is making these AI tools accessible to farmers (through smartphones or local advisory services) so that even smallholders can benefit from data-driven farming.
- Internet of Things (IoT) and Precision Agriculture: IoT sensors and smart devices are enabling
 precision farming practices worldwide. By using networks of soil moisture sensors, weather
 stations, and GPS-enabled equipment, farmers can optimize resource use in real time. A global
 study found farms using IoT-based precision agriculture saw average yield gains of about 15%
 while reducing water usage by around 20% (How IoT Sensors Help Farmers Save Water &
 Fertilizer). In Vietnam, for example, IoT deployments allow farmers to monitor soil and climate
 conditions remotely, leading to timely interventions that improve yields and lower labor costs (
 IoT Applications in Agriculture: Enhancing Crop Yield in Vietnam | Asian Journal of Computing

and Engineering Technology). These technologies make agriculture more efficient and climate-smart by minimizing waste (e.g. preventing over-irrigation or over-fertilization) and maximizing each hectare's output. Importantly, IoT data platforms also give farmers better control – they receive alerts on their phones about field conditions and can act immediately, which is especially valuable in regions facing water scarcity or variable climates.

• Blockchain for Traceability and Market Access: Blockchain technology is improving transparency in food supply chains and helping farmers secure better market terms. One successful pilot is in Haiti, where a blockchain-based traceability system enabled small mango farmers to export directly to buyers in the US, cutting out intermediaries. This distributed ledger approach made each transaction (from farm to port to retail) transparent and tamper-proof, so farmers retained ownership of their produce until sale. The result was a drastic increase in income – participating farmers earned **7.5 times** more by selling through the blockchain system instead of through local middlemen (Agriledger uses DLT / blockchain to help small farmers sell to big markets — Atlas of the Future). Similarly, blockchain trials in organic and fair-trade chains have shown benefits like easy verification of certifications, improved accountability, and faster product recalls if needed (Frontiers | Blockchain for Organic Food Traceability: Case Studies on Drivers and Challenges) (Frontiers | Blockchain for Organic Food Traceability: Case Studies on Drivers and Challenges). For farmers, the ability to prove their product's origin and quality (via a blockchain record accessible to consumers) can open up premium markets and build trust with buyers. While blockchain alone isn't a silver bullet, when combined with training and infrastructure, it can greatly enhance small producers' market access and reduce transaction costs in the long run.

Community Engagement Strategies: Bridging Rural and Urban Stakeholders

- Community-Supported Agriculture (CSA) and Direct Marketing: CSA programs and farmers' markets are proven models that connect urban consumers directly with rural producers. In a typical CSA, consumers subscribe to a farm's harvest in advance and receive regular shares of fresh produce throughout the season. This arrangement guarantees market access and upfront capital for farmers while giving consumers fresh, local food (Farmers & Chefs: Partners in Fresh Food). By eliminating intermediaries, farmers obtain fair prices and build relationships with their customer base, and consumers gain trust and awareness of how their food is produced. Such models have improved sustainability by encouraging diversified, organic farming (since CSA customers often value sustainable practices) and reducing food miles. Farm-to-table initiatives similarly encourage restaurants and retailers to source directly from local farms, creating stable outlets for farmers' products (Farmers & Chefs: Partners in Fresh Food). These direct marketing channels not only improve farmers' incomes but also educate urban stakeholders about seasonal eating and the realities of farming, fostering a deeper rural-urban connection.
- **Digital Marketplaces and Rural-Urban Value Chains:** Technology can facilitate collaboration between rural farmers and urban markets. For example, in Kenya the startup Twiga Foods created a mobile-based B2B marketplace linking small farmers with produce vendors in cities. This platform coordinates logistics and uses mobile payments, so produce is aggregated from farms and delivered to urban retailers efficiently. Farmers using Twiga reported improved finances and more

consistent demand for their crops (). At the same time, urban consumers benefit from lower produce prices (10–15% cheaper than traditional markets) due to reduced supply chain waste and fewer intermediaries (). Such rural-urban partnerships leverage digital tools to improve market access, reduce post-harvest losses, and ensure a steady supply of affordable, fresh food in cities. Similar initiatives include e-commerce platforms where urban customers can order directly from rural farms (with the platform handling delivery), and SMS-based networks that connect farmers to wholesale buyers. The success of these models lies in building trust (often via transparent pricing and reliable service) and mutual benefit – farmers get a better cut of the final price while urban businesses and consumers get freshness and value.

Collaborative Networks and Education: Successful initiatives often involve multi-stakeholder • networks that include farmers, consumers, policymakers, and educators working together. For instance, some regions have formed food policy councils or regional cooperatives that link rural producers with urban consumers and institutions (schools, hospitals) to create sustainable local food systems. These collaborations provide education on sustainable practices to both producers and consumers, organize farm visits or urban gardening workshops, and align urban demand with rural supply. Engaging urban stakeholders in understanding agriculture (through agritourism, farm-to-school programs, etc.) builds support for local farmers and encourages consumption of sustainably produced food. Such community engagement improves mutual understanding and creates a supportive ecosystem for agriculture. Notably, the importance of broad collaboration is highlighted in global projects - for example, a digital agriculture initiative in India attributed its success to cooperation among government, industry, start-ups, and farmer groups working towards common goals (Farmers in India are using AI for agriculture | World Economic Forum). By creating avenues for continuous dialogue (e.g. annual forums, exchange programs), rural and urban communities can co-create solutions that improve sustainability and market resilience for all.

5 Conclusions and Recommendations

The Agrifusion Actionable Roadmap

Based on these findings, the Agrifusion project can propose a multi-pronged implementation roadmap:

1. **Policy Alignment and Advocacy:** Work with government and local authorities to align the project with best-practice policies. This could include advocating for digital agriculture strategies (such as improving rural broadband and data services) and sustainability incentives (such as grants or tax breaks for organic and climate-smart farming). Support the formation of farmer cooperatives or associations if they do not exist, and lobby for policies that provide small farmers easier access to funding and training (<u>The successful agricultural cooperative model shows that there are alternatives to the prevailing model – Foro Rural Mundial</u>). For example, encouraging a local "smart farming" subsidy or inclusion of Agrifusion as a pilot in national programs can create an enabling environment. Engaging policymakers early will ensure that Agrifusion's innovations (apps, sensors, etc.) are backed by institutional support rather than operating in a vacuum.

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- 2. Pilot Digital Innovations on Farms: Implement small-scale pilot projects integrating AI, IoT, or blockchain solutions with willing local farmers. For instance, Agrifusion could partner with a tech provider to deploy a precision irrigation system on a few farms to demonstrate water savings and yield gains, or introduce an AI-powered mobile advisory for pest management on selected plots. Start with a manageable number of farmers and measure key outcomes. Document the impacts (e.g. yield increases or cost savings similar to the 21% yield jump seen in India's AI pilot ** (Farmers in India are using AI for agriculture | World Economic Forum)**) and gather feedback. Use these results to refine the technology and build trust among other farmers. Once the pilots show positive results, prepare to scale up: seek additional funding or government support to expand these tools to more farms across the region.
- 3. Capacity Building and Knowledge Sharing: Invest in training and knowledge exchange to ensure long-term adoption of innovations. This includes organizing workshops and demo days for farmers to learn how to use new devices or platforms, and training "digital farmer champions" who can mentor peers. Provide hands-on guidance for cooperative leaders to manage digital record-keeping, or for young farmers to become local tech support. Additionally, address generational and educational gaps for example, offer tailored training for older farmers who may be less tech-savvy, and engage youth (perhaps through local agricultural colleges) to participate in Agrifusion's digital initiatives. Creating a knowledge hub (even a simple WhatsApp group or Facebook community) where participants can ask questions and share experiences will help sustain momentum. This step also involves educating urban consumers: hosting farm visits, tasting events, or webinars about sustainable agriculture can galvanize consumer support. Building digital literacy and agricultural skills in tandem will ensure that the community can take full advantage of tools and practices (crucial given that lack of skilled "agri-tech" talent can otherwise be a barrier (Frontiers | Does government policy matter in the digital transformation of farmers' cooperatives?—A tripartite evolutionary game analysis)).
- 4. Establish Rural-Urban Linkages: Facilitate platforms that directly connect producers with consumers, as a core component of Agrifusion. Depending on the local context, this could mean setting up a community-supported agriculture scheme where city residents subscribe to Agrifusion farmers' produce, or creating an online marketplace for local farm products. If logistics are a challenge, collaborate with existing delivery services or cooperatives to aggregate and transport goods. Start with a pilot farmers' market or delivery CSA in a nearby town to test demand. Leverage social media and urban community groups to promote the "buy local" concept, highlighting how it supports rural livelihoods and offers fresher, sustainable food. In parallel, work on traceability for instance, use simple blockchain or QR-code tracking for Agrifusion products so urban buyers can see the origin (learning from the Haitian example, where transparency built consumer confidence and gave farmers a larger share of the revenue (Agriledger uses DLT / blockchain to help small farmers sell to big markets Atlas of the Future)). By gradually strengthening these rural-urban links perhaps beginning with one product line (e.g. a weekly vegetable box or a farm-direct dairy product) Agrifusion can improve market access for farmers and build a loyal customer base that values the project's mission.

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- 5. Foster Multi-Stakeholder Collaboration: Create a coalition or working group that brings together rural farmers, urban consumer representatives, technology experts, local business partners, and government officials to guide the project. Regular meetings or roundtables (monthly or quarterly) can be held to discuss progress, address challenges, and align efforts. This multi-stakeholder approach ensures that different perspectives are considered for example, farmers can voice practical needs, tech partners can suggest solutions, and consumers can indicate market preferences. Such collaboration was key in other successful initiatives (e.g. India's AI4AI program brought together government, industry, startups, and farmer cooperatives from the start (Farmers in India are using AI for agriculture | World Economic Forum)). Agrifusion should emulate this by establishing formal partnerships or MOUs: perhaps with a local university for research support, a telecom provider for connectivity, or an NGO for community mobilization. A steering committee drawn from these stakeholders can also help monitor that the project stays on track to meet its social, economic, and environmental goals. Importantly, this group can champion Agrifusion's successes to a wider audience, attracting more resources or policy support as the project grows.
- 6. Monitoring, Scaling, and Policy Feedback: As interventions roll out, Agrifusion should continuously monitor key metrics and capture lessons. Set up simple data collection: yield records from pilot farms, income changes for participating farmers, number of urban consumers engaged, etc. Use this data to publish brief case studies or reports that demonstrate outcomes. Success stories (e.g. a farmer who adopted IoT sensors and saw water usage drop 20% while maintaining yields (How IoT Sensors Help Farmers Save Water & Fertilizer)) are powerful for persuading more farmers and for securing funding. Regularly evaluate which initiatives are most effective and cost-efficient, then allocate resources to scale those up. For example, if the digital marketplace gains traction, invest in expanding it to more products or neighboring communities; if AI advisories show clear benefits, train more farmers to use them. Conversely, be prepared to iterate or discontinue approaches that aren't delivering results. Finally, close the loop by feeding insights back to policymakers and stakeholders. Share Agrifusion's data with government agencies to inform larger policy adjustments - for instance, evidence of improved farmer incomes could support broader cooperative programs, or data on sustainable practices could influence environmental regulations. This ensures that Agrifusion not only implements best practices on the ground but also contributes to long-term structural change in the agricultural sector.

By following this roadmap, the Agrifusion project can leverage global best practices – from smart policy frameworks to cutting-edge tech tools and grassroots engagement models – and adapt them to its local context. The outcome will be a digitally empowered, sustainable farming community that is closely connected with its urban markets, mirroring the successes seen elsewhere while addressing local needs. This integrated approach will help Agrifusion deliver both improved agricultural productivity and stronger rural-urban collaboration, laying the foundation for long-term resilience and prosperity in the region.