Supporting development of public administration and entrepreneurship in Georgia

Acceleration programme
for AgriTech startups, 2024

Author:
Annie Vashakmadze

Edited by
Monika Fiszer, Aleksandra Płażewska-Tabor, Rafał Modzelewski
Published by the Polish Agency for Enterprise Development Pańska 81/83, 00-834 Warsaw, Poland, www.parp.gov.pl

ISBN 978-83-7633-521-6

Project co-financed within the framework of the Polish development cooperation of the Ministry of Foreign Affairs of the Republic of Poland.

Design, DTP + proofreading: Content Zone / www.contentzone.pl

Table of contents

Katarzyna Duber-Stachurska

President of the Polish Agency for Enterprise Development

Food production and agriculture are not areas that are immediately associated with modern technologies. However, in these domains, technological progress serves to meet the most basic human needs.
Many countries, both within the European Union and beyond has made an impressive progress aimed at ensuring the nutritional safety of their growing population. This was possible, among others, thanks to innovations in the field of agricultural technologies.
Meanwhile, the challenges of agricultural production continue to grow.
These include, among others accelerating climate change, soil sterilization, environmental pollution, loss of biodiversity and spreading pathogens. The emergence of these threats forces us to further innovate in the area of agritech.
The Polish Agency for Enterprise Development has been working to develop economic innovation for almost twenty-five years. We believe that such innovation can only be created in the international environment built by research organisations, large and SME companies.
In such environment, a special role is played by startups, companies that create and test newest, groundbreaking technologies.
With great pleasure I would like to hand over to you the eBook dedicated to Georgian startups operating in the agritech industry. Companies presented in the publication are participants of the project implemented by the Polish Agency for Enterprise Development (PARP) in in collaboration with Georgia's Innovation and Technology Agency (GITA) with support of Polish Ministry of Development and Regional Policy and Ministry of Foreign Affairs.
The objectives of the project include, among others, strengthening of the Georgian

tech-scene as well as boosting the collaboration between Georgian agritech startups, the Polish VCs, and industry leaders.
The first stage of the project, took the form of an online skill share training, aimed at familiarising Georgian startups with the Polish startup ecosystem and improving their competences and knowledge needed to run a successful business. The second stage was dedicated to creating bilateral links between Polish and Georgian entrepreneurs.
I sincerely hope that our e-book will encourage Polish stakeholders to establish cooperation with Georgian beneficiaries of the Project and, thanks to this cooperation, bring us closer to our common goal which is the safeguard of food security- in Poland, Georgia and worldwide.

Agri Sector and AgriTech Development in Georgia

This paper explores the agricultural sector in Georgia, examining its historical significance, current challenges, and future opportunities. It also focuses on the emerging AgriTech subsector, highlighting innovative small and medium-sized enterprises (SMEs) revolutionizing agriculture through technology. With diverse climatic conditions and a rich agricultural heritage, Georgia presents a compelling case for investment in both traditional agriculture and agriarch innovations.

1. General Overview of the Agri Sector in Georgia

1.1 Introduction

Georgia, located at the intersection of Europe and Western Asia, boasts a rich and diverse agricultural landscape that plays a crucial role in the country's economy and cultural identity. The geographical position of Georgia provides it with a unique blend of climatic conditions and topographic features, which create an environment conducive to a wide variety of agricultural activities. The country is home to four distinct climate zones: subtropical, continental, mountainous, and semi-arid. Not only does this climate diversity allow for the cultivation of numerous crops but it also enables farmers to engage in a variety of agricultural practices tailored to specific regional conditions.

This subtropical region in western Georgia benefits from a humid climate ideal for the cultivation of citrus fruit, tea, and hazelnuts. The area, characterized by its lush greenery and fertile soils, has become a hub for organic farming attracting both local farmers and international interest.

The Mediterranean climate of the coastal regions supports the growth of diverse fruit varieties, while the mountainous areas provide a unique environment for pasture-based livestock farming. In contrast, the eastern part of the country, with its continental climate, is known for robust agricultural production, particularly grape cultivation and grain farming. Here, the significant temperature variations between seasons contribute to a rich harvest of fruit, vegetables, and cereals.

In addition to traditional crops and livestock, Georgia is renowned for its winemaking heritage, which dates back over 8000 years.

The country's unique grape varieties and traditional vinification methods have positioned it as one of the oldest wine-producing regions in the world, attracting global interest and contributing to its cultural identity. Wine production not only serves the domestic market but has

also become a vital export, further highlighting the economic potential of Georgia's agricultural sector.

1.2 Importance of Agriculture in the Georgian Economy

Agriculture remains a vital component of the Georgian economy, contributing approximately 8% to the national GDP and employment of around 40% of the population (World Bank, 2022). This sector has deep historical roots in Georgia, influencing not only economic structures but also cultural identities and social practices. This significance of agriculture goes beyond mere statistics: it embodies a way of life for many Georgians and represents the country's rich heritage and traditions.

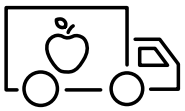
Economic Contributions

The contribution of agriculture to Georgia's economy is multifaced. Beyond its direct contribution to GDP, agriculture plays a crucial role in providing food security for the nation. The sector supports diverse forms of agricultural production, including grains fruit, vegetables, and livestock, all essential for meeting the dietary needs of the population. In a country where about 40% of the workforce is engaged in agriculture, the significance of this sector cannot be overstated. It is the backbone of rural livelihoods, ensuring that communities thrive even in challenging economic climates. Food security is a pressing issue globally, and Georgia is no exception. With fluctuations in international food prices and the impacts of climate, ensuring a stable food supply is vital. By bolstering local agricultural production, Georgia not only reduces its reliance on food imports but also enhances global market shocks. This self-sufficiency is particularly important for rural communities, where agricultural activities are often the primary source of income and sustenance.

Ancillary Industries

The agricultural sector also supports a variety of ancillary industries, creating a ripple effect that amplifies its economic impact. Key industries linked to agriculture include:

1. Food Processing: The food processing industry is a vital aspect of Georgia's economy by transforming raw agricultural products into value-added goods. This sector enhances the overall value of agricultural outputs. Products ranging from canned fruit and vegetables to dairy and meat products are processed and packaged for local consumption and export.



2. Transportation: Efficient transportation systems are critical for the agricultural sectors, as they facilitate the movement of goods from farms to markets. Poor transportation infrastructure can lead to significant post-harvest

losses, impacting farmers' incomes and food availability. Investment in rural roads, storage facilities, and logistics networks is essential for enhancing the efficiency of the agricultural supply chain.

3. Retail: The retail sector is the final link in the agricultural supply chain, connecting producers with consumers. Farmers' markets, grocery stores, and supermarkets rely on a steady supply of fresh produce and other agricultural goods. The growth of the retail sector, particularly in urban areas, has increased demand for high-quality agricultural products.

4. Tourism: Georgia's agricultural heritage, particularly its winemaking traditions, has become a significant draw for tourists. Agritourism offers visitors the opportunity to experience local farming practices, participate in wine tasting, and engage with the cultural heritage of the region. This not only generates additional income for farmers but also promotes Georgian agricultural products on an international stage.

Policy Framework and Support

While the Georgian government has made strides in supporting agricultural development, more comprehensive policies should be applied to foster investment and modernization.

The government has also initiated programs aimed at improving agricultural education and extension services. By providing farmers with access to knowledge and resources, this initiative can enhance productivity and encourage the adoption of best practices. Collaboration with international organizations and NGOs can further strengthen these efforts, bringing in expertise and funding to support agricultural development.

Opportunities for Growth

There are significant opportunities for growth and modernization within the agricultural sector. The global demand for organic and sustainably produced food is increasing, and Georgia's diverse agricultural landscape positions it well to capitalize on this trend. By adopting sustainable farming practices and focusing on high-value crops, Georgian farmers can enhance their competitiveness in international markets.

Diverse Agricultural Production

The richness of Georgia's agricultural landscape allows for the cultivation of a wide range of products. The western regions, with their subtropical climate, are particularly known for producing high-quality fruit such as peaches, grapes, and citrus fruit. In contrast, the eastern regions benefit from a continental climate conducive to the cultivation of grains like wheat and barley as well as legumes. This variety

not only supports local diets but also positions Georgia favorably in international markets, where demand for diverse agricultural products is on the rise.
Livestock farming is another significant aspect of Georgia's agricultural economy. The country has a tradition of animal husbandry, producing dairy products, meats, and wool that contribute to both food security and economic stability. Georgian cheese, such as sulguni and imeruli have gained recognition for their unique flavors and quality, further expanding the export potential.

Agricultural Exports and Global Trade

Agricultural exports are a key driver of Georgia's economy, with products such as wine, hazelnuts, and citrus fruits playing a crucial role in foreign trade. The country's long-standing winemaking tradition has positioned it as a prominent player in the global wine market. Georgian wines, characterized by their unique varieties and ancient production methods, have gained international acclaim, leading to increased exports and foreign investment in the sector.
Hazelnuts have become a cornerstone of Georgia's agricultural export strategy. The country is one of the top producers of hazelnuts in the world, and this sector has seen substantial growth, driven by increasing global demand. The cultivation and export of hazelnut not only provide income for farmers but also support local economies and create jobs in processing and distribution.
Citrus fruit, particularly mandarins, and lemons are also important to Georgia's agricultural exports. Favorable climatic conditions in certain regions allow for the cultivation of high-quality citrus that meets the standards of international markets. Efforts to enhance the quality and marketing of these products are underway, aiming to expand Georghia's presence in the global fruit market.

Emerging Markets and Future Prospects

As Georgia continues to develop its agricultural sector, the focus is increasingly shifting towards emerging markets. With the global demand for organic and sustainably produced food on the rise, Georgia is well-positioned to capitalize on these trends. The country's commitment to sustainable agricultural practices aligns with the growing consumer preference for eco-friendly products, creating opportunities for local farmers to enter premium markets.
The integration of technology into agriculture, including precision farming and digital marketing platforms, is posed to enhance productivity and market access for Georgian farmers. Investments in AgriTech can lead to improved efficiency and yield, enabling farmers to compete more effectively in international markets.

The government and other stakeholders are increasingly recognizing the importance of supporting agricultural innovation and diversification as a means to drive economic growth. By fostering an environment conducive to research, development, and investment in agriculture, Georgia can strengthen its economic foundation and secure its position as a significant player in the global agricultural landscape.

In summary, the economic contributions of agriculture in Georgia extend far beyond mere production figures. The sector is integral to the livelihoods of many, supports a variety of ancillary industries, and plays a vital role in international trade. As Georgia seeks to enhance its agricultural capacity, the potential for growth and modernization remains significant, paving the way for a more prosperous future.

1.3 Climate and Agricultural Diversity

Georgia's diverse geography, characterized by its varied landscapes and climatic conditions, plays a crucial role in shaping its agricultural practices. The country encompasses four distinct climate zones: subtropical in the west, continental in the east, mountainous regions, and semi-arid areas. This climate diversity not only supports the cultivation of a wide range of crops but also enhances the country's agricultural resilience and adaptability.

Subtropical Climate

In western Georgia, the humid subtropical climate creates ideal conditions for growing a variety of crops, including citrus fruit, tea, and hazelnuts. The region's warm temperatures, ample rainfall, and rich soil contribute to a thriving agricultural landscape.

The cultivation of tea, for instance, has seen a resurgence in recent years, with Georgia aiming to capitalize on its historical tea-growing legacy. The unique flavors and qualities of Georgian tea have begun to attract attention beyond its borders, showcasing the potential for expanding this niche market.

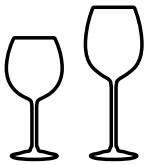
Continental Climate

Conversely, the eastern regions of Georgia are characterized by a continental climate, where significant temperature variations between seasons create a conducive environment for cultivating grapes, grains, and a variety of vegetables. This climate zone supports diverse agricultural practices, from viticulture to grain production, enabling farmers to diversify their outputs and maximize economic returns.

The region's favorable conditions for viticulture have established it as an area for wine production. The ability to grow unique grape varieties and adapt farming practices to seasonal changes allows for high-quality wine production, contributing significantly to Georgia's reputation as a wine-producing nation.

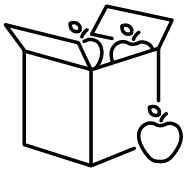
1.4 Key Agricultural Products

Georgia is renowned for several key agricultural products, each contributing significantly to the economy and cultural heritage of the nation.



1.4.1 Wine Production and its Heritage

Georgia is often hailed as the "cradle of wine", with a winemaking tradition that dates back over 8000 years. This rich history is reflected in the country's diverse grape varieties and unique vinification techniques, which have garnered international acclaim (Parker, 2021). The traditional method of fermenting grapes in qvevri - large clay vessels buried underground - underscores the deep-rooted cultural significance of winemaking in Georgia.



1.4.2 Fruit Production

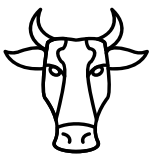
The production of fruit such as apples, peaches, cherries, and pomegranates plays a significant role in Georgia's agricultural landscape. These fruit are not only staples of the local diet but also essential export products, particularly to Europe and Asia. In 2022, fruit exports generated approximately USD 100 million, demonstrating the sector's growth potential (World Bank, 2022). The favorable climate and fertile soils enable Georgian farmers to cultivate high-quality fruit that meet international standards, further enhancing their competitiveness in the global market.

1.4.3 Vegetable Farming

Vegetable farming is vital to the Georgian agricultural sector, with crops like tomatoes, cucumbers, and bell peppers widely cultivated. These vegetables not only contribute to local markets but also increase export opportunities, particularly in neighboring countries. The Food and Agriculture Organization (FAO, 2021) highlights that enhanced irrigation techniques and modern farming practices can further boost vegetable yields, ensuring a steady supply for both domestic consumption and export.

1.4.4 Nut Production

Hazelnuts are among Georgia's top agricultural exports, with the country ranking as one of the leading producers globally. In 2021, hazelnut exports accounted for nearly USD 200 million, understanding the industry's economic significance (National Statistics Office of Georgia, 2021). The favorable climate conditions and Georgia’s rich biodiversity of contribute to the high quality of its hazelnuts, appreciated in international markets.



1.4.5 Livestock and Dairy Farming

The livestock sector

remains a critical component of Georgian agriculture, with sheep, goats, and cattle commonly raised for meat and dairy products. Traditional practices combined with modern techniques can enhance productivity and quality in the sector. The FAO (2021) emphasizes the need to modernize dairy farming practices to improve productivity and ensure sustainability.

1.5 Challenges and Opportunities

Despite its agricultural potential, Georgia faces several challenges that hinder the sector's growth and sustainability.

1.5.1 Infrastructural Issues

One of the most pressing challenges is inadequate infrastructure, particularly in rural areas. Poor road conditions and limited storage facilities hinder efficient transport of agricultural goods, leading to significant post-harvest losses. Investments in infrastructure are critical for improving market access, ensuring that farmers can reach consumers effectively, reducing waste in the supply chain at the same time (World Bank, 2022). Additionally, modernizing irrigation systems is essential to enhance agricultural productivity, especially in the context of climate variability. Improved infrastructure not only supports farmers but also fosters rural development by creating jobs and enhancing the overall quality of life in these communities.

1.5.2 Access to Technology

Many Georgian farmers rely on traditional farming methods, which can limit productivity and sustainability. The FAO (2021) indicates that access to modern agricultural technology is essential for enhancing yields and sustainability. The government and various NGOs are increasingly promoting technology adoption among farmers, providing training and resources to facilitate this transition.

The integration of precision agriculture utilizing data and technology to optimize farming practices presents a significant opportunity for improving efficiency and yields. Encouraging collaboration between tech developers and farmers can enhance knowledge transfer and foster innovation in the agricultural sector.

1.5.3 Climate change impacts

Climate change poses a significant threat to Georgian agriculture, impacting crop yields and increasing the frequency of extreme weather events. Changes in precipitation patterns, rising temperatures, and the increased incidence of pest and diseases can all undermine agricultural productivity. Adaptation strategies, such as improved water management and crop diversification, are necessary to mitigate these effects (World Bank, 2022).

Investing in research and development to create climate-

resilient crops and sustainable farming practices is crucial for ensuring the long-term viability of Georgia's agricultural sector. Educating farmers about sustainable practices can also enhance their resilience to climate challenges.

1.5.4 Policy Framework

While the Georgian government has implemented policies to support agricultural development, more comprehensive initiatives are needed to foster investment and modernization. The FAO (2021) recommends developing policies that encourage sustainable practices and technology adoption. These policies should address the specific needs of farmers, promote access to finance, and create incentives for innovation.
Strengthening partnerships between the government, private sector, and civil society can enhance policy effectiveness and make the voices of farmers heard in the decision-making process. Collaborative approaches can lead to more tailored solutions that address the unique challenges faced by different agricultural sectors.

1.5.5 Investment Potential

Despite these challenges, Georgia presents numerous investment opportunities, particularly in technology, infrastructure, and export markets. The growing demand for organic and sustainably produced food, coupled with the country's strategic location enhances its appeal as an investment destination. Strategic investments can drive growth and modernization, ensuring sustainability of the agricultural sector.
Furthermore, enhancing marketing strategies and establishing better connections with international buyers can help Georgian farmers access new markets and increase their profitability.
By fostering a supportive environment for both local and foreign investments, Georgia can unlock its agricultural potential and secure a prosperous future for its farming communities.

2. AgriTech Subsector: Innovative SMEs in Agriculture

2.1 Introduction to AgriTech

AgriTech, or agricultural technology, represents a dynamic field that encompasses a wide range of innovations aimed at enhancing the efficiency, productivity, and sustainability of agricultural practices. As the global population continues to rise and environmental concerns mount, the need for innovative solutions in agriculture has never been more pressing. The AgriTech sector is driven by the dual imperatives of increasing food production to meet growing demand while simultaneously ensuring environmental sustainability of such practices. Innovations in this sector include everything from precision farming and biotechnology to automation and data analytics, all designed to improve farming outcomes and reduce resource consumption.

2.2 Overview of Agritech in Georgia

In Georgia, the Agritech landscape is rapidly evolving, fielded by a burgeoning ecosystem of startups and small to medium-sized enterprises that are dedicated to developing cutting-edge solutions for farmers. These companies are addressing various challenges faced by the agricultural sector, including labour shortages, resource inefficiencies, and the need for suitable practices. The Georgian government has recognized the potential of AgriTech as a vital component of the country's economic development strategy promoting initiatives aimed at fostering innovation. The government is creating an environment conducive to the growth of AgriTech startups. Programs designed to support research and development, provide funding, and enhance technical capabilities are critical for establishing a robust AgriTech ecosystem. These efforts are aimed at not only improving agricultural productivity but also increasing the competitiveness of Georgian agricultural products in international markets (Ministry of Agriculture, 2023).

2.3 Key Innovative SMEs and their Technologies

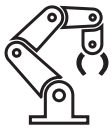
Several innovative SMEs are making significant contributions to the AgriTech Sector in Georgia, each offering unique technologies and solutions that empower farmers to improve their practices.

2.3.1 Technology Types: IoT, Robotics, AI, etc

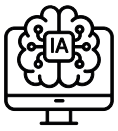
The AgriTech sector in Georgia leverages a range of advanced

technologies to enhance agricultural practices:

Internet of Things (IoT): IoT devices allow for real-time monitoring of soil conditions, weather patterns, and crop health. By collecting and analyzing data, farmers can optimize inputs such as water, fertilizers, and pesticides, leading to improved yields and reduced resource consumption.



Robotics: Automation technologies, including robotic harvesters and planting systems, help mitigate labour shortages and improve efficiency in various farming operations. These technologies are practically valuable in labour-intensive crops ensuring that farmers can keep up with production demands.



Artificial Intelligence (AI): AI-driven analytics provide insights into crop health, pest management, and market trends, enabling farmers to make informed decisions. By analyzing large datasets, AI can help predict yields, optimize planting schedules, and identify potential issues before significant problems arise.

2.4 Government Incentives

The Georgian government has implemented various incentives designed to encourage investment in AgriTech. These include tax breaks for AgriTech companies, grants for technology adoption, and financial support for research and development initiatives. By creating a favourable investment climate, the government aims to attract startups and established companies to contribute to the sector's growth.
Such initiatives not only boost the AgriTech industry but also enhance the overall agricultural productivity of the nation, positioning as an emerging player in the global AgriTech landscape.

2.4.1 International Investment Trends

Foreign investment in the Georgia's AgriTech sector is on the rise, driven by the country's strategic location at the crossroads of Europe and Asia, as well as its growth potential. International investors are increasingly recognizing Georgia's favourable agricultural conditions, including its diverse climate and fertile soil, which provide a solid foundation for innovative agriculture practices. Collaborations with international partners can facilitate technology transfer and capacity building, fostering innovation and enhancing the competitiveness of Georgian AgriTech firms on a global scale.

2.5 Emerging technologies

Technological advancements in areas such as precision agriculture, vertical farming, and biotechnology are expected to revolutionize

the agricultural landscape in Georgia. Precision agriculture techniques, which rely on data and technology to optimize farming practices, will become increasingly vital as farmers seek to maximize yields while minimizing environmental impact. Investments in vertical farming could also address land use challenges and food security in urban areas, allowing for year-round production of crops in controlled environments. Biotechnology, including genetic engineering and tissue culture, offers significant potential for developing resilient crop varieties that can withstand climate stress, pests, and disease. The successful implementation of these technologies will require collaboration among researchers farmers and technology providers.

2.5.1 Potential for Regional Collaboration

Georgia's geographical location presents opportunities for regional collaboration with neighbouring countries in Eastern Europe and Asia. By establishing AgriTech hubs and fostering knowledge sharing, Georgia can enhance its innovation capacity and strengthen its position as a leader in the AgriTech sector. Collaborative initiatives could include joint research projects, technology exchange programes, and shared marketing strategies, all of which can contribute to greater competitiveness and sustainability in the region.

2.5.2 Partnership with International Organization

Collaboration with international organizations such as the FAO has facilitated knowledge exchange and access to cutting-edge agricultural technologies. These partnerships are crucial for enhancing the capacity of local SMEs and ensuring that they can compete in the global market. Through training programes, workshops, and access to international research, Georgian AgriTech companies are better equipped to adopt innovative practices and improve their offerings.

Summary

The AgriTech subsector in Georgia is poised for significant growth driven by innovative SMEs that are committed to enhancing agricultural efficiency and sustainability. With government support, a favourable investment climate, and the emergence of new technologies, Georgia is well-poisoned to become a leader in Agritech in the region. By fostering collaboration, investing in research and development, and embracing innovation, the country can address its agricultural challenges and secure a prosperous future for its farmers and the broader economy.

Conclusions

Georgia's agricultural sector stands at a pivotal moment. Characterized by a unique combination of historical significance and modern potential. With its rich agricultural heritage and a diverse climate that accommodates a variety of crops and farming practices, Georgia has a solid foundation upon which to build a more sustainable and productive agricultural landscape.
The emergence of AgriTech SMEs is a key driver in this transformation. It is offering innovative solutions that address the pressing challenges faced by farmers and the broader agricultural community.
The potential for growth in Georgia's agricultural sector is substantial. As global demand for food continues to rise, driven by population growth and changing dietary preferences, Georgia can position itself as a vital player in the international agricultural market. By embracing technology and innovation, Georgian farmers can increase their productivity and enhance the quality of their products, making them more competitive on the global stage.
This is particularly important given the rising interest in organic and sustainably produced goods, which aligns with growing consumer preference for environmentally responsible farming practices.

To fully realize this potential, Georgia needs to foster a supportive environment for investment and innovation. Government initiatives aimed at promoting AgriTech, such as grants, tax incentives, and research funding, play a crucial role in attracting both domestic and foreign investment. By creating an ecosystem that encourages collaboration between startups, research institutions, and agricultural producers, Georgia can accelerate the development and adoption of new technologies. This collaborative approach not only enhances technological advancement but also fosters knowledge transfer and capacity building within the agricultural sector.
Furthermore, strategic investments in infrastructure are necessary to support the growth of AgriTech. Improvements in rural infrastructure including transportation and storage facilities will facilitate better market access for farmers and reduce post-harvest losses. By addressing these logistical challenges, Georgia can ensure that agricultural products reach markets efficiently, maximizing their value and reducing waste.
Looking ahead, Georgia has the opportunity to establish itself as a leader in agricultural innovation

in the region. By leveraging its unique resources, historical strengths, and the emerging AgriTech sector the country can not only improve its agricultural productivity but can also enhance food security and livelihoods for its rural population. The journey toward modernization may present challenges, but the potential rewards are significant. As Georgia embraces this transformation, it can create a resilient agricultural sector that supports sustainable development and positions the country as a key player in the global agricultural landscape. In conclusion, Georgia's agricultural sector is posed for a renaissance. By harnessing the power of AgriTech and fostering an environment conducive to innovation and investment, the country can elevate its agricultural practices, ensuring a prosperous future for its farmers and communities while contributing to global security.

References
1. Georgia: Country Brief, Food and Agriculture Organization (FAO) 2021. Retrieved from FAO Website
2. Annual Report on Wine Exports, Georgian National Wine Agency 2021. Retrieved from GNWA Website
3. Agricultural Policy Overview, Ministry of Agriculture of Georgia 2021. Retrieved from Ministry of Agriculture Website
4. Agricultural Statistics Report, National Statistics Office of Georgia 2021. Retrieved from GeoStat Website
5. Oarker, R. "The Wines of Georgia: A Journey through History", WineEnthusiast 2021. Retrieved from Wine Enthusiast Website
6. Georgia: Economic Overview, World Bank, 2022. Retrieved from World Bank Website

Supporting development of public administration and entrepreneurship in Georgia - catalogue

Agrobit

www.agrobit.ge

Market problem:

31% of the total land area globally is covered by forests. Challenges we aim to solve are: carbon sequestration, biodiversity monitoring, defoliation: one-fifth of the trees in Europe suffer some degree of defoliation.
The only way to avoid it is to automate the forest inventory management system, which nowadays is time-consuming and complicated, as practically all work is done manually.

Target group:

Forest departments, state organizations, companies specializing in forest inventory.

Description of solution:

A cloud-based SAAS solution with a hybrid AI UAV image-based tree identification model.
To recognize three components with 98% accuracy.
A scientific Paper N:WF-2824 published by the members of Agrobit, Journal: WSEAS TRANSACTIONS ON SIGNAL PROCESSING.
To evaluate the condition of forest.
To save time of human resources by 60%.

Link to pitchdeck:

https://drive.google.com/file/d/1r0PZ-Nm-QWcnDW5jIibUUq1lBkFvB33d/view?usp=sharing

AI Irigator

AI IRIGATOR

Market problem:

Efficient water management is crucial in agriculture, yet many farms still rely on manual irrigation, which is labour-intensive, prone to human error, and often results in inconsistent watering. This lack of precision leads to over- or under-irrigation, harming crop yields, wasting resources, and driving up costs. Manual irrigation requires constant oversight, which is challenging to maintain, especially during nighttime. Smaller farms, in particular, struggle to compete with larger, tech-enabled operations. Our AI-driven irrigation system solves these issues by automating water management, improving crop health, reducing labour costs, and making sustainable farming practices accessible to all.

Target group:

Our target group includes small- to medium-sized farms, large commercial agricultural enterprises, and government bodies focused on sustainable agriculture. Specifically, we aim to support small farms and gardens in Georgia that lack access to advanced, automated irrigation systems, as well as larger agricultural operations looking to enhance efficiency. Additionally, we target organizations interested in water conservation and eco-friendly farming practices, providing them with tools to optimize water usage, reduce labour costs, and increase productivity with minimal manual intervention.

Description of solution:

Our AI-driven irrigation system automates water management by using advanced sensors and software to monitor soil moisture levels and environmental conditions in real-time. It adjusts irrigation schedules precisely, ensuring optimal water usage without manual intervention. The system includes easy-to-install hardware like control units and valves and a user-friendly application for remote monitoring and control. This solution reduces labour, improves crop health, and conserves resources, making it accessible for small gardens and scalable for larger agricultural enterprises, fostering sustainable farming practices.

Link to pitchdeck:

https://docs.google.com/presentation/d/1Y86WcrB1Z2Gj2_fmOF7PnuO1D7VIlpoS/edit?usp=sharing&ouid=104985480490963479038&rtpof=true&sd=true

AIGROW

www.aigrow.ge

Market problem:

The agricultural sector suffers an annual $3.85+ billion loss due to fragmented IoT systems, incompatible devices, and inefficient resource management. These issues increase operational costs, lead to resource waste, and reduce productivity, particularly in the grains, fruit, fish, and beekeeping sectors, where specific technological challenges are particularly severe.

Target group:

AIGROW's customers include farmers, agronomists, agricultural companies, and research institutes utilizing IoT technology, data analysis, and AI to optimize agricultural processes, increase productivity, and reduce costs.

Description of solution:

AIGROW addresses these challenges with its AI-powered IoT platform, designed to empower farmers with real-time monitoring and actionable intelligence. Our MVP, launched in March-April 2024, integrates IoT sensors for fish and beekeeping farms. It monitors critical parameters like water temperature, fish health, and hive conditions, harnessing AI to offer precise predictions and optimization recommendations. We have been refining and developing this startup for one year and three months now.

Link to pitchdeck:

https://drive.google.com/file/d/1MBrOoMoyXZ-nPfQMZ96MEvOWy6rQ2Itu/view?usp=drive_link

AgroNote

AgroNote

Market problem:

Globally, small- and mid-sized farmers struggle with inefficient management due to manual processes. They often rely on handwritten records, leading to repeated errors, wasted resources, and lower productivity. Unpredictable weather adds further complications, causing crop damage and financial loss. While digital farm management tools exist, they are usually too complex or expensive for small-scale farmers. This leaves a large, underserved market of over 600 million farmers worldwide in need of simple, affordable tools like AgroNote to improve efficiency and reduce losses.

Target group:

AgroNote's target group consists of small- to mid-sized farmers often facing challenges with manual record-keeping, resource management, and unpredictable weather, leading to inefficiencies. The primary focus is on farmers who are looking for simple, affordable digital tools to help streamline their operations, track expenses, and improve productivity. AgroNote has started from targeting farmers in Georgia, with plans to expand to the Caucasus region and eventually to over 600 million small-scale farmers globally.

Description of solution:

AgroNote is a simple, affordable app designed to help small- and mid-sized farmers manage their operations efficiently. It replaces manual record-keeping with an easy-to-use digital solution that tracks daily activities, expenses, and crop yields. The app also provides personalized recommendations based on weather data and farming conditions, helping farmers avoid mistakes and optimize resource use. With features like task scheduling, expense tracking, and AI-driven insights, AgroNote empowers farmers to make data-driven decisions, saving time and improving productivity.

Link to pitchdeck:

https://drive.google.com/file/d/17nCXVo7I0Pe7wzESNvGYmex_E99lZa_J/view?usp=sharing

BioNova

https://bionova.netlify.app

Market problem:

Farmers generate excessive organic waste, which they are fined for later. Moreover, the placement of organic waste takes up a large amount of space. Another painpoint for growers is the increasing cost of utility bills.

Target group:

Large- and medium-sized farm owners.

Description of solution:

A multifunctional device that can process organic waste turning it into electricity, gas and fertilizers, allowing farmers not to avoid fines for storing organic waste, but also to sell a fertilizer obtained this way. All processes in the device will be app-controlled.

Link to pitchdeck:

https://www.canva.com/design/DAGS709V_Kg/uMSmmtLX2d0zbFaMLhK0og/edit?utm_content=DAGS709V_Kg&utm_campaign=designshare&utm_medium=link2&utm_source=sharebutton

DaVinci Green System

https://dgsystems.tech/

Market problem:

DaVinci Green Systems addresses high cost of investments in the controlled-environment agriculture (CEA) and significant energy inefficiencies. Energy consumption accounts for a large portion of production costs, while many existing systems leave much of their space underutilized, leading to inefficiencies. This limits accessibility for small- to industrial-sized agribusinesses and urban agriculture. The current market solutions are not optimized to ensure cost or space efficiency, hindering industry growth and sustainability.

Target group:

Small- to industrial-sized agribusinesses: companies involved in controlled-environment agriculture (CEA) that seek more efficient, cost-effective solutions for their operations. Urban agriculture practitioners: businesses and individuals focused on farming within urban environments who need space-efficient and energy-saving systems. The gardening and horticulture sector: garden centers, nurseries, and horticulture businesses looking to reduce costs and improve energy efficiency. Government and municipalities (B2G): agencies interested in sustainable agricultural technologies and eco-friendly solutions for urban farming.

Description of solution:

DaVinci Green Systems offers a revolutionary solution for controlled-environment agriculture (CEA) by providing a solution that reduces investment costs by three times and lowers energy consumption, making operations more affordable. The system optimizes space utilization, turning traditionally unused spaces into productive areas, improving overall efficiency. By reducing CO_2 and freon emissions, it also contributes to environmental sustainability. This solution is ideal for agribusinesses seeking cost-effective, energy-efficient, and space-saving agricultural systems.

Link to pitchdeck:

https://www.dropbox.com/scl/fi/ykyjcm35lrfkpc33n2c85/DaVinci-Green-System.pdf?rlkey=yb4991ptx4fab8kdlmzymtijz&st=ho2vrzg3&dl=0

GSA Technologies

Market problem:

Modern greenhouse technology manufacturers worldwide face the problem of high costs and the lack of artificial intelligence in the aeroponics sector, which still requires human resources, relying on the experience of various specialists, which is far less efficient than artificial intelligence based on vast experimental data. Moreover, no company on the market manufactures artificial intelligence-based aeroponics hardware and software systems at the same time.

Target group:

Small- and medium-sized greenhouse farming, restaurants and hotels.

Description of solution:

At this stage, we have written a program plan specifying algorithms and codes to ensure perfect functionality and high competitiveness of our technology. Our goal is to strengthen artificial intelligence, so that it can make independent decisions not only about what indicators to monitor automatically, according to written orders, but also to independently assess the ongoing condition of plants, the course of vegetation and intervene in the optimal growth process, just as an agronomist, a chemist or an agronomist would. This issue still remains unsolved globally.

Link to pitchdeck:

https://drive.google.com/file/d/1ccBbkHSgo3U5iNg337OsDkEWN4FHxleX/view?usp=drive_link

LTD Phytotester

Phyto Tester

Market problem:

Currently, there is no method to diagnose the physiological state of plants on a global scale. This makes assessing the quality and suitability of seeds, seedlings, grafting materials, and stratified grafts difficult. Evaluations are typically based on visual inspection or laboratory analysis.
Visual assessments of grafting materials, seedlings, and stratified grafts rely on subjective interpretation of morphological features.
Laboratory analyses, though more reliable, involve expensive reagents and personnel. These methods are non-portable, lengthy, and typically require damage of the material.

Target group:

Producers of seeds, seedlings, grafting materials, and stratified grafts.

Description of solution:

The use of a phytotester, measuring integral characteristics of the physiological state of bio-organisms, based on the amplitude of electrical signals, helps objectively and accurately determine within 5-10 seconds and without damaging the tested object:
The physiological condition of seeds, grafting, or planting material;
The effective doses of nutrients or medicinal treatments;
The optimal vegetative conditions for plants and the suitability of different plant varieties to new or introduced environments;
The simplification of greenhouse process management directly from the plant itself.

Link to pitchdeck:

https://drive.google.com/file/d/1BL7oVgQ-4N_-oYjvEe6z_SirKCzATyqG/view?usp=drive_link

Robofarmia

Market problem:

Farmers daily face such problems as inefficient utilization of agricultural resources and time, expensive procedures, and low productivity. This inspired us to work on an app to support them with their daily tasks by networking them with the right people and resources. Whether they need extra hands for harvesting or expert advice on crop management, the app helps them find the support they need.
Using smart technology, the app can also help farmers get more out of their crops. Based on weather patterns, it can suggest the best times to plant and water.

Target group:

Farmers.

Description of solution:

Our product is an advanced mobile app designed to help farmers optimize their daily activities but also ensures image-based plant disease detection and analysis, offering advice on how to treat or prevent any issues.
Users can also connect through the app to share tips, ask questions, and learn from each other's experiences. It is like having a community of fellow farmers right in your pocket.

Link to pitchdeck:

https://drive.google.com/drive/folders/1y-S-mUhIkOYG3S_HmwRPLnN08TQAWH8X?usp=drive_link

Smart Farmer

SMART FARMER

Market problem:

Farmers often have little knowledge about the health state of their harvest, especially when fields span tens or hundreds of hectares.
Currently, growers rely solely on the naked eye for harvest scouting.
Due to a lack of agronomic knowledge, they need to run a lab test to identify the disease, which will take an average of 4-10 days, and by that time the disease may have already spread.
Without proper understanding of the crop's problem areas, farmers may implement incorrect agricultural measures, resulting in further damage to the harvest and unnecessary environmental harm from pesticide use.

Target group:

Medium- and large-sized farmers; agri-drone service companies (to offer them Smart Farmer software as an add-on to their services, in exchange for a revenue share).

Description of solution:

Smart Farmer is an AI-based software and application that revolutionizes agriculture by leveraging drone-generated data to offer farmers insights and expert recommendations on the health status of their harvest.
Through advanced analysis, it provides valuable information to optimize crop management and pesticide usage as well as to enhance overall agricultural productivity.
Smart Farmer is a digital solution made of two main products: an app allowing farmers to place an order online and AI-based software processing drone-generated data.

Link to pitchdeck:

https://drive.google.com/file/d/1GfVnSo1U1ylhg5t-lw7Y48fxoyH-axoe/view?usp=sharing

Telagri

https://telagri.com

Market problem:

Agronomic knowledge is unevenly distributed among countries around the world. There are countries that have top-quality consultants, but most lack access to such knowhow.
As a result, farmers who have access to agronomists produce 5 times more food, because they use science instead of generational knowledge. We connected those two worlds and results have been remarkable. Telagri is telemedicine for agriculture, where farmers can access carefully vetted top quality agronomists for online consultations.

Target group:

Emerging agricultural markets, developing economies with growing agri-tech sectors, regions highly dependent on agriculture, countries with governmental or NGO support for agriculture, and developed countries with agri-consulting gaps in remote areas.

Description of solution:

Telagri is a platform that connects farmers with trusted, carefully vetted freelance agronomists for online consultations. By bringing agricultural expertise online, Telagri has reduced consulting costs by over 20 times, making professional advice accessible to farmers in emerging markets. This innovation drives significant production gains for farmers while providing agronomists with new income streams. In addition to earning fees from consultations, Telagri has discovered multiple ways to monetize valuable agricultural data.

Link to pitchdeck:

https://drive.google.com/file/d/1PIAC75pSnfPQ9QLuqJG6swDRNCDchK5T/view?usp=sharing

ISBN 978-83-7633-521-6

Ministry of Economic Development and Technology
Republic of Poland