**Kosmos Innovation Center 2024 AgriTech Challenge Classic.**

Business Concept Note

Team name: AfriTech Market Ltd

List of Members

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**Background of Proposed Business (Research)**

AfriTech Market Limited is at the cutting edge of transforming Ghana's agricultural landscape by addressing the systemic barriers that have historically marginalized small holder farmers. Agriculture is vital to Ghana's economy, contributing 18.5% to the GDP and employing approximately 44.7% of the labor force, according to the Ghana Statistical Service (GSS) report in 2021. Small Holder farmers, who are responsible for over 70% of the country's food supply, continue to face significant challenges, including limited access to markets, inadequate infrastructure, and a lack of reliable market data. These issues contribute to post-harvest losses that, according to the Food and Agriculture Organization (FAO) in 2020, can reach up to 30% of total production, resulting in significant economic losses estimated to be in the millions of dollars annually.

AfriTech Market Limited aims to address these challenges through a comprehensive digital platform that integrates advanced Artificial Intelligence (AI) and block chain technologies to optimize and secure agricultural transactions. AI will be employed for predictive analytics, providing farmers with real-time insights into market trends, weather conditions, and optimal planting and harvesting schedules. A study by the International Finance Corporation (IFC) in 2021 suggested that the use of AI in agriculture could increase crop yields by up to 30% while reducing input costs by 15%. By leveraging AI, AfriTech Market Limited empowers farmers to make data-driven decisions, thereby reducing losses and maximizing profitability.

Block Chain technology will be central to the platform's transaction processes, ensuring transparency, security, and traceability throughout the supply chain. In an environment where price manipulation and fraudulent activities are common, block chains immutable ledger system will provide a trustworthy record of every transaction, ensuring that all parties adhere to the agreed-upon terms. According to a 2020 report by PwC, block chain technology can reduce agricultural transaction costs by up to 30% and improve supply chain efficiency by 50%, potentially leading to a significant increase in farmers' income.

In addition to its technological innovations, AfriTech Market Limited plans to establish a network of aggregation centers across Ghana's primary agricultural regions. These centers will serve as strategic collection points where small holder farmers can pool their produce to meet the scale and quality demands of larger buyers. The aggregation model is designed to mitigate the fragmentation of agricultural production, enabling small holder farmers to access high-value markets that have traditionally been out of their reach. Research conducted by the International Food Policy Research Institute (IFPRI) in 2019 indicates that effective aggregation can boost small holder incomes by up to 25%, significantly improving their standard of living.

AfriTech Market Limited’s initiatives are closely aligned with several United Nations Sustainable Development Goals (SDGs), including SDG 1 (No Poverty), SDG 2 (Zero Hunger), SDG 5 (Gender Equality), SDG 8 (Decent Work and Economic Growth), SDG 12 (Responsible Consumption and Production), and SDG 13 (Climate Action). The platform seeks to enhance food security by minimizing post-harvest losses and promoting sustainable agricultural practices that reduce environmental impact. A 2021 World Bank report highlights that improving market access and reducing food waste could lift millions of people out of poverty, underscoring the potential impact of AfriTech Market Limited’s initiatives.

Moreover, AfriTech Market Limited is committed to inclusivity, particularly in empowering women and youth. These groups will play pivotal roles as aggregators, managers, and tech operators within the AfriTech Market ecosystem. This approach not only promotes gender equality but also ensures that the economic benefits of the platform are widely distributed, fostering broader social and economic development. According to a 2019 report by the McKinsey Global Institute, narrowing the gender gap in agriculture could increase global GDP by $28 trillion by 2025, emphasizing the critical importance of focusing on these underserved demographics.

In conclusion, AfriTech Market Limited is poised to be a game-changer in Ghana's agricultural sector, leveraging cutting-edge technologies and strategic partnerships to empower small holder farmers. By integrating AI and block chain into the agricultural value chain and establishing aggregation centers, the company aims to create a more efficient, sustainable, and inclusive agricultural ecosystem. This holistic approach not only addresses the immediate challenges facing Ghana's farmers but also contributes to the broader global development agenda, positioning AfriTech Market Limited as a leader in the digital transformation of agriculture in West Africa.

**Problem Statement**

AfriTech Market addresses the inefficiencies in the agricultural value chain in Ghana and West Africa by empowering small holder farmers through access to fair markets, advanced technology, and financial services. The platform eliminates the reliance on middlemen, ensuring transparent and secure transactions while providing farmers with data-driven insights to optimize production and market strategies. By integrating AI for forecasting and block chain for traceability, AfriTech Market revolutionizes the agricultural sector, promoting sustainability and economic growth for rural communities.

**Solution Statement**

AfriTech Market offers an innovative mobile platform that directly links farmers to buyers, enabling them to showcase their products, negotiate prices, and conduct secure transactions with complete transparency. By eliminating intermediaries, the app significantly enhances farmers' profitability, reduces post-harvest losses, and ensures more efficient market access. Leveraging cutting-edge technology, AfriTech Market fosters a sustainable agricultural ecosystem, driving economic empowerment and sustainability in rural communities.

**How Our App Will Work**

- Farmer Onboarding: Farmers register on the app, creating detailed profiles that highlight their available produce, farming practices, and certifications.

- Buyer Enrollment: Buyers sign up, gaining access to a dynamic marketplace where they can explore, filter, and compare produce listings based on quality, price, and availability.

- Seamless Interaction: Farmers and buyers engage in real-time negotiations via an integrated chat system, allowing them to discuss prices, quantities, and specific delivery requirements.

- Secure Transactions: The app facilitates end-to-end secure payments through encrypted channels, with automated logistics support for efficient delivery coordination.

- Reputation Management: Both farmers and buyers participate in a robust feedback system, where they rate and review each other, fostering a trustworthy and high-quality marketplace.

**Innovation**

Direct Market Access: The platform connects farmers directly with buyers, eliminating the need for intermediaries. This direct access to markets enhances farmers' profit margins and reduces the inefficiencies associated with traditional supply chains.

AI Driven Insights: By incorporating artificial intelligence, AfriTech Market provides farmers with real-time data and predictive analytics on weather conditions, market demand, and price trends. This enables farmers to make informed decisions on crop planning, harvesting, and selling, thereby optimizing their production and profitability.

Block Chain Transparency: The use of block chain technology ensures secure, transparent, and traceable transactions within the platform. This builds trust among farmers, buyers, and other stakeholders, as every transaction is recorded on an immutable ledger, preventing fraud and ensuring accountability.

Aggregators and Aggregation Centers: AfriTech Market introduces aggregators and aggregation centers strategically located across farming regions. These centers will collect produce from multiple small holder farmers, ensuring consistent quality and quantity for large buyers. This not only reduces post-harvest losses but also allows farmers to benefit from economies of scale and better pricing.

Empowering Women and Youth: AfriTech Market is committed to empowering women and youth by employing them in various roles within the platform, from aggregators to tech support. This not only promotes gender equality and youth employment but also ensures that the platform's impact is felt across diverse demographic groups.

Partners and Collaborators

1. Ghana Commodity Exchange (GCX)

- Function: Facilitates trading of agricultural commodities and provides market information and infrastructure for transparent transactions.

- Relevance: Partnering with GCX could enhance market access and liquidity for farmers, aligning with AfriTech Market’s goal of improving market efficiency.

2. Ghana Agricultural Sector Investment Programme (GASIP)

- Function: Provides funding and support for agricultural development projects, including infrastructure and technology investments.

- Relevance: Collaboration could secure funding and support for the development and expansion of AfriTech Market’s aggregation centers.

3. Food and Agriculture Organization (FAO) Ghana Office

- Function: Provides technical assistance and supports agricultural development and food security initiatives.

- Relevance: Engaging with FAO can offer technical guidance and data on best practices, enhancing the platform’s efficiency and impact.

4. Ghana Export Promotion Authority (GEPA)

- Function: Promotes the export of Ghanaian products and provides support to businesses involved in the export sector.

- Relevance: GEPA can help AfriTech Market Limited access international markets for Ghanaian agricultural produce, expanding export opportunities.

5. Ghana Investment Promotion Centre (GIPC)

- Function: Facilitates investment opportunities and provides support for foreign and local investments.

- Relevance: GIPC can assist in attracting investment for AfriTech Market’s technological and infrastructure projects.

6. Ghana National Association of Farmers (GNAFF)

- Function: Represents and advocates for the interests of farmers in Ghana.

- Relevance: Partnering with GNAFF can ensure that AfriTech Market’s solutions are aligned with the needs of small holder farmers and gain broad acceptance.

7. National Board for Small Scale Industries (NBSSI)

- Function: Supports and promotes the growth of small and medium-sized enterprises (SMEs) through various initiatives and services.

- Relevance: NBSSI can assist in integrating small holder farmers into the formal economy and provide support for scaling the business.

8. Ghana Statistical Service (GSS)

- Function: Provides statistical data and analysis on various sectors including agriculture.

- Relevance: Collaboration with GSS will provide accurate data on agricultural production, market trends, and economic impact, aiding in the development of data-driven solutions.

9. Ghana Technology University College (GTUC)

- Function: Offers education and research in technology and innovation.

- Relevance: GTUC can be a partner for technological research and development, particularly in AI and block chain applications relevant to AfriTech Market.

10. Ministry of Food and Agriculture (MoFA)

- Function: Oversees agricultural policies, programs, and initiatives aimed at improving the agricultural sector.

- Relevance: Engaging with MoFA will help align AfriTech Market’s activities with national agricultural policies and receive support in policy advocacy and implementation.

11. Nestlé Ghana

- Function: Nestlé Ghana is a subsidiary of Nestlé S.A., a global food and beverage company. It manufactures and distributes food and beverage products in Ghana.

- Relevance: Nestlé Ghana requires a steady supply of raw materials such as cocoa, maize, and soybeans for its production processes. Collaboration with Nestlé can provide small holder farmers with a reliable market for their produce, ensuring consistent demand and better prices.

- Relevant Farm Produce: Cocoa, maize, soybeans, millet, cassava.

12. Ghana Breweries Ltd

- Function: Ghana Breweries Ltd is a prominent brewery in Ghana, producing popular beer brands and other alcoholic beverages.

- Relevance: Ghana Breweries requires raw materials such as barley, maize, and sorghum for brewing beer. Partnering with them can open up opportunities for small holder farmers to supply these key ingredients, ensuring their produce is directly integrated into the value chain.

- Relevant Farm Produce: Barley, maize, sorghum, cassava, millet.

13. Olam Ghana

- Function: Olam Ghana is a subsidiary of Olam International, a leading global agribusiness. It is involved in sourcing, processing, and distributing agricultural commodities in Ghana.

- Relevance: Olam Ghana deals in a wide range of agricultural products, including cocoa, cashew nuts, and rice. A partnership with Olam could create large-scale market opportunities for small holder farmers to supply these commodities, benefiting from Olam’s extensive distribution network.

- Relevant Farm Produce: Cocoa, cashew nuts, rice, maize, sesame.

14. Blue Skies Ghana

- Function: Blue Skies Ghana is a leading producer of fresh-cut fruits and fruit juices, exporting its products to international markets.

- Relevance: Blue Skies Ghana relies on a consistent supply of fresh fruits such as pineapple, mango, and papaya. Collaboration with Blue Skies would provide small holder farmers with a direct market for their fruits, reducing spoilage and enhancing profitability.

- Relevant Farm Produce: Pineapple, mango, papaya, banana, coconut.

**Other Partners and Collaborators**

- KIC

- University of Ghana

- Unilever Ghana

- VIP Transports

- Farmer's Associations

**Licensing Requirements:**

- Ghana Commodity Exchange (GCX): May require licensing or regulatory compliance to facilitate trade and market operations.

- Ministry of Food and Agriculture (MoFA): Potentially requires collaboration or compliance with government regulations for agricultural activities and technology implementations.

**Team Members**

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Experience in Full stack engineering, AI predictive analytics, Automated customer support, Innovation research, Business Entrepreneurship, Managerial role and Leadership.