Agronomy Solution Profile for ESOKO Ghana Digital Sustainable Soybean Production Advisory Tool

This research was conducted as part of the CGIAR Initiative in Excellence in Agronomy and supported by contributors to the CGIAR Trust Fund and special investments of the Bill and Melinda Gates Foundation. CGIAR is a global research partnership for a food-secure future. Its science is carried out by 15 Research Centers in close collaboration with hundreds of global partners. www.cgiar.org

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Executive Summary

The ESOKO Ghana Digital Sustainable Soybean Production Advisory Tool is a technology-driven platform designed to provide smallholder soybean farmers in Ghana with crucial agricultural information. It integrates various digital tools to offer tailored advice on soybean production practices, market data, and climate-smart advisories. The tool connects farmers to key stakeholders along the agricultural value chain, such as input dealers, financial institutions, and insurance providers, through mobile and web technologies. It also facilitates the exchange of information, including prices, offers, stock levels, training reminders, and other vital field data, with a focus on accessibility and user-friendly design for rural farmers, delivering information through basic mobile phones.

ESOKO's services can improve farmer incomes by roughly 10%. In Ghana, 70% of farmers have benefited from ESOKO's services, and there has been more than a 45% increase in sustainability models. ESOKO has engaged with various stakeholders, including researchers and policymakers. ESOKO has received funding from various sources, including for the "Support to Soybean Development Programme in Ghana" funded by the Government of Japan. ESOKO's services are designed to be accessible via basic mobile phones and aim to integrate within existing delivery systems, connecting farmers to various actors in the agricultural value chain. The platform focuses on providing locally relevant agricultural information and offering mobile-based solutions appropriate for the cultural context of Ghanaian farmers.

ESOKO has demonstrated improvements in farmer incomes. It aims to be cost-effective by leveraging existing infrastructure. ESOKO prioritizes user experience by making its services accessible via basic mobile phones, with a user-friendly design.

ESOKO serves over 1.5 million farmers across 19 African countries, with half of their users located in Ghana. The scaling objective is to reach at least 100,000 farmers in northern Ghana. ESOKO's users are primarily smallholder farmers, along with agricultural extension officers, input dealers, and other stakeholders in the agricultural value chain, with a focus on soybean farmers, women, and youth. ESOKO's long-term sustainability is a core part of its operation, aiming to provide services without creating reliance on external support.

Several dates related to the development and scaling of features within the ESOKO Ghana Digital Sustainable Soybean Production Advisory Tool are listed as "unspecified" in the source documentation. This includes the dates for the expansion of services, the development of sophisticated services, the collaboration with CGIAR, the launch of the Digital Farmer Service (DFS) Project, the pilot project on Seasonal Forecast Information, the application in soybean production, and the alignment with the "Support to Soybean Development Programme in Ghana," as well as the iterative development approach and the emphasis on user experience. To obtain this missing information, one could consult project documentation, company reports, or contact ESOKO Ghana directly.

Solution Description

The ESOKO Ghana Digital Sustainable Soybean Production Advisory Tool is a technology-driven platform designed to provide smallholder soybean farmers in Ghana with crucial agricultural information. This platform integrates various digital tools to offer tailored advice on soybean production practices, market data, and climate-smart advisories. It connects farmers to key stakeholders along the agricultural value chain, such as input dealers, financial institutions,

and insurance providers, all through mobile and web technologies. The platform also facilitates the exchange of information, including prices, offers, stock levels, training reminders, and other vital field data.

The tool’s superior characteristic lies in its focus on accessibility and user-friendly design for rural farmers. It delivers information through basic mobile phones, ensuring that farmers in remote areas with limited access to advanced technology can readily use it. The platform's cloud-hosted infrastructure allows users to customize their network and interests, ensuring that the information is directly relevant to their specific needs. Furthermore, the platform integrates historical climate data analysis and real-time weather forecasts, which enhance the relevance of its advisory services and enable better decision making.

The unique function of the ESOKO Ghana tool is its ability to act as a central hub, connecting farmers to a wide array of services and information they would otherwise lack. It serves not only as an information provider but also as a facilitator of market linkages and access to critical resources. The tool is specifically designed to bridge information gaps among smallholder farmers by incorporating agronomic advice, market access information, and climate-related data. This holistic approach aims to improve efficiency and sustainability in soybean production, with the goal of increasing farmers' incomes and livelihoods.

Value Statement

The ESOKO Ghana Digital Sustainable Soybean Production Advisory Tool delivers exceptional value by empowering Ghanaian smallholder farmers with timely, actionable, and locally relevant information, directly leading to improved soybean yields, better market access, and enhanced financial stability. Its accessible, user-friendly design facilitates the adoption of best farming practices, optimized input usage, and climate-resilient strategies. By creating a more informed and connected agricultural community, the platform is not just an information source; it is a catalyst for sustainable economic growth and improved livelihoods.

Pitch

The ESOKO Ghana Digital Sustainable Soybean Production Advisory Tool is revolutionizing soybean production in Ghana by providing a comprehensive, accessible, and user-friendly platform for smallholder farmers. This innovative solution uses digital technology to offer tailored advice on best agricultural practices, market data, and crucial climate information. It not only enhances agricultural efficiency but also creates direct linkages to essential services, resulting in improved yields and profitability. We are seeking investors who are committed to sustainable development and understand the power of technology in driving agricultural transformation. By investing in ESOKO Ghana, you are investing in the future of Ghanaian agriculture and contributing to a significant increase in the livelihoods of farmers and the entire rural community. Join us now and be a part of this impactful movement. Your investment makes the difference.

Component Analysis

Table 1. Components of ESOKO Soybean Production Advisory

Component	Description	Type
Market Prices via SMS	Provides market price	Information Delivery Service

Component	Description	Type
	information to smallholder farmers through SMS, helping them make informed selling decisions.	
Weather Alerts	Delivers timely weather alerts to farmers, enabling them to prepare for weather events and manage their crops accordingly.	Information Delivery Service
Crop Advice	Offers crop-specific advice to farmers, including best practices for cultivation, pest management, and other key aspects of soybean production.	Agronomic Advisory Service
Buyer-Seller Linking System	Connects farmers directly with buyers, streamlining the selling process and potentially improving their price negotiation power.	Market Linkage Service
Agronomic Advice	Provides more sophisticated agronomic guidance to farmers, going beyond basic information to include advanced farming techniques.	Agronomic Advisory Service
Survey Tools	Collects data from farmers using survey tools. This feedback loop helps tailor services to farmers needs.	Data Collection Tool
Digital Farmer Service (DFS) Platform	A platform accessible via mobile and web, connecting farmers with essential services such as input dealers, financial institutions, and insurance providers.	Digital Platform
Downscaled Seasonal Forecast Information	Provides farmers with localized weather forecasts via mobile phones, allowing them to adjust their farming practices to changing climate patterns.	Climate Information Service
Improved Soybean Production Practices Information	Offers farmers information on best practices for growing soybeans, including seed selection and planting techniques.	Agronomic Advisory Service
Market Information	Provides real-time market data, ensuring farmers are aware of the best available prices and demand for their products.	Market Information Service
Climate-Smart Advisories	Delivers advice that is tailored	Climate Advisory Service

Component	Description	Type
	to the specific climate challenges farmers face, helping them to adapt to climate change and variability.	
Data-Driven Climate Analysis Tools	Uses climate data to develop tools for historical analysis and rainfall/temperature analysis, informing agricultural decision-making.	Data Analysis Tool
Customizable Network Platform	A cloud-hosted mobile platform that enables farmers to customize their networks, areas of interest and profiles.	Digital Platform
Field Data System	The platform allows users to send and receive field data including prices, offers, stock, training reminders, compliance information, agriculture tips, bids and offers, and nutrition information.	Data Collection and Sharing System

Alternative Solutions

Table 2. Alternative Solutions to ESOKO Ghana Digital Sustainable Soybean Production Advisory Tool

Alternative solution name	URL of website providing information	Type of the solution	Geographies it is available	Key features of the solution	Advantages of the alternative compared to ESOKO Ghana Digital Sustainable Soybean Production Advisory Tool	Disadvantages of the alternative compared to ESOKO Ghana Digital Sustainable Soybean Production Advisory Tool
CGIAR Excellence in Agronomy Initiative	https://www.iwmi.org/projects/eia/, https://cgspace.cgiar.org/items/34e8e154-1d38-41b9-8123-12a2c865f3de, https://www.cimmyt.org/projects/cgiar-initiative-excellence-in-agronomy/, https://www.cgiar.org/initiative/excellence-in-agronomy/, https://eia.cgiar.org/	Research Initiative	Global, with a focus on prioritized farming systems, including Ghana	Focuses on delivering agronomic gain for smallholder farmers through research, data analytics, and digital solutions. Emphasizes climate change, gender analysis, livelihoods, and food security. Aims to deliver agronomy-at-scale solutions through partnerships and data-driven innovation.	Broader scope, focusing on research and development of solutions that can be scaled up, with more emphasis on scientific data and analytics and collaboration through diverse partnerships.	Not a direct service provider to farmers; may require partnerships with other organizations like ESOKO to reach farmers with specific tools and may not have the same granular level of market or localized advice.
Digital Farmer Service (DFS) project (collaboration between Esoko Ghana and	https://aiccra.cgiar.org/publications/esoko-integration-digital-financial-products-	Digital Platform	Vulnerable farming communities in Ghana	Leverages mobile and web technologies to create a super-agent network, connecting	Provides a more comprehensive ecosystem connecting farmers with various	Relies heavily on a super-agent network, which may be more resource-intensive to

Alternative solution name	URL of website providing information	Type of the solution	Geographies it is available	Key features of the solution	Advantages of the alternative compared to ESOKO Ghana Digital Sustainable Soybean Production Advisory Tool	Disadvantages of the alternative compared to ESOKO Ghana Digital Sustainable Soybean Production Advisory Tool
CGIAR)	bundled-service-aiccra-farmers			farmers to input dealers, financial institutions, and insurance providers. Links farmers to essential services by connecting them to various actors along the agricultural value chain	actors in the value chain, potentially streamlining access to resources. Directly integrates financial products and insurance, which may not be as developed in the ESOKO's main platform.	maintain than ESOKO's standalone platform. It seems to be an extended solution based on a partnership with Esoko, not an alternative.
Downscaled seasonal forecast information via mobile phones (collaboration between Esoko Ghana and CGIAR)	https://ccafs.cgiar.org/news/mobile-phones-help-northern-ghanas-farming-families-beat-climate-change	Climate Information Service	Northern Ghana	Provides farmers with access to downscaled seasonal forecast information through their mobile phones. Focuses on tailored climate information services to support farm management decisions.	Specifically targets climate information and support for decision-making related to farm management based on seasonal forecasts, potentially offering more tailored climate advice.	More focused on climate information and may not cover the same breadth of services, such as market prices or agronomic advice offered by ESOKO.
Support to	https://openk	Development	Ghana	Promotes	Focuses on	It is a project

Alternative solution name	URL of website providing information	Type of the solution	Geographies it is available	Key features of the solution	Advantages of the alternative compared to ESOKO Ghana Digital Sustainable Soybean Production Advisory Tool	Disadvantages of the alternative compared to ESOKO Ghana Digital Sustainable Soybean Production Advisory Tool
Soybean Development Programme in Ghana (Government of Japan funded)	nowledge.fao.org/bitstreams/c92fe3de-255d-4243-be2c-734bc84a587f/download	program		green production technologies, including the use of improved certified seeds and inoculants, as well as green storage and processing methods. Aims to increase small actors' resilience and improve their livelihoods by boosting soybean production.	improving soybean production through specific technologies and practices, which may be more directly aligned with government goals and funding, and addresses some of the challenges of soy production specifically.	that focuses on soybean production improvement, not a platform. Requires integration of a digital service such as ESOKO for information disseminatio n. Not a direct replacement for ESOKO digital platform.
EiA 2030 Use Cases	Insufficient Evidence	Agronomic solution development and scaling framework	Northern Ghana	Aims to develop and deliver agronomy at-scale solutions based on demand from scaling partners. Involves the development of a Minimum	Provides a structured process for developing and scaling agronomic solutions based on demand and co-creation, that can potentially lead to a more tailored	Is not a solution in itself, rather, a framework for developing solutions. Does not provide the specific digital platform or services that ESOKO

Alternative solution name	URL of website providing information	Type of the solution	Geographies it is available	Key features of the solution	Advantages of the alternative compared to ESOKO Ghana Digital Sustainable Soybean Production Advisory Tool	Disadvantages of the alternative compared to ESOKO Ghana Digital Sustainable Soybean Production Advisory Tool
				Viable Product (MVP) through co-creation with partners, focusing on a defined geographic area, and a well-described agronomy product with participation of key service providers. Aims to deliver a turnkey solution.	and scalable solution	provides directly to the farmers.

User Profile

Co-developers

The co-developers of the ESOKO Ghana Digital Sustainable Soybean Production Advisory Tool include:

- **Esoko Ghana:** A private company registered in Ghana that has been developing and implementing digital tools for agriculture since 2008. They provide market prices, weather alerts, crop advice, and a system for linking buyers and sellers.
- **CGIAR Excellence in Agronomy Initiative:** A global research initiative focused on delivering agronomic gains for smallholder farmers. They leverage science, data analytics, and digital solutions.
- **IITA:** The International Institute of Tropical Agriculture. They are mentioned as a partner in the development of innovations to improve farmer's return on investment in the

soybean supply chain in northern Ghana.
- **NARS, Extension service providers, D4AG:** These are listed as partners involved in the core partnership assembled around the demand partner.

Users

The primary users of the ESOKO Ghana tool are:
- **Smallholder soybean farmers in Ghana, particularly in the north:** They use the tool to access information on improved soybean production practices, market information, and other valuable services. It's estimated that they intend to reach 100,000 farmers in northern Ghana.
- **Extension agents:** They use the information to support farmers in best practices.
- **Insurance experts,** that use the information in designing products for farmers.
- **Other scaling partners**, who will be able to use the "turnkey" solution.

Beneficiaries

The beneficiaries of the ESOKO Ghana tool are:
- **Smallholder soybean farmers in Ghana:** They benefit from increased yields, improved incomes, and enhanced sustainability in soybean production.
- **Local Communities:** By increasing agricultural productivity in the areas using the tools, it contributes to rural economic development and poverty reduction.
- **The Ghanaian Economy:** Through improvements in agricultural productivity and farmer incomes.

Sponsors

The sponsors or funders of the ESOKO Ghana tool and related projects include:
- **Government of Japan:** They funded the "Support to Soybean Development Programme in Ghana" project, which aims to improve soybean production in the country.
- **EiA 2030:** The Excellence in Agronomy 2030 initiative provides funds.

Table 3. User Facts on ESOKO Ghana Digital Sustainable Soybean Production Advisory Tool

User Category	Quantitative Facts
Farmers (Users & Beneficiaries)	Esoko serves over 1.5 million farmers across 19 African countries, with half of their users located in Ghana. The scaling objective is to reach at least 100,000 farmers in northern Ghana.
Esoko Users in Ghana	750,000 farmers are estimated to be Esoko users in Ghana (half of total 1.5 million users)
Increase in farmers income	Esoko's services can improve incomes for farmers by roughly 10%.
Farmers benefiting from Esoko	70% of farmers in Ghana have benefited in some way from Esoko's services.

Timeline

Table 4. Evolution timeline of ESOKO Ghana Digital Sustainable Soybean Production Advisory Tool

Date	Milestone	Brief Explanation
2008	Esoko begins operations in Ghana	Esoko starts by providing market prices to smallholder farmers via SMS as part of development projects.
Unspecified	Expansion of Services	Esoko expands its services to include weather alerts, crop advice, and a system for linking buyers and sellers after realizing that farmers needed more than just market information.
Unspecified	Development of Sophisticated Services	Esoko develops more sophisticated services, including agronomic advice and survey tools, expanding its reach across a wider range of stakeholders.
Unspecified	Collaboration with CGIAR Excellence in Agronomy Initiative	Esoko Ghana collaborates with the CGIAR Excellence in Agronomy Initiative on projects aimed at improving the livelihoods of smallholder farmers in Ghana.
Unspecified	Launch of Digital Farmer Service (DFS) Project	Esoko and CGIAR launch the Digital Farmer Service (DFS) project, leveraging mobile and web technologies to create a super-agent network connecting farmers to essential services.
Unspecified	Pilot Project on Seasonal Forecast Information	A pilot project is initiated to provide farmers with access to downscaled seasonal forecast information through their mobile phones.
Unspecified	Application in Soybean Production	The ESOKO Ghana tool is applied to address challenges in soybean production by providing farmers with information on improved practices and market access.
Unspecified	Alignment with the "Support to Soybean Development Programme in Ghana"	The ESOKO Ghana tool aligns with and supports the objectives of the "Support to Soybean Development Programme in Ghana" project.
2017	Fasiba pilot project	The Fasiba pilot project, which

Date	Milestone	Brief Explanation
	Discontinued	aimed to provide a comprehensive platform for accessing finance, quality inputs, know-how, and output markets, was discontinued.
Unspecified	Iterative Development Approach	Esoko adopts an iterative approach to project development, starting with simpler solutions and gradually adding more services based on user feedback.
Unspecified	Focus on Sustainability	Esoko commits to long-term sustainability, employing a data-driven approach for climate change adaptation.
Unspecified	Demonstrated positive impact on income	Esoko's services can improve incomes for farmers by roughly 10%. In Ghana, 70% of farmers have benefited in some way from Esoko's services, and there has been a more than 45% increase in terms of sustainability models
Unspecified	Emphasis on User Experience	Esoko prioritizes user experience, ensuring services are accessible via basic mobile phones.
2021-05	Use Case term sheets for cooperation with EiA	Establish a framework for cooperation between IITA and ESOKO to jointly invest in developing innovations and decision support tools to improve farmer’s return on the investment along the Soybean supply chain in northern Ghana.
Unspecified	Future Plans	Esoko commits to deploying technology for agricultural resilience against climate change worldwide and seeks collaborations to address agricultural challenges.

Contributed Results

Main Goals of ESOKO Ghana Digital Sustainable Soybean Production Advisory Tool

The main goals of the ESOKO Ghana Digital Sustainable Soybean Production Advisory Tool, as inferred from the provided documents, are:

- To improve the livelihoods of smallholder soybean farmers in Ghana.
- To increase soybean yields and profitability for farmers.
- To enhance access to information on improved soybean production practices, market data, and climate-smart advisories.
- To promote sustainable agricultural practices and climate resilience in soybean production.
- To contribute to broader economic development and poverty reduction in rural communities.

Sub-Objectives of ESOKO Ghana Digital Sustainable Soybean Production Advisory Tool

The specific objectives of the ESOKO Ghana Digital Sustainable Soybean Production Advisory Tool can be summarized as follows:

- Providing farmers with access to market information.
- Delivering weather alerts and crop advice.
- Connecting farmers with buyers and sellers.
- Offering agronomic advice and survey tools.
- Developing a system for linking buyers and sellers.
- Connecting farmers to essential services via a super-agent network.
- Providing access to financial institutions and insurance providers.
- Delivering downscaled seasonal forecast information via mobile phones.
- Promoting the adoption of green production technologies.

Table 5. Results Achieved By ESOKO Ghana Digital Sustainable Soybean Production Advisory Tool

Impact	**Scope of the Impact**	**Quantity**	**Evidence Supporting the Impact**
Increased farmer incomes	Ghana	Roughly 10% increase in incomes for farmers using Esoko's services	Exploring The Application of ICTs and Big Data Analytics on Climate Data in Paris Lodron Universität Salzburg
Improved farmer livelihoods	Ghana	70% of farmers in Ghana have benefited in some way from Esoko's services	Exploring The Application of ICTs and Big Data Analytics on Climate Data in Paris Lodron Universität Salzburg
Enhanced sustainability models	Ghana	More than 45% increase in terms of sustainability models.	Exploring The Application of ICTs and Big Data Analytics on Climate Data in Paris Lodron Universität Salzburg
Improved access to	Smallholder soybean	Access to information	Ghana's Esoko:

Impact	Scope of the Impact	Quantity	Evidence Supporting the Impact
information	farmers in Ghana	on improved soybean production practices and market data	Leveling the information playing field for smallholder farmers
Connections with buyers	Smallholder soybean farmers in Ghana	Connecting farmers with buyers can lead to increased income.	Ghana's Esoko: Leveling the information playing field for smallholder farmers
Improved access to climate information	Farming communities in Ghana	Access to downscaled seasonal forecast information through mobile phones.	Mobile phones help Northern Ghana's farming families beat climate change
Improved ability to adapt to climate change	Farming communities in Ghana	Farmers able to make more informed farm management decisions based on tailored climate information services.	Mobile phones help Northern Ghana's farming families beat climate change
Empowerment of farmers through access to digital tools	Smallholder farmers in Ghana	Access to a platform for finance, inputs, know-how, and markets	Digital Finance and Content Services for Agriculture Markets: Lessons from Esoko's Ghana Pilot Project AGRA
Created ecosystem for value chain connections	Vulnerable farming communities in Ghana	Connecting farmers to input dealers, financial institutions, and insurance providers through a super-agent network using mobile and web technologies	ESOKO Integration with digital financial products as a bundled service to AICCRA Farmers

Table 6. ESOKO Ghana Digital Sustainable Soybean Production Advisory Tool Facts Mapped to Donor and Investor Organizations

Fact	Key Donor/Investor Organization	Citation
Improved access to climate information	CGIAR (Consultative Group on International Agricultural Research)	Mobile phones help Northern Ghana's farming families beat climate change
Improved ability to adapt to climate change	CGIAR (Consultative Group on International Agricultural Research)	Mobile phones help Northern Ghana's farming families beat climate change
Empowerment of farmers through access to digital tools	AGRA (Alliance for a Green Revolution in Africa)	Digital Finance and Content Services for Agriculture Markets: Lessons from Esoko's Ghana Pilot Project AGRA
Created ecosystem for value chain connections	CGIAR (Consultative Group on International Agricultural	ESOKO Integration with digital financial products as a bundled

Fact	Key Donor/Investor Organization	Citation
	Research) through AICCRA(Accelerating Impacts of CGIAR Climate Research for Africa)	service to AICCRA Farmers

Geographical Scope

Table 7. Locations ESOKO Ghana Digital Sustainable Soybean Production Advisory Tool Was Designed, Developed, Tested and Implemented/Used

Stage	Geographies	Period
Developed (designed, tested, validated, piloted)	Northern Ghana	Unspecified
Used (implemented after the finalization of the pilot)	Northern Ghana	Unspecified
Scaled (other locations it is used beyond its development)	Unspecified	Unspecified

The information available suggests that the ESOKO Ghana Digital Sustainable Soybean Production Advisory Tool was developed and piloted specifically in Northern Ghana. There is no explicit information in the text provided about the tool being implemented outside of this region. While Esoko itself operates in 19 African countries, the collaboration with CGIAR and the specific soybean focus is tied to Northern Ghana based on the provided text.

Readiness Dashboard

Table 8. Readiness Dashboard of ESOKO Ghana Digital Sustainable Soybean Production Advisory Tool

	Previous Successful Activities	Current Activities	Key Performance Quantities
Funding/investment in it	Esoko has received funding from various sources to support its operations and projects but specific funding for the *ESOKO Ghana Digital Sustainable Soybean Production Advisory Tool* is not detailed, it operates with the overall budget of Esoko.	The *ESOKO Ghana Digital Sustainable Soybean Production Advisory Tool* is currently being supported through collaborations with CGIAR and other partners in projects related to digital services for agriculture, including the Digital Farmer Service (DFS) project.	Sufficient evidence is not available.

	Previous Successful Activities	Current Activities	Key Performance Quantities
Engagement with most influential specific individual influencers (not groups) in the relevant sectors	Esoko has engaged with various stakeholders, including researchers and policymakers in the agricultural sector. However, specific individual influencers related to the *ESOKO Ghana Digital Sustainable Soybean Production Advisory Tool* are not mentioned.	The *ESOKO Ghana Digital Sustainable Soybean Production Advisory Tool* continues to engage with stakeholders through its collaborative projects with CGIAR and the Government of Japan funded 'Support to Soybean Development Programme'. Specific individuals are not named.	Sufficient evidence is not available.
Fit into existing delivery, business, social, cultural systems	Esoko's services are designed to be accessible via basic mobile phones, fitting within existing communication systems used by farmers. The platform also focuses on providing locally relevant agricultural information, aligning with the social and cultural contexts of the target communities.	The *ESOKO Ghana Digital Sustainable Soybean Production Advisory Tool* aims to integrate within existing delivery systems by linking farmers to various actors in the agricultural value chain (input dealers, financial institutions, etc.). It continues to focus on providing mobile-based solutions appropriate for the cultural context of Ghanaian farmers.	Sufficient evidence is not available.
How it performs compared to alternatives	Esoko's services have demonstrated improvements in farmer incomes, by roughly 10% in general. However, there's no specific data on how the *ESOKO Ghana Digital Sustainable Soybean Production Advisory Tool* performs compared to other soybean production advisory tools in terms of metrics.	The *ESOKO Ghana Digital Sustainable Soybean Production Advisory Tool* is in a continuous improvement cycle through feedback and iteration. Performance data specifically compared to alternatives is not available in a disaggregated way, only on the general level of service.	Sufficient evidence is not available.

	Previous Successful Activities	Current Activities	Key Performance Quantities
How cost-effective compared to alternatives	Esoko is designed to provide cost-effective solutions by using mobile technology to reach a large number of farmers. Specific cost-effectiveness data for the *ESOKO Ghana Digital Sustainable Soybean Production Advisory Tool* compared to other advisory systems is not available.	The *ESOKO Ghana Digital Sustainable Soybean Production Advisory Tool*, as a digital tool, aims to be cost-effective by leveraging existing infrastructure. Specific cost comparisons with traditional approaches are not provided in disaggregated form.	Sufficient evidence is not available.
How effortless, easy to use compared to alternatives	Esoko prioritizes user experience by making its services accessible via basic mobile phones. User interface design aims at keeping simplicity in mind. Specific comparison of ease of use for the *ESOKO Ghana Digital Sustainable Soybean Production Advisory Tool* against alternatives is not provided.	The *ESOKO Ghana Digital Sustainable Soybean Production Advisory Tool* is designed to be user-friendly and accessible on basic mobile phones, in line with Esoko's user focused design approach. How it compares with alternatives for ease of use is not available in a disaggregated way.	Sufficient evidence is not available.
The number of users	Esoko serves over 1.5 million farmers across 19 African countries, with half of their users located in Ghana. A specific user count for the *ESOKO Ghana Digital Sustainable Soybean Production Advisory Tool* is not given	The *ESOKO Ghana Digital Sustainable Soybean Production Advisory Tool* is aimed to be scaled through collaborative projects. No specific current user numbers are available disaggregated by the tool.	Sufficient evidence is not available.
The type of users	Esoko's users are primarily smallholder farmers, along with agricultural extension officers, input dealers and other stakeholders in the agricultural value chain. The *ESOKO	The *ESOKO Ghana Digital Sustainable Soybean Production Advisory Tool* continues to target smallholder soybean farmers, and aims to cater to different	Sufficient evidence is not available.

	Previous Successful Activities	Current Activities	Key Performance Quantities
	Ghana Digital Sustainable Soybean Production Advisory Tool* is designed to cater to soybean farmers, including women and youth.	segments like women and youth.	
The unreliance of users	Esoko's long-term sustainability is a core part of the company's operation, aiming to provide services without creating reliance on external support. How independent the users of *ESOKO Ghana Digital Sustainable Soybean Production Advisory Tool* is, specifically, is not discussed.	The *ESOKO Ghana Digital Sustainable Soybean Production Advisory Tool* aims to empower farmers through access to information and connections, promoting independent decision-making and sustainability. No specific reliance analysis is available.	Sufficient evidence is not available.

Readiness Metrics

Table 9a. Effective Demand Dimensions on ESOKO Ghana Digital Sustainable Soybean Production Advisory Tool

Factor	Status	Quantities	Evidence Source
Investment	Yes	The "Support to Soybean Development Programme in Ghana" funded by the Government of Japan, is working to improve soybean production in the country. This project focuses on promoting green production technologies, including the use of improved certified seeds and inoculants, as well as green storage and processing methods, aligning with the potential of ESOKO	FAO Knowledge Repository. (n.d.). PROMOTING SUSTAINABLE SOYBEAN PRODUCTON IN GHANA WHAT DID THE PROJECT DO? Retrieved from https://openknowledge.fao.org/bitstreams/c92fe3de-255d-4243-be2c-734bc84a587f/download

Factor	Status	Quantities	Evidence Source
		Ghana's tool.	
Influence	Yes	Esoko serves over 1.5 million farmers across 19 African countries, with half of their users located in Ghana. In Ghana, 70% of farmers have benefited in some way from Esoko's services.	The Business & Financial Times. (2023, August 24). Esoko crowned 'Agritech Company of the Year' at GAAPA 2023. Retrieved from https://thebftonline.com/2023/08/24/esoko-crowned-agritech-company-of-the-year-at-gaapa-2023/ , Paris Lodron Universität Salzburg. (n.d.). Exploring The Application of ICTs and Big Data Analytics on Climate Data in. Retrieved from https://eplus.uni-salzburg.at/obvusbhs/content/titleinfo/7315322/full.pdf
Fit	Yes	Esoko's services can be accessed via basic mobile phones, ensuring that they are available to a wide range of users, including those in remote areas.The cloud-hosted mobile platform allows users to customize their network and areas of interest and send or receive various field data, including prices, offers, stock, training reminders, compliance information, agriculture tips, bids and offers, and nutrition information. The Fasiba pilot project taught Esoko the importance of starting with simpler solutions and gradually	AGRA. (n.d.). Digital Finance and Content Services for Agriculture Markets: Lessons from Esoko's Ghana Pilot Project. Retrieved from https://agra.org/wp-content/uploads/2020/10/Esoko-m-Commerce-Ghana-Pilot-Project.pdf Integra LLC. (n.d.). ICTworks Profile of Esoko: Bringing the Market to Africa's Fingertips. Retrieved from https://www.integrallc.com/ictworks-profile-of-esoko-bringing-the-market-to-africas-fingertips-2/

Factor	Status	Quantities	Evidence Source
		adding more services, highlighting flexibility and adaptation based on user feedback and evolving needs, which can better fit with the context of Ghana.	

Table 9b. Technical Excellence Dimensions on ESOKO Ghana Digital Sustainable Soybean Production Advisory Tool

Factor	Status	Quantities	Evidence Source
Works better	Yes	Esoko's services can improve incomes for farmers by roughly 10%. In Ghana, 70% of farmers have benefited in some way from Esoko's services, and there has been a more than 45% increase in terms of sustainability models.	Exploring The Application of ICTs and Big Data Analytics on Climate Data in Paris Lodron Universität Salzburg, accessed January 23, 2025, https://eplus.uni-salzburg.at/obvusbhs/content/titleinfo/7315322/full.pdf
Cheaper	Insufficient evidence	Insufficient evidence	Insufficient evidence
Simpler	Yes	Esoko's services can be accessed via basic mobile phones, ensuring that they are available to a wide range of users, including those in remote areas with limited access to technology. Esoko's cloud-hosted mobile platform allows users to customize their network and areas of interest, profile recipients, and send or receive a variety of field data.	ICTworks Profile of Esoko: Bringing the Market to Africa's Fingertips Integra LLC, accessed January 23, 2025, https://www.integrallc.com/ictworks-profile-of-esoko-bringing-the-market-to-africas-fingertips-2/

Table 9c. Use Dimensions on ESOKO Ghana Digital Sustainable Soybean Production Advisory Tool

Factor	Status	Quantities	Evidence Source
More Users	Yes	Esoko serves over 1.5 million farmers across 19 African countries, with half of their users	Esoko crowned 'Agritech Company of the Year' at GAAPA 2023, accessed

Factor	Status	Quantities	Evidence Source
		located in Ghana.	January 23, 2025, https://thebftonline.com/2023/08/24/esoko-crowned-agritech-company-of-the-year-at-gaapa-2023/
Diverse Users	Yes	Esoko's services are accessed via basic mobile phones, ensuring accessibility to a wide range of users, including those in remote areas with limited access to technology. Additionally, Esoko connects farmers to various actors along the agricultural value chain, including input dealers, financial institutions, and insurance providers.	Digital Finance and Content Services for Agriculture Markets: Lessons from Esoko's Ghana Pilot Project AGRA, accessed January 23, 2025, https://agra.org/wp-content/uploads/2020/10/Esoko-m-Commerce-Ghana-Pilot-Project.pdf; Esoko Integration with digital financial products as a bundled service to AICCRA Farmers, accessed January 23, 2025, https://aiccra.cgiar.org/publications/esoko-integration-digital-financial-products-bundled-service-aiccra-farmers
Unreliant Users	Insufficient evidence	Insufficient evidence to determine if Esoko has more unreliant users than alternatives.	Insufficient evidence.

Evidence Analysis

Table 1. Summary of Key Resources on ESOKO Ghana Digital Sustainable Soybean Production Advisory Tool

Resource	Type of Evidence	Publication Year	Key Focus	Specific Aspects	Relevance to Esoko & Soybean Production
AGRA. 2020, Digital Finance and Content Services for	Report	2020	Digital finance and agricultural markets	Focus on Esoko's pilot project, exploring the	Directly relevant, provides insights into

Resource	Type of Evidence	Publication Year	Key Focus	Specific Aspects	Relevance to Esoko & Soybean Production
Agriculture Markets: Lessons from Esoko's Ghana Pilot Project.				integration of digital finance and content delivery in agricultural markets.	Esoko's practical application and financial services.
FAO. 2025, Esoko Virtual marketplace and data collection service | E-Agriculture.	Website/Description	2025	Esoko platform functionalities	Describes Esoko as a virtual marketplace and a data collection service.	Relevant, offers a high-level understanding of Esoko's core functions.
Open Data Impact. 2025, Ghana's Esoko Open Data's Impact.	Website/Case Study	2025	Esoko and open data	Examines Esoko's contribution to the open data ecosystem and its impact.	Relevant, focuses on how Esoko interacts with open data to enhance its services.
The Business & Financial Times. 2023, Esoko crowned 'Agritech Company of the Year' at GAAPA 2023.	News Article	2023	Industry recognition	Reports Esoko's achievement as the Agritech Company of the Year.	Relevant, offers a measure of Esoko's success and impact within the agricultural sector.
IWMI. 2025, CGIAR Initiative: Excellence in agronomy.	Website/Program Description	2025	Excellence in Agronomy initiative	Describes the CGIAR initiative focused on excellence in agronomy.	Indirectly relevant, relates to efforts to improve agronomic practices.
CGSpace. 2025, Excellence in Agronomy.	Document Repository	2025	Excellence in Agronomy initiative	Document repository relating to excellence in agronomy from CGIAR.	Indirectly relevant, provides resources regarding general agronomy practices.
CIMMYT. 2025, CGIAR Initiative:	Website/Program Description	2025	Excellence in Agronomy initiative	Describes the CGIAR initiative	Indirectly relevant, relates to

Resource	Type of Evidence	Publication Year	Key Focus	Specific Aspects	Relevance to Esoko & Soybean Production
Excellence in Agronomy.				focused on excellence in agronomy.	efforts to improve agronomic practices.
CGIAR. 2025, Excellence in Agronomy.	Website/Program Description	2025	Excellence in Agronomy initiative	Describes the CGIAR initiative focused on excellence in agronomy.	Indirectly relevant, relates to efforts to improve agronomic practices.
CGIAR. 2025, Excellence in Agronomy.	Website/Program Description	2025	Excellence in Agronomy initiative	Describes the CGIAR initiative focused on excellence in agronomy.	Indirectly relevant, relates to efforts to improve agronomic practices.
AICCRA. 2025, ESOKO Integration with digital financial products as a bundled service to AICCRA Farmers.	Website/Program Description	2025	Esoko and digital financial services	Describes the integration of Esoko with digital financial services for AICCRA farmers.	Directly relevant, showcases the use of Esoko with financial products.
CCAFS. 2025, Mobile phones help Northern Ghana's farming families beat climate change.	Website/News Article	2025	Mobile technology and climate change	Focuses on the role of mobile phones in helping farmers adapt to climate change, possibly involving Esoko.	Potentially relevant, points to the use of mobile platforms in agriculture.
NCBI. 2020, Modelling adoption intensity of improved soybean production...	Research Article	2020	Soybean production adoption	Research on modeling adoption rates of improved soybean production techniques.	Relevant, provides insights into technology adoption for soybean production.
ResearchGate. 2018, Ghana's Esoko: Leveling the	Research Article	2018	Esoko and information access	Examines Esoko’s role in providing equal access to	Directly relevant, illustrates the impact of

Resource	Type of Evidence	Publication Year	Key Focus	Specific Aspects	Relevance to Esoko & Soybean Production
information playing field for smallholder farmers.				information for smallholder farmers.	Esoko on farmers' information access.
FAO Knowledge Repository. 2020, PROMOTING SUSTAINABLE SOYBEAN PRODUCTON IN GHANA WHAT DID THE PROJECT DO?.	Report	2020	Soybean project in Ghana	Describes a project promoting sustainable soybean production in Ghana.	Relevant, may contain information on technology use and soybean farming.
ResearchGate. 2016, Developing Sustainable IT Market Information Services: The Case of Esoko.	Research Article	2016	Esoko and IT Market Information Services	Research on developing sustainable IT market information services using Esoko as a case study.	Directly relevant, provides insights into the system's sustainability as a market information service.
Paris Lodron Universität Salzburg. 2025, Exploring The Application of ICTs and Big Data Analytics on Climate Data.	Research Article	2025	ICT, big data and climate	Explores the use of ICTs and big data analytics for climate data analysis, potential integration with services like Esoko.	Indirectly relevant, discusses use of ICTs that could be part of an Esoko system.
Integra LLC. 2025, ICTworks Profile of Esoko: Bringing the Market to Africa's Fingertips.	Website/Profile	2025	Esoko profile	Provides an overview and analysis of the Esoko platform and its impact.	Relevant, highlights Esoko’s impact on the market.
1 World Connected. 2025, Esoko.	Website/Company Profile	2025	Esoko profile	Provides a general company overview of	Relevant, serves as a general source about Esoko.

Resource	Type of Evidence	Publication Year	Key Focus	Specific Aspects	Relevance to Esoko & Soybean Production
				Esoko and its activities.	