

# NATIONAL AGRICULTURAL VALUE CHAIN DEVELOPMENT PROJECT (NAVCDP)

2023

DISRUPTIVE  
AGRICULTURAL  
TECHNOLOGIES  
**(DAT) STRATEGY**  
VERSION 1





REPUBLIC OF KENYA



NATIONAL AGRICURAL VALUE CHAIN DEVELOPMENT PROJECT  
(NAVCDP)

# DISRUPTIVE AGRICULTURAL TECHNOLOGY (DAT) STRATEGY

NAVCDP

APRIL 2023

## FOREWORD

In recent years, ICT has played a critical role in enhancing the ability of smallholder farmers to connect with institutions and networks that provide crucial information and knowledge necessary to improve their productivity and ability to link to markets thereby alleviating food insecurity and poverty. The use of ICT has been a GOK priority in the country. Through the National ICT Policy 2019, the government has provided strategies for achieving the necessary ICT infrastructure required for modern technology enabled systems to operate.

The role of ICT in the transformation of the agricultural sector is further demonstrated in the Agriculture Sector Transformation and Growth Strategy (ASTGS 2019 -2029) which singles out ICT as a major enabler in achieving the country's goal of transforming the agriculture sector into an innovative, commercially-oriented and modern sector through the use of knowledge and skill programmes such as digitally-enabled youth driven extension agents and to Strengthen research and innovation as launch priority digital and data use cases to better drive decision making and performance management.

The National Agricultural Value Chain Development Project (NAVCDP)'s objective is to increase market participation and value addition for targeted farmers. Under the project, Disruptive Agricultural Technology (DAT) will provide a framework for the Ministry, Counties, KALRO, Agtechs, Agripreneurs and other value chain actors to collaborate in driving the themes of increasing productivity and commercialization through leveraging on Digital Technology. The focus will be on four key strategic areas; Advisory and E-extension services for agricultural productivity, financial inclusion, Market access and Data analytics and agricultural intelligence. Further to this, the project will continue to utilize the One Million Farmers Platform (OMFP) that was developed through NARIGP and KCSAP in collaboration with The World Bank that created a platform for Disruptive Agricultural Technology firms (agtechs) to work with multiple counties to provide their unique digital technology solutions. DAT strategies will also be used to shift focus from rainfall dependent agriculture to improving irrigation infrastructure through dissemination of relevant information on irrigation technologies.

This strategy provides a framework for implementation, monitoring and evaluation of the strategies within the identified DAT ecosystem in the achievement of the NAVCDP development objective as well as contributing to the Agriculture Sector digital agenda. I therefore urge all stakeholders to embrace DAT to improve efficiency, productivity, market participation, value addition and profitability in agriculture.

I take this opportunity to thank the Cabinet Secretary, Ministry of Agriculture and Livestock Development (MoALD), Hon. Franklin Mithika Linturi and the Principal Secretary, State Department for Crop Development – Mr. Harsama Kello for their leadership and guidance. Special appreciation goes to the World Bank for financial and technical support to the project, and lastly I wish to appreciate the NPCU and the stakeholders who worked tirelessly in the development of this strategy.

**Dr. Samuel Guto,**  
**National Project Coordinator**  
**National Agricultural Value Chain Development Project**



## ACKNOWLEDGEMENT

This Disruptive Agricultural Technologies (DAT) Strategy was prepared by the NAVCDP NPCU, KALRO, county representation, agtechs representations and various panel of experts from public and private sectors. The DAT Strategy is well aligned to the experiences and learnings of the previous World Bank funded projects (KCSAP and NARIGP) that initiated the implementation of the DAT in Kenya. The strategy provides a framework for implementation, monitoring and evaluating within the current DAT ecosystem in the achievement of the project's development objective as well as contributing to the Agriculture Sector's digital agenda.

Special gratitude is extended to the Ministry of Agriculture and Livestock Development, where the program is anchored; the World Bank, the county digital champions and the fiduciary teams for sharing their learnings; and NAVCDP National Project Coordinator, for providing input and logistical support for the development of this strategy.

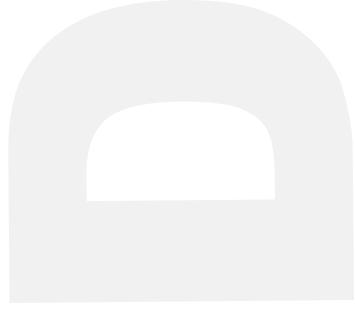


## EXECUTIVE SUMMARY

Disruptive Agricultural Technologies (DATs) are digital innovations that enable farmers and agribusiness entrepreneurs to leapfrog current methods to increase their productivity, efficiency, and competitiveness, thereby facilitating access to markets, improving nutritional outcomes and enhancing resilience to climate change.

The innovations play a crucial role in mainstreaming climate-resilient approaches into agriculture extension services, supporting tailored advisory to producers for more agile decision-making. These innovations can range from the use of digital tools for data collection, analysis, and visualisation, to the development of new technologies such as precision agriculture, digital marketplaces/linkages, digitally delivered services and apps, e-advisory services and e-extension services.

The goal of data and data driven-digital services in agriculture is to improve efficiency, productivity, market participation, value addition and profitability, while promoting sustainability and food security of the small holder farmers. These services can help farmers to make informed decisions, increase their competitiveness, and access new markets. By leveraging technologies and concepts such as big data, artificial intelligence, the Internet, mobile technologies and devices, and the Internet of Things (IoT), data and data driven-digital services in agriculture can help address many of the challenges faced by farmers such as climate change, water use management, exclusion especially among the women and youth, rural isolation largely due to distances and technology infrastructure constraints and access to finance.



# NAVCDP

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## DEFINITION OF TERMS

| TERM                 | DEFINITION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Agripreneur          | An established commercial agri-entrepreneur who will be mentored and coached by a business accelerator to deliver E-extension sustainably; Demand Generation - agro-inputs, services and market linkages; fulfillment of products and services; record-keeping, managing payments, commission generation and outputs to a set of 200 farmers using the agripreneur model                                                                                                                       |
| Agtech               | An innovator who provides an agricultural digital solution and is selected for the World Bank's One Million Farmer Platform (OMFP) as part of the Disruptive Agriculture Technologies (DAT) initiative.                                                                                                                                                                                                                                                                                        |
| Agtech Agent         | An agricultural agent is a professional who provides technical assistance and advice to farmers, ranchers, and other agricultural producers. Agricultural agents work for government agencies, universities, or private organizations and promote sustainable, profitable, and environmentally responsible agricultural practices.                                                                                                                                                             |
| Big Data             | It is a high-volume, high-velocity and high-variety information asset that demands cost-effective, innovative forms of information processing that enable enhanced insight, decision-making, and process automation                                                                                                                                                                                                                                                                            |
| Bundled Services     | Agricultural bundled services refer to a package of related services and products offered to farmers and other stakeholders in the agricultural sector under one common platform. These services and products are typically designed to meet the specific needs of farmers and help them improve their agricultural practices, increase their productivity, and achieve their goals.                                                                                                           |
| Business Accelerator | An entity that provides support to early-stage and start-up businesses through investment, short-term mentoring and training. A Business Accelerator's long-term goals are to: help the businesses it supports to grow and become profitable quickly and make a return on its investment. In the agtech space, a business accelerator will support the agripreneurs in ensuring they adopt the best model to support the farmers and other value chain actors providing services and products. |
| Data Platform        | An integrated set of technologies that collectively meet an organization's end-to-end data needs. It enables the acquisition, storage, preparation, delivery, and governance of your data, as well as a security layer for users and applications                                                                                                                                                                                                                                              |

| TERM                                | DEFINITION                                                                                                                                                                                                                                                                                                         |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Disruptive Agriculture Technologies | Innovations that enable farmers and agribusiness entrepreneurs to leapfrog current methods to increase their productivity, efficiency, and competitiveness, thereby facilitating access to markets, improving nutritional outcomes and enhancing resilience to climate change.                                     |
| Digitization                        | The process of changing information from analog to digital form (e.g., shifting manual records of agricultural statistics to a digital format).                                                                                                                                                                    |
| e-Services                          | e-Services refer to using technology and digital tools to support various aspects of the agricultural industry, including production, distribution, and marketing. An e-service delivers technology, innovation and management practices (TIMPs) through data and digital services as a single or bundled service. |
| Memorandum of Understanding         | It is an agreement between two or more parties that outlines the terms and details of a cooperative relationship but stops short of forming a legally binding contract. MoUs are commonly used in various industries including agriculture, government, business, etc.                                             |

The logo for NAVCDP features the acronym "NAVCDP" in a large, bold, light green sans-serif font. Behind the letters is a circular graphic composed of three vertical bars of different colors: yellow on the left, grey in the middle, and green on the right. The bars are partially obscured by a light grey circular outline that overlaps them.

## LIST OF ACRONYMS

| ACRONYMS |                                                        |
|----------|--------------------------------------------------------|
| ASTGS    | Agricultural Sector Transformation and Growth Strategy |
| CIG      | Common Interest Groups                                 |
| DAT      | Disruptive Agricultural Technology                     |
| FPOs     | Farmer Producer Organizations                          |
| FLID     | Under Farmer Led Irrigation Development                |
| ICT      | Information Communication technology                   |
| IVRs     | Interactive voice response Systems                     |
| IoT      | Internet of Things                                     |
| IP       | Indigenous People                                      |
| KALRO    | Kenya Agriculture and Livestock Research Organization  |
| KAMIS    | Kenya Agricultural Market Information System           |
| KCSAP    | Kenya Climate Smart Agriculture Project                |
| KPI      | Key performance Indicator                              |
| NARIGP   | National Agricultural Rural Inclusive Growth Project   |
| NAVCDP   | National Agricultural Value Chain Development Project  |
| M&E      | Monitoring and Evaluation                              |
| OMFP     | One Million Farmer Platform                            |
| PDO      | Project Development Objective                          |
| PMIS     | Project Management Information System                  |
| PWD      | Persons With Disability                                |
| SDG      | Sustainable Development Goal                           |
| TIMPs    | Technology Innovation and Management Practices         |
| VMGs     | Vulnerable and Marginalized Groups                     |



# NAVCDP

NATIONAL AGRICULTURAL VALUE CHAIN  
DEVELOPMENT PROJECT

## CHAPTER 1: INTRODUCTION

### 1.1 Background

The agricultural sector continues to play a critical role in the economy contributing to twenty-two percent (22%) of the gross domestic product and twenty-seven percent (27%) indirectly through its linkages with other sectors while employing over 70% of the rural population and 40% of the total population. With Africa's population expected to double to nearly 2.5 billion people by 2050, it is now critical for stakeholders to put in measures to increase food security by raising yields and productivity of existing farmland. One of the strategies is technological advances that can support the goal of achieving more resilient, productive, and sustainable agriculture. These have the potential to sustain food systems that better meet consumer needs. Digital technologies and concepts such as data analytics, artificial intelligence, mobile technologies and devices, and the Internet of Things (IoT) are some of the ranges of options available for changing the agricultural ecosystem. Although significant efforts and investments have been made in digital technologies and applications amounting to billions of dollars worldwide, there are still gaps in coordination of the ecosystem focusing efforts towards a holistic approach to digital investments.

A key pillar under the Agricultural Transformation and Growth Strategy (ASTGS 2019-2029) is anchored on Flagship 8: Strengthen research and innovation as launch priority digital and data use cases to drive better decision-making and performance management. This fosters innovations for data and enables monitoring of key food system and management of natural resource crises. NARIGP and KCSAP in collaboration with the World Bank initiated and piloted the Disruptive Agricultural Technology (DAT) initiative partnering with digital firms (Agtechs) that offer agriculture and agricultural-related digital technologies and solutions to multiple counties. This led to the development of the One Million Farmers Platform (OMFP) that has seen agtechs sharing and accessing data and data analytics informing their operations in responding to the consumers' demands; and decision-making at the project level and beyond.

The National Agricultural Value Chain Development Project (NAVCDP) is a Government of Kenya project funded by the World Bank and the National Government whose objective is to "**increase market participation and value addition for targeted farmers**". Under the project, the DAT initiative aims to provide a framework for the Ministry, Counties, Kenya Agriculture and Livestock Research Organization (KALRO), agtechs, agripreneurs and other actors to collaborate in driving the themes of increasing productivity and commercialization through leveraging Digital Technologies.

## 1.2 Rationale for the Data and Digital Investments Strategy

The proposed strategy outlines a roadmap for implementing data and digital investment initiatives and is included in NAVCDP component 2: Climate Smart Value Chain Ecosystem Investments; subcomponent 2.3. This thematic area aligns with the PDO and has four key focus areas: enhancing productivity through e-extensions and e-services, data analytics, financial inclusion, and market access. Therefore, a data and digital investments strategy is required to contribute towards achieving the overall project's objectives

The implementation plan involves a situational analysis, identification of the strengths, weaknesses, opportunities, and threats, risk management plan, and mapping of stakeholders and their responsibilities.

## 1.3 Strategic Approach

The development of this strategy is part of the NAVCDP's systematic and proactive way of planning and executing actions to achieve the project's specific objectives. This strategic approach involves a combination of long-term planning, tactical decision-making, and ongoing monitoring and evaluation. The approach considers various factors such as market trends, competition, resources, customer needs, and technological advancements to identify and prioritize the most effective course of action.

The development of this strategy involves;

- Outlining a comprehensive SWOT analysis which looks at the strengths, weaknesses, opportunities and threats in the digital environment;
- Development of a roll out/ implementation framework to achieve the set out project objectives;
- Development of a monitoring and evaluation and learning plan with key consideration on the implementation matrix that sets out the expected outcomes based on the strategies and interventions;
- Acknowledgement that implementation of the strategy will need collaboration and buy-in of key stakeholders such as thematic leads and county governments to ensure identification of digital gaps, selection of agtechs with solutions and products that address the gaps, implementation and the uptake of the digital solutions; strengthening partnerships and fostering integration.
- Capacity building of the key implementers in the ecosystems to enhance the effective implementation of the DAT strategy;
- Anchoring the implementation of existing digital policies and contributing to policy changes specifically on infrastructure, cybersecurity, human rights, legal and regulatory, economic, development, and socio-cultural.

## CHAPTER 2: SITUATION ANALYSIS

The OMFP aims to accelerate the impact and return on investment from DATs and Kenya Agriculture and Livestock Research Organization (KALRO) Big Data and infrastructure investments. The platform enables the collection of data sets that are then analysed, aggregated, and shared by different agriculture ecosystem actors.

The OMFP leverages the foundations built through analogue investments in KCSAP and NARIGP and makes specific digital investments to enhance access to digital technologies for all project farmers. Under this initiative, the 27 Agtech service providers on boarded aimed to work and reach over one million farmers with their entry points being counties.

The 2019 conference held by the Ministry of Agriculture Kenya, the World Bank and other players came out with four intervention areas namely, productivity, market linkages, financial inclusion, and data analytics under which shortlisted agtechs were categorised ([World Bank, 2019](#)).

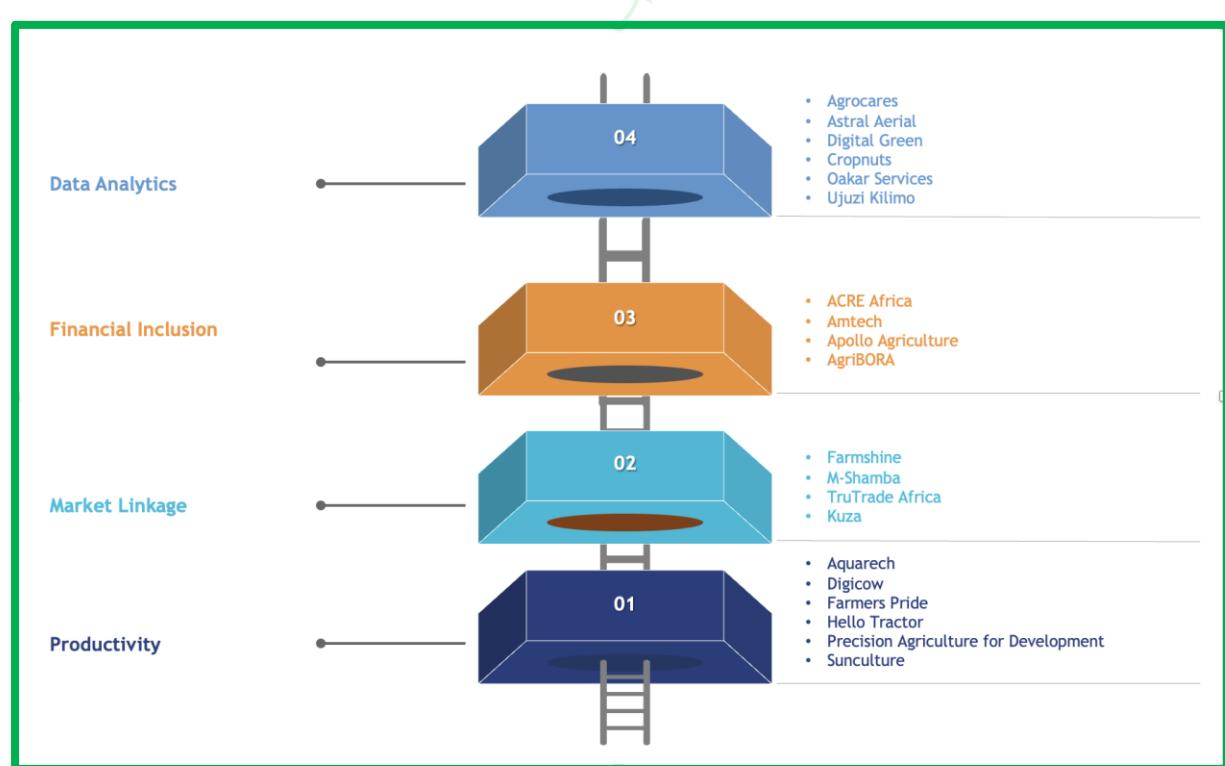


Figure 2-1: The OMFP Agtechs (2022)

Selection of DAT agtechs per county was done hand in hand with the county governments to ensure that digital gaps experienced in the specific value chains by their farmers were addressed. The contracted agtechs had clear deliverables and matchmaking exercises were held to introduce them both at the community and county institution levels. In figure 2.1 above shows the different agtechs categorised per the interventions they addressed. However

notably, the business models of many agtechs digital services and platforms naturally cut across these themes.

The OMFP's platform has the role of: (i) supporting agtechs to leapfrog and scale their solutions while working with project farmers and (ii) supporting the project-identified farmers to adopt and use digital solutions to improve their productivity and profitability.

## 2.1 Strategic Themes and Objectives

During the project period, the strategy will focus on scaling the DAT strategic themes/interventions areas focusing on;

1. Advisory and E-extension services for agricultural productivity
2. Financial Inclusion
3. Market Access
4. Data analytics and agricultural intelligence

The strategic themes/ interventions are informed by the situational analysis and lessons learnt from implementing NARIGP and KCSAP, the Agricultural Sector Transformation and Growth Strategy (ASTGS), the Kenya Agriculture Sector Extension Programme (KASEP) among other agricultural policies and strategies.

### 2.1.1 Advisory and E-extension Services for Agricultural Productivity

This strategic theme covers extension services, climate smart agriculture advisory, as well as the delivery of credible and actionable information in real-time directly to farmers (addressing inclusion) to increase productivity. Its goal is to help transition farmers from time, labour, input and resource-intensive practices to more efficient and sustainable planning, production, and management systems. DATs under this theme include but are not limited to precision agriculture advisories via SMS or short videos, access to good quality inputs, traceability, mechanisation, tech-based irrigation, encourages the use of call centres and Interactive Voice Response (IVR), and peer-to-peer learning through community-based facilitators/lead farmers.

Under Farmer Led Irrigation Development (FLID), the DAT strategies will help shift focus from rainfall dependent agriculture to improving irrigation infrastructure therefore availing water and ensuring water use management. This will boost increase in production and diversification of agricultural products therefore boosting small holder farmers' participation in markets and catalysing higher value addition. Technical support in terms of technologies and information dissemination will be offered on available irrigation technologies for adoption by farmers. The agtechs will work closely with the FLID subcomponent as well as KALRO to ensure that the farm data such as farm size under irrigation increase in production as a result of irrigation options and so forth are shared under the Big Data Platform

### 2.1.2 Farmer Financial Inclusion

This theme focuses on innovators, organisations and businesses that link farmers to credit and savings products, ag-based insurance, and other innovative financial services, enabling them to invest in their farms. Emphasis will be on improving farmers' financial literacy, offering savings, credit, insurance, payment facilities, financial analytics, and credit scoring opportunities and promoting better record-keeping for the farmers, through the FPOs and SACCOs. Regulations and policies will also be strengthened to ensure adherence by agtechs to data collection, privacy and loan repayment requirements without overbearing farmers. Under this theme, the cohort will work closely with the SACCOs and FPO thematic leads to encourage automation selected project institutions. The agtechs will work closely KALRO to ensure that the financial inclusion data are shared under the Big Data Platform.

### 2.1.3 Market Linkages

This theme looks at digital tools that help improve market access and market integration for small-holder farmers, including providing links to better inputs and connecting farmers to buyers who can pay better prices. The focus will be on value addition to minimise post-harvest losses, linking FPOs and CIGs/VMGs/Indigenous People (IP) to off-takers or other local markets, working with the youth to ensure value addition of produce, strengthening aggregation and price information systems, improving farmer literacy to encourage smart farming, and working with county project coordination units (CPCUs) to strengthen supply chain management. The agtechs will work closely with the market linkages subcomponent as well as KALRO to ensure that the market data are shared under the Big Data Platform.

### 2.1.4 Data Analytics and Agricultural Intelligence

This theme looks at solutions that are largely focusing on remote sensing and mapping technologies, artificial intelligence, blockchain solutions, precision agriculture tools, and computing power to enable data-driven decision-making by policymakers, public agencies, and private service providers in the agriculture sector.

Under the Safer Urban Food Systems component, the team will work closely with innovators in the sector to support digital inventories of smallholder farmers clusters engaged in safe food production, and digital mapping of production activities. The agtech in this theme will also work closely with KALRO to ensure that the data analytics done are shared with KALRO under the Big Data Platform and KALRO provides data analytics to support the agtechs (interactive data sharing).

## 2.1.5 KALRO

NAVCDP and KALRO will collaborate to expand the existing inventory of Technology Information and Management Practices (TIMPs), focusing on climate resilience, nutrition, and safer food production practices. Additionally, NAVCDP will support the enhancement of KALRO's Big Data platform, which serves as a foundational database for data-driven, productive, resource-efficient, and climate-resilient farming practices. The Big Data platform will also facilitate farmer outreach by digitising more farmers, collecting data on savings, credit, cash flows, and market access at the farmer level, and mapping key stakeholders to enable financial services and market linkages for farmers. These projects are laying the groundwork for digitally integrated value chains, with KALRO's Big Data Platform currently providing agro-weather and market information to nearly 1.2 million farmers through spatial data and producer details.

| Thematic Areas               | Advisory and E-extension for Agricultural Productivity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Market Access                                                                                                                                                                                     | Farmer Financial Inclusion                                                                                                                                                                                    | Data Analytics and Agricultural Intelligence                                                                                                                                                                                                                                                                                                                                 |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Description</b>           | Provides information on agronomic best practices, pests and diseases, weather and market information.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Links to SHFs and SMEs to high-quality farm inputs (e.g., seeds, fertilizers and pesticides)<br><br>Provide market linkage solutions for SHFs and SMEs by linking farmers in digital marketplaces | Provides digital financial services such as digital payments, savings, credit services, e-subsidies and agricultural insurance.                                                                               | Provides support tools that integrate data sources on SHFs, SMEs, farms and markets and converts this information into useful country and value chain-level insights and decision tools for government, policymakers, agronomists, agribusinesses and investors.                                                                                                             |
| <b>Impact</b>                | Increase in production<br>Improved yield<br>Improved access to markets<br>Increased income                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Improved productivity due to market availability<br><br>Increased yield due to quality inputs<br>Improved income through ease of access to markets<br><br>Value addition of produce               | Increased access to financial products<br>Improved financial literacy<br>Improved productivity fuelled by access to finance for inputs and mechanization                                                      | Improved evidence-based decision making (operationalization of data)                                                                                                                                                                                                                                                                                                         |
| <b>Example solutions</b>     | Digital extension services, Precision agriculture, Market information services delivered via:<br>• Agripreneurs to farmers<br>• Agtechs to agripreneurs and then to farmers<br>• Farmer to farmer (peer learning)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | • Digital input distribution<br>• Digitally-enabled market access to off-takers                                                                                                                   | • Farmer-facing digital financial services, e.g., credit, savings and insurance<br>• B2B agri-insurance packaged with input or loans to SHFs and SMEs<br>• Back-end data analytics for digital credit scoring | • Government agriculture sector dashboards<br>• Agriculture extension system management tools<br>• Agribusiness intelligence<br>• Digital food balance sheets                                                                                                                                                                                                                |
| <b>Example organizations</b> | <br><br><br><br><br><br><br><br><br><br> | <br><br>                    | <br><br>                             | <br><br><br><br><br><br> |

Figure 2-2: Agtech Thematic Areas

## 2.1.6 Learnings and Recommendations

As the DAT initiative has been implemented over a period of time, there have been valuable learnings and recommendations to be adopted and inform the strategy going forward.

### Learnings

The implementation of DAT has led to attaining some key successes which include:

- Entry and increase in visibility of Agtechs providing a range of options to smallholder farmers particularly in disseminating Technology Innovation and Management Practices (TIMPs).

- With the entry and collaboration of Agtechs with the county governments, there is increased investments in platforms for data collection, equipment and licensing to support and strengthen dissemination of e-extensions and e-services.
- There has been operationalization of the agricultural projects' DAT ecosystem (National Government, County governments, innovators (private sector)) which has brought about an increase in mobilisation effort and sensitization of various initiatives.
- Initial success of the initiative led to an increase in the number of Agtechs from 14 to 27 and an increase in counties covered from 16 to 33. There has also been an increase in the numbers of smallholders to over 400,000 sensitized and over 175,000 (as per the KCSAP project management information system (PMIS), March 2023 adopted at least one of the digital solutions.
- Creation of an enabling environment with supportive policies, the ASTGS – enabler flagship 8, in support of the growth of digital initiative.

## Recommendations

During the course of the project's implementation, challenges and untapped opportunities have been experienced:

- Slow and low technology adoption has been a challenge due to low digital literacy levels among farmers. Capacity building of the farmers to enhance digital adoption is recommended. Access to the DAT strategies through different platforms, both digital and analogue will encourage DAT adoption.
- Agtech services are accessible at a cost to the farmers (technology cost) and this needs to be made more affordable for farmers to adopt.
- Better data sharing agreements need to be in place to improve on traceability and operationalization of field findings
- Mobilization, sensitization and uptake of the agtechs solution is a process that needs some level of human interface/ interactions to achieve. The agtechs need to have human resources on ground to ensure targeted sensitization, uptake/adoption through physical demonstration and responding to any solution-based aspects that the farmer may have (somewhat after sale services).
- For sustainability and strengthening of the agriculture and agricultural related extension delivery services, there is need for continuous trainings, on-spot checks, personalized services at farm/household level and so forth. The strengthening of the extension delivery services necessitated the for the last mile touch to accelerate access to services including extension. This has

## 2.2 SWOT Analysis (Environmental scan)

This involves an analysis of the institutional Strengths, Weaknesses, Opportunities and Threats (SWOT) to understand its competitiveness in implementing DAT activities. It will help in understanding capacity, weaknesses and opportunities that are important considerations in its activities and actions for efficiency and sustainability.

A critical analysis of the environment within which DAT operates reveals the following:

Table 2-1: Strength, Weakness, Opportunities, Threat (SWOT) Analysis

| Strengths                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Weaknesses                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>Advanced technology standards have led to improved production and productivity.</li> <li>The initiative has the ability to attract the participation of high-potential, scalable DATs.</li> <li>Information and Communications Technology (ICT) and ICT Infrastructure - Improved network infrastructure in the country has improved information sharing.</li> <li>Social Inclusion – Digital Solutions cover a wide range of clients (CIGs/ VMGs/ IPs/ PWDs) without discrimination. Existing support structures and approaches— Agtechs; Agripreneurs; Enumerators; Bundling; Development partners; collaborating institutions, SACCOs, FPOs, Financial Institutions Digital solutions have wider coverage and it's real-time. Interface with traditional pathways</li> <li>Existing digital platforms managed by KALRO- KAMIS, crop selector KAOP, TIMPs Apps etc</li> <li>A shift from Value Chain focus to Value chain neutral interventions and the concept of Saturation</li> <li>Enabling environment for agtechs to grow and implement their work</li> <li>The WBG backing - funding + social validation, Years of learning from implementation with 20+ counties</li> <li>Facilitative policies in the country such as ASTGS, SDGs</li> </ul> | <ul style="list-style-type: none"> <li>High cost of digital solutions making them unaffordable individually</li> <li>Inadequate human resource capacities (numbers and skill gaps - e.g. limited data scientists)</li> <li>Resistance to change and adoption of new technologies- Adopting to rapid technological advances is expensive.</li> <li>Low literacy levels of smallholder farmers including digital literacy.</li> <li>High cost of mobilisation and sensitising target consumers'/ smallholder farmers to achieve a change of mind set, and responsive communities</li> <li>Fragmented, uncoordinated and non-committal data reporting and sharing</li> <li>Insufficient data to inform policies and interventions</li> <li>Inadequate market access, inadequate marketing information and infrastructures and marketing including storage facilities for perishable products, cold storage facilities, irrigation, and agro-processing.</li> <li>Fluidity of MoUs - engagements between agtechs and counties during implementation</li> </ul> |

| Opportunities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Threats                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• A growing pool of digital innovators (techno-savvy) and the availability of digital infrastructure and mobile devices in rural areas</li> <li>• Agtechs have footprints in the counties.</li> <li>• Goodwill from development partners/ private sector</li> <li>• Devolution – presents differences in the support by county governments and therefore opportunities to leverage on the learnings.</li> <li>• Private Public Partnership - Increased private sector participation and investment leading to accelerated growth in the sector</li> <li>• Opportunity to create employment for women and young agripreneurs</li> <li>• The growing demand for digital solutions in the agriculture sector.</li> </ul> | <ul style="list-style-type: none"> <li>• Regulatory and legal barriers – policies</li> <li>• Cyber security - Advancement in technology has led to cyber threats, which pose a great risk to various sector operations (Hackers infringing on data privacy – leading to mistrust and slow adoption)</li> <li>• Inadequate Infrastructure and connectivity fluctuations limit the effectiveness of and uptake of solutions/ e-services</li> <li>• Competition from unregulated digital services providers.</li> <li>• Silos in the implementation and coordination of digital activities</li> <li>• Sustaining of DATs - donor dependence at the expense of organically achieving financial sustainability as an evolution of demand and supply forces to pay for the value of DATs.</li> <li>• Overreliance on rain-fed agriculture</li> <li>• Gender inequalities</li> <li>• Ageing communities (small holder farmers)</li> <li>• Low interest in agriculture by youth</li> <li>• Negative impact of climate change and religious and cultural barriers</li> </ul> |

### 2.3 Stakeholder Analysis

A stakeholder analysis is a process of identifying an organisation's key partners or collaborators and their interests, assessing their influence or how the organisation impacts them to formulate strategies for managing relationships with them.

Some of the DAT stakeholders include government departments and institutions, research bodies, Agtechs and Agripreneurs. Each stakeholder group holds specific roles and possesses varying levels of influence.

Level of influence refers to a stakeholder's ability to resist recommendations or changes while level of interest indicates the stakeholder's likely concerns or curiosity about the project's outcomes. The table below outlines their key roles and level of influence.

Table 2-2: Stakeholder Analysis

| Key Stakeholder     | Role                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Level of Influence | Level of Interest |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-------------------|
| World Bank          | Policy & Governance<br>Technical assistance to national and county teams in regards to digital solutions                                                                                                                                                                                                                                                                                                                                                                         | High               | High              |
| National Government | Policy & Governance /Enabling Environment<br>Resource Mobilization & Coordination<br>Ensure digital inclusion; reporting; Capacity building of the county and community levels (including integrating the trainings through the other thematic leads); Assess and track the performance of the agtechs and agripreneurs in collaboration with the counties and KALRO                                                                                                             | High               | High              |
| County Government   | Policy, Governance and Coordination<br>Data Analysis and Reporting<br><br>Facilitate trainings offered through agtechs and agripreneurs targeting the “profiled county technical departments staff and county leadership where applicable; Budget for and align with agtechs on agreed workplans; Participate in the selection, incubation and mentorship of the agripreneurs; Promote best practices; Assess and track the performance of the agtechs and agripreneurs”, CPCUs, | High               | High              |
| KALRO               | Data Custodian and Analysis<br>Collecting & dissemination of Market information<br>E-services Provider to agtechs, agripreneurs and counties<br>Capacity building to all stakeholders                                                                                                                                                                                                                                                                                            | High               | High              |
| Agripreneurs        | Training and sensitization of farmer groups on available technologies<br>Demand generation for both inputs and output<br>Information sharing with KALRO/Agtechs                                                                                                                                                                                                                                                                                                                  | High               | High              |

| Key Stakeholder          | Role                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Level of Influence | Level of Interest |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-------------------|
| Agtechs                  | <p>Provide solutions connecting farmers, promoting traceability, access to quality inputs and market linkage</p> <p>Improving aggregation at the FPO level</p> <p>Capacity Building</p> <p>Data Analysis and Reporting</p> <p>Offer unique/innovative solutions to project farmers;</p> <p>Support the counties in meeting their digital needs, financial inclusion, market linkages, extensions services or access to quality input products; Work with KALRO to disseminate TIMPs, data products and services, as well as validate their products. Report and share data as per the provided templates and MoUs respectively</p> | High               | High              |
| Agro-processors          | Provision of value addition services                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Medium             | High              |
| Business Accelerators    | Provides support to NDAL, CPCU, agtechs, agripreneurs and KALRO to grow and scale DAT: support on data and digital management of agripreneurs - counties - KALRO; and the development (incubation and mentorship) of the agripreneur model transitioning them agri-business model                                                                                                                                                                                                                                                                                                                                                  | Medium             | High              |
| Farmer and Farmer Groups | <p>Active participation with the agripreneurs and other SPs to explore and discover better ways of farming and commercialization techniques;</p> <p>Be willing to receive at least one digital service and adopt (demonstrate continuity);</p> <p>Active participation with the agripreneurs and other SPs to explore and discover better ways of farming and commercialization techniques;</p>                                                                                                                                                                                                                                    | Medium             | High              |

| Key Stakeholder                     | Role                                                                                                                                                                                             | Level of Influence | Level of Interest |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-------------------|
|                                     | Demand for appropriate TIMPs that can graduate them towards commercialization; Attend training and fora that have been initiated by the lead farmers/ community-based facilitators, and agtechs. |                    |                   |
| Financial Institutions              | Provision of affordable finance and insurance for input and output market (fertilisers, logistics, value addition)                                                                               | Medium             | High              |
| KNBS                                | Data Collection<br>Data Analysis and Reporting                                                                                                                                                   | Medium             | High              |
| Research Institutions (NARS, CGIAR) | Generate<br>TIMPs<br>Serve as incubation centres for innovation                                                                                                                                  | High               | High              |



## CHAPTER 3: STRATEGIC FRAMEWORK

### 3.1 DAT ECOSYSTEM

DAT has holistic and forward-looking strategies to mainstream operations. It will utilize available opportunities and maximize internal synergies to improve competitiveness. For the success of the project, we are adopting an ecosystem framework/model.

For this to happen we must ensure connectivity across the board. The Government and Developing Partners need to create an enabling environment in terms of regulations and policies; Finance and insurance needs to be affordable for the farmer; Quality inputs and advisory need to be in place to ensure high productivity and finally access to market and value addition services made available. With all these in place, the risk index of individual farmers will be significantly reduced.

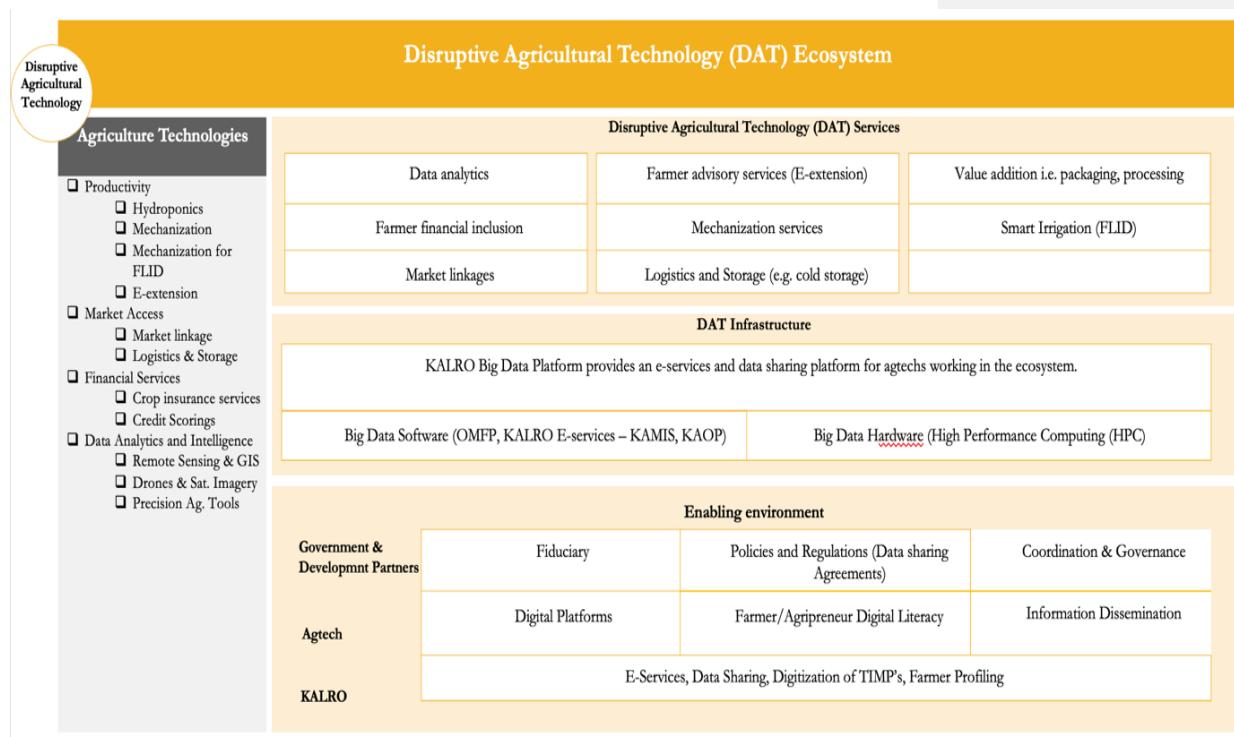


Figure 3-1: Disruptive Agricultural Technology (DAT) Ecosystem

### 3.2 Theme 1: Advisory and Information for Agricultural Productivity

Agtechs will promote Climate Smart Agriculture (CSA) TIMPs through precision agriculture advisories via SMS/IVR or short videos, access to good quality inputs, traceability, mechanisation, tech-based irrigation, advisory services, digital hubs and peer-to-peer learning through agripreneur/community-based facilitators/lead farmers.

Table 3-1: Advisory and Information for Agricultural Productivity Strategic Objectives

| <b>Strategic Outcomes: Increased agricultural productivity</b> |                                                                                                                                                                                                                 |
|----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Strategic Objectives</b>                                    | <b>Strategies</b>                                                                                                                                                                                               |
| To increase access to farm inputs and services                 | <ul style="list-style-type: none"> <li>Developing/ strengthening agro-dealer and agripreneur networks through the digital platforms</li> <li>Linking farmers to digital input providers and services</li> </ul> |
| To enhance agricultural extension and advisory services        | <ul style="list-style-type: none"> <li>Dissemination of TIMPs to farmers through the digital platform</li> </ul>                                                                                                |

### 3.3 Theme 2: Financial Inclusion

This theme focuses on Agtechs that link farmers to credit and savings products, ag-based insurance, and other innovative financial services, enabling them to invest in their farms. Agtechs in finance provide digital financial services such as digital payments, savings, smallholder input credit/loans, e-subsidies, and ag-insurance. There is opportunity to digitally track transactions and farm-specific information which can assist the credit scoring process undertaken by financial institutions and potentially lead to increased access to finance (enhance smallholder credit worthiness).

Table 3-3: Financial Inclusion Strategic Objectives

| <b>Strategic outcomes: Increased Access to Financial services for agricultural production</b>                                                                 |                                                                                                                                                                                                                                                                                                                                                                                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Strategic Objectives</b>                                                                                                                                   | <b>Strategies</b>                                                                                                                                                                                                                                                                                                                                                                  |
| To enhance access to financial and de-risking services for improved agricultural production (included services such as automation, adoption new of TIMPs to ) | <ul style="list-style-type: none"> <li>Promoting digital-driven financial and de-risking services for improved agricultural production</li> <li>Promoting livestock and crop insurance awareness to accelerate the uptake of agri-insurance products and services.</li> <li>Strengthening of farmer institutions to encourage uptake of financial products and services</li> </ul> |

**Strategic outcomes: Increased Access to Financial services for agricultural production**

| Strategic Objectives                                                                                                     | Strategies                                                                                                                                                                                                                                           |
|--------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                          | <ul style="list-style-type: none"> <li>Enhance farmer digital literacy programs to help improve their understanding of financial products and services</li> <li>Provide accessible and affordable credit facilities</li> </ul>                       |
| To build capacity of FPOs and SACCOs in credit risk management for de-risking agriculture lending to smallholder farmers | <ul style="list-style-type: none"> <li>Support the establishment and operationalization of robust credit risk management system</li> <li>Developing the capacity of SACCOs, FPOs officials on effective management of agricultural SACCOs</li> </ul> |

**3.3 Theme 3: Market Access**

Market access from a digital agriculture perspective involves leveraging digital technologies to connect farmers with markets, buyers, and consumers and to provide them with the information and tools they need to make better decisions and achieve profitability.

Table 3-4: Market Access Strategic Objectives

| Strategic Outcome: Enhanced farmers and FPOs access to remunerative produce markets |                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Strategic Objectives                                                                | Strategies                                                                                                                                                                                                                                                                                                                                                                                 |
| To link farmers and FPOs to profitable output markets                               | <ul style="list-style-type: none"> <li>Promotion and enabling ease of access to quality inputs for farmers</li> <li>Facilitation of contract farming arrangements between producers and buyers</li> <li>Strengthening of digital marketplaces (digital solutions) and sensitising farmers on their use</li> <li>Building the capacity of VC actors on value-addition activities</li> </ul> |

|                                                 |                                                                                                                                                                                                                                                                                                           |
|-------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                 | <ul style="list-style-type: none"> <li>• Development of supply chain tracking and traceability system</li> </ul>                                                                                                                                                                                          |
| To increase access to timely market information | <ul style="list-style-type: none"> <li>• Strengthening the existing agricultural market information system</li> <li>• Targeting dissemination of market information through digital platforms for informed decision making</li> <li>• Linking farmers to buyers in markets where demand exists</li> </ul> |

### 3.4 Theme 4: Data Analytics and Agricultural Intelligence

Data can be used to design new products, improve existing product offerings or offered as a product itself, enabling organisations to compete in a digital economy. Whereas data provides the information, analytics provides the insights that lead to informed decision-making. Using data and analytics as the thread that carries digital transformation throughout the process allowing for the management of roadblocks to successful data initiatives. These roadblocks include data silos, data quality issues, complexities with legacy systems and meeting customer expectations among others. For successful digitalization, there needs to be in place a defined data strategy, management plan and change management plan to support digital transformation in organisations.

Table 3-5: Data Analytics and Agricultural Intelligence Strategic Objectives

| Strategic Outcome: Enhanced Access to Data and Digital Services for informed decision-making |                                                                                                                                                                                                                                                     |
|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Strategic Objectives                                                                         | Strategies                                                                                                                                                                                                                                          |
| Enhance operational efficiency                                                               | <ul style="list-style-type: none"> <li>• Strengthening the data sharing structure amongst agtechs</li> <li>• Ease of operationalization: Data shared with farmers needs to be easy to interpret and use</li> </ul>                                  |
| Enhance adoption of innovations                                                              | <ul style="list-style-type: none"> <li>• Continuous improvement of technology (agtechs) based on data collected</li> <li>• Targeting dissemination of analytics received from data collected from the field for informed decision-making</li> </ul> |

## CHAPTER 4: COORDINATION AND IMPLEMENTATION

### 4.1 Role of 'DAT Coordinating Unit'

Coordination at national and county levels ensures that planned activities are implemented to achieve the set strategic objectives; align, realign and be responsive to the implementation plan, targets and results.

When carrying out this function at the management level, the following performance measures will be considered in an elaborate M&E system:

- Performance results and targets
- Performance measurements or indicators
- Performance evaluation

In this strategy, the performance measures for each DAT thematic area are presented in an implementation matrix (presented in chapter 4) from which specific action plans will be drawn to inform key activities for implementation and tracking of projected results from the implemented activities according to specified indicators.

Achievement of these performance measures will largely depend on how effectively the potential risks are mitigated; key risks that are likely to influence the implementation of this strategy (as summarized in the Risk Mitigation Plan in section 4.3 below).

### 4.2 Monitoring, Evaluation and Learning

Implementing this DAT Strategy will be underpinned by a robust participatory monitoring and evaluation and Learning (PM&EL) system. The PM&L processes will be operated on a web-based, integrated project management information system (PMIS) as detailed in the NAVCDP Monitoring, Evaluation and Learning Manual. The PMIS will provide timely reports on DAT financials, key activities, and performance across Data and Digital thematic areas. Specific responsibilities for PM&E will be clearly assigned to the on boarded Agtechs, Agripreneurs, the CDALs, NDAL and KALRO. The reporting will be designed to estimate the net effect of DAT innovations on market participation and value. To streamline performance reporting from the start, the PM&E team will jointly agree with the NDAL and CDALs on standard reporting format, submission timelines and reporting protocol to adhere to. Detailed DAT thematic outputs and intermediate outcomes with annual targets for periodic tracking, are summarised in an implementation matrix presented in Chapter 4. Consistently updated PMIS will enhance monitoring efficiency, simplify reporting and avail the needed information on the performance of Agtechs and Agripreneurs for effective decision-making during project implementation.

A performance evaluation study will be undertaken at the end of the project to determine the contribution of Data and Digital investments to the achievement of the PDO.

### ***Implementation matrix (Annex)***

#### **4.3 Key Performance Indicators**

High-level key performance indicators (KPIs) will be monitored and evaluated to determine the achievement of intermediate outcomes through DAT interventions. The following four KPIs will be tracked in the PMIS during the implementation period of this strategy.

*Table 4-1: Key Performance Indicators*

| <b>Key Performance Indicator</b>                                                                                                                     | <b>End target</b> |
|------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| 1. No. of farmers on-boarded, of which at least 50% women are using DAT innovations from Agtechs (disaggregated by gender, IP/VMG, VC)               | 4,000,000         |
| 2. No. of county staff and lead farmers trained on DAT innovations (disaggregated by gender)                                                         | 10,000            |
| 3. No. of youth agripreneurs fully developed and paired to support county teams to promote DAT innovations (disaggregated by gender)                 | 2,000             |
| 4. % of targeted farmers reached with e-services through the Big Data Platform (disaggregated by agro-weather advisories, TIMPs, market information) | 70                |

#### **4.4 Risk Management plan**

Managing risks in a project includes risk assessment and having a mitigation strategy. Risk assessment consists of both identification of potential risks and their evaluation, followed by the mitigation or interventions detailing the required resources to minimize, monitor and regulate the impact of the events. When identifying risks, they can be categorised broadly into technical, financial, time, environmental, human resource and contractual and this can be used to develop a risk breakdown structure. Potential risks that are likely to affect the successful implementation of this strategy and suggested mitigation mechanisms are summarised in Table 4-2.

Table 4-2: Overall Risks and Mitigation Strategies

| Risk                                                                                                                                   | Rating | Mitigation                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------------------------------------------------------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Payment defaults by farmers due to negative perception on insurance and lending                                                        | High   | Capacity building of farmers on financial literacy and importance of credit score management                                                                                                          |
| Negative perception of farmers during collection of farmer-level management data coupled with reluctance to embrace digital technology | Medium | Sensitization and training of farmers on safe technology practices e.g. two step verification to avoid Mobile app fraud, SIM swap,                                                                    |
| Supply of substandard inputs through digital platforms                                                                                 | Low    | Entrust accredited input suppliers with inbuilt traceability mechanisms                                                                                                                               |
| Restrictive or inadequate policies and regulations                                                                                     | High   | Support development of accommodative data sharing agreements (DSA) and Non-Disclosure Agreements (NDAs)                                                                                               |
| Data loss from cyber attacks                                                                                                           | Medium | Conduct regular data backups both onsite and offsite, Implement data encryption, Use anti-malware software, Sensitize and train users on cyber security measures                                      |
| Depressing effects of climate change on agricultural production                                                                        | High   | Allocate resources to boost farmers' resilience and mitigation of GHG emissions<br>Promote climate smart TIMPs and precision agriculture through digital platforms                                    |
| Turnover of Agripreneurs                                                                                                               | Medium | Develop an effective selection criterion<br>Create multiple income streams for Agripreneurs to earn better income<br>Directly deploy digital solutions to the farmers through USSD, IVRs, mobile apps |

#### **4.5 Cross Cutting Issues – Gender Mainstreaming and Social Inclusion, Communication and Grievance Management (GM)**

Gender concerns will be integrated in Data and Digital planning, implementation, participation, and monitoring and evaluation and learning since gender mainstreaming and social inclusion are vital in achieving the PDO objectives. The NAVCDP, VMGMF provides guidelines for social inclusion and gender mainstreaming. All DAT stakeholders will be accountable to gender mainstreaming and social inclusion by ensuring the collection and reporting of gender-disaggregated data.

NAVCDP will integrate gender and social inclusion issues during the community mobilization and planning stage processes in order to; - identify the different categories of farmers (men, women, youth, VMGs) within the wards, establish the socio-economic status, constraints, needs and priorities for men, women, youth, and VMGs.

Any grievance/conflict resulting from NAVCDP supported data and digital activities, awareness will be reported and resolved through the existing and functional grievance management channels to include escalation mechanism at all levels of implementation. Special channel for handling Gender Based Violence (GBV) and sexual exploitation and abuse/ Sexual Harassment issues as stipulated in the NAVCDP SEAH plan will be integrated within the DAT ecosystems.

The Communication within and out of the DAT ecosystem will align to the project's communication and knowledge management pathways as outlined in the NAVCDP communication manual. The flow of information from the national level to grassroots will be carried out in many ways ranging from workshops, seminars, letters, internal memos, and appraisal while communication from grass root implementers to the national level will mainly be done through reports, letters may also be used depending on the subject being communicated. The strategic knowledge management and communication approaches to be used in NAVCDP will include interpersonal communication (workshops, meetings, roadshows, conferences, farm visits etc.,), mass media, social and digital media/ ICT/Internet.

The Project will undertake targeted trainings for the DAT ecosystem teams on gender mainstreaming and social inclusion, grievances management and communication.

#### **4.6 Review of the Strategy**

##### **Strategy 2023-2028**

###### **Midterm review**

Various institutions at National and county levels will undertake the implementation of this Strategy. In the pursuit of effectiveness and efficiency during execution, the most critical step will be monitoring the key players' performance and coordination. To realize the objectives of this strategy, there will be improved sector coordination and collaboration between various players within the ecosystem.



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 NAVCDP

## 6. ANNEXES

### Annex 1: Strategy Implementation Matrix

| WORKSTREAM I: ENHANCING PRODUCTIVITY                                   |                                                                                   |                                                     |                                |                    |                    |                                                                                         |    |    |    |    |        |                |  |  |  |  |  |  |  |
|------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------|--------------------------------|--------------------|--------------------|-----------------------------------------------------------------------------------------|----|----|----|----|--------|----------------|--|--|--|--|--|--|--|
| Strategy                                                               | Activities                                                                        | Output                                              | Output Indicator               | Reporting Schedule | Target for 5 years | Target                                                                                  |    |    |    |    | Budget | Resp.          |  |  |  |  |  |  |  |
|                                                                        |                                                                                   |                                                     |                                |                    |                    | Y1                                                                                      | Y2 | Y3 | Y4 | Y5 |        |                |  |  |  |  |  |  |  |
| Strategic Outcome (s): Increased agricultural productivity             |                                                                                   |                                                     |                                |                    |                    | Outcome Indicators: 1. % of farmers who have adopted promoted DAT innovations (by type) |    |    |    |    |        |                |  |  |  |  |  |  |  |
|                                                                        |                                                                                   |                                                     |                                |                    |                    | 2. % yield increase in supported value chains                                           |    |    |    |    |        |                |  |  |  |  |  |  |  |
|                                                                        |                                                                                   |                                                     |                                |                    |                    | 3. % increase of farmers selling value added agricultural commodities                   |    |    |    |    |        |                |  |  |  |  |  |  |  |
| Strategic Objective I: To increase access to farm inputs and services. |                                                                                   |                                                     |                                |                    |                    |                                                                                         |    |    |    |    |        |                |  |  |  |  |  |  |  |
| / Strengthening agripreneur network through the digital platforms      | Support counties and agtechs to recruit agripreneurs to support wards saturation. | Value chain neutral Agripreneurs recruited          | Number recruited               | One-time           | 2000               | 2000                                                                                    |    |    |    |    |        | CPCU, Agtechs, |  |  |  |  |  |  |  |
|                                                                        | Support agtechs to review the agripreneur framework.                              | National Agripreneur Framework established          | Agripreneur Framework in place | Annually           | I                  | I                                                                                       |    |    |    |    |        | NPCU           |  |  |  |  |  |  |  |
|                                                                        |                                                                                   | A national digital agro-dealer platform operational |                                |                    |                    |                                                                                         |    |    |    |    |        | Agro Dealers   |  |  |  |  |  |  |  |

|                                                         |                                                                                       |                                                      |                                                                           |         |           |           |           |           |           |           |  |                                  |
|---------------------------------------------------------|---------------------------------------------------------------------------------------|------------------------------------------------------|---------------------------------------------------------------------------|---------|-----------|-----------|-----------|-----------|-----------|-----------|--|----------------------------------|
| Linking farmers to digital input providers and services | Linking farmers to soil testing, soil nutrition and management services               | Information on the nutrients required by the farmer. | Number of farmers linked to soil testing and management services          | Monthly | 4,000,000 | 1,000,000 | 1,600,000 | 2,600,000 | 3,600,000 | 4,000,000 |  | CPCU, Agtechs, Service providers |
|                                                         | Access to mechanization and precision farming                                         | Reduction timelines for production                   | Number of farmers accessing mechanization services                        | Monthly | 1,400,000 | 500,000   | 700,000   | 900,000   | 1,200,000 | 1,400,000 |  | Agtechs, Service providers       |
|                                                         | Improved access to water harvesting technologies and smart irrigation systems         | Availability of water                                | Number of farmers using smart irrigation systems                          | Monthly | 1,400,000 | 500,000   | 700,000   | 900,000   | 1,200,000 | 1,400,000 |  | CPCU, Agtechs, Service providers |
|                                                         | Support farmer groups to access production technology, aggregation and value addition | Actionable agricultural information                  | Number of farmers accessing agricultural information and related services | Monthly | 4,000,000 | 1,000,000 | 1,600,000 | 2,600,000 | 3,600,000 | 4,000,000 |  | Agtechs, Service providers       |
|                                                         | Access to quality veterinary and artificial insemination services                     | Reduced animal mortality                             | Number of animals served.                                                 | Monthly | 600,000   | 200,000   | 300,000   | 400,00    | 500,000   | 600,000   |  | Agtechs, Service providers       |
|                                                         | Enhancing access to aquaculture technology                                            | Availability of fingerlings and sensors.             | Number of fish farmers accessing                                          |         | 600,000   | 200,000   | 300,000   | 400,00    | 500,000   | 600,000   |  |                                  |

|  |                                                                                                      |                                                                       |                                                      |         |           |           |           |           |           |           |  |  |                                  |
|--|------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|------------------------------------------------------|---------|-----------|-----------|-----------|-----------|-----------|-----------|--|--|----------------------------------|
|  | services on fingerlings, sensors and management                                                      |                                                                       | aquaculture technology services.                     |         |           |           |           |           |           |           |  |  |                                  |
|  | Providing access to feed advisory services and linking to feed suppliers                             | Timely production information                                         | Number of farmers accessing feed advisory services   | Monthly | 4,000,000 | 1,000,000 | 1,600,000 | 2,600,000 | 3,600,000 | 4,000,000 |  |  | CTAC, Agtechs, Service providers |
|  | Scaling data sharing through an ecosystem platform among farmers, lead farmers and service providers | Timely production information available                               | Number of farmers, lead farmers and SPs sharing data | Monthly | 4,000,000 | 1,000,000 | 1,600,000 | 2,600,000 | 3,600,000 | 4,000,000 |  |  | CTAC, Agtechs, Service providers |
|  | Support an e-forum for frontline extension service providers interface with agripreneurs.            | An e-extension forum for extension service providers operationalized. | One big data platform.                               | One-off |           |           |           |           |           |           |  |  | CPCU, Agtechs, Service providers |

| WORKSTREAM 2: FINANCIAL INCLUSION                                                                                  |                                                  |                                               |                                                             |                                                                   |                    |        |             |             |       |       |                            |       |  |  |  |  |
|--------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|-----------------------------------------------|-------------------------------------------------------------|-------------------------------------------------------------------|--------------------|--------|-------------|-------------|-------|-------|----------------------------|-------|--|--|--|--|
| Strategy                                                                                                           | Activities                                       | Output                                        | Output Indicator                                            | Reporting Schedule                                                | Target for 5 years | Target |             |             |       |       | Budget                     | Resp. |  |  |  |  |
|                                                                                                                    |                                                  |                                               |                                                             |                                                                   |                    | Y1     | Y2          | Y3          | Y4    | Y5    |                            |       |  |  |  |  |
| Strategic Outcome (s) 1. Increased agricultural productivity through enhanced finance inclusion                    |                                                  |                                               |                                                             | Outcome Indicators: 1. Amount of credit accessed by farmers (KES) |                    |        |             |             |       |       |                            |       |  |  |  |  |
|                                                                                                                    |                                                  |                                               |                                                             | 2. Total sum insured by farmers against production risks (KES)    |                    |        |             |             |       |       |                            |       |  |  |  |  |
|                                                                                                                    |                                                  |                                               |                                                             | 3. No. of farmers receiving compensation/claims on their phones   |                    |        |             |             |       |       |                            |       |  |  |  |  |
| Strategic Objective 1: To enhance access to financial and de-risking services for improved agricultural production |                                                  |                                               |                                                             |                                                                   |                    |        |             |             |       |       |                            |       |  |  |  |  |
| Promoting digital driven financial and de-risking services for improved agricultural production                    | Onboard additional Agri-Fintech on need basis    | Additional Agtechs on boarded                 | Number of additional Agtechs on boarded                     | Annually                                                          | 5                  | 1      | 2           | 3           | 4     | 5     |                            |       |  |  |  |  |
|                                                                                                                    | Match make agtechs and counties                  | Suitable Agtechs contracted to serve counties | Number of Agtechs engaged by the counties                   | Annually                                                          | 5                  | 3      | 4           | 5           | 5     | 5     | WB, NCPU, CPCU and Agtechs |       |  |  |  |  |
|                                                                                                                    | Link Agtechs to FPOs, SACCOs and CIGs            | Agtechs linked to Financial Institutions      | Number of institutions linked to Agtechs                    | Quarterly                                                         | 330                | 60     | 120         | 180         | 240   | 300   | CPCU and Agtech            |       |  |  |  |  |
|                                                                                                                    | Develop agripreneurs to provide bundled services | agripreneurs recruited                        | Number of Agripreneurs onboarded providing bundled services | Annually                                                          | 660                | 132    | 264         | 396         | 528   | 660   | CPCU, Agtech and BA        |       |  |  |  |  |
|                                                                                                                    | Update Farmers Level Management Data             | Increased credit worthiness                   | Amount of credit limit increased (KES)                      | Monthly                                                           | #####              | #####  | 396,000,000 | 792,000,000 | ##### | ##### | Agtech                     |       |  |  |  |  |

|                                                                                                                 |                                                                                                 |                                                                                |                                                                  |           |            |            |            |            |            |            |       |        |
|-----------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|------------------------------------------------------------------|-----------|------------|------------|------------|------------|------------|------------|-------|--------|
|                                                                                                                 | (FLMD)/ Non-transactional information                                                           | Updated farmer credit profile                                                  | Number of farmers' credit profile updated                        | Monthly   | 66,000     | 13,200     | 26,400     | 39,600     | 52,800     | 66,000     |       | Agtech |
|                                                                                                                 | Leverage automated weather stations and mobile payments to reduce administrative costs          | Reduced cost of premiums. Simple, affordable and relevant Ag insurance offered | Number of insured farmers                                        | Monthly   | 50,000     | 10,000     | 20,000     | 30,000     | 40,000     | 50,000     |       | Agtech |
|                                                                                                                 |                                                                                                 |                                                                                | Total sum insured by farmers against production risks (KES)      | Annually  | 50,000,000 | 10,000,000 | 20,000,000 | 30,000,000 | 40,000,000 | 50,000,000 |       | Agtech |
|                                                                                                                 | Bundle insurance with input providers/Agtechs                                                   | Inputs on credit bundled with insurance                                        | Number of farmers who purchased inputs bundled with insurance    | Quarterly | 50,000     | 10,000     | 20,000     | 35,000     | 50,000     |            |       | Agtech |
|                                                                                                                 | Link farmers to Agtechs offering/Supporting FLID/Data Analytics                                 | Linkages between Agri Fintech established                                      | Number of farmers successful linked                              | Quarterly | 100,000    | 10,000     | 25,000     | 50,000     | 75,000     | 100,000    |       |        |
| Enhance farmer digital literacy programs to help improve their understanding of financial products and services | Relay continuous information to farmers on their qualifying credit limits via SMS/IVRs/Chatbots | Enhanced literacy level of farmers and increased uptake                        | Number of farmers reached through digital communication platform | Monthly   | 990,000    | 198,000    | 396,000    | 594,000    | 792,000    | 990,000    | ##### |        |
|                                                                                                                 | Establish a 24/7 customer care centre or call centre                                            | Timely hand holding of farmers                                                 | Number of farmers reached                                        | Annually  | 18,000     | 3,600      | 7,200      | 10,800     | 14,400     | 18,000     |       |        |
| Strengthening of farmer institutions to encourage uptake of financial                                           | Link farmer institutions to commercial banks                                                    | Increased onward lending to the farmers                                        | Number of SACCOs/FPOs linked to commercial banks                 | Quarterly | 330        | 60         | 120        | 180        | 240        | 300        |       | County |

|                                                                                                                                                                                                            |                                                                                               |                                                 |                                                               |           |                                                                                    |        |         |         |         |         |    |                  |               |
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| <b>products and services</b>                                                                                                                                                                               | Train lead farmers, SACCOs and FPOs officials, and County Staff on digital financial products | Trained/Informed beneficiaries                  | Number of lead farmers, SACCO and FPO officials, CTDs trained | Monthly   | 5,000                                                                              | 1,000  | 2,000   | 3,000   | 4,000   | 5,000   |    | CPCU and Agtechs |               |
|                                                                                                                                                                                                            | Mobilize smallholder farmers to access digital financial innovations                          | Farmers mobilised                               | Number of farmers mobilised                                   | Monthly   | 300,000                                                                            | 60,000 | 120,000 | 180,000 | 240,000 | 300,000 |    | CPCU and Agtechs |               |
|                                                                                                                                                                                                            | Monitor the uptake of digital financial innovations                                           | Uptake of digital financial innovations tracked | Number of monitoring reports submitted                        | Quarterly |  | 20     | 4       | 8       | 12      | 16      | 20 |                  | CDAL, Agtechs |
| <b>Footnotes</b>                                                                                                                                                                                           |                                                                                               |                                                 |                                                               |           |                                                                                    |        |         |         |         |         |    |                  |               |
| Activity 1.3 -Targeting 10 financial institutions linked to agtechs per county. The target for 5 years in 33 counties is 330 financial institution                                                         |                                                                                               |                                                 |                                                               |           |                                                                                    |        |         |         |         |         |    |                  |               |
| Activity 1.4-We are targeting to engage 20 agripreneurs to work with Agri-Fintech in 33 counties, therefore the total number of agripreneurs =660                                                          |                                                                                               |                                                 |                                                               |           |                                                                                    |        |         |         |         |         |    |                  |               |
| Activity 1.5- 5% increase of 10m target LOANS issued to farmers per county after updating of farmers profile which translates to KES 500,000 per month. The 5 yr target is KES 900 million for 33 counties |                                                                                               |                                                 |                                                               |           |                                                                                    |        |         |         |         |         |    |                  |               |
| Activity 1.7-For every season, we can target 5000 farmers so in a year we have 10,000 insured farmers per county. That is how I arrived at 50,000 farmers per county.                                      |                                                                                               |                                                 |                                                               |           |                                                                                    |        |         |         |         |         |    |                  |               |
| Activity 2.1- Target is 6000 farmers to be notified in a year per county. The 5 year target in 33 counties is 990,000 farmers .                                                                            |                                                                                               |                                                 |                                                               |           |                                                                                    |        |         |         |         |         |    |                  |               |
| Activity 2.2-We estimate to resolve 50 queries per month. In 5 years we target to resolve 18000 queries                                                                                                    |                                                                                               |                                                 |                                                               |           |                                                                                    |        |         |         |         |         |    |                  |               |
| Activity 3.1- We target to link 330 financial institutions into per county in 5 years (10 per county).                                                                                                     |                                                                                               |                                                 |                                                               |           |                                                                                    |        |         |         |         |         |    |                  |               |

| WORKSTREAM 3: MARKET ACCESS                                                                         |                                                                                                   |                                                                  |                                                                    |                                                                                  |                    |           |           |           |           |           |                      |       |  |  |  |  |
|-----------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|------------------------------------------------------------------|--------------------------------------------------------------------|----------------------------------------------------------------------------------|--------------------|-----------|-----------|-----------|-----------|-----------|----------------------|-------|--|--|--|--|
| Strategy                                                                                            | Activities                                                                                        | Output                                                           | Output Indicator                                                   | Reporting Schedule                                                               | Target for 5 years | Target    |           |           |           |           | Budget               | Resp. |  |  |  |  |
|                                                                                                     |                                                                                                   |                                                                  |                                                                    |                                                                                  |                    | Y1        | Y2        | Y3        | Y4        | Y5        |                      |       |  |  |  |  |
| Strategic Outcome (s) 1. Enhanced participation of farmers in marketing of agricultural commodities |                                                                                                   |                                                                  |                                                                    | Outcome Indicators: 1. No. of farmers accessing market information through KAMIS |                    |           |           |           |           |           |                      |       |  |  |  |  |
|                                                                                                     |                                                                                                   |                                                                  |                                                                    | 2. Volume of marketable surplus transacted through DAT platforms (Ton)           |                    |           |           |           |           |           |                      |       |  |  |  |  |
|                                                                                                     |                                                                                                   |                                                                  |                                                                    | 3. Value of the marketable surplus transacted (KES)                              |                    |           |           |           |           |           |                      |       |  |  |  |  |
| Strategic Objective 1: Link Farmers and FPOs to Profitable Output Markets                           |                                                                                                   |                                                                  |                                                                    |                                                                                  |                    |           |           |           |           |           |                      |       |  |  |  |  |
|                                                                                                     | Training farmers and connecting them to digital market advisory service providers                 | adoption of digital market platforms                             | Number of farmers trained and receiving on-going advisory services | monthly                                                                          | 2,400,000          | 100,000   | 500,000   | 1,000,000 | 1,500,000 | 2,400,000 | Agtechs/agripreneurs |       |  |  |  |  |
|                                                                                                     | Identify off-takers and to create a digital product catalogue for key products                    | digital catalogue created                                        | Number of products created in the catalogue                        | Monthly                                                                          | 24                 | 24        | 0         | 0         | 0         | 0         | Agtechs              |       |  |  |  |  |
|                                                                                                     | Facilitate the matchmaking process between the producers and off takers through digital platforms | Producers and offtakers facilitated in interacting with platform | Volume of sales transacted through the platform (MT)               | Quarterly                                                                        | 100,000            | 10,000    | 30,000    | 50,000    | 75,000    | 100,000   | agripreneurs/Agtechs |       |  |  |  |  |
|                                                                                                     | Strengthen the platforms to meet market informational needs                                       | Enhance marketing platform                                       | Number of farmers accessing digital information                    | Monthly                                                                          | 4,000,000          | 1,000,000 | 1,500,000 | 2,500,000 | 3,500,000 | 4,000,000 | agripreneurs         |       |  |  |  |  |

|  |                                                                                                                                       |                                                       |                                                    |         |           |         |         |           |           |     |  |                      |
|--|---------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|----------------------------------------------------|---------|-----------|---------|---------|-----------|-----------|-----|--|----------------------|
|  | Training of county staff on digital solutions and reporting                                                                           | County staff trained on digital solutions & reporting | Number of County staff trained                     | Monthly | 462       | 70      | 140     | 210       | 42        | 0   |  | Agtechs              |
|  | Train agripreneurs on the use of digital solutions                                                                                    | Agripreneurs trained on digital solutions             | Number of agripreneurs trained on digital solution | Monthly | 2640      | 500     | 500     | 500       | 500       | 756 |  | agripreneurs         |
|  | Farmers trained by Agripreneurs on digital solutions                                                                                  | increased access to digital solutions                 | Number of farmers accessing the digital solutions  | Monthly | 1,600,000 | 400,000 | 400,000 | 400,000   | 400,000   |     |  |                      |
|  | Training farmers on value addition methods per value chain by value chain actors through digital approach coordinated by agripreneurs | Farmers trained on value addition                     | No of farmers trained on value addition            | Monthly | 1,600,000 | 400,000 | 800,000 | 1,200,000 | 1,600,000 | 0   |  | Agtechs/agripreneurs |
|  | Connect farmers to agro processors through agripreneurs                                                                               | Farmers connected to agro processors                  | No of farmers linked to agro-processors            | Monthly | 1,600,000 | 400,000 | 800,000 | 1,200,000 | 1,600,000 | 0   |  | Agtechs/agripreneurs |
|  | KALRO set and communicate standards for traceability to agtechs                                                                       | SoPs developed for AGTECH Activities on traceability  | Agtechs sharing data with KALRO                    | Monthly | 24        | 24      | 0       | 0         | 0         | 0   |  | KALRO                |

|                                                                               |                                                                    |                                                     |                                                                    |           |         |         |           |           |           |   |  |                      |  |
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|                                                                               |                                                                    |                                                     | Number of MOUs with Agtechs                                        |           |         |         |           |           |           |   |  |                      |  |
|                                                                               | Link transportation Agtech to the farmers                          | Farmers linked to logistic Agtechs                  | Number of farmers linked to transportation Agtech                  | 50,000    | 5,000   | 10,000  | 30,000    | 40,000    | 50,000    |   |  |                      |  |
|                                                                               | Train farmers and connect them to the value addition SPs           |                                                     | Number of farmers accessing value addition                         | 1,600,000 | 400,000 | 800,000 | 1,200,000 | 1,600,000 | 1,600,000 |   |  |                      |  |
| <b>Strategic Objective 2: To increase access to timely market information</b> |                                                                    |                                                     |                                                                    |           |         |         |           |           |           |   |  |                      |  |
|                                                                               | Upgrade the KAMIS platform for dissemination of market information | Real-time market information on platforms available | Number of agripreneurs and farmers accessing real-time information | Monthly   | 2000    | 500     | 500       | 500       | 500       | 0 |  | KALRO                |  |
|                                                                               |                                                                    |                                                     |                                                                    |           |         |         |           |           |           |   |  | AGRIPRENUERS/AGTECHS |  |

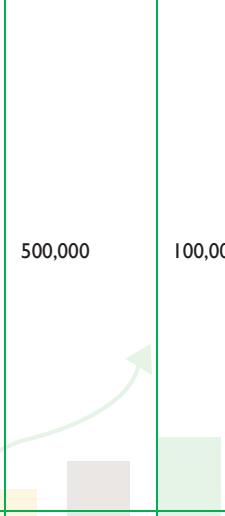
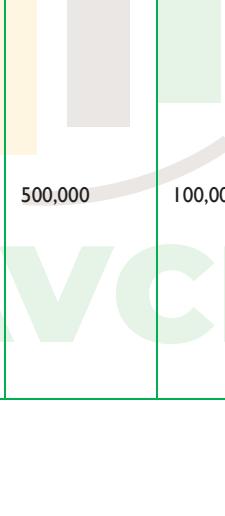
| WORKSTREAM 4: DATA ANALYTICS                                                                                        |                                                                                          |                                                      |                                               |                    |                    |         |           |           |           |           |        |          |
|---------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|------------------------------------------------------|-----------------------------------------------|--------------------|--------------------|---------|-----------|-----------|-----------|-----------|--------|----------|
| Strategy                                                                                                            | Activities                                                                               | Output                                               | Output Indicator                              | Reporting Schedule | Target for 5 years | Target  |           |           |           |           | Budget | Resp.    |
| <b>Strategic Outcome (s) : Improved access to actionable agricultural information for effective decision-making</b> |                                                                                          |                                                      |                                               |                    |                    |         |           |           |           |           |        |          |
| <b>Strategic Objective I: Strengthen Big Data Sharing Ecosystem</b>                                                 |                                                                                          |                                                      |                                               |                    |                    |         |           |           |           |           |        |          |
| <b>I.1 Strengthening the Big Data Platform to enhance agricultural e-services and complement e-extension</b>        | Conduct farmers registration                                                             |                                                      | Farmers register established                  | Continuous         | 4,000,000          | 350,000 | 2,500,000 | 3,500,000 | 4,000,000 | 4,000,000 |        | AgTechs  |
|                                                                                                                     | Undertake geo-mapping of farms                                                           | Geospatial Information                               | Number of geo-maps generated                  | Continuous         | 330,000            | 50,000  | 150,000   | 200,000   | 260,000   | 330,000   |        | AgTechs  |
| <b>I.2 Enhancing access and sharing of Data and Digital Services</b>                                                | Establish data sharing arrangement with KALRO                                            | Signed Data Sharing Agreement                        | Number of Data Sharing Agreements Signed      | Annually           | 5                  | 1       | 1         | 1         | 1         | 1         |        | Agtechs, |
|                                                                                                                     | Conduct Digital Literacy Training among Farmers (CIGs/ VMGs/FPOs) and other stakeholders | Farmers and Stakeholders trained on Digital Literacy | Number of farmers trained on Digital Literacy | Quarterly          | 2,000,000          | 200,000 | 450,000   | 900,000   | 1,350,000 | 2,000,000 | 200M   | Agtechs  |

|                                                                                                           |                                                                                                  |                                                                                      |                                                                                          |           |           |           |           |           |           |           |   |         |
|-----------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---|---------|
|                                                                                                           | Upscale data-driven digital agriculture platform that offers bundled services to farmers         | E-services and products accessed through the platform                                | Upgraded digital platform                                                                | Annually  | 1         | 1         | -         | -         | -         | -         | - | Agtechs |
|                                                                                                           | Sensitize farmers and farmer groups on availability of sharing and knowledge management platform | Farmers and other stakeholders sensitized on available e-services from the platform. | Number of farmers and other stakeholders sensitized on the availability of the platform. | Quarterly | 4,000,000 | 1,000,000 | 2,000,000 | 2,500,000 | 3,000,000 | 4,000,000 |   | Agtechs |
| <b>I.3 Developing the capacity of project implementers on data analytics and governance</b>               | Capacity development for all project implementers on data analytics and governance               | Capacity of Implementers developed                                                   | Number of implementers whose capacity have been developed                                | Annually  | 4000      | 2400      | 2800      | 3200      | 3600      | 4000      |   | Agtechs |
| Strategic Objective 2: To enhance uptake of data-driven solutions and analytics for improved productivity |                                                                                                  |                                                                                      |                                                                                          |           |           |           |           |           |           |           |   |         |

|                                                                           |                                                                                                                      |                                                                      |                                                                |           |           |         |           |           |           |           |         |
|---------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|----------------------------------------------------------------|-----------|-----------|---------|-----------|-----------|-----------|-----------|---------|
| Promoting wider access to data analytics services provided by DAT Agtechs | Link farmers with the Agtech service provider to access productivity services, market and credit services            | Farmers linked with Agtechs                                          | Number of farmers mobilized and linked to Agtechs              | Quarterly | 4,000,000 | 500,000 | 1,000,000 | 2,000,000 | 3,000,000 | 4,000,000 | Agtechs |
|                                                                           | Establish a functional interactive digital platform for all the agtechs to enable bundling of services               | Interactive digital platform established                             | Number of functional interactive digital platforms established | One-off   | -         | -       | -         | -         | -         | -         | Agtechs |
|                                                                           | Integrating digital Processes to drive business performance analytics in all FPOs and develop dynamic grading system | Digital processes integrated to drive business performance analytics | Number of digital processes integrated                         | Annually  | 5         | 1       | 1         | 1         | 1         | 1         | Agtechs |

|                                                                               |                                                                                                                                       |                                                                                                                                      |                                                                               |          |        |       |       |       |       |        |        |        |         |
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|                                                                               | Instituting a data content pass that enables farmers and FPOs access digital content without paying for internet charges              | MOU's with internet service providers for data content pass                                                                          | No. of internet service providers on boarded for the data content pass        | Annually | 5      | 1     | 1     | 1     | 1     | 1      | 1      | 1      | Agtechs |
| Promoting use of e-services and TIMPs to compliment agtechs digital solutions | Developing Partnerships with Private Sector on e-extension and e-services (digital advisory services and market information services) | Partnerships developed with private sector                                                                                           | Number of partnership developed                                               | Annually | 20     | 4     | 4     | 4     | 4     | 4      | 4      | 4      | Agtechs |
|                                                                               | Train County Staff, business accelerators, agripreneurs, lead farmers and other relevant stakeholders on e-services and e-extension   | County staff, business accelerators, agripreneurs, lead farmers and other relevant stakeholders trained on e-service and e-extension | Number of staff, business accelerators, agripreneurs and lead farmers trained | Annually | 10,000 | 2,000 | 4,000 | 6,000 | 8,000 | 10,000 | 12,000 | 14,000 | Agtechs |

|  |                                                                                              |                                                                                               |                                                                                       |           |           |         |         |           |           |           |       |         |
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|  | Equip lead farmers with digital extension capabilities                                       | Lead farmers equipped with digital capabilities                                               | Number of lead farmers equipped with digital capabilities                             | Annually  | 5,000     | 1,000   | 1,000   | 1,000     | 1,000     | 1,000     | 1,000 | Agtechs |
|  | Provide farmers and other stakeholders with access to digital technologies through e-service | Farmers and other stakeholders provided with access to digital technologies through e-service | Number of farmers and other stakeholders provided with access to digital technologies | Quarterly | 2,000,000 | 400,000 | 800,000 | 1,200,000 | 1,600,000 | 2,000,000 |       | Agtechs |
|  | Set-up a dashboard for tracking access to e-services and e-extension                         | Dashboard for tracking e-services set up.                                                     | Number of dashboards for monitoring e-service set up.                                 | One-off   | 1         | 1       | 1       | -         | -         | -         | -     |         |
|  |                                                                                              |                                                                                               |                                                                                       |           |           |         |         |           |           |           |       |         |

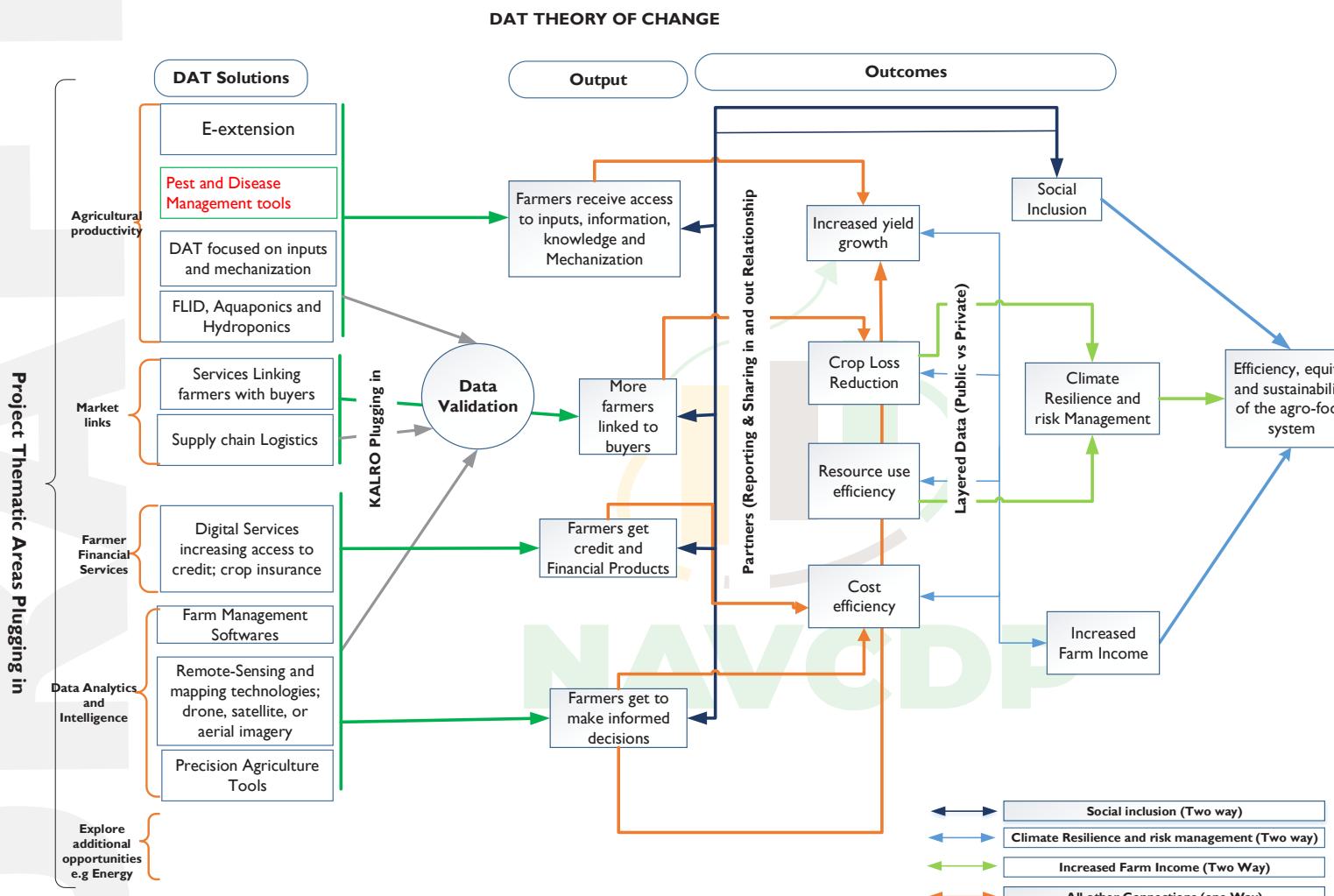
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| <b>Enhancing uptake of digital solutions for improved farm planning, crop health and productivity</b> | Provide real time soil testing and advisory services to farmers (CIGs/VMGs/FPOs) using hand held scanners, sensors and mobile technologies | Real time soil testing and advisory services provided to farmers     | Number of farmers provided with actionable soil analyses and advisory          | Annually |   | 500,000 | 100,000 | 200,000 | 300,000 | 400,000 | 500,000 | 500,000 | Agtechs |
|                                                                                                       | Provide precise and actionable crop health information and spraying services to farmers using drone technology                             | Farmers provided with precise and actionable crop health information | Number of farmers provided with precise and actionable crop health information | Annually |  | 500,000 | 100,000 | 200,000 | 300,000 | 400,000 | 500,000 | 500,000 | Agtechs |

|  |                                                                                                                                                                                   |                                                                                               |                                                                                                               |          |         |         |         |         |         |         |         |
|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|----------|---------|---------|---------|---------|---------|---------|---------|
|  | Train County Staff, lead farmers and Agripreneurs on Soil testing using hand held scanners, crop health detection, precision agriculture ,soil fertility , GIS and remote sensing | County staff , lead farmers and entrepreneurs trained                                         | Number of county staff , lead farmers and entrepreneurs trained                                               | Annually | 5,000   | 1,000   | 2,000   | 3,000   | 4,000   | 5,000   | Agtechs |
|  | Provide GIS, remote sensing and other geospatial services to farmers and relevant stakeholders to enable farming decision making                                                  | Farmers and relevant stakeholders accessing GIS, remote sensing and other geospatial services | Number of farmers and other relevant stakeholders accessing GIS, remote sensing and other geospatial services | Annually | 500,000 | 100,000 | 200,000 | 300,000 | 400,000 | 500,000 | Agtechs |

|  |                                                                                                                             |                                                                                                     |                                                                                                               |          |         |         |         |         |         |         |         |
|--|-----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|----------|---------|---------|---------|---------|---------|---------|---------|
|  | Provide laboratory, precision agriculture, soil fertility and fertilizer use advisory to farmers using the digital platform | Farmers provided with laboratory, precision agriculture, soil fertility and fertilizer use advisory | Number of farmers provided with laboratory, precision agriculture, soil fertility and fertilizer use advisory | Annually | 500,000 | 100,000 | 200,000 | 300,000 | 400,000 | 500,000 | Agtechs |
|--|-----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|----------|---------|---------|---------|---------|---------|---------|---------|

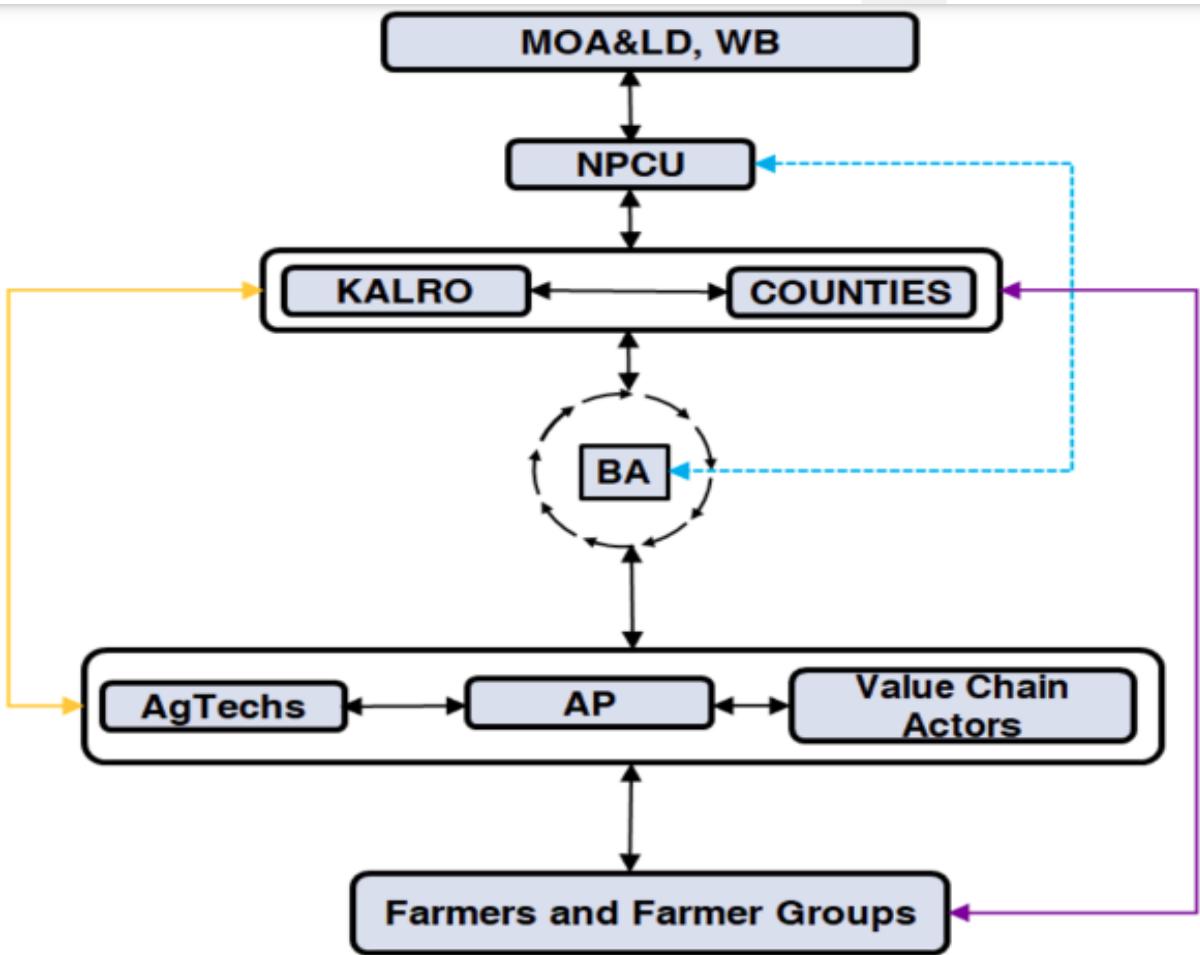


## Annex 2: Theory of Change



Adapted from Source (World Bank)  
 Note: DAT = Disruptive Agricultural Technology

### Annex 3: Organisation Structure with key players



## Annex 4: Digital Solutions Linkage to Project Components

### Component 1: Building Producer Capacity for Climate Resilient Stronger Value Chains

#### Sub-component 1.1: Farmer Capacity Building and E-Voucher support

- Digital extension services for training on climate smart TIMPs
- Mobile-based e-vouchers for accessing inputs
- Digital platforms for farmer mobilization and technical assistance
- Digital tools for climate-resilient production planning and management
- Data analytics and insights for climate smart agriculture

#### Sub-component 1.2: Farmer Producer Organization (FPO) level Climate Smart Value Chain Investments

- Digital solutions for FPO management and coordination
- E-commerce platforms for market access and value realization
- Digital tools for climate-informed business planning
- Linkages with agribusiness SMEs, e-commerce companies, and ag-tech start-ups

#### Sub-component 1.3: Improve Creditworthiness of CIGs and FPOs

- Digital financial management tools for CIGs and FPOs
- Development of FPO rating tools
- Digital platforms for credit linkages and access to formal financing

### Component 2: Climate Smart Value Chain Ecosystem Investments

#### Sub-component 2.1: Farmer-led Irrigation Development

- Digital solutions for water resource management and efficient irrigation
- Mobile-based tools for water monitoring and water use optimization
- Digital solutions for farmer access to irrigation suppliers and financing institutions

#### Sub-component 2.2: Market Access and Infrastructure Development

- Digital solutions for market information dissemination

- E-commerce platforms for market linkages and value chain actors
- Digital solutions for supply chain management and traceability
- Climate-resilient market infrastructure planning using data and analytics

#### Sub-component 2.3: Data and Digital Investments

- Partnership with data service providers for climate information services
- Digital tools for accessing climate information, market information, and digital finance
- Digitization of farmers for improved data collection and analysis
- Climate information services accessible through digital platforms
- Digital finance solutions for farmers
- Big Data platform for data-driven decision-making in agriculture
- Remote sending services
- Use of satellite and drones for crop and land monitoring
- Use of precision ag tools for pest and disease monitoring

#### Sub-component 2.4 : Agriculture research institutions, technical assistance and private sector linkages

- Digitalization of TIMPS
- Dissemination of the developed and digitized TIMPs
- Support the onboarding of technical support agencies (TSA) across several functional areas including but not limited to TSAs for FPO capacity building, value chain development, financial services, and market infrastructure development. – capacity building
- Data analytics on what has been digitized, disseminated, to which farmers/ targeting who, on what VCs

### Component 3: Piloting Climate Smart Safer Urban Food Systems

#### Sub-component 3.1: Climate Smart Urban and Peri-urban Agriculture

- Digital tools for urban and peri-urban farmers to access climate information and optimize input use
- Linkages with data service providers for climate-smart agriculture
- Digital platforms for marketing and connecting urban/peri-urban producers with consumers

#### Sub-component 3.2: Urban Market Infrastructure

- Digital aggregators and e-commerce platforms for direct linkages between producers and consumers
- Digital solutions for market hubs and physical urban markets
- Consumer awareness campaigns through digital channels

#### Sub-component 3.3: Policy and Institutional Strengthening

- Digital platforms for coordination and convergence among line ministries and departments involved in urban food systems
- Digital training and capacity building resources
- Policy analytics and technical assistance through digital tools and expert





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