



ROADMAP FOR NATIONAL AND COUNTY POLICYMAKERS TO PROMOTE DIGITAL FINANCIAL SERVICES FOR FARMERS IN KENYA

DECEMBER 2021



ABOUT THE CONTRIBUTORS

MERCY CORPS AGRIFIN

Mercy Corps AgriFin programming works with public and private sector partners to design, test and scale digitally-enabled products and services for smallholder farmers (SHFs) in order to increase their productivity, incomes, and resilience by 50% while reaching at least 40% women. AgriFin helps its partners to de-risk innovation, support inclusive service delivery and business models for a sustainable scale. Since 2015, AgriFin has completed more than 200 engagements with over 150 partners now reaching more than 16 million smallholders.

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GOVERNMENT OF JAPAN – SECRETARIAT OF SCIENCE, TECHNOLOGY AND INNOVATION POLICY, CABINET OFFICE

The Cabinet Office of the Japanese Government has been supporting the World Bank in its project to scale up access to financial services for farmers in Kenya by leveraging digital technologies. This support is part of the United Nations' Global Pilot Programme on STI for SDGs Roadmaps, in which Japan is participating as a partner country.



Introduction: Roadmap for National- and County-level Policymakers to Promote Digital Financial Services (DFS) for Farmers in Kenya

Context and objectives

- This Roadmap has been produced on behalf of the World Bank (Kenya Office) by Mercy Corps AgriFin (MCA).
- Despite being one of the global leaders in Digital Financial Services (DFS) in Africa, Kenya is experiencing a significant decline in all financial services to smallholder farmers, owing to interest rate caps as well as COVID-19 pandemic impacts.
- DFS has unique potential to expand and deepen financial inclusion for farmers given the ability of digital platforms to address data scarcity (i.e. the lack of reliable data on farmers) and reduce cost-to-serve (i.e. the high costs of reaching every farmer via physical channels).
- However, given these DFS technologies and solutions are nascent and new to farmers, coordinated support is required to build the market and promote DFS solutions.
- The Government of Kenya (GoK) – both at National and County levels – has a catalytic role to play in:
 - i. creating a policy environment that promotes DFS in the agriculture sector;
 - ii. promoting awareness of the different DFS solutions to farmers; and
 - iii. leveraging GoK resources (infrastructure, human capital, land, data) to accelerate the impact of DFS solutions.

Content of the Roadmap

- The Roadmap sets out actionable recommendations for both National and County Government actors to promote uptake and use of DFS among Kenyan farmers.
- It is intended to be used as a guide by policymakers and development actors focused on digital agriculture in Kenya.
- To prepare this Roadmap, the MCA team:
 - ❑ interviewed 20 key stakeholders in digital agriculture and financial services in Kenya (e.g., banks, agtechs);
 - ❑ interviewed National and County Government of Kenya actors, including the Ministry of Agriculture (Agriculture Transformation Office - ATO);
 - ❑ drew on learnings and insights from the World Bank's Disruptive Agricultural Technologies (DAT) program in Kenya and the One Million Farmer Platform, which facilitates partnerships between agtechs and County Governments; and
 - ❑ drew on secondary resources from AgriFin's 50+ past engagements, as well as key ecosystem partners including FSD Kenya, AGRA, and CGAP.

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National-Level Government of Kenya

Recommendations

Area	Recommendation
A.1 Digital agriculture integration in National Agri Strategy	A.1.1 Develop a national digital agriculture strategy under the National Agricultural Transformation Strategy 2019-2029
	A.1.2 Leverage the fertilizer e-subsidy scheme to layer on additional digital financial services for farmers
	A.1.3 Equip GoK extension workers with digital platforms and tools for improved service delivery to farmers
	A.1.4 Promote digital / e-marketplaces for agricultural produce via policy incentives and GoK procurement
	A.1.5 Build financial and digital literacy training modules into national extension program
A.2. Data assets	A.2.1 Implement common digital ID program for smallholder farmers across the country
	A.2.2 Develop national digital soil maps, real-time weather observatory, and early warning systems (for climate shocks)
	A.2.3 Maintain centralized data repositories (through KALRO data hub) for use in credit scoring and precision agriculture
	A.2.4 Maintain database of national land and infrastructure assets
A.3. Development finance	A.3.1 Support the digitization of SACCOs across the country and establishment of a national SACCO credit facility
	A.3.2 Expand credit guarantee schemes with banks and development partners to cover digital loans for farmers
	A.3.3 Introduce insurance premium subsidy scheme for crop / livestock protection and weather risks
A.4 Fintech innovation for agriculture	A.4.1 Publish CBK guidelines for credit products focused on farmers and IRA guidelines on agricultural insurance
	A.4.2 Set up regulatory sandbox within CBK for financial products (digital and non-digital) targeting farmers
	A.4.3 Hold “speed dating” sessions to facilitate partnerships between financial service providers and County Governments
A.5 Cross-government coordination	A.5.1 Establish agriculture finance / DFS working group across CBK, Ministry of Agriculture, and Ministry of ICT
	A.5.2 Set up Agriculture Finance unit within Ministry of Agriculture with mandate to deepen financial inclusion in sector
	A.5.3 Convene digital agriculture champions from County Governments for sharing of lessons learned and best practices

County-Level Government of Kenya

Recommendations

Area	Recommendation
B.1 Convening & promotion	B.1.1 Convene County-wide roadshows and demo days for digital agriculture/DFS and related solutions
	B.1.2 Undertake last-mile mobilization and sensitization campaigns to build awareness for specific qualified DFS solutions
	B.1.3 Promote software and digital payments solutions for SACCOs and cooperatives to manage member data
	B.1.4 Facilitate introductions and partnerships between financial service providers and cooperatives
B.2. Data assets	B.2.1 Maintain database of farmer organizations and individual farmers within County
	B.2.2 Provide DFS providers with secure (opt-in) access to database of farmer organizations and farmers
	B.2.3 Maintain database of all County-level agricultural infrastructure, machinery, and equipment
	B.2.4 Partner with soil testing companies to make soil tests widely available and affordable throughout County
B.3. Infrastructure assets	B.3.1 Provide linkages between digital service providers and County infrastructure e.g., cold storage, collection centers
	B.3.2 Develop network of buyback centers and logistics hubs on County land which actors can use in exchange for fees
	B.3.3 Work with development partners to provide partial subsidy for mechanized farm assets (e.g. irrigation kits, tractors)
B.4 Capacity building	B.4.1 Roll out financial and digital literacy training e-modules for farmers via County extension workers
	B.4.2 Continue to support farmer organizations to become more organized and professional
B.5 Resourcing	B.5.1 Assign digital agriculture lead within County Ministry of Agriculture (or ICT) with focus on promoting digital
	B.5.2 Provide digital training to all County extension workers and equip them with digital tools and platforms

Development Partners

Key areas of support

Type of support	Key support required
Blended finance	1. Debt capital to finance SACCOs focused on loans to individual farmers (i.e. via AFC, Equity, Coop, or other banks)
	2. First loss credit guarantee for loan portfolios targeting smallholder farmers and agri-SMEs
	3. Concessional capital for microinsurance premium subsidy financing for crop/livestock cover
	4. Concessional capital to expand access to mechanized farm assets (irrigation, cold chain, tractors, etc.)
Technical assistance	1. Support MoA in design and rollout of fertilizer e-subsidy scheme, layering on bundled DFS offerings
	2. Support MoA in rolling out digitization program across cooperatives and SACCOs to give members digital records
	3. Support KALRO in building out Data Hub and driving its usage by financial institutions / DFS actors
	4. Support to agribusiness intermediaries (agrodealers, offtakers, etc.) in rolling out DFS offerings to farmers in their value chain
	5. Support to MoA and County Governments for e-learning module design and rollout of digital extension services
Policy advisory	1. Support in development of national digital (“e-”) agriculture strategy and integration into overall National Agri Strategy
	2. Funding and advisory to set up regulatory sandbox for financial products targeting farmers
DFS ecosystem building	1. Risk capital for early stage DFS agri innovation (e.g. challenge competitions, incubators, accelerators, venture capital)
	2. Best practices and thought leadership on how to make DFS models for agriculture work

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The Role of DFS in Driving Financial Inclusion for Kenyan Farmers

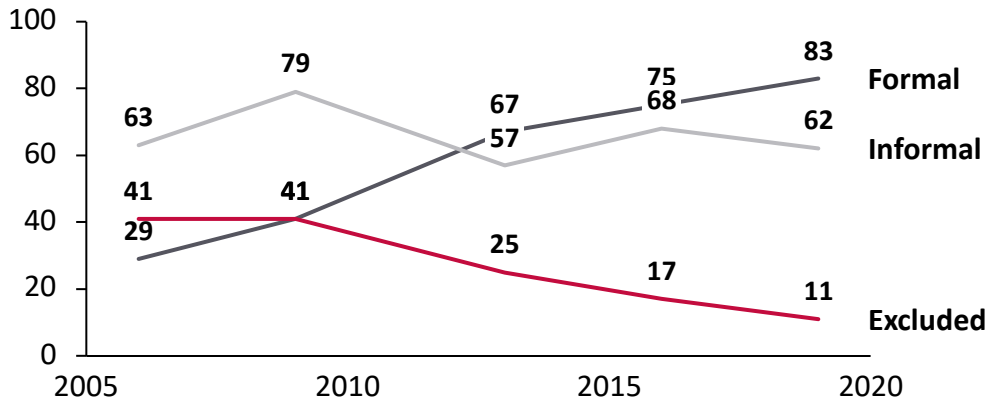
Roadmap: National-Level Recommendations

Roadmap: County-Level Recommendations

Financial inclusion has increased significantly since 2016; however, farmers are still on the lower rungs of the inclusion ladder.

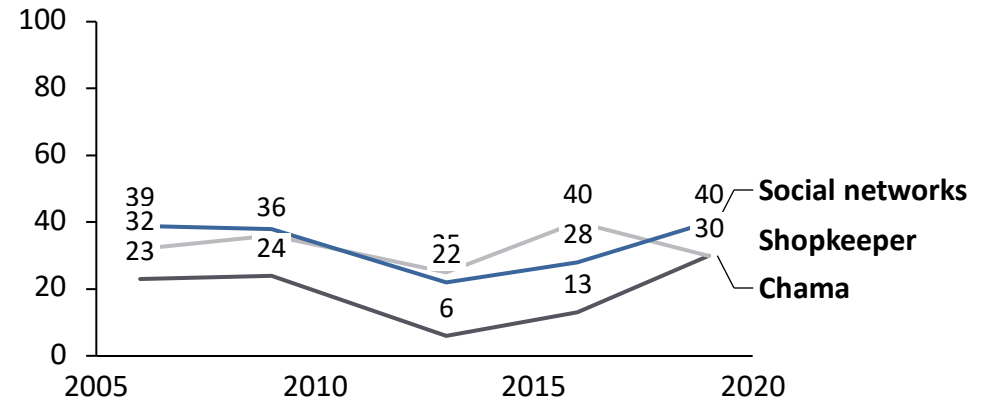
Usage of formal and informal financial solutions

(% adults 2006-2019)



Usage of informal solutions

(% adults 2006-2019)

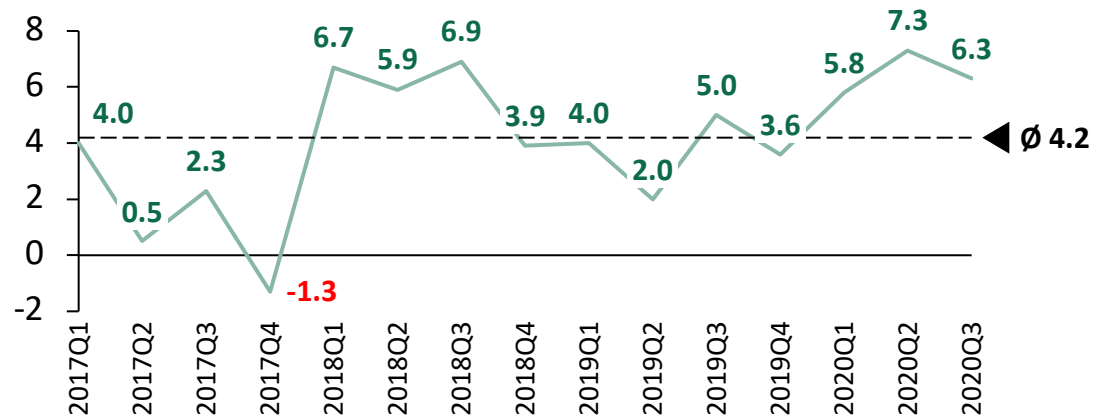


- **Financial inclusion is currently at its absolute highest levels in Kenya:** by 2019, +80% of the population was formally included
- **Mobile phone and mobile money penetration have been key drivers for inclusion:** as of 2015, 80% of farmers already owned mobile phones and 96% of households were already using mobile money (MM) by the following year. There are now more than 33M mobile money users in Kenya, and the product is ubiquitous in everyday life
- **However, cash prevalence is still strong – especially for rural dwellers:** 54% of the population transacts across a mix of platforms (cash vs. MM vs. bank transfer); but for farmers, 96% of transactions are still cash-based; only 5% are via MM
- **Even though the necessary technology, mobile money adoption, and geographical reach of financial institutions are largely there, farmers have not broadened their adoption of the digital financial products available on the market:** smartphone penetration among farmers is still low (less than 20% of farmers own one); farmers find the fees prohibitive; formal financial products favor well-structured value chains, which engage a minority share of farmers; and informal offerings such as local shopkeeper credit offer the absolute best terms (typically no fees and no credit limit)

COVID-19 has left farmers worse off than before, with savings depleted and increased borrowing from formal/informal sources.

Kenya agriculture sector growth – real GDP

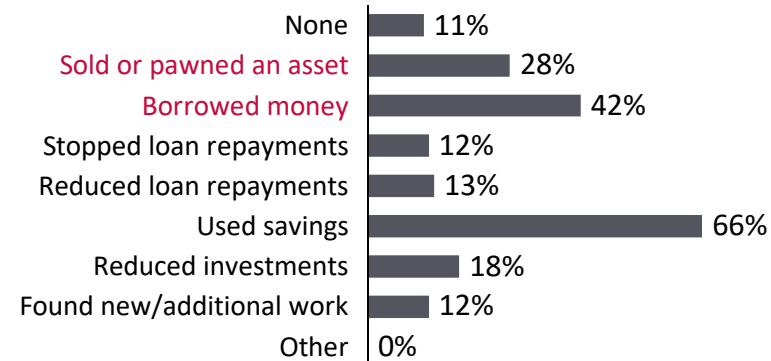
% growth rate by quarter 2017-2020



Farmer coping mechanisms as a result of the pandemic

% respondents who utilized different mechanisms

N= 6,153 farmers. Key: *Extreme coping mechanism*



By the time Covid-19 arrived in Kenya in early 2020, the country was still recovering from depressed economic conditions brought on by drought and disruptions during the presidential election in 2017. Financial health had declined from previous years. **2020 started off fairly strong for the agriculture sector** as a result of favorable climatic conditions across the country, and despite a desert locust wave, but this was not enough to help farmers weather the shocks from the pandemic:

- **Local markets dried up** as a result of mandated closures and movement restrictions
- **Inputs became more expensive**
- **Non-farm income reduced or dried up entirely:** 30-55% farmers rated their situation as “much worse” in the last 12 months
- **When markets opened up farmers, prices dropped:** 50-70% farmers reported lower sales prices for their produce
- **There were also more mouths to feed on the farm:** out-of-school children, family members who lost jobs in the city
- **As a result of all these, rural incomes were slower to recover, and farmers coped with extreme mechanisms:** dipping into savings, selling off assets, or taking own loans (rates of borrowing increased from 39% to 51%)

On the policy side, the financial sector in Kenya has endured some notable headwinds that have affected DFS for agriculture

Interest Rate Cap

- **CBK Introduced an interest rate cap** on commercial lending in 2016 capping the interest rate at 14%
- **This had the effect of contracting credit into the real economy**, in particular credit to SMEs, as banks chose not to lend rather than do so at lower rates.
- **Some estimates suggest that SMEs were reportedly denied loans worth 300B KES (US\$3B)** equivalent to about 0.3% of GDP annually.
- **Furthermore, credit extension to SMEs as a percentage of total bank loans fell** from 25% to 15% by 2019
- **The rate cap was removed at the end of 2019**, but the COVID-19 pandemic hit before a meaningful change in lending activity could be realized.

Digital Lending Regulation

- **In 2016-2019, there was a proliferation in mobile lending activity**, with fintechs (Tala, Branch etc) entering the market to compete with major players, M-Shwari and KCB M-Pesa and (later) Fuliza.
- **For several years, there was limited regulatory supervision** of these players and there were numerous fintechs that engaged in irresponsible lending practices.
- **This coincided with an explosion in mobile bettering services** (e.g SportPesa); a study concluded at the time found that a material share of the bets were financed by mobile loans
- **As a result of this , the market was flooded with unsecured consumer loans of terms between 1 day to 1 month long and very high APRs.** Many borrowers, including farmers, took out loans from multiple lenders, who did not always report defaulting customers to the CRB/the CBK also suspending the listing of defaulters to Credit Reference Bureaus by digital lending platforms during COVID.
- **Agtechs report this tainted the market** as some borrowers have been exposed to poor behavior and do not see digital lenders as “serious” about repayments

Performance of agricultural loans

- **Loans into the agricultural sector performed particularly badly in 2018-2019**, largely driven by major drought and some crop disease. NPLS across banks' agriculture portfolio jumped from 10% in 2017 to 34% in 2018.
- **In response to this, commercial banks have contracted their lending into the sector**, especially to smallholder farmers
- **To manage this risk to the sector, CBK has understandably taken a more cautious approach** to approving new financial products focused on farmers and agri-SMEs
- **This cautiousness may now be an overcompensation.** Banks report that approvals for new agricultural loan products is uncertain with long lead times

Overall, the lending sector has suffered-especially for institutions targeting agriculture and rural customers

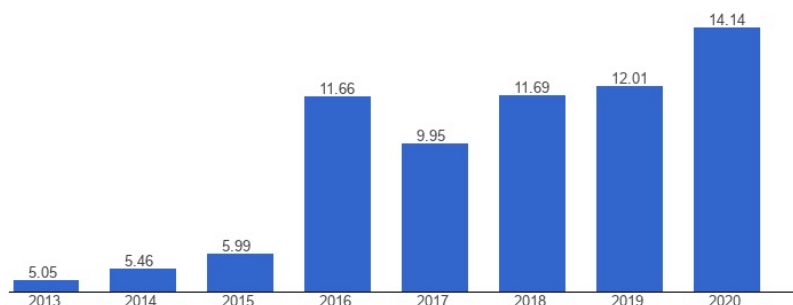
Non-performing loans: Agriculture vs. overall portfolio

% of loan value disbursed

	Agriculture loans only	Overall portfolio
Commercial Banks	22%	14%
Microfinance Institutions	27%	26%
SACCOs	16%	8%

Non-performing loans

% of total loans



- **Across the formal banking sector, accounts, deposits, and loan applications actually increased in 2020**, at similar or even higher growth rates than previous years
- **Much of this growth is presumably driven by the expansion of tech platforms** and agent banking
- **Higher deposits in 2020 may have been driven by higher-income customers:** the government reduced the highest income tax rate by 5% points for most of 2020; this benefit would have applied only to a minority of the population
- **In contrast to these positive metrics, the entire sector also suffered severe losses in loan portfolios**, despite a six-month government-mandated suspension of repayment obligations
- **The impact was especially stringent on organizations and products targeting lower-income, rural, and farming customers:** NPLs for these organizations or products were anywhere from 50-100% higher than the rest of the portfolio
- **The microfinance sector, which had already been struggling for many years, was battered:** +26% NPL, and losses in 2020 at 5x the 2019 levels
- **Even informal means of credit suffered:** shopkeeper credit dried up within a few months, as did Chamas as savings depleted, and individuals could not borrow from friends, as everyone had been hard hit

DFS (digitization both of product and delivery channel) can play a major role in financial inclusion for farmers and agri-SMEs

	Traditional problems serving farmers	How DFS addresses the problem
Reducing cost-to-serve	<ul style="list-style-type: none"> Reaching farmers with financial services is costly as they are dispersed and in more remote areas This drives up customer acquisition costs (CAC) as FSPs require networks of branches and loan officers to acquire and monitor farmers 	<ul style="list-style-type: none"> Digital models allow FSPs to reduce their operating costs through e.g., mobile registration, targeted marketing FSPs reduce the number of field staff and bricks-and-mortar assets required, making serving farmers more viable
Bridging the data gap	<ul style="list-style-type: none"> Traditionally, there is limited data on farmers who do not have credit history or trading records This makes credit assessment challenging; FSPs are not able to price risk appropriately As such, FSPs often choose not to lend to farmers due to the information gap and perceived risk 	<ul style="list-style-type: none"> Digital platforms allow for diverse data sources to be gathered and used for credit assessment, such as mobile money statements and payment history. They can also dynamic data sources such as weather data and satellite imagery Data can to an extent be collected, synthesized, and analyzed remotely which enables FSPs to automate process which previously required loan officers
Reducing credit risk	<ul style="list-style-type: none"> Lending to farmers is risky; even with commercial farms, output varies with weather changes and ability to meet repayments fluctuates With smallholders, things like access to markets, agronomic practices, availability of inputs, can impact output and ability to repay 	<ul style="list-style-type: none"> Digital tools like e-marketplaces, e-learning platforms, etc. can help reduce default risks as they ensure farmers have better farming practices (higher yields) and access to markets (secure cashflows)
Real-time responsiveness and adaptability	<ul style="list-style-type: none"> FSPs and non-traditional lenders (e.g. agro-dealers, offtakers, other agribusiness intermediaries) traditionally have to wait until season-end to determine credit performance At this point, it may be too late to support borrower or restructure 	<ul style="list-style-type: none"> Digital models allow FSPs to monitor borrowers throughout the growing cycle, identify weather or disease risks ahead of time (e.g. early warning systems), and offer more support to borrowers


By DFS, we are focused on financial products tailored and suitable for agriculture, rather than mass market DFS used by farmers

- Kenya saw an explosion of digital lenders offering unsecured loans since the launch of M-Shwari in 2012
- Today there are 49 such lenders on the market, of various profiles: MNOs, banks, and stand-alone / unaffiliated start-ups lending from their own books
- It is estimated that 5-6 out of 10 Kenyans have acquired a loan from a digital lender, even as interest rates are as high as 20% per month
- These loans are not agri-focused, and in fact their short tenor is not helpful for agriculture – even though rural dwellers also adopt them
- These lenders have complicated the space for digital lending in Kenya by having fueled behaviors around multiple lender relationships and over-indebtedness
- The government has recently moved in to regulate the sector and implement measures around customer protection

Popularity of various digital lending products

Rated by top-of-mind responses from survey respondents

Product	Estimated popularity	Tenor	Monthly interest
M-Shwari	40%	1 mth	7.5%
Tala	36%	1-4 mth	14%
Fuliza	30%	3-6 mth	c.15%
Branch	23%	1-12 mth	c.17%
KCB M-Pesa	22%	1 mth	8.7%
Zenka	7%	2 mth	c.7%
Equity Eazzy	4%	12 mth	c.10%
Timiza	3%	1 mth	5%
MCo-op Cash	3%	1-6 mth	1%
Okolea	2%	1 mth	5-15%
Kopa Cash	1%	2-6 mths	3%

 The two market leaders, with c. 41% market share

What types of DFS are tailored and suitable for agriculture? (some or all of the following):

- Loan terms and repayment structure matches seasonal outputs and cashflows
- Interest rates are suitable for longer term loans, not 1- to 30- day loans
- Credit process leverages farmer/farm level or weather data to assess credit (or insurance) risk
- Credit is embedded in input package to ensure expenditure on production. Insurance policy is embedded in credit or input package to provide cover against weather or crop/livestock loss
- DFS provider themselves, or a partner, provides market linkages to ensure repayment
- DFS provider markets product through agribusiness intermediaries to reach farmers or agri-SMEs specifically

What are we not referring to?

- × Unsecured consumer mobile loans
- × Aggressive push-SMS marketing
- × Irresponsible credit behavior

DFS providers (banks, MNOs, fintechs, agribusinesses) face major challenges in trying to reach farmers in Kenya

Operational / ground-level

1. High cost of farmer databasing and registration

- Given lack of farmer databases, DFS providers incur high costs in collecting farmer IDs and onboarding. This effort is duplicated across the sector and is high cost for early-stage innovators to bear
- Once initial ID data is gathered (demographic, location, farm info), digital economies are realized as subsequent processes can more easily be automated

2. Building field force / finding right field partners

- While digital channels increasingly reduce the physical footprint required in the long run, they need to be linked with physical touchpoints in the early stages
- The physical component helps to drive customer acquisition, onboard farmers, and fulfil logistics from farm to market
- DFS providers struggle to find the right partners on the ground; these can include farmer organizations, cooperatives, etc.

3. Lack of awareness and familiarity with DFS

- While mobile money has contributed to market awareness of DFS, farmers are often still less familiar with digital loans and microinsurance offerings
- As such, DFS providers face a challenge in marketing their offerings in new regions and value chains
- Some farmers are also more suspicious of DFS providers, given negative experiences in the market with short-term loans

Ecosystem-level








4. Uncertain policy environment

- The policy and regulatory environment for financial innovation for agriculture remains uncertain
- Banks and MFIs report that product approvals for farmer-focused products take a long time and are often rejected
- DFS agri-products are negatively associated with short-term unsecured mobile loans even though different
- There are limited incentives to adopt digital channels to reach farmers

5. Access to risk capital

- DFS is still nascent in the agriculture sector and therefore considered high risk, especially for credit to individual farmers
- Most agri finance actors (e.g. AFC) and credit guarantee programs do not cover mobile-based loans yet, though there is early interest
- Outside of the banks (who are yet to embrace DFS in agriculture), DFS providers struggle to raise capital to on-lend to farmers

GoK actors, as well as development partners, have a critical role to play in supporting DFS providers to reach farmers across Kenya

Description	Catalytic role to play in expanding DFS in agriculture
	<p><i>Ministry of Agriculture, Livestock, Fisheries and Cooperatives (MoA) has responsibility for shaping, coordinating, and regulating agricultural policy across the country</i></p> <ul style="list-style-type: none"> • Develop national digital agriculture strategy • Promote development and use of national agricultural data and digital platforms • Coordinate agricultural finance programs across other Ministries (ICT, Treasury), County Governments, and parastatals
	<p><i>Agriculture Transformation Officer is unit within MoA responsible for coordinating implementation of National Agri Transformation Strategy</i></p> <ul style="list-style-type: none"> • Identify priority opportunities and use cases for digitization and big data for agriculture • Develop strategic initiatives and coordinate GoK stakeholders
	<p><i>Central Bank of Kenya is responsible for supervising and regulating the formal financial sector, including financial services in agriculture sector</i></p> <ul style="list-style-type: none"> • Provide clear guidance and parameters on credit products for individual farmers and agri-SMEs • Ensure consistent review and approvals process for new credit products for farmers
	<p><i>Insurance Regulatory Authority is responsible for regulating insurance sector including agricultural insurance products</i></p> <ul style="list-style-type: none"> • Provide guidance and regulatory framework for microinsurance products targeting farmers • Promote learnings and development expertise in Kenya in agricultural underwriting and agri insurance product development
	<p><i>County Governments across Kenya's 47 counties have responsibility or County agricultural budgets and implementation of national agriculture policy at county level. They also own land and agricultural equipment</i></p> <ul style="list-style-type: none"> • Set County policy around DFS and develop initiatives to promote uptake and use of DFS in agriculture within their respective Counties • Facilitate partnerships between DFS providers and farmer organizations / cooperatives within their respective Counties
	<p><i>Kenya Agricultural Livestock and Research Organization (KALRO) is parastatal with mandate to promote agricultural research, technology, and innovation</i></p> <ul style="list-style-type: none"> • Develop, host, and maintain Agricultural Data Hub including farmer data, satellite imagery, crop database, livestock database, etc. • Make open-source data available to DFS providers, within appropriate privacy parameters
	<p><i>Development partners across the Kenyan ecosystem play an important role in supporting agricultural finance and use of digital technology to reach Kenyan farmers</i></p> <ul style="list-style-type: none"> • Provide advisory and technical support to National and County level policymakers • Provide funding for agricultural data collection, digital platform development, and analytics capabilities • Provide risk capital for DFS innovation targeting individual farmers and agri-SMEs

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National-Level Government of Kenya

Roadmap (1/3)

Area	Recommendation	Rationale and Activities	Timing & Resources
A.1 Digital agriculture integration in National Agri Strategy	A.1.1 Develop a national digital agriculture strategy	<ul style="list-style-type: none"> GoK has adopted an ambitious 10-year agricultural sector strategy, the National Agricultural Transformation Strategy 2019-2029. While e-agriculture is referenced in the strategy, there are few specifics on what and how digital will be integrated. GoK needs to develop a digital agriculture strategy that sits alongside the national sector strategy to guide efforts to harness digital solutions. 	<ul style="list-style-type: none"> Duration: 3 months Cost: low Owner: MoA / ATO, with external consultant support
	A.1.2 Leverage the fertilizer e-subsidy scheme to layer on additional digital financial services for farmers	<ul style="list-style-type: none"> GoK is planning to roll out a nationwide e-subsidy (voucher) scheme to expand access to quality inputs for smallholders across Kenya, focused on maize and tea. This initiative will require registration of 1.4 million farmers or more onto the mobile application to access the e-vouchers for fertilizer. GoK should use this opportunity to layer on other digitally-enabled services around the e-voucher such as e-learning modules, weather data, marketplace platforms, etc. This will entail a process to pre-qualify digital service providers and then allow them to link their offering to the GoK e-subsidy application. 	<ul style="list-style-type: none"> Duration: 12 months Cost: low-medium Owner: MoA
	A.1.3 Equip GoK extension workers with digital platforms and tools for improved service delivery to farmers	<ul style="list-style-type: none"> GoK has plans to reinforce its nationwide network of extension officers and equip them with digital tools. Subject to available budget, extension workers should be provided with smartphones or tablets with pre-installed digital tools (to be procured & developed by GoK). Extension workers should be given basic digital literacy training which will include a module on use of digital technology in agriculture. 	<ul style="list-style-type: none"> Duration: 12-18 months Cost: medium-high Owner: MoA / MoICT
	A.1.4 Build financial and digital literacy training modules into national extension program	<ul style="list-style-type: none"> As part of the extension initiative (see A.1.3), GoK should develop e-learning content for farmers to be disseminated through network of extension workers. Learning content will include modules on financial literacy and digital skills to equip farmers with the skills they need to properly evaluate and use digital financial services. 	<ul style="list-style-type: none"> Duration: 12-18 months Cost: low-medium Owner: MoA / MoICT
	A.1.5 Promote digital / e-marketplaces for agricultural produce via policy incentives and GoK procurement	<ul style="list-style-type: none"> Access to fair and reliable markets is a key obstacle for farmers around harvest time. E-marketplaces have an important role to play in linking farmers to willing and ready buyers. Some of these marketplaces also offer aggregation & logistics solutions. GoK can help to promote these e-marketplaces by marketing them (e.g., through the e-voucher scheme) and / or offering tax incentives (e.g., VAT exemption). GoK can also help these e-marketplaces achieve scale by channeling government procurement through the platforms. 	<ul style="list-style-type: none"> Duration: 12-18 months Cost: low Owner: MoA

National-Level Government of Kenya

Roadmap (2/3)

Area	Recommendation	Rationale and Activities	Timing & Resources
A.2. Data assets	A.2.1 Implement common digital ID program for smallholder farmers across the country	<ul style="list-style-type: none"> Digital solutions providers expend much resource in identifying, marketing, and registering farmers. This work is resource-intensive due to a lack of farmer data and the high footprint required to reach a dispersed rural demographic. In order to reduce transaction costs of serving smallholders, GoK should maintain a digital farmer database and make data available on opt-in basis to service providers. This could be integrated into a broader digital ID program, if this becomes national policy. 	<ul style="list-style-type: none"> Duration: 12 months, then ongoing Cost: medium-high Owner: MoA / MoICT / KALRO
	A.2.2 Develop national digital soil maps, real-time weather observatory, and early warning systems	<ul style="list-style-type: none"> KALRO has developed national soil mapping and weather data analytics products which are available via their website. KALRO should be appropriately resourced to maintain these products. Efforts should be accelerated to drive access to and use of the information. 	<ul style="list-style-type: none"> Duration: Ongoing Cost: low-medium Owner: KALRO
	A.2.3 Maintain centralized data repositories for use in credit scoring and precision agriculture	<ul style="list-style-type: none"> Building on A.2.1, KALRO should develop farmer databases which are tailored for use in credit scoring and precision agriculture. KALRO should consult with banks, MFIs, and NBFIs to understand what data they need and how they use it. 	<ul style="list-style-type: none"> Duration: 12 months, then ongoing Cost: medium-high Owner: KALRO
	A.2.4 Maintain database of national land and infrastructure assets	<ul style="list-style-type: none"> GoK should maintain a database of government-owned nationwide land and agricultural infrastructure assets (e.g., cold storage, processing, warehouses, collection centers, etc.) and make this data available to digital service providers. Benefits include: (i) increasing utilization of government public good assets and (ii) helping digital providers leverage physical channels / assets to bring down costs. 	<ul style="list-style-type: none"> Duration: 12 months, then ongoing Cost: low Owner: MoA
A.3. Development finance	A.3.1 Support the digitization of SACCOs across the country and establishment of a national SACCO credit facility	<ul style="list-style-type: none"> SACCOs comprise the largest share of loans to individual farmers in Kenya yet still largely operate in analogue. SACCOs can become more efficient using digital platforms. GoK should promote (and possibly subsidize) a digitization effort for SACCOs across the country - with focus on SACCO member registration, loan processing, and repayments. GoK should also set up a SACCO agriculture credit facility in partnership with several banks (AFC, Coop, etc.) that provides wholesale financing to SACCOs for on-lending to farmers. 	<ul style="list-style-type: none"> Duration: 18-24 months Cost: high (especially the credit facility) Owner: MoA / Treasury / AFC
	A.3.2 Expand credit guarantee schemes with banks and development partners to cover digital loans for farmers	<ul style="list-style-type: none"> Credit guarantee schemes can be effective in de-risking credit relationships and nudging lenders into new market segments, when designed appropriately. Traditional lenders still perceive farmers to be high risk and are reluctant to lend into the sector. They often require collateral which the farmer cannot provide. GoK, acting through Treasury, should set up a new Agri Credit Guarantee Facility in partnership with development partners and lenders (both traditional and alternative) to provide partial risk cover. The guarantee should explicitly include digital products, as well as traditional credit. 	<ul style="list-style-type: none"> Duration: 18-24 months Cost: medium-high Owner: MoA / Treasury

National-Level Government of Kenya

Roadmap (3/3)

Area	Recommendation	Rationale and Activities	Timing & Resources
A.3. Development finance	A.3.3 Introduce insurance premium subsidy scheme for crop / livestock protection and weather risks	<ul style="list-style-type: none"> Crop and livestock cover can play a critical role to improve the resilience of smallholders (and de-risk them for lenders and offtakers alike). There are now several digital products targeting microinsurance for farmers at scale, often embedded in inputs package or loan. Given the challenges of serving smallholders, there is pressure to reduce the cost of premiums and this makes it hard to achieve commercial viability, given payouts can be significant. GoK can play a market-making role by offering an insurance premium subsidy to cover part of the upfront policy cost, thereby expanding access to insurance. This can work like an e-voucher. 	<ul style="list-style-type: none"> Duration: 18-24 months Cost: High Owner: MoA / Treasury
A.4 Fintech innovation for agriculture	A.4.1 Publish CBK guidelines for credit products focused on farmers and IRA guidelines on agricultural insurance	<ul style="list-style-type: none"> Lenders cite an uncertain regulatory environment when it comes to credit products focused on agriculture, and individual farmers in particular. Some report that proposals for new products of this type are often delayed in the review process and then rejected. CBK should publish guidelines around responsible credit for farmers to help guide financial institutions looking to develop products tailored for the market segment. This will help to provide greater certainty on product approvals, as well as help to ensure high standards. 	<ul style="list-style-type: none"> Duration: 3-6 months Cost: Low Owner: CBK, in consultation with MoA
	A.4.2 Set up regulatory sandbox within CBK for financial products (digital and non-digital) targeting farmers	<ul style="list-style-type: none"> Regulatory sandboxes can be very effective in providing space for innovation, which is sorely needed to expand access to finance among farmers. CBK should create a sandbox which enables digital innovation around credit, savings, and insurance products for farmers. This would require staff time to review and monitor the qualified innovations. 	<ul style="list-style-type: none"> Duration: 6 months to set up Cost: Low-medium Owner: CBK / MoA
	A.4.3 Hold “speed dating” sessions to facilitate partnerships between financial service providers and Counties	<ul style="list-style-type: none"> Partnerships between financial institutions (traditional or digital) and County Governments can help to expand access to finance among farmers as they match the capital with on-the-ground networks. GoK can play a role in helping to facilitate these partnerships by holding demo days / “speed dating” where introductions can be made to see how lenders can partner to achieve County priorities. 	<ul style="list-style-type: none"> Duration: Ongoing Cost: Low Owner: Council of Governors / MoA
A.5 Cross-government coordination	A.5.1 Establish agriculture finance / DFS working group across CBK, Ministry of Agriculture, and Ministry of ICT	<ul style="list-style-type: none"> Agricultural finance is complex as there are many challenges unique to the sector; adding in digital services layer brings more complexity still. Given this reality, there is need for greater coordination between MoA, CBK, and MoICT on Agriculture Finance. MoA should anchor the establishment of a cross-Ministry working group that meets periodically to align on initiatives and priorities. 	<ul style="list-style-type: none"> Duration: Ongoing Cost: Low Owner: MoA, CBK, MoICT
	A.5.2 Set up Agriculture Finance unit within Ministry of Agriculture with mandate to deepen inclusion in sector	<ul style="list-style-type: none"> For same reasons as A.5.2, MoA should set up an Agriculture Finance Unit within the Ministry to ensure there is a coherent Ministry approach to all the different Finance initiatives. The Unit will also be responsible for ensuring financial inclusion priorities are factored into all Ministry activities. The Unit can initially be made up of staff from other departments, but over time it is expected the unit will have their own staff and shall be standalone. 	<ul style="list-style-type: none"> Duration: 12 months to set up, then ongoing Cost: Low-medium Owner: MoA
	A.5.3 Convene digital agriculture champions from County Governments for sharing of lessons learned and best practices	<ul style="list-style-type: none"> Some County Governments have appointed digital agriculture champions (under the World Bank Disruptive Agriculture Technologies program) – these champions play an important role in promoting digital agri and finance solutions at County level. It is expected that others will do the same. GoK can support this important function by convening these digital agriculture champions to facilitate cross-learnings and best practices, thereby multiplying the impact across many Counties. 	<ul style="list-style-type: none"> Duration: Ongoing Cost: Low Owner: Council of Governors / MoA

KALRO has a central role to play as open-source data hub to provide one-stop shop access to agricultural data in Kenya

KALRO Data Hub Initiative

- KALRO, with support from the World Bank, is working to develop an Agricultural Data Hub for Kenya which will serve as the central facilitator of access, sharing and utilization of data, data products and data services to improve farmer livelihoods and agricultural performance for stakeholders in Kenya.

Objectives of the KALRO data hub



- The data hub will aggregate and manage data, promote data sharing and usage, inspire innovation and action, and improve capacity and practices.
- KALRO brings a range of data sets and data-related capabilities and services to the hub and its partners to support these objectives.
- KALRO's data hub intends to support a diverse set of partners, each of which have different needs and requirements related to data, data sharing and data services. Current partner archetypes include farmer-facing product/service providers, market and ecosystem connectors, intelligence and data intermediaries, and global EO, sensing and research data providers.

Using the Data Hub for Promotion of DFS

- The Data Hub can be used by DFS providers to access diverse data sources in order to: (i) focus marketing efforts (ii) develop tailored product offerings suitable for farmer demographics (iii) inform credit or insurance policy decisioning and (iv) track and verify weather and crop / livestock shocks to determine loan restructuring or payouts
- KALRO and partners should focus on aggregating farmer and farmer organization data across Kenya, even if at an anonymized level; this data is the costliest to gather for DFS providers
- KALRO should undertake a period of engagement with banks, MFIs, NBFIs, fintechs and other alternative lenders to identify what data analytics would be most valuable to FSPs and how they would be most likely to use the Data Hub platform
- While certain modules of the Data Hub will be open-source, there will need to be strict confidentiality parameters and opt-in functionality to ensure the privacy of farmers is protected

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County-Level Government of Kenya

Roadmap (1/3)

Area	Recommendation	Rationale and Activities	Timing & Resources
B.1 Convening & promotion	B.1.1 Convene County-wide roadshows and demo days for digital agriculture/DFS and related solutions	<ul style="list-style-type: none"> • There is often low awareness among farmer communities of digital financial services and mobile-based solutions for agriculture. • County Governments can play an important role in building awareness by organizing regular roadshows and demo days at which farmers can interact with digital solutions and ask questions to field staff. This is a relatively low-cost, high-impact intervention. 	<ul style="list-style-type: none"> • Duration: Ongoing • Cost: Low-medium • Owner: County Govt MoAs
	B.1.2 Undertake last-mile mobilization and sensitization campaigns to build awareness for specific qualified DFS solutions	<ul style="list-style-type: none"> • In this intervention, County teams would pre-qualify a select number of digital solutions which they then promote to specific farmer groups alongside the digital services providers. • County teams can use their knowledge of farmer groups (location, degree of formal organization, size, crops, etc.) to target groups where digital solutions are most relevant. 	<ul style="list-style-type: none"> • Duration: Ongoing • Cost: Low-medium • Owner: County Govt MoAs
	B.1.3 Promote software and digital payments solutions for SACCOs and cooperatives to manage member data	<ul style="list-style-type: none"> • As referred to above, SACCOs and cooperatives play a central role in financial inclusion for individual farmers yet are still mostly analogue. Digitization would allow these organizations to serve their members with more services and operate more efficiently. • County teams, in collaboration with Ministry of Agriculture (under A.3.1), can help to promote the benefits of digitization within the SACCO and cooperative sector, and support in the implementation of digital platforms supported by National Government. • This intervention will require staffing within Agriculture and ICT ministries at County level. 	<ul style="list-style-type: none"> • Duration: Ongoing • Cost: Medium • Owner: County Govt MoAs / MoICTs
	B.1.4 Facilitate introductions and partnerships between financial service providers and SACCOs / cooperatives	<ul style="list-style-type: none"> • This intervention also sits alongside A.3.1 under which the GoK will (i) provide support to SACCOs and cooperatives for digitization and (ii) establish a national SACCO credit facility for on-lending to smallholder farmers. • County teams can play an active role here in facilitating partnerships between diverse digital financial services providers (taken broadly to include banks, MFIs, fintechs, agribusiness intermediaries with digital credit) and SACCOs / cooperatives. These partnerships remain under-penetrated and County teams can use their intimate knowledge of the different SACCOs in their County jurisdiction to screen for suitable partnerships. • This intervention will help to drive utilization of the national SACC credit facility (A.3.1). 	<ul style="list-style-type: none"> • Duration: Ongoing • Cost: Low-medium • Owner: County Govt MoAs

County-Level Government of Kenya

Roadmap (2/3)

Area	Recommendation	Rationale and Activities	Timing & Resources
B.2. Data assets	B.2.1 Maintain database of farmer organizations and individual farmers within County	<ul style="list-style-type: none"> • There is often low awareness among farmer communities of digital financial services and mobile-based solutions for agriculture. • County Governments can play an important role in building awareness by organizing regular roadshows and demo days at which farmers can interact with digital solutions and ask questions to field staff. This is a relatively low-cost, high-impact intervention. 	<ul style="list-style-type: none"> • Duration: Ongoing • Cost: Low-medium • Owner: County Govt MoAs
	B.2.2 Provide DFS providers with secure (opt-in) access to database of farmer organizations and farmers	<ul style="list-style-type: none"> • As referred to elsewhere, digital finance services providers spend a lot of resources on farmer awareness building and acquisition. These high initial costs detract from more innovation in digital service delivery to farmers. • County Governments can help to reduce some of these acquisition costs by providing secure access to a curated database of farmer groups and farmers within the County. This database can be maintained in collaboration with KALRO. • Farmer groups / farmers would be able to opt-in to approve sharing of their information with DFS providers to protect data privacy. 	<ul style="list-style-type: none"> • Duration: 12 months to set up, then ongoing • Cost: Medium • Owner: County Govt MoAs / KALRO
	B.2.3 Maintain database of all County-level agricultural infrastructure, machinery, and equipment	<ul style="list-style-type: none"> • Digital services are not a panacea; while financial products can be digitized and delivered via digital channels; at some point along the chain they need to be integrated with real assets to ensure produce moves from A to B. • In line with National GoK Initiative A.2.4, each County should maintain a database of all County-level agricultural infrastructure, machinery, and equipment, to be made publicly available online. • This database can help to support digital service providers who can benefit from physical assets owned by the County (e.g. storage, warehouses, collection centers, cold rooms, etc.). 	<ul style="list-style-type: none"> • Duration: 3 months to set up, then ongoing • Cost: Low • Owner: County Govt MoAs
	B.2.4 Partner with soil testing companies to make soil tests widely available and affordable throughout County	<ul style="list-style-type: none"> • Soil data, when deployed at scale, can improve productivity, increase resilience to climate shocks and crop disease, and ultimately enhance incomes for farmers. Soil tests also help to derisk borrowers for financial institutions, ensuring they are using the right inputs. • Soil testing at scale requires both digital channels / platforms and physical touchpoints – people to administer the soil testing and digital solutions to analyze/communicate the data. • County Governments can work with soil testing companies to roll out County-wide testing initiatives, in partnership with lenders and offtakers (who can pay for part of all of the test). 	<ul style="list-style-type: none"> • Duration: 18 months • Cost: Medium • Owner: County Govt MoAs / KALRO
B.3. Infrastructure assets	B.3.1 Provide linkages between digital service providers and County infrastructure e.g., cold storage, collection centers.	<ul style="list-style-type: none"> • Alongside B.2.3 above, County teams can proactively look for ways to promote under-utilized infrastructure and equipment for use by digital service providers. 	<ul style="list-style-type: none"> • Duration: Ongoing • Cost: Low • Owner: County Govt MoAs

County-Level Government of Kenya

Roadmap (3/3)

Area	Recommendation	Rationale and Activities	Timing & Resources
B.3. Infrastructure assets	B.3.2 Develop network of buyback centers and logistics hubs on County land which actors can use in exchange for fees	<ul style="list-style-type: none"> County teams should make county-owned land and collection centers available for delivery of produce to reduce logistics costs for farmers groups and digital service providers working with these groups. If desirable, the County can charge handling fees for use of the collection centers. This means that digital service providers do not need to invest in their own bricks-and-mortar and do not need to facilitate collection at farmgate. 	<ul style="list-style-type: none"> Duration: Ongoing Cost: Low-medium Owner: County Govt MoAs
	B.3.3 Work with development partners to provide partial subsidy for mechanized farm assets (e.g. irrigation kits, tractors)	<ul style="list-style-type: none"> Below 10% of Kenyan farmers use any form of mechanized farm equipment e.g., electric water pump, processing unit, tractors, etc. Partly as a result of this, farmer yields remain below global averages. County governments can work with development partners (e.g., World Bank) to provide partial subsidy to farmer groups or individual farmers for purchase (or rental) of mechanized farm equipment. This can be done by working through some of the digitally-enabled service offerings leveraging PAYGO technology and Internet of Things devices. 	<ul style="list-style-type: none"> Duration: 18-24 months Cost: High Owner: County Govts / Donors
B.4 Capacity building	B.4.1 Roll out financial and digital literacy training e-modules for farmers via County extension workers	<ul style="list-style-type: none"> Refer to National GoK intervention A.1.4. 	<ul style="list-style-type: none"> Duration: 12 months Cost: Medium Owner: County Govt MoAs, with National MoA
	B.4.2 Continue to support farmer organizations to become more organized and professional	<ul style="list-style-type: none"> This intervention is a broader initiative to strengthen farmer groups / cooperatives within the County, helping them to become professionalized, with more robust financial management, and able to access more products and services to benefit their members. By strengthening farmer organizations, Counties can help the farmers become more ready to benefit from digital financial services and less risky to financial institutions. Organizations offering loans to farmers often do not have the time or resources to engage in extensive capacity building, so this public service can help to bridge the gap. 	<ul style="list-style-type: none"> Duration: Ongoing Cost: High Owner: County Govt MoAs / Donors
B.5 Resourcing	B.5.1 Assign digital agriculture lead within County Ministry of Agriculture with focus on promoting digital	<ul style="list-style-type: none"> Digital agriculture “champions” within County Government can play an important role to promote digital services as well as coordinate the different activities going on at County level where digital channels can be leveraged. The Digital Agri Champion can be an existing team member(s) from the County MoA with some digital technology background or propensity. 	<ul style="list-style-type: none"> Duration: Ongoing Cost: Low Owner: County MoAs
	B.5.2 Provide training to County extension workers and equip them with digital tools	<ul style="list-style-type: none"> Refer to National GoK intervention A.1.3. 	<ul style="list-style-type: none"> Duration: 12 months Cost: Medium Owner: County MoAs

Alignment of Report Findings to Sustainable Development Goals

These 7 SDGs resonate with the Roadmap findings; DFS has proven to accelerate their achievement over the next 10 years.



Digital Services accessed by farmers to make and receive payments including loans in real time has been key in poverty alleviation. Smallholder farmers can sell produce and purchase inputs hence accessing income through trading within agriculture.



Digital services rely on technology innovation and enable sustainable innovative developments within financial services. This has ensured equal and universal access to financial markets and related information.



More rural households are focusing on agriculture as a source of livelihood and self-sufficient through commercializing their agricultural activities. Mobilization of funds to purchase inputs and facilitate agri-services, increased production has guaranteed food security and equity hence reduced hunger.



DFS providers have enabled secure and voluntary access to databases and services for both farmer organizations and farmers reducing infrastructural, social and economic barriers.



DFS has transformed and bridged the gender equality gap as it is indiscriminative in its use, coverage and impact. The access of its infinitive services, is gauged on its level of interaction other than gender and other factors hence socially inclusive.



DFS has enabled convening of various entities and groups to deliver complementary services to achieve impact through partnerships. This has helped leverage on their value propositions and convenient access of different services



With DFS, economic aspects are boosted through trade and financial inclusion. Farmers are more informed on financial systems and are empowered to benefit from transactions and financial risk mitigation measures.

Session Participants Feedback

- ❖ What are the ecosystem/capacity building investments that the National/County ministries of agriculture can put in for them to scale up their financing via DFS to both individual farmers and farmer producer organisations.
- ❖ The points on designing for specific profiles of growers - not recreating mass market products - is especially important. Any further guidance from the team on particular concerns and opportunities for women and youth in agriculture in Kenya?
- ❖ The issue of data ownership and who owns the data needs to be discussed in the project?
- ❖ There needs to be practical steps that can be taken to support illiterate farmers who are members of farmer groups (CIGs/VMGs) in rural areas to access DFS.
- ❖ Data is critical to strengthening financial inclusion more so in savings and lending. having agreed on this, strengthening of capacities to collating, agreeing on time frames to the collating, clear structures to data custody, sharing and assigning credit to data sources.
- ❖ Has the cost been implication identified when it comes to access of these data?
- ❖ With the public extension system already challenged, what are some of the pathways that are being considered to reach, educate and hand hold the subsistence & smallholders with clear actions
- ❖ The County Governments have data on farmers across various value chains. These farmers are in groups which can be trained on DFS.
- ❖ There are a number of providers at the county levels and these providers are at different levels e.g from table banking women groups to those with legal identities. Some of the challenges faced by the borrowers include; inadequate information, fear of loans due to passed experiences and misinformation, risk associated with investments, unfordable loans, low levels of farm returns etc
- ❖ The county also needs to carry out surveys on current crop/livestock production statistics which should be the basis of the DFS to a particular group.
- ❖ Ministry of Agriculture has setup a Digital Transformation Committee (DTC) that will be driving the digitization within the sector and ensuring the realization of ASTGS digitization use cases for our farmers.

