RMG Concept Ltd

Public Case Report

29 July 2020

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IDH Introduction

Importance of Service Delivery

Agriculture plays a key role in the wellbeing of people and planet. 70% of the rural poor rely on the sector for income and employment. Agriculture also contributes to climate change, which threatens the long-term viability of global food supply. To earn adequate livelihoods without contributing to environmental degradation, farmers need access to affordable high-quality goods, services and technologies.

Service Delivery Models (SDMs) are supply chain structures which provide farmers with services such as training, access to inputs, finance and information. SDMs can sustainably increase the performance of farms while providing a business opportunity for the service provider.

A solid understanding of the relation between impact on the farmer and impact on the service provider's business brings new strategies for operating and funding service delivery, making the model more sustainable, less dependent on external funding and more commercially viable.

About this study

To accelerate this process, IDH is leveraging its strength as a convener of key public-private partnerships to gain better insight into the effectiveness of SDMs. IDH developed a systematic, data-driven approach to understand and improve these models. The approach makes the business case for service delivery to investors, service providers, and farmers. By further prototyping efficiency improvements in service delivery, IDH aims to catalyze innovations in service delivery that positively impact people, planet, and profit.

Thanks

IDH would like to express its sincere thanks to RMG and specifically ALSA for their openness and willingness to partner through this study. By providing insight into their model and critical feedback on our approach, RMG Concept Ltd is helping to pave the way for service delivery that is beneficial and sustainable for farmers and providers.

RMG Concept Ltd introduction

RMG Concept Ltd has built a vertically integrated business that cuts across input provision to trading of commodities, its outgrower operations are managed by ALSA Ltd

Group overview

- RMG Concept Ltd (RMG), is a Swiss company operating in the agricultural sector in West and Central Africa. RMG operates in 17 countries, with physical assets in 7 of those, and with distribution contracts with leading agro-inputs producers and seed companies in many of these countries.
- RMG has set up a fully vertically integrated business, with its subsidiaries playing various roles in the agricultural value chain. In Ghana, RMG is a leading inputs (fertilizer, seeds and crop protection) provider and commodities (cocoa, rice, maize, cotton and soybean) trader, especially through its subsidiaries RMG Ghana Ltd, RMG Commodities Ltd, RMG Cotton Ltd and ALSA Ltd.

Ancillary services

- RMG also offers agronomic and technical services to farmers, up to date customer service to all their distribution networks, ensuring the product offered the customer/farmer is highly beneficial in terms of wealth creation.

Outgrower operations

- RMG Cotton Ltd and ALSA Ltd are primarily service provision companies, acting as the link between RMG Ghana Ltd, RMG Commodities Ltd and farmers. These companies have been responsible for running RMG's outgrower programs in Ghana. As of the start of 2020, RMG is consolidating all the operations of ALSA Ltd and RMG Cotton Ltd under ALSA Ltd.
- ALSA Ltd offers input credit and other focused services to smallholder farmers. The company currently serves more than 10,000 farmers spanning 5 regions in Northern Ghana. It is currently expanding its input credit offering, looking to grow the current portfolio of GHS 21M to GHS 164M and reaching over 22,000 smallholder farmers by 2025. Although most of its agriculture portfolio is in maize (about 70%), ALSA Ltd is also growing its offerings in the three other value chains – rice, cotton and soybean.
- The scope of this study is the original maize value chain managed by ALSA Ltd, and ALSA is considered the SDM Operator for the purpose of this study.

Executive summary

- ALSA is an agribusiness company based in Ghana which provides services and input credit to smallholder farmers. They currently rely on their parent company RMG Concept to provide them with the necessary funding to run their operations.
- ALSA aims to scale up their operations to expand their input credit scheme and increase profitability. On the one hand this growth will be achieved by increasing the number of farmers in Northern Ghana participating in and benefitting from ALSA's effective service delivery model.
- On the other hand growth will be achieved by serving farmers who are typically expected to grow the size of their farm from a total of 8 acres (of which 50% is used for maize) in year 1 to a total of 20 acres in year 5. 10% of farmers are assumed to continue growing over the following 5 years to a total size of 100 acres.
- ALSA as well as the RMG Group has been severely impacted by the COVID-19 crisis and this has been felt in the form of a drop (instead of the anticipated growth) in the size of the operations during 2020. Based on interviews with senior management of the company we have assumed that the business will rebound in 2021 and reach the levels that would have otherwise been reached in 2020. This is expressed in an unusually high growth between 2020 and 2021, and the more modest growth rates between 2021 and 2025.
- The growth of ALSA is currently limited by their dependence on RMG Group for pre-financing of the sale of inputs and the sourcing of maize. In order to achieve their growth targets in a sustainable and cost-efficient way, they must decrease their reliance on the Group and finance their growth externally.
- This study demonstrates that ALSA can do this by (1) raising capital outside RMG Group; (2) offering competitive services; and (3) managing business risks

    1. Raising capital outside RMG Group allows ALSA to grow the input credit scheme. This study concludes that:
        - Debt financing unlocks growth but comes at a cost
        - Projected debt ratios will require ALSA to separate the credit facility from the core business
        - Equity financing unlocks the same growth at a more attractive return than debt financing
        - Impact at farm level helps to open the door to impact investors
    2. Offering competitive services will secure farmer demand for input credit. To do so, we demonstrate that:
        - ALSA can stay competitive by reducing relative operational costs as a result of consolidating outgrower operations
        - Demand from existing farmers will increase by providing bulk discounts
        - If necessary, additional demand can be generated from new farmers by doubling radio advertising
    3. Managing business risks increases the likelihood of ALSA becoming financially independent from RMG Group. The following risk management strategies are explored:
        - There is room to lower dependency on government subsidies and continue to make a margin on inputs
        - A credit scoring engine is the highest priority investment for ALSA to capture and reduce the risk of farmer defaults
        - Increasing productivity and subsequently increasing land size is the most effective way to increase farmer resilience further
- Building on the outcomes of this study, IDH suggests ALSA to prioritize two recommendations and explore them in more detail in the short term: exploring the financing opportunities under (1), and investing in a credit scoring engine as an effective way to manage perceived and actual risk of farmer defaults (as discussed under (3)).

Context

Introducing the inputs sector in Northern Ghana, its challenges and priorities

Market

Ghana's input market is heavily influenced by government subsidies on farm inputs

State of the sector [1,2]

Market definition

- The input sector is defined as comprising the provision of fertilizers, crop protection and seeds.
- Demand for affordable input far exceeds local supply, making Ghana a net importer of inputs. Ghana imports of input in 2018 was estimated at USD 340 million. This was made up of fertilizers (USD 136 million), crop protection (USD 204 million) and seeds (USD 98,000).

Government interventions

- Ghana's input subsidy program, which has been operational since 2008, still faces sustainability issues, with only marginal growth in output achieved from fertiliser use.
- The sector is largely regulated through regulatory framework defined within the ECOWAS region. These policies have been in existence since 2002.

Opportunities

- To develop this sector further, investments are needed to tackle and mitigate the challenges the sector is currently facing. The main challenges are lack of access to finance and poor infrastructure.
- Deregulation (through removal of excessive government subsidies) may drive competitiveness and catalyze private investment into the sector.

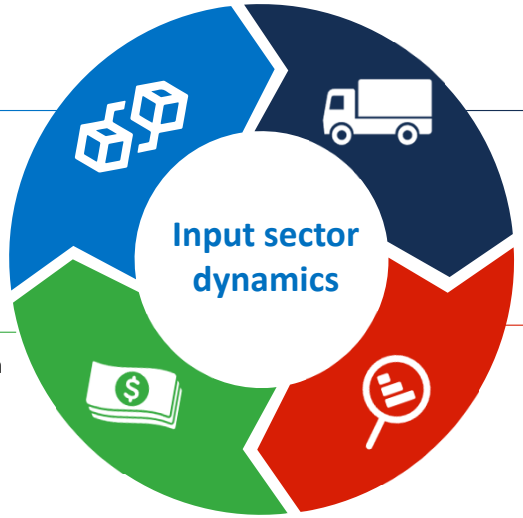
Sector dynamics [3,4,5]

AVAILABILITY

- Limited variety choice due to long release duration of seeds, particularly for rice.
- Insufficient supply of quality inputs due to lack of financial resources and delays in disbursement of government subsidies.

AFFORDABILITY

- High costs of logistics and financing (including high import duties) which are passed on to farmers resulting in high selling prices.
- Few small quantity packages limiting smallholder farmers ability to purchase smaller quantities of input at a time.



ACCESSIBILITY

- Price and supply information asymmetry makes farmers buy input at disparate prices.
- Limited delivery channels for inputs, with reliance on poor roads, causes logistical challenges.

QUALITY

- Low seed quality due to low inspection capacity. Farmers re-use seeds resulting in low yields.
- High volumes of fake seeds, counterfeit agrochemicals and adulterated fertilisers on the market.
- Lack of supervision and monitoring of composition and active ingredients of fertilizer and chemicals.

Sources: 1) IFPRI Discussion Paper 01024 September 2010 ; 2) United Nations COMTRADE database on international trade; 3) AGRA (2016); IFDC (2012); 4) The African Seed Access Index (2017); 5) The Fertilizer Supply Chain in Ghana

Enabling Environment

Access to affordable financing remains the greatest barrier to scaling for both farmers and value chain players

Risk level: Low | Average | High

Definition	Situation	Impact on SDM
Technology	• More than 70% of farmers own phones, and mobile money has been on the rise in Ghana.	• Opportunities for technological solutions, e.g. for payments and sending educational messages to farmers
Environment	• Average annual deforestation is -0.31%, between 2007-2016.	
Infrastructure	• Roads are rutted and poorly maintained, which complicates getting inputs to the farms and farm produce from remote areas to the market. This gets worse during the rainy season.	• This affects the ability to provide inputs and services to the farmers and source their produce.
Labor	• High availability of laborers.	
Inputs & Financing	• Farmers cannot afford the upfront investment for high-quality inputs, which are needed to maximize their yield. • Access to long term finance is difficult, and interest rates can be as high as 36%.	• ALSA has built their SDM around providing farmers access to quality inputs on credit. There is sufficient farmer demand to expand this scheme.
Trading System	• Tamale is emerging as a regional economic hub, linking farmers to markets in the south of the country. It is also facilitating trade with Togo to the east and with the landlocked Burkina Faso to the north.	• Being located close to this trading hub provides ease in expanding ALSA's business to neighboring countries.
Pricing & Competition	• Prices of inputs are largely decided by the government under the subsidy program. Input prices are also impacted by forex fluctuations as the sector is heavily reliant on imports	• Difficulty to compete on fair input pricing outside of the government subsidy program.
Institutional Stability	• Political stability is underpinned by Ghana's strong democratic credentials, despite slow progress on job creation and industrialisation.	
Land Tenure	• Land is owned by the communities and in custody of the chiefs. Although this discourages land investments, it promotes local farming and smallholder farming projects.	• If farmers make profits off the land they lease, the chief could claim it back or demand a share of the revenue.
Social Norms	• The incidence of child labor in Ghana is 24.7% (% of the population between 7-14 years), 78% of which is within the agricultural sector.	

Farmer Base

Low purchasing power due to poverty limits demand for quality inputs from farmers in Northern Ghana

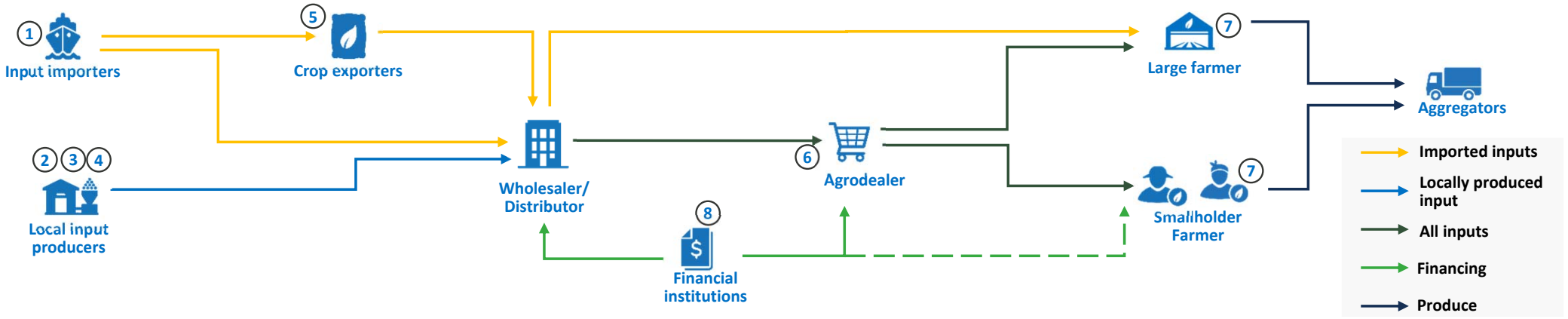
Geographical spread of farmers

- The North is currently divided into 5 regions following a referendum in 2018. These are Upper West, Upper East, North East, Northern and Savannah regions.
- ALSA's maize farmers are spread over 20 districts clustered under 3 zones namely, Northern zone, Sissala zone and Wa zone. Factoring cotton and soybean, ALSA's farmers are present in all the districts in the northern regions.

- Maize, soybean and cotton is mainly grown in the North of Ghana, although maize and soybean are also grown in the Central, Western and Southern regions of Ghana. Rice is mainly grown in the South. The middle belt of the country is characterized by mixed or sole cropping of maize, legumes, cocoyam or yam.
- A farmer that grows maize, usually also grows soybean and some cotton, with intercropping highly promoted.
- Northern Ghana has remained the poorest part of the country due to low infrastructural developments. In addition, whilst the middle belt and South enjoy two planting seasons, the North has only one planting season due to the predominant hot and dry climate.
- About 60% of all farms in the country are less than 1.2 hectares in size, 25% are between 1.2 to 2.0 hectares, with a mere 15 % above 2.0 hectares. The average farm size is less than 1.6 hectares. Small-size and medium-size farms of up to 10.0 hectares account for 95 % of the cultivated land.
- Land is largely available in the northern regions where ALSA's farmers are based. This is mostly grassland and requires limited investment in terms of land clearance and development. The land tenure system in Northern Ghana is custodian to the chief. Therefore, a native farmer can have access to land for farming by performing a customary or traditional rights for the chiefs and elders. Noting the land ownership structure, smallholder farmers are unlikely to make big investments on their farmland.
- The North has an estimated smallholder farmer population of 2 million. ALSA is currently working with about 10,000 of these farmers in their outgrower program for maize, cotton and soybean. Whilst the potential customer base for ALSA in Northern Ghana is big, the low purchasing power amongst most farmers limits growth. In order to increase its farmer base, ALSA will need to make similar investments as those made when onboarding the current portfolio of farmers.

Value Chain

Access to affordable finance is a persistent challenge for local value chain players and farmers, leaving room for international players to capture market share



Supply of Inputs

1. Virtually all fertilizers in the country are imported. There is also a significant level of importation of seeds and crop protection. The country is a 'price-taker' in the international market.
2. Local producers largely engage in production of certified seeds, manufacture and blending of crop protection and fertilizers.
3. RMG is one of the few suppliers that reconditions seeds to international standards in tropical Africa.
4. Ministry of Food and Agriculture (MOFA) is responsible for overseeing the input sector, including the certification of seed breeders. It also provides government extension services.
5. Large export crop companies such as those in cocoa order inputs from global suppliers and distribute this to farmers under their outgrower programs through licenced wholesalers and agricultural input dealers (agrodealers).

Demand of Inputs

6. The majority of agrodealers perceive lack of capital and high cost of transportation as key challenges to operating an agricultural-input retail business. These constraints result in doubling of prices farmers ultimately pay relative to international prices.
7. Smallholder farmers account for about 80% of farmers in Ghana, with very few large-scale farmers.
8. High cost of financing limits farmers ability to access inputs. Financial institutions are risk averse to lend directly to smallholder farmers.

Sources: 1) IFPRI Discussion Paper 01024 September 2010 ; 2) FAOSTATS (2017); 3) AGRA (2016); IFDC (2012); 4) The African Seed Access Index (2017); 5) The Fertilizer Supply Chain in Ghana

Food Security

Despite using a significant part of their maize produce for household consumption, farmer households in Northern Ghana struggle to reach food security

Farmer's overall Food Security status			
Category	**Cash-flow (Stability & Access)**		**Assets (Stability)**
Score	Famer cash-flow		**Average**
Data	**CASH FLOW** • Since farmers in the SDM receive inputs on credit, we expect them to have a fairly stable cash flow throughput the year. This is to be confirmed by the farmer monthly cashflow analysis that we will do for maize cultivation. • Due to not being able to do farmer interviews, the value of this information will be limited since it only applies to the farmers' maize cultivation (which is on average only half of their farmland) and does not take into account off-farm revenues and costs which a farmer may have.		• **Ownership:** Different sharing agreements • **Farm size:** On average 5.6 hectares • **Maize farm size:** On average 2.8 hectares • **Other crops:** A farmer that grows maize, usually also grows other food crops like soy, yam or ground nuts. • **Animals:** Most farmers do not have livestock.
Category	**Income (Access & Availability)**	**Market (Availability)**	**Health & Sanitation (Utilization)**
Score	**Low**	**Average**	**Average**
Data	• **Maize sold:** On average around 4 Mt (45%) • **Crop loss:** 15% (due to insufficient drying before storing) • **Own consumption:** 1 Mt per household per year • **Price volatility:** 151 GHC (over 2018) • **Income from crop:** 46% of total income • **Income from other crops:** 51% of total income • **Income from non-agricultural activities:** 2% of total income • **Living income:** 5,112 USD/HH/year • **Household size:** 5 people	• **Per capita food production variability:** 3.50 • **Global production:** Ghana is the world's 35th largest maize producer, with annual maize production being only 0.3% of the top 3 producing countries (US, China and Brazil). • **Export vs Import:** Ghana is a net importer of maize. Export value in 2017 was USD 407k whereas the import value for 2017 was USD 9.48M. • **Local market:** Most farmers in the region mainly grow multiple food crops to feed their family. The excess produce is sold regionally.	• **District level nutrition status:** The prevalence of stunting is 19 percent nationally, but rises to 33 percent in Northern region • **Prevalence of undernourishment:** 6% • **National average dietary energy supply adequacy:** 135% • **Access to sanitation:** 11.9% of rural population has access to at least basic sanitation

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Climate Resilience

There is a growing need for farmers to be equipped with knowledge, inputs and financial services that increase their resilience to climate shocks

Farmer sensitivity and exposure to	Risk probability	Detailed description of risk	Impact	Expected impact
Changing temperatures	**High**	• Temperatures have been increasing in recent years, and this is expected to continue. Compared to 2010, temperatures in the North of Ghana are expected to increase with 1.2 to 1.4 °C before 2030, and with 2.2 to 2.4 °C before 2050.[1]	**Medium**	• Higher temperatures can lead to decreasing yields. • More extreme temperatures will also increase the occurrence of droughts and wildfires.
Changing rainfall patterns and soil conditions	**Medium**	• There is increasingly erratic rainfall, and overall rainfall is expected to decrease in the coming decades. Compared to 2010, precipitation in the North of Ghana is expected to increase with 10 mm or decrease with 9 mm in the short run (before 2030), but in the long run (before 2050) precipitation is expected to decrease between 0 mm and 19 mm.[1]	**Medium**	• Maize is not an extremely thirsty crop, but less rainfall will increase the incidences of crop failure. • Erratic rain patterns make it more difficult to plan agricultural operations.
Frequent climate extremes	**High**	• Due to a change in climatic conditions, the risks of droughts and floods has been increasing over the years.	**Medium**	• Unpredictable weather patterns can lead to decreasing yields and failed harvests.

Farmer adaptive capacity

Category	Income & cash-flow	Assets	Access to services
Adaptive capacity	Famer cash-flow	Average	Average
Data	• Since farmers in the SDM receive inputs on credit, we expect them to have a fairly stable cash flow throughput the year. • Due to not being able to do farmer interviews, the value of this information will be limited since it only applies to the farmers' maize cultivation and does not take into account off-farm revenues and costs.	• **Ownership:** Different sharing agreements • **Farm size:** On average 5.6 hectares • **Maize farm size:** On average 2.8 hectares • **Other crops:** A farmer that grows maize, usually also grows other food crops like soy, yam or ground nuts. • **Animals:** Most farmers do not have livestock.	• **Mechanization:** Only the farmers with a farm of more than 50 acres of maize (which are very few) are able to afford mechanization. • **Mobile money:** 39% of adults own a mobile money account.

Sources: **1)** Climate Change Profile: Ghana (2018) Dutch Ministry of Foreign Affairs

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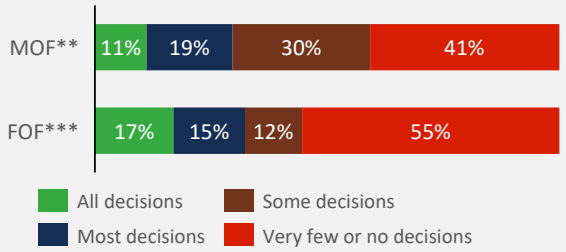
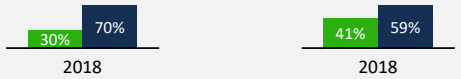
Gender Equality

Gender inequalities still exist despite affirmative action in Ghana, affecting in particular rural women employed in the agriculture sector

Gender Dynamics:

Category	Decision making	Women in productive activities	Women in leadership
Score	**Low**	**Average******	**Average******
Data	**Women's involvement in decisions*:** 	**Ghana** **ALSA** # of female to male farmers ratio [5]  Yield of female to male farmers ratio **N/A** **N/A**	**Ghana** **ALSA** Labor force participation* [1] **0.90** **0.19** Female to male income ratio ALSA [1] **0.70** **1.00**

Category	Description of involvement	Detailed description of risk	Expected Impact
Professional development	• Gender disparity in primary education has been eliminated, with current enrolment **slightly in favor of women**.[1] • In ownership of a bank account, there is a gender disparity of 0.87. This is **close to the global average of 0.90**.[2]	**ALSA has developed policies and procedures** to drive gender inclusivity and equality at its workplace and amongst the farmers with works with. These include equal remuneration for work of equal value, sexual harassment policy and encouraging female candidates to apply for employment offers.	ALSA is currently **gender intentional** but can be **gender transformative.** However, additional steps are required, noting the low ratio of female to male employees.
Involvement in farm management	Women in the Northern Ghana region are **limited in independent decision making** (e.g. they need permission from their husbands to work). As such, most farms are male-owned but female operated.	On average, 62% of women state they have an opinion or ability to take part in decision-making; an **area that has seen improvement** over the last decade.[3]	ALSA's input provision is solely driven by the type of crop and is not related to the gender of the farmer. However, they may **need to undertake a study on gender needs or preferences** concerning the other services they provide**.**

* Divide female indicator by male indicator to get ratio. A ratio of 1 indicates parity between the sexes; a ratio between 0 and 1 typically means a disparity in favor of males; whereas a ratio greater than 1 indicates a disparity in favor of females.
These statistics are taken from a primary farmer survey undertaken for Sparkx Farms – Ghana which is based in northern Ashanti; **Male-operated farms; ***Female-operated farms; **** Score based on ALSA's performance

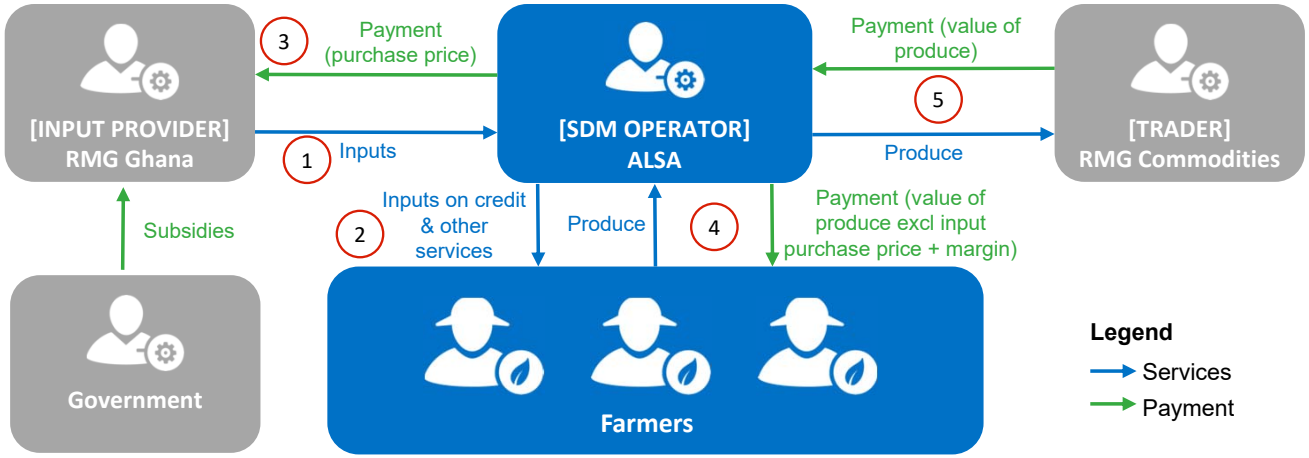
Sources: **1)** World Economic Forum (2020): Global Gender Gap report; **2)** World Bank (2017): Global Findex; **3)** USAID (2016): Demographic and Health Survey; **4)** FAO (2018): Global Crop Database; **5)** FAO Sector overview (2018)

SDM strategy

Understanding the SDM's strategy and business model

External financing of input credit scheme

ALSA has the ambition to access external financing to grow the input credit scheme over the next 5 years



Anticipated activity timeline

External financing

1. **March/April:** RMG Ghana provides input packages to ALSA
2. **June/July**: ALSA distributes input packages to farmers
3. **Oct/Nov**: ALSA pays RMG Ghana
4. **Dec-March**: ALSA collects produce and ALSA pays farmers
5. **Jan-April**: RMG Commodities buys produce from ALSA and pays ALSA

Scope and scale

ALSA's operations are concentrated in the North of Ghana, where there is plenty of room to extend their business

ALSA's outgrower model

- ALSA's farmer base in the North is spread out over 5 regions. In the 2020 season, the farmer base consisted of around 10,000 farmers growing maize, cotton and soybean. This is estimated to only represent around 0.5% of the total smallholder farmer base in the 5 regions.
- The outgrower program is currently run by 10 technical officers within ALSA. Each technical officer is located within the farming communities and manages an average of 600 farmers.
- Smallholder farmers, particularly those in the North, cannot afford the upfront investments needed to finance high-quality inputs. Therefore the ability to buy on credit is crucial.
- ALSA's aim is that their smallholder farmers increase their farm size dedicated to maize from 4 acres to a minimum of 10 acres. Currently most farmers have a minimum of 4 acres dedicated to maize while some few farms are as large as 100 -300 acres.
- The goal is to achieve a cultivated farm base of around 180,000 acres which is managed by around 22,000 smallholder farmers by 2025. An additional 120,000 acres is expected to be cultivated by commercial farmers, who also secure input from RMG Ghana through ALSA.

ALSA's growth ambitions for the maize outgrower program:

	Total number of acres reached	Number of farmers (#)	Average farm size (Acres/farmer)	Most occurring farm size (Acres/farmer)
2020	23,500	3,400	6.9	4.0
2025	180,300	22,400	8.0	10.0

Location of operations and future out-growers

Services

ALSA's outgrower model is focused on creating access to the highest quality inputs, which is facilitated by a small set of targeted services

Overheads

Supporting activities

Farmer organization

- Farmers are supported in joining and setting up farmer groups, and in maintaining existing groups.
- Farmer organizations are key in securing payment from farmers.
- Additionally, farmer organizations help to secure investments and attract donor funding.

Farm services

Input provision

- ALSA provides outgrowers with high quality input packages containing fertilizer, seeds and crop protection.
- The basis of an input package is defined according to the crop type. They will differ in quantities, formulations, active ingredients, packaging and seed type.
- ALSA provides hybrid seeds that are capable of increasing yields fivefold.

Market linkage

- ALSA guarantees the offtake of the farmers' maize, both the recovery maize towards payment of the input credit and a minimum level of excess maize.
- ALSA aggregates maize from its outgrower farmers and sales this to RMG Commodities.

Finance (input credit)

- ALSA provides inputs to farmers on credit.
- Farmers do not pay for these inputs in cash, but the total amount is deducted from the payment they receive for their produce.

Training

- ALSA provides outgrowers with free group trainings concerning GAP.
- Trainings are done thrice a year: before planting, before application of fertiliser and agrochemicals, then the last one on harvesting.
- Trainings include new technologies, planting methodology and crop seasonality, fertilizer application practices and safety on usage of agro-chemicals.

Tailored advice

- ASLA also provides specialized trainings to individual farmers.

Margin

SWOT Analysis

ALSA's input credit scheme is a key strength to smallholder farmers

	Helpful	Harmful
Internal	**Strength** • ALSA provides high quality inputs to farmers on credit that differentiates it from competition and attracts smallholders • ALSA has found effective ways of ensuring the repayment of outstanding credit for the purchase of inputs • ALSA has a strong management team and experienced technical officers with the right technical know-how on outgrower programs	**Weakness** • High concentration of input business under the government input subsidy program, despite the government being an unpredictable business partner • High dependency on RMG Ghana for supply of inputs and financing • Growth ambitions are pegged on farmers ability to grow their land side although ALSA is not clear about the investment needed to increase land size
External	**Opportunities** • Availability of land within the target regions that can be used to scale up the size of farms. Most of the land is grassland and hence requires very little investment in form of land development • Existence of many unbanked smallholder farmers in the Northern region that can be recruited into the input credit scheme	**Threat** • Volatile local currency and high interest that results in increased financing costs. • Limited understanding of agricultural financing by local banks, lowering supply of funds available for players in the sector • Increasing competition with new players entering the input provision market. This creates challenges in maintaining farmer loyalty • Promoting the preventive use of agrochemicals may be against Integrated Pest Management (IPM) and can be viewed with caution by external stakeholders like NGOs and impact investors

SWOT

Digital Maturity Assessment - Overview

Go to detailed results

ALSA's existing/planned technology initiatives provides a solid base for adopting future innovations. By enhancing the digital culture, skills and proposition, they can accelerate the digital transformation process.

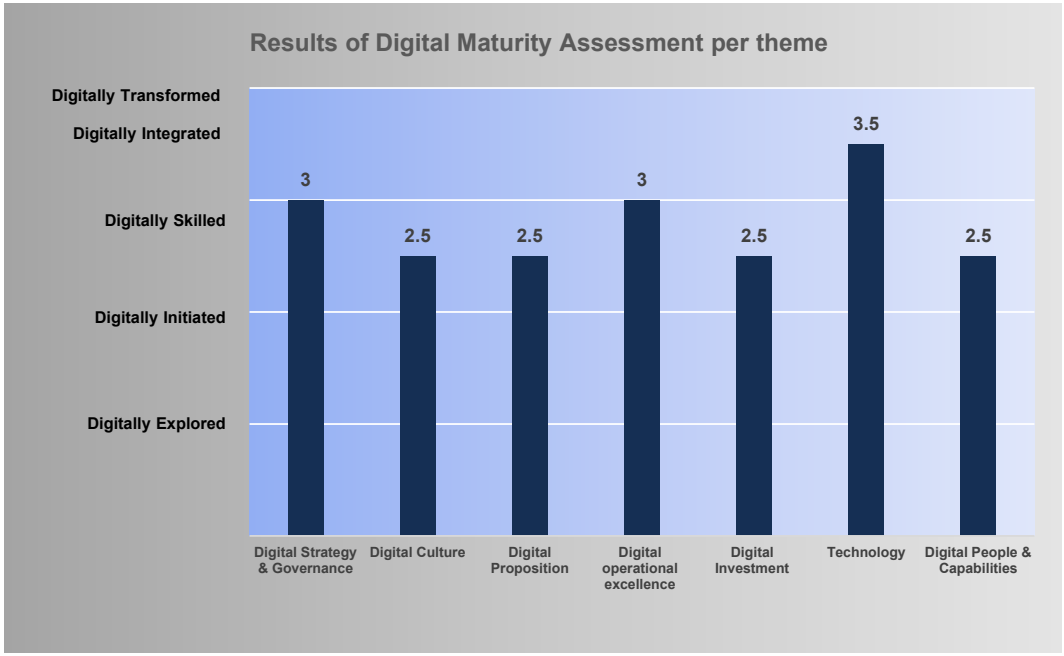
1. Results

The digital maturity assessment for ALSA shows an average score of **around 3 out of a maximum level 5**

- ALSA has already initiated its digital journey sometime back and has had earlier experiences with organization-wide farm management, mobile-money and banking related solutions
- It currently has 3 digital applications in place which includes an ERP, a farmer registration app and an internal employee communications platform
- The ALSA leadership has a digital vision and roadmap. They lead discovery and implementation of digital initiatives.
- There is scope for a unified approach towards the digital roadmap and interlinking existing digital applications
- A push towards organization-wide digital culture can catalyze new innovation adoption, and dedicated roles around digital strategy can support a comprehensive, long term digital development within ALSA

2. Risks & key barriers

- Limited integration of data collected through various applications resulting in limited holistic visibility on operations
- Limited provision for partners/operations staff to communicate and relay information to the ERP
- Lack of a structured communication link between farmers and TOs
- Absence of a dedicated team or resource on digital strategy and/or digital agriculture innovations
- Investment in digital initiatives is ad-hoc
- Smallholders and most middle to entry-level employees of ALSA lack digital literacy and incentive



3. Recommendations

- Enhance existing applications in order for them to interlink and exchange information seamlessly. This can result in efficiencies across operations in the long term
- Build or add modules in the app, across systems for operational staff / partners to push information directly into the ERP
- Introduce a module in the RMG app or add a new module for TOs to effectively listen, analyze and respond to their associated farmers
- Train existing staff with a digital / tech propensity, and build a roadmap for having resources to focus on the digital strategy
- Allocate a digital initiative budget within the multi-year planning, thereby ensuring the entire organization remains committed to a digital future
- Ensure that the digital knowledge is shared within the organization. Push employees to think, ideate and implement innovative solutions

SDM performance

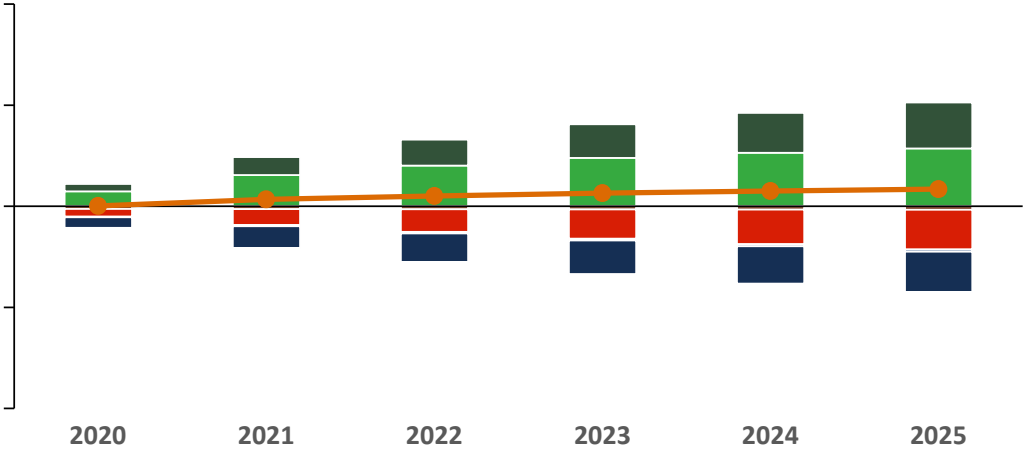
Assessing the SDM's financial performance and opportunities for improvement

Overall Performance

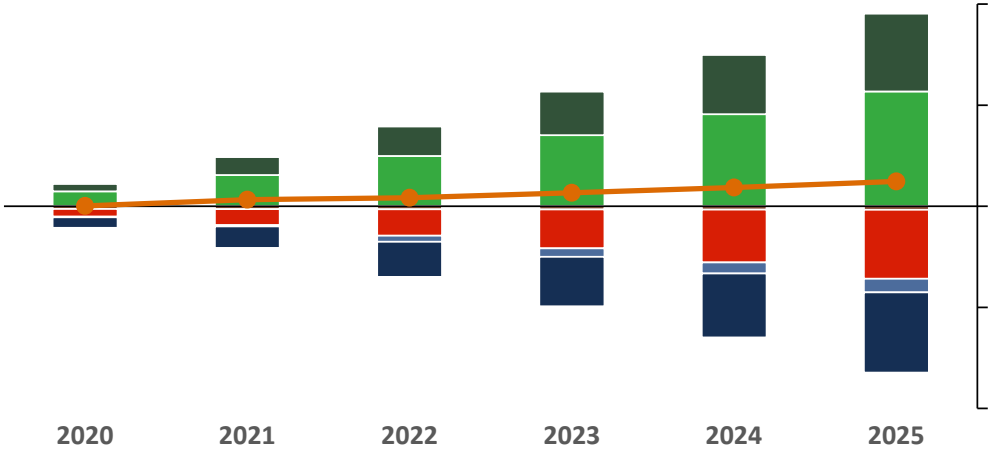
Go to assumptions

If ALSA is able to secure external financing, their profit before tax has the potential to grow 50% higher over a 6-year time period

Profit & loss projections for ALSA: scenario "Group Financing"



Profit & loss projections for ALSA: scenario "Debt Financing"



- Net sourcing revenue
- Input revenue
- Overhead cost
- Sourcing cost
- Input credit cost
- Input provision cost
- Farmer organization cost
- Training cost
- Tailored advice cost
- Net income

Expanding the input credit scheme

- Attracting external debt financing will allow ALSA to double their input credit scheme by 2025
- It will grow its input sales to cover 150,000 acres (Group Financing) or 300,000 acres (Debt Financing)
- This leads to a 44% higher profit before tax by 2025
- This is a result of the higher growth of sales of inputs, and the corresponding higher volumes of recovery and excess maize traded

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Farmer performance

Assessing farmer impact and opportunities for improvement

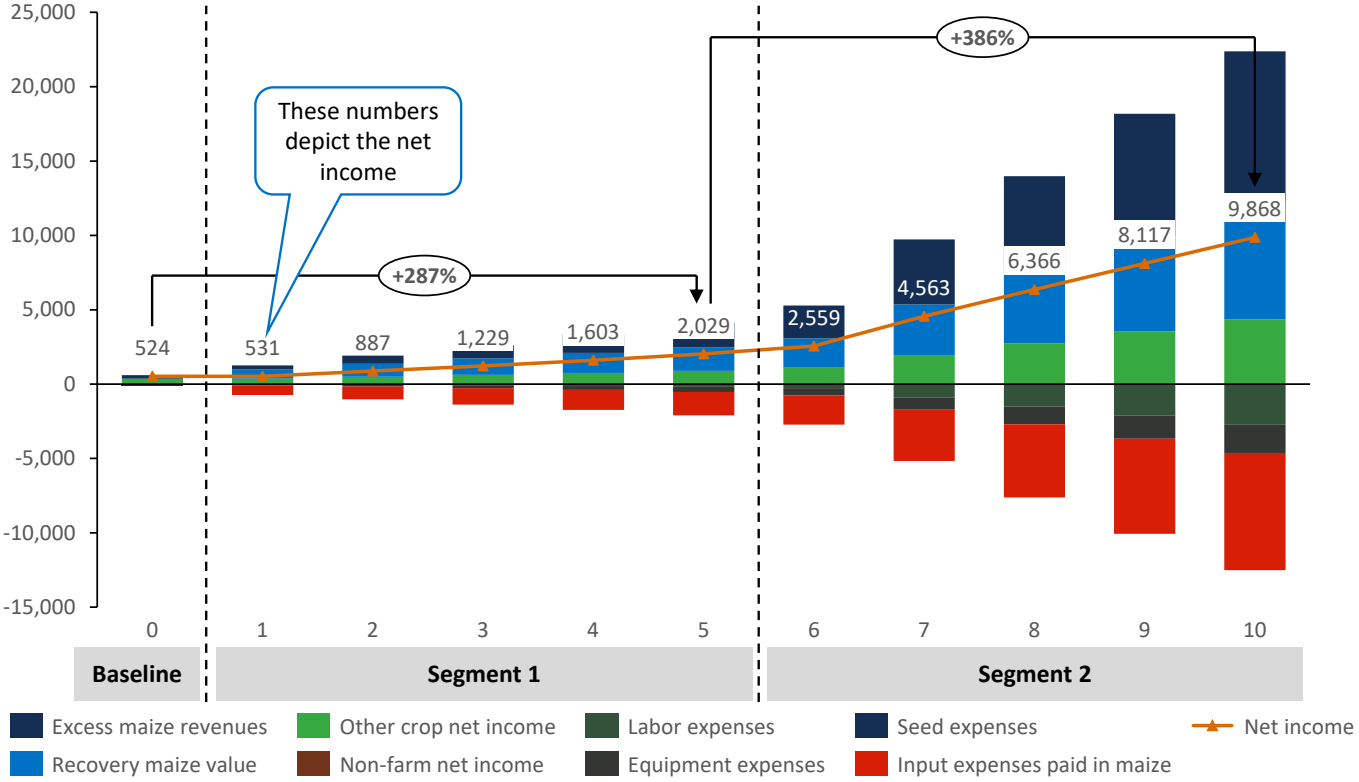
Farmer profit and loss – over time

Go to assumptions

As farmers graduate from Baseline, through Segment 1 and in exceptional cases to Segment 2 farmers, they are expected to increase their net income 3,5-fold and 18-fold respectively

Comparing net incomes of baseline and SDM farmers

Over time, in USD/year



Profitability over time

- This bar-chart represents the modelled net income development of a Baseline farmer joining the ALSA outgrower program in year 1[1] and growing to a year 5 Segment 2 farmer in year 10
- The main drivers for growth of revenues are the application of inputs, over time increasingly applied in line with best practices due to following training for several years in a row (GAP adoption is assumed to increase from 10% in year 1 to 90% in year 10). This leads to a significant increase in productivity
- Another important driver for revenue growth is the increase in land size (land size dedicated to maize is assumed to increase from 4 acres in year 1 to 10 acres in year 5 and to 50 acres for the few farmers who continue to grow until year 10), which influences both the maize as well as the other crop revenues
- The biggest driver for higher cost is the purchase of inputs as they grow linearly with acreage, as opposed to labor and equipment costs

[1] Note: most of our assumptions are set up to reflect this development over time (productivity, post-harvest loss, farm size etc). However the farm gate price for excess maize for year 6 reflects the 2021 farmgate price, which is specific to that year and therefore causes a slight distortion versus what would happen in reality.

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Farmer net income – over time

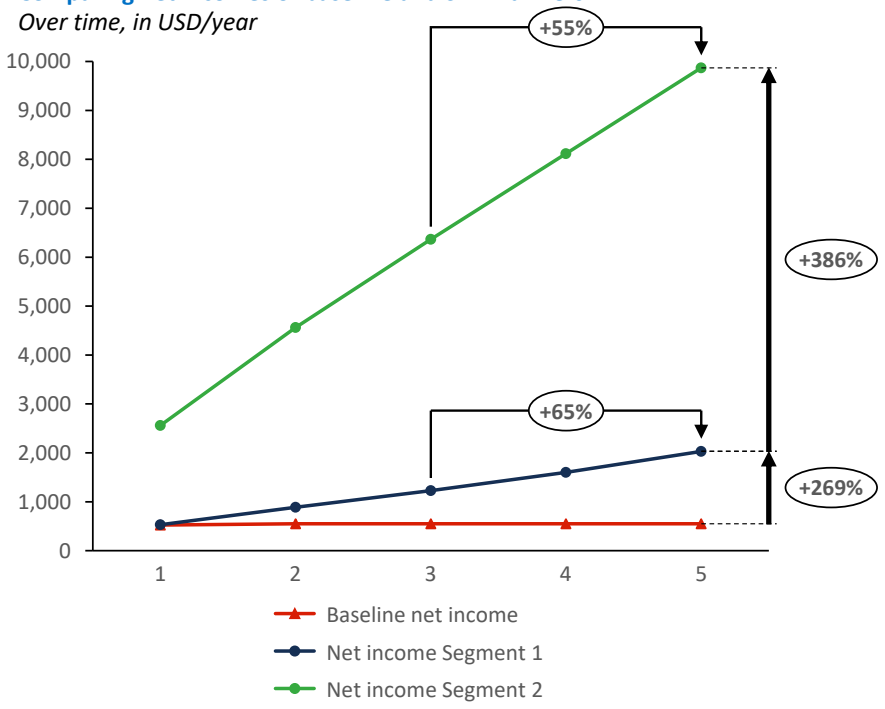
Go to assumptions

The farmer P&Ls point towards a limit to the economies of scale from growing farmsize

Comparing the 5-year development of net income of a Baseline, Segment 1 and Segment 2 farmer shows an enormous positive impact from participating in ALSA's SDM. And although absolute net incomes increase for both Segment 1 and Segment 2 farmers alike, the growth slows down over time for Segment 2 farmers versus Segment 1 farmers. This is explained by the fact maximum yields and minimal post-harvest loss have been reached and is clearly reflected in the net income per acre comparison. The increasing absolute cost per acre of inputs are now only offset by increase in absolute produce increase from acreage growth and no longer by increasing yields and decreasing post harvest losses.

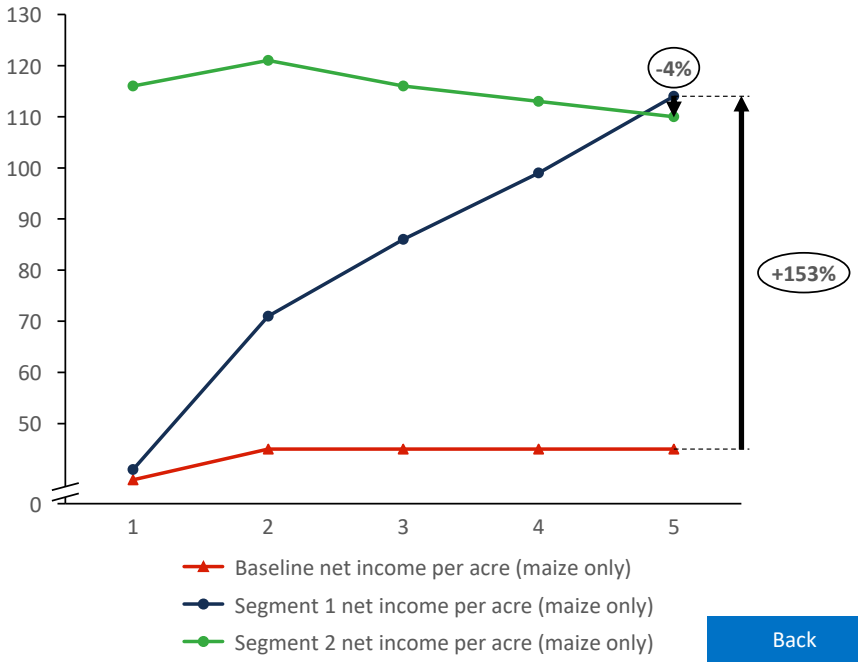
Comparing net incomes of baseline and SDM farmers

Over time, in USD/year



Comparing net incomes per acre of baseline and SDM farmers

Over time, in USD/year



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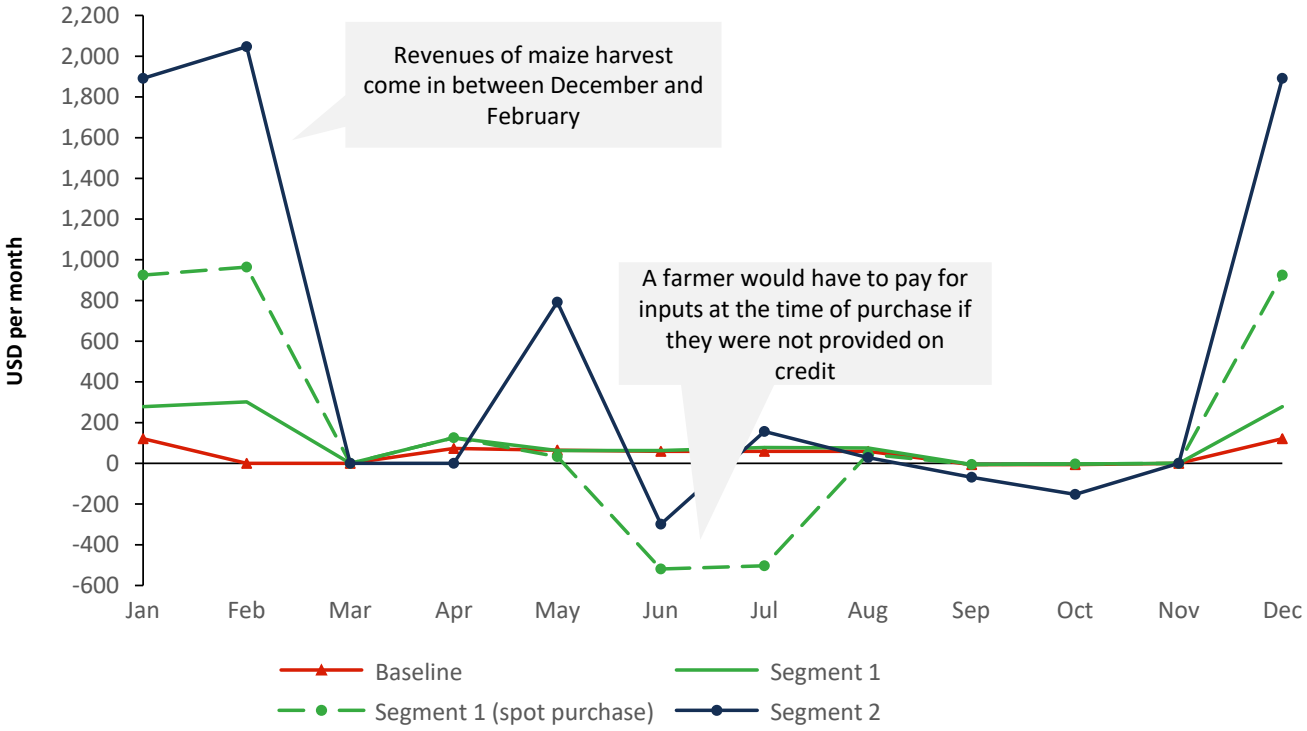
Farmer cash-flow

Go to assumptions

ALSA's SDM gives farmers access to high quality inputs, without exacerbating cashflow challenges

Comparing average cash flows over 5 years of Baseline and SDM farmers

USD/month



Cashflow is not negatively impacted

- Cashflow for baseline farmers is already good, with low volatility reflecting a low input / low output farming model
- The cashflow is only slightly improved for Segment 1 farmers. However, it is worth emphasizing that this is in spite of the fact that farmers have access to high quality inputs that put them in the position to significantly increase their annual net income, as demonstrated by the farm P&Ls and the hypothetical cashflow for Segment 1 farmers who pay the same inputs in cash immediately upon purchase (spot purchase)
- The cashflow for segment 2 farmers show a more erratic picture, but primarily on the positive cashflow side. It is expected that a Segment 2 farmer will be able to rather easily overcome the months of negative cashflow due to the 4 months of relatively high positive cashflow.

[1] Note: we were not able to obtain cash-flow assumptions from interviews with farmers, so these numbers potentially exclude some significant annual expenses, like school fees. They also do not account for unexpected off-farm expenses like medical costs, weddings, funerals etc. The assumptions were obtained from ALSA field staff who are expected to have a good understanding of farmer cash-flows, and stress-tested against literature where available.

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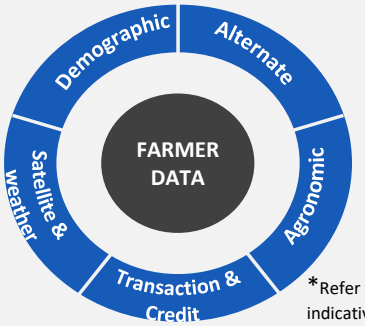
Digital Transformation Analysis

Understanding ALSA's digital maturity and exploring promising digital solutions

Solution prioritization – Credit scoring (1/2)

ALSA's top priority should be on an improved assessment of farmers and their risks. This in-turn will directly aid in availing trade finance at favorable terms

Challenge	Challenge description	Solution	Solution description	Approach
Access to favorable terms of trade finance: Presently, banks don't have sufficient visibility of the risk associated with ALSA's farmers. This results in a higher risk perception for the business	**Limited visibility of farmer risk**: The data fields for farmers presently collected through the RMG App, are largely demographic. The limited profiling is not sufficient to give a good estimate of individual risk and production risk. Moreover, some farmer data is stored in a separate excel file.	**Improved farm-level visibility:** The RMG app is the first step in the right direction for digitizing farm-level data collection, there is an opportunity to gather data that provides risk profile of the farmer.	**Robust risk-profiling for farmers:** At the farmer level, data such as **HH income, assets, land ownership** data should be collected. At the production level, **soil, water, weather and inputs data,** can help create a holistic risk profile. Ideally, the following are the key data pillars for building an optimized credit scoring model:  *Refer to annexe for indicative data-fields Covering these data pillars can help build confidence of financial institutes to offer better terms of financing.	RMG app being the primary source of data collection, partner with a fintech to procure/build credit scoring module on the data collected. **Examples of suitable fintechs:** LendXS Firstaccess Emata **Example sources for satellite data collection:** Vandersat CHIRPS IRI **Example of mobile solution for soil data:** Soilcares

Estimated investment: GHS 750,000

Estimated RoI period: 3-4 years

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Solution prioritization – Credit scoring (2/2)

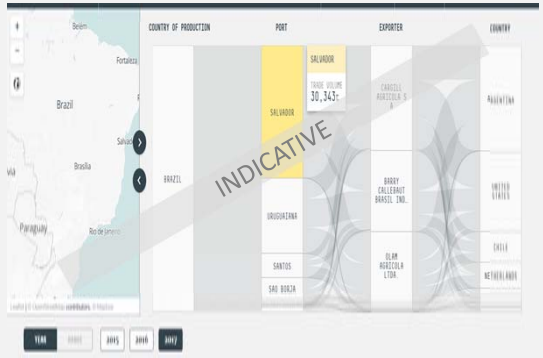
Data-fields to build a robust credit-scoring model

Demographic	Agronomic	Transaction	Banking & Credit	Satellite & Weather	Alternate data
Age	# years in farming	Farmer ID	Outstanding loan amount	Average rainfall in the region (past 3 years)	Digitally-administered survey data, such as marketing research or psychometric tests
Gender	# years with ALSA	Transaction value & date	Loan payback record (past 3-5 years)	Rainfall forecast	Mobile-network operator data (including mobile money account data)
Literacy	Average yield (last 3-5 years)	Product type & quantity	Current savings amount	Droughts in the region (past 3 years)	Mobile phone usage data
Annual income (individual)	Additional sources of income	Product value	Past record of loan default	Landmass images	
Annual income (HH)	# years of training in GAP	Payment received		Vegetation indices	
Land & Home ownership	Amount of inputs applied	Product quality			
Other assets	Soil condition				

*Not an exhaustive list, can be customized basis local banking requirement

Solution prioritization – Extended operations dashboard

While ALSA does track transactions at the warehouse level, their second priority should be to develop an operations visibility well beyond the warehouse, to improve decision-making and reduce costs

Challenge	Challenge description	Solution	Solution description	Approach
Holistic operations visibility: ALSA operations visibility (both distribution and procurement) provided by current ERP is at warehouse level. While these transactions are clearly recorded, a holistic view of operations, transactions and costs is not accessible beyond the warehouse level in real-time.	**Narrow operations analysis:** While the transactions report can easily be extracted through the ERP, it may prove challenging to quickly get a clear integrated picture at TO level.	**Operations management dashboard:** ALSA will immensely benefit from a dashboard on inputs and commodities at TO level/distribution or collection point level. The dashboard can reveal insights into demand, production and supply.	**Tracking inputs and commodity movement, records and transactions:** An interactive dashboard can allow improved tracking of inputs and commodity movement through different points in the supply chain (mainly at TO/distribution/collection level), with a geographical mapping. This tracking can save costs and help in optimizing investment decisions both in the short and long term. 	**Customize SAP module:** Explore customized dashboard option with existing SAP consultant and gradually integrate bar-codes/QR codes, along the supply chain, for real-time information relay. ALSA can also explore tweaking the RMG app to relay information directly to SAP, so the dashboard can also present data up to the farm level **Consultant:** Employ a short-term consultant to create a meaningful dashboard, using data from the App and ERP **Examples of dashboard developers:** RIVERLOGIC tigerspike

Estimated investment: GHS 500,000

Estimated RoI period: 5-6 years

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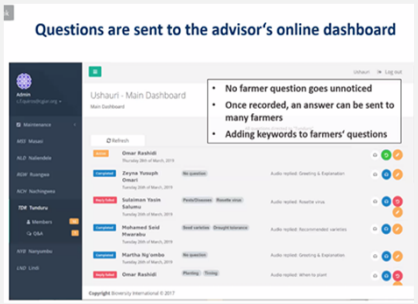
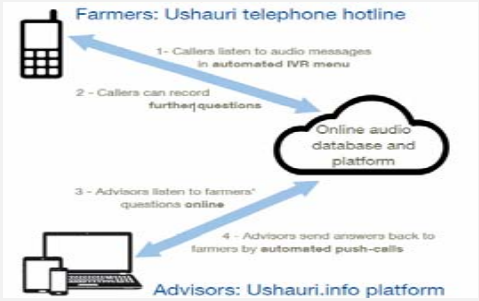
Solution prioritization – Improved relation between TO and farmers

As their third priority, ALSA should support its TOs in communicating with farmers more effectively while they continue to reach more smallholders

Challenge	Challenge description	Solution	Solution description	Approach
Maintaining effective communication link with farmers ALSA currently relies on its limited number of technical officers (TOs) to communicate with its smallholders. The TOs and farmers communicate during scheduled visits or through phone calls.	**Risk of communication gaps and critical information relay**: ALSA employs 10 TOs to cater to approx. 3.5k maize farmers, resulting in each TO communicating with 350 farmers. This can result in inefficient communication linkages including missing critical information, not being to connect on time, and communications gaps due to an overwhelming number of phone calls and messages received & sent. This problem can easily aggravate as ALSA expands its business.	**Semi-automatized agro-hotline for smallholder farmers:** The platform will allow TOs to have a communication dashboard and smallholders to get answers to queries either through pre-recorded or customized responses. TOs will be able to save queries received from farmers via IVR. 	**When TOs are unable to take calls, farmers are advised through pre-recorded or customized voice messages:** Through an automated 24/7 telephone hotline, farmers access a set of pre-recorded advisory messages (3-5 minutes each). Also, farmers can ask more questions by recording them within the hotline. The messages are saved on a server and TOs can listen to messages at their convivence and choose to respond to the messages either through a pre-recorded message, or share customized answers. 	**Ushauri agro-advisory platform and dashboard - Alliance Bioversity International-CIAT**

Estimated investment: GHS 300,000

Estimated RoI period: 8-9 years

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Digital Maturity Assessment breakdown (1/3)

Results per theme

1. Digital Strategy & Governance

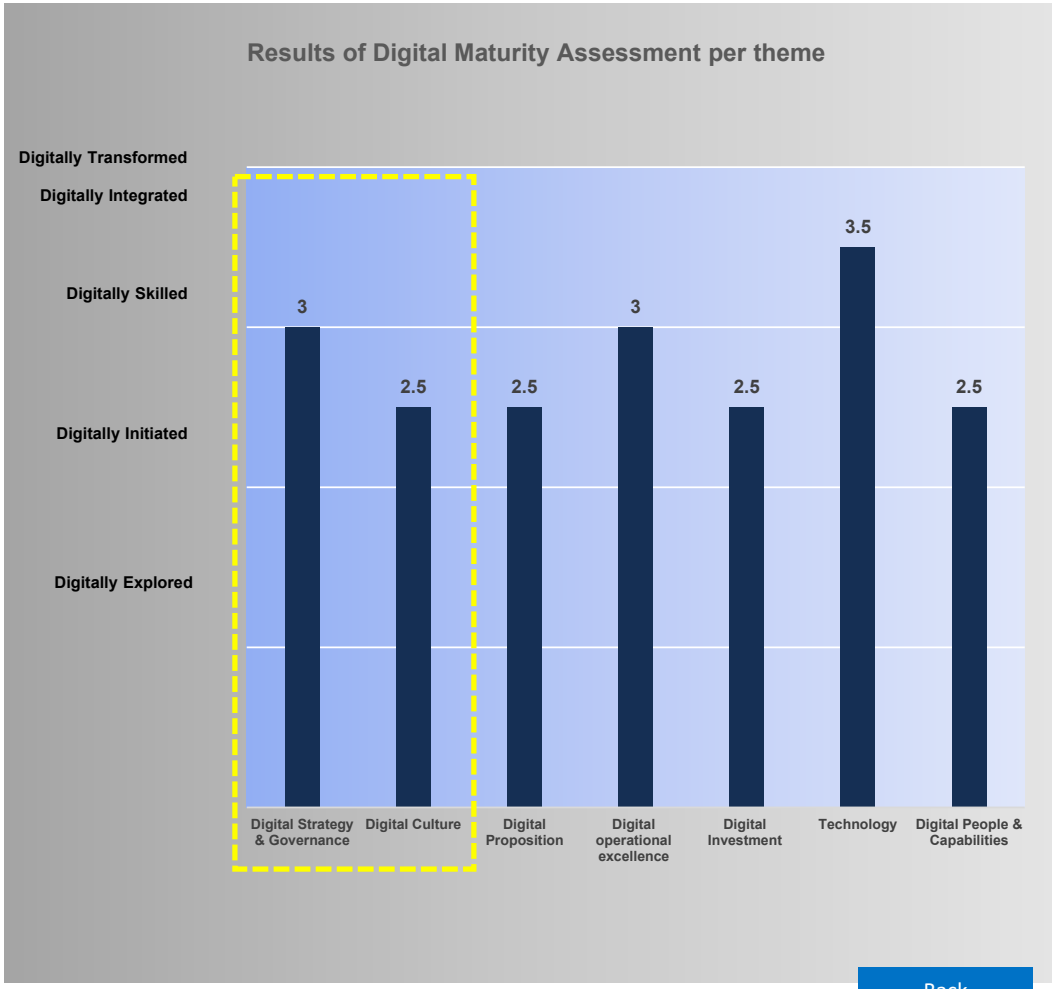
Results
ALSA clearly has a digital vision and there have been concrete steps being taken to transition towards an optimized processes, enabled by digital. The leadership does recognize the significance of a digital roadmap and a dedicated resource has been allocated to implement SAP going forward.
However, through a more unified approach can catalyze digital transition and yield effective outcomes.

Recommendations:
- Map existing and planned digital initiatives vs. organization objectives to build a digital roadmap
- Map existing and planned digital initiatives, to identify interlinkages and scope for further action
- Draft formal policies and rules to ensure a formal organization structure flexible to respond to quickly changing environments

2. Digital Culture

Results
The digital culture and vision that exists at the leadership level needs to be expanded across the organization. While ALSA has a fairly open environment to embrace new innovation, with the leadership team constantly on a lookout for new initiatives, there are currently no incentives or initiatives for other employees to adopt a digital mindset.

Recommendations:
- Create an engagement plan with employees to share the digital knowledge and vision that exist at the leadership level
- Have an open suggestion box or a designated touch-point where employees can submit their innovative ideas. This can be linked with a reward
- Subscribe to an organization wide online newsletter focused on digital developments in food supply-chains



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Digital Maturity Assessment breakdown (2/3)

Results per theme

3. Digital Propositions

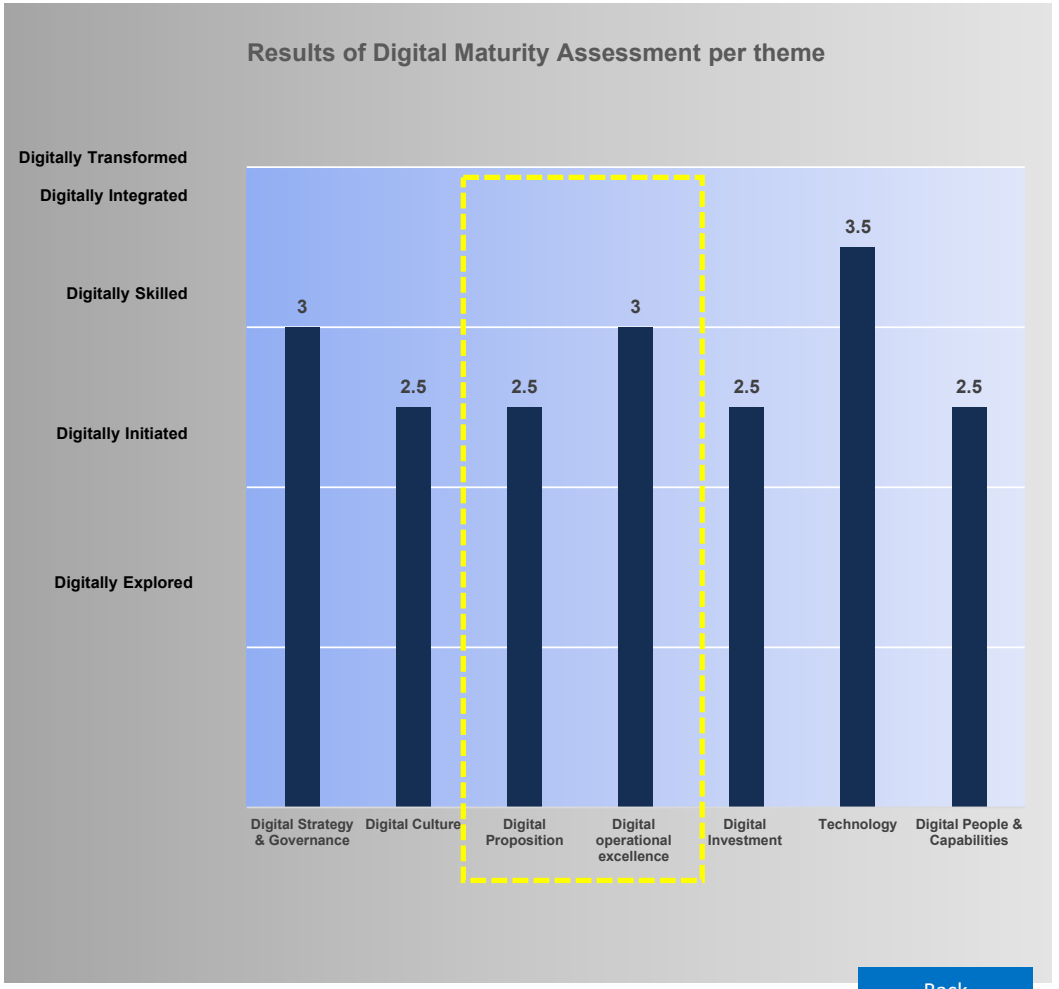
Results
ALSA has a vision to leverage digital technologies to offer better services and inputs to farmers. It is well aware of the water and soil related concerns in the region and plans to incrementally improve existing products and services accordingly. However, the use of digital initiatives has not been optimized

Recommendations:
- Explore and identify solutions/tech-providers who can optimize farmer advisory (integrating with weather, water and soil data).
- Use digital channels to engage and gain deeper insights from smallholders
- Use deeper farmer insights for segmentation and tailor trainings and input distribution

4. Digital Operational Excellence

Results
ALSA uses an app for farmer onboarding, runs an ERP for monitoring transactions across the value chain and also has an employee communications tool in place. However, there are points across the chain, where paper-based communications such as invoices, receipts are used and in other places there is reliance on e-mails to relay data to the ERP. Additionally, interlinkages between different applications are limited.

Recommendations:
- Establish links between different systems, to optimize decision making and performance
- Minimize use of e-mails and paper and create modules for partners/employees to directly feed data into the ERP



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Digital Maturity Assessment breakdown (3/3)

Results per theme

5. Digital Investment budget

Results
ALSA does invest in digital initiatives, but it does have fixed budget for digital initiatives (e.g. SAP, Fingerprint scanner for employee check-in)

Recommendations:
- Allocate a fixed budget to support digital initiatives. This will ensure digital development always being part of organization strategy.

6. Technology

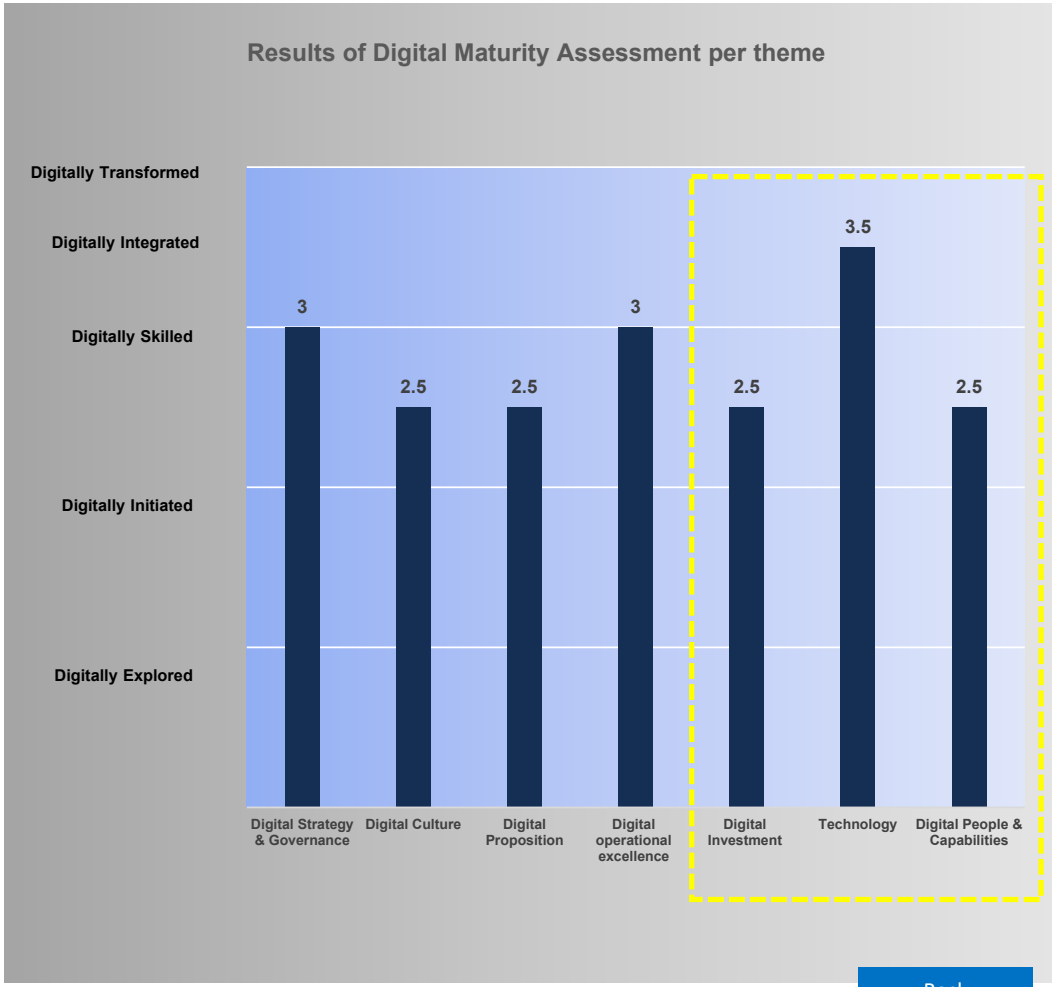
Results
ALSA has a technology infrastructure in place through which the ERP, app and communications applications are run. Additionally, the leadership is aware of new innovations such as IoT, blockchain etc. There is also cyber-security layer for running day to day applications. However, there is high likelihood that the technology and security awareness is concentrated at the top management level and the current systems that are running is a mix of old and new applications.

Recommendations:
- As ALSA treads on the path towards becoming more digital, all employees should be made aware of the accompanying risks and consequences of using digital: create risk management processes and cyber security measures.
- Ensure all systems and applications are up to date for minimizing risks

7. Digital People & Capabilities

Results
Formal roles within ALSA that focus on digital initiatives are limited to 2 people, including the IT support personnel. However, there is vision for building a digital team/having a dedicated digital resource.

Recommendations:
- Organize digital training for existing staff, who are young, have operational roles and are more tech savvy
- Create a planning document that includes future goals of the organization including the capacity requirements



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Assumptions

Key assumptions and background data and analyses

Farmer segment assumptions

The below assumptions were used for the SDM operator analyses

We assume that each year 10% of the year 5 segment 1 farmers graduate to segment 2 and are able to further increase their farm size

Segmentation approach *Based on whether farmers have reached a certain farm size and professionalism by working with ALSA*			Baseline	Segment 1	10% Segment 2
Minimum criteria: *Farmers are assigned to a Segment based on these criteria*		**Primary crop**	Farmers must grow primarily maize		
		Farm size	4 acres	Year 1: 4 acres Year 5: 10 acres	Year 1: 12,5 acres Year 5: 50 acres
Segments: *Distinct groups of SDM beneficiaries that differ on* ***farm characteristics*** *and/or* ***services received***	**Characteristics**	**% of farmland dedicated to maize**	50%	50%	50%
		Average yield	0.73 Mt/acre	Year 1: 1.68 Mt/acre Year 5: 2.17 Mt/acre	Year 1: 2.36 Mt/acre Year 5: 2.39 Mt/acre
		Home consumption per farm	1,000 kg	1,000 kg	1,000 kg
		Mechanization	no	no	no
		Attrition rate	N/A	5%	2%
		Post-harvest loss	15%	Year 1: 3% Year 5: 1%	1%

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SDM operator assumptions

The below assumptions were used for the SDM operator analyses

	Group financing	Debt financing
Exchange rate	5.76314 GHS/USD	
Attrition rate segment 1	5%	
Attrition rate segment 2	2%	
Graduation rate (segment 1 -> 2)	10%	
Default rate (average)	4.9%	
Loyalty rate	32%	
New farmers	6,000	21,750
Total number of farmers (2025)	7,829	22,454
Acreage SDM farmers (2025)	+/- 91,000	+/- 180,000
Total acreage (inc. commercial farmers) (2025)	+/- 151,000	+/- 300,000

Concluding slides

Glossary

Abbreviation	Meaning
ALSA	Agriculture Labor Services Agency
CoC	Cost of Capital
EBIT	Earnings before interest and taxes
EBITDA	Earnings before interest, taxes, depreciation and amortization
ECOWAS	Economic Community of West African States
FFF	Farmfit Fund
FTE	Full-time equivalent
GAP	Good Agricultural Practices
GHS	Ghanaian Cedi (currency)
MOFA	Ministry of Food and Agriculture
Mt	Metric Ton (1,000 kg)
P&L	Profit & Loss Statement
p.a.	Per Annum
PBT	Profit Before Taxes
ROE	Return On Equity
SDM	Service Delivery Model
SWOT	Strengths, Weaknesses, Opportunities & Threats
USD	United States Dollar (currency)

Sources

Source	Link (if publicly available)
AGRA (2016)	
Climate Change Profile: Ghana (2018) Dutch Ministry of Foreign Affairs	https://reliefweb.int/sites/reliefweb.int/files/resources/Ghana_1.pdf
FAO (2018): Global Crop Database	http://www.fao.org/land-water/databases-and-software/crop-information/en/
FAO Sector overview (2018)	
FAOSTATS (2017)	
IFDC (2012)	
IFPRI Discussion Paper 01024 (2010)	https://ebrary.ifpri.org/digital/collection/p15738coll2/id/4356
The African Seed Access Index (2017)	https://tasai.org/
The Fertilizer Supply Chain in Ghana (2012)	https://africafertilizer.org/wp-content/uploads/2017/04/The-Fertilizer-Supply-Chain-in-Ghana.pdf
United Nations COMTRADE database on international trade	https://comtrade.un.org/
USAID (2014): Demographic and Health Survey	https://dhsprogram.com/pubs/pdf/FR307/FR307.pdf
World Bank (2017): Global Findex	https://globalfindex.worldbank.org/
World Economic Forum (2020): Global Gender Gap report	http://www3.weforum.org/docs/WEF_GGGR_2020.pdf

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This report was developed using think-cell