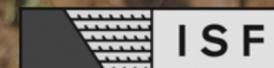




# DIGITAL DATA SHARING IN AGRICULTURE

CASE STUDY: NOVEMBER 2020



**MERCY  
CORPS**

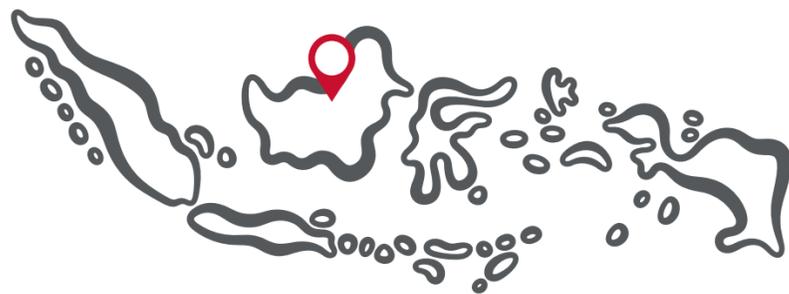
**AGRIFIN**

# AGRIFIN

**We work with +14m farmers & over 130 partners across Africa**

Mercy Corps' AgriFin is funded by the Mastercard Foundation and Bill and Melinda Gates Foundation to help organizations design, test and scale digitally-enabled services for Africa's smallholder farmers.

- Objective to develop services that increase farmer income, productivity and resilience, with 50% outreach to women.
- Work with private & public sector scale partners such as banks, mobile network operators, agribusinesses, technology innovators and governments.
- We help our partners develop bundles of digitally-enabled services, including smart farming, financial services, market access and logistics supporting data-driven partnerships.



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# BACKGROUND & OBJECTIVES

**The goal of this brief is to help others understand why data is important to agriculture, how your institution could use data to improve the lives of smallholder farmers and provide practical steps to get there.**

**Data is growing in importance** across all sectors, including agriculture. With the advent of new digital technologies and innovative business models, the amount of **data available and potential use cases are increasing**. FinTech and AgTech **innovators have started to recognize this trend** and are utilizing data in new ways. Many are **exploring data partnerships**, combining the power of multiple datasets to create greater impact for smallholder farmers. Underpinning many of these engagements are **complex negotiations** about how data sharing can unlock service delivery and enable different social and commercial outcomes for different players. AgriFin has been deeply involved in organically helping to structure many of these agreements that govern the use of data. Within each of these types service provision arrangements there are **different actors with a variety of interests and incentives to share data**.

Drawing on AgriFin's years of experience, this research undertook a **stock-take of what has been learned** about data sharing to enhance service delivery to smallholder farmers. These insights draw from 33 of AgriFin's data sharing engagements and distilled the lessons to make them broadly applicable, as well as built **frameworks and tools to fill identified gaps**. This Digital Data Sharing in Agriculture learning brief is expected to be used broadly by the agriculture community to:

- Understand the **important role data plays** in agriculture and key **data trends**
- Identify **common barriers** faced by data sharing arrangements
- Provide **practical guidance** on overcoming data barriers, including
  - High-level framework for **understanding what data is and how it is used**
  - Practical **data readiness assessment** framework and tool
  - Step-by-step process to data sharing
  - List of other key resources



# THE BROAD LESSONS IN THIS BRIEF ARE DRAWN FROM ENGAGEMENTS ACROSS 4 COUNTRIES AND 14 CORE PARTNERS

25% of AgriFin's total engagements had a strong data sharing component, for a variety of use cases. While 6 core use cases emerged from these engagement, data can be used for a wide variety of uses.

COUNTRY	PARTNER (# OF ENGAGEMENTS)	RISK SCORE	PRODUCT DEV.	TARGETED TRAINING	PUBLIC INFO	AGENT OPTIMIZ.	INPUT SALES
ETHIOPIA	• ATA (1)				X		
	• Plant Village (5, regional)		X		X		
KENYA	• DigiFarm (9)	X	X	X		X	X
	• KALRO (2)				X		
	• Pula (1)				X		
	• Arifu (1)	X		X			
	• Plant Village (5, regional)		X		X		
	• FtMA (3, regional)	X					
NIGERIA	• Pula (2)		X	X			X
	• Ignitia (1)						
	• CoAmana (1)	X					
	• AgroMall (2)			X		X	X
TANZANIA	• WeFarm (2)	X					
	• Halotel (2)	X	X			X	
	• Vodacom (3)		X				



# AGRIFIN'S EXPERIENCE INVOLVES VARIOUS TYPES OF PARTNERSHIPS NEEDING SPECIFIC SUPPORT FROM AGRIFIN

While each Mercy Corps Engagement is unique in terms of partners, interests and use cases, there are **common barriers and breakthroughs** that have emerged that can help others exploring data partnerships

## SUPPORT OFFERED BY AGRIFIN

DATA AUDIT

DATA ANALYTICS

PARTNERSHIP BROKERAGE

CHANNEL DEVELOPMENT

TECH DEVELOPMENT

PRODUCT DEVELOPMENT

DIGITAL STRATEGY

## OVERVIEW OF AGRIFIN'S WORK

- **Data-sharing has featured in ±25% of AgriFin engagements**, with a focus on partnership brokerage and product development support
- Work on data-sharing has spanned a wide variety of types of partners (MNOs, FSPs, NGOs. etc.) and **70% involved tech-companies**
- The data-sharing use-cases have included **credit scoring, targeted training, and open access to information**
- While the ambitions of partners have been described as very high, analysis reveals that many are only **just beginning to understand how to work with data**, having relatively low levels of data-sharing readiness
- This **level of readiness is reflected in the types of data being shared** (primarily demographic data), the format of the data sharing (primarily static reports), the level of sophisticated analysis applied to the data (primarily simple analysis at the farmer level) and the types of agreements being used (primarily simple bi-lateral agreements)



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# EXECUTIVE SUMMARY (1/3)

- The amount of data, particularly digital data is growing across sectors, including agriculture and the use of data to increase impact on smallholder farmers is a growing area for all types of service delivery models
- Despite this growth in interest and use, **the use of data is still at a nascent stage and there are common barriers faced:** Capacity, Commercial, Cultural, Reputational, and Regulatory. The likelihood of these barriers appearing is linked to the type of actor involved and the use case for the data.
- To overcome these barriers, **there needs to be a common understanding of data for agriculture** at three key levels- data level, systems level, and organizational level, to allow institutions to assess their data and collaborate with others
- While many taxonomies for data exist, **there is currently no common taxonomy for agriculture data.** AgriFin has identify 9 key data categories: Socio-Economic, Natural Resource Earth and Environment, Demographic, Administration and legislation, Transactional, Online, Machine, Agronomic and Psychometric
- It is also **important to understand the use case**, as the impacts the type of data needed and how a partnership can form. Use cases in agriculture fall under three main categories: Access to Markets, Access to Services and Access to Assets.
- For partners to effectively engage in data sharing, they **must first asses their data readiness** around four key domains : Data Availability, Data Management, Process and People and AgriFin has developed a tool to help institutions conduct this assessment and ensure that they are posed for
- Once an institution has ensured its readiness, there is a **data sharing process of 6 steps** that needs to be followed: 1. Catalogue internal data 2. Prioritize use case 3. Get leadership buy-in 4. Identify data partners 5. Negotiate agreements 6. Optimize sharing and analysis



# EXECUTIVE SUMMARY (2/3)

**THE VOLUME AND VARIETY OF DIGITAL AGRICULTURAL DATA IS GROWING AT AN EXPONENTIAL RATE, CREATING ENTIRELY NEW OPPORTUNITIES FOR A VARIETY OF ACTORS TO TRANSFORM SERVICE PROVISION IN SMALLHOLDER COMMODITY MARKETS.**

- Previously data on rural farmers was extremely limited and unreliable, but reliable data sources (telecom, internet of things, satellites, transactional data) have emerged, enabling AgTech to take advantage of Big Data. **Private companies are increasingly utilizing these new data sources to learn more about farmers and to structure new services.**
- **Data-sharing has featured in ±25% of AgriFin engagements** and spans a wide variety of types of partners (MNOs, FSPs, NGOs, agri-businesses) in four of the five focus countries of the program, **involving tech-companies in 70% of relevant engagements**
- The use-cases that data-sharing have supported have included **credit scoring, targeted training, and open access to information.** About half of the time data is used for one specific use case and half of the time data is used to support multiple use cases.

**DESPITE THIS GROWTH IN INVESTMENT IN NEW DATA-ENABLED USE CASES, DESK RESEARCH AND ANALYSIS OF 14 PARTNERSHIPS WITHIN THE AGRIFIN PORTFOLIO REVEALS THAT THE SOPHISTICATED USE OF DATA IN AGRICULTURE IS STILL AT AN EARLY STAGE THROUGH OUT THE SECTOR.**

- This level of sophistication is reflected in the **types of data being shared** (primarily demographic data), **the format of the data sharing** (primarily static reports), **the level of analysis** applied to the data (primarily simple analysis at the farmer level) and the **types of agreements being used** (primarily simple bi-lateral agreements)
- Moreover, many investments are still at an early stage with many new data-enabled platform models, services and systems still **working out how to operate profitably at scale**
- These insights are applicable beyond AgriFin's portfolio and have **wider implications for the agriculture sector as a whole.**

**EARLY DATA SHARING PARTNERSHIPS HAVE DEMONSTRATED THAT ESTABLISHING NEW USE CASES IS BOTH COSTLY AND COMPLEX, WITH A RANGE OF CULTURAL, COMMERCIAL, REPUTATIONAL, REGULATORY AND CAPACITY BARRIERS TO OVERCOME.**

- Analysis of the AgriFin's portfolio revealed that in the establishment of data sharing agreements **a lack of data skills, capacity, culture and leadership constrains many organizations** from **understanding the potential of data and effectively assessing the business case for investment** within different regulatory environments
- After the establishment of a data sharing agreement **typical barriers** tended to center around limitations in **enabling systems, management capacity and the complexity of working with disaggregated farmers**
- While barriers will always be unique to the use case, partners involved, context and the nature of the sharing agreement analysis distilled a **common taxonomy of reference barriers** and mapping of where they are more likely to show up in different partnerships



# EXECUTIVE SUMMARY (3/3)

**ENABLING RESEARCH AND LEARNING ABOUT HOW TO EFFECTIVELY USE DATA IN DIFFERENT AGRICULTURAL USE CASES AND PARTNERSHIP MODELS IS QUICKLY ACCELERATING, SUPPORTED BY A NUMBER OF DONOR-FUNDED PILOTS AND OPEN DATA INITIATIVES.**

- A number of donor funded programs, including Mercy Corps AgriFin program, are **working with providers to test new service delivery models and smallholder-specific services** using data as a key enabler
- These early use cases are increasingly being documented with another key stream of research focusing on **enabling platform business models**
- In the broader ecosystem a number **open data initiatives** such as the Open Data Initiative, GODAN and GEOGLAM are establishing much-needed **standards, open data sets and enabling resources for different actors**

**WITHIN THIS BROADER ECOSYSTEM OF INITIATIVES, THIS LEARNING BRIEF TAKES STOCK OF WHAT HAS BEEN LEARNED SO FAR WITHIN THE MERCY CORPS PORTFOLIO OF ENGAGEMENTS AND PARTNERSHIPS TO DISTIL SOME EARLY FINDINGS INTO SYSTEMIC BARRIERS GENERALLY APPLICABLE FOR THE WIDER ECOSYSTEM AS WELL AS PROVIDING SOME PRACTICAL TOOLS FOR PRACTITIONERS / OTHER STAKEHOLDERS WORKING IN THIS SPACE TO CONTINUE TO BUILD UPON GOING FORWARD.**

- **Section one and two of this Learning Brief** provide an overview of the potential of data in agriculture and the results of the analysis into key barriers from the AgriFin program
- **In section three of this Learning Brief** the following tools are included:
  - **Tool 1 – Reference taxonomies** that distil how the AgriFin program considers key dimensions of data within data sharing partnerships
  - **Tool 2 – A data readiness tool** that provides a holistic way of assessing organizational readiness to start working with data internally or in data sharing partnerships
  - **Tool 3 – A data-sharing agreement process** that distills the common steps, typical barriers and learnings from the AgriFin program

**AS THE AGRIFIN PROGRAM CONTINUES TO EVOLVE ITS' WORK OVER THE COMING YEARS THERE WILL BE AN INCREASING FOCUS ON HOW TO WORK WITH DATA TO INCREASE WHAT IS POSSIBLE IN SMALLHOLDER SERVICE DELIVERY. WE HOPE THIS CATALOGUE OF LEARNINGS AND PRACTICAL TOOLS ARE A HELPFUL RESOURCE. IF YOU HAVE ANY THOUGHTS OR REACTIONS TO WHAT IS PRESENTED PLEASE DO NOT HESITATE TO GET IN TOUCH.**



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# KEY TAKE-AWAYS ON DATA SHARING IN AGRICULTURE

- 1** Most institutions are at an **early stage** in their understanding and work with data in the area of agricultural service provision. Without successful examples in the market, **support is often needed to spark interest in what can be done around specific use cases.**
- 2** The **business-case for investment** in different data-related use cases is often a **significant “leap”** from current operations for providers, who typically do not have the information and benchmarks needed to make the initial case for investment.
- 3** **Data-related** opportunities typically require **sharing arrangements** between organizations that are often **costly** to establish (in terms of time), **complex** to navigate (in terms of dynamics between organizations) and **require capabilities that few institutions have in house.**
- 4** In order to **maximize the benefits of a data partnership**, institutions must ensure that they have the right enablers in place to allow them to fully utilize the data and work productively with other institutions. An early data readiness assessment can help reveal these enablers.
- 5** **Regulatory compliance and consumer protection** is often a significant part of realizing data related use-cases and **requires a nuanced legal understanding** that many providers find difficult to navigate without support from legal counsel or direct interaction with regulators.
- 6** While data-enabled use cases in agriculture are still emerging there is a **growing literature and set of open-data-initiatives** that are working to enable individual service providers to see the opportunities, assess the risks/benefits, lower establishment costs and develop more standardized ways of capitalizing on the data opportunity.



# OUTLINE

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## 1: The promise and role of data sharing in agriculture

11 - 15

A look at key data trends impacting the agriculture space and current work around data and data sharing

## 2: Barriers and challenges to effective data-sharing

16 - 22

Taxonomy of common barriers faced in data sharing and nuanced findings on conditions that make them likely to emerge

## 3: Empowering effective data-sharing

23- 43

### 3.1: Understanding data fundamentals

High-level framework for understanding what data is and how it is used

### 3.2: Assessing organizational readiness

Key components to assess readiness for data sharing and practical tool

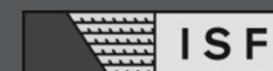
### 3.3: Considering the process of establishing data sharing

Clear steps in the process of data sharing, including common barriers and lessons by step

## 4: Additional learnings resources

44 - 46

Links to other research and examples around data sharing to build on findings and lessons presented in this report





# **1. THE PROMISE AND ROLE OF DATA SHARING IN AGRICULTURE**

# WHILE DATA CAN PLAY AN IMPORTANT ROLE IN AGRICULTURE, THERE IS LIMITED UNDERSTANDING OF HOW

Despite the increasing use of data in agriculture, it is still in a nascent stage of development and there is not even a common data taxonomy used across organizations to talk about what agriculture data is, making it difficult to learn from what others are doing

“When information can flow easily, when data is democratized, the cost of doing business in agriculture goes way down... The excessive time and money farmers, agribusinesses, and cooperatives spend managing the risk of doing business with unknown partners is a drag on efficiency. When these partners can know each other easily—can function as nodes in a single marketplace—agriculture will thrive.”

- Bill Gates

## THE POTENTIAL AND GROWTH OF DATA IN AGRICULTURE

- Data sources for AgTech are expanding, making Big Data trends more relevant
- Private companies are increasingly utilizing these new data sources to learn more about farmers
- Companies are increasingly partnering to expand access to data and further understanding
- In the development space, organizations focus heavily on open data to decrease the cost of business



# DATA IS BECOMING INCREASINGLY IMPORTANT IN ALL SECTORS, INCLUDING AGRICULTURE

## Key trends that will continue to shape the use of data in agriculture

### THE AMOUNT OF DATA IS GROWING EXPONENTIALLY MAKING BIG DATA THE NORM

In an increasingly digital world, the volume, variety and velocity of data continues to increase, with the majority of new data being unstructured data that must be filtered and curated. This data explosion expands the possibility of making data-driven decisions and creating data-driven business

### BIG DATA IS POSSIBLE DUE TO NEW DATA COLLECTION INSTRUMENTS AND EXPAND ADOPTION OF DIGITAL TECHNOLOGIES

New technologies such as drones, satellites, and sensors have expanded data collection options. Simultaneously, we are seeing increased adoption of digital technologies. These are fueling the Big Data trend.

### THE RISE OF BIG DATA HAS LED TO NEW DATA-ENABLED BUSINESS MODELS AND SERVICES

While data can enable companies to understand their customer as never before, it has also given rise to data-enabled services, where data itself becomes the commodity, sold to customers directly or sold to businesses who want to know more about their customers and benefit from combined data sets to get there

### ARTIFICIAL INTELLIGENCE IS SUPPORTING PREDICTIVE ANALYTICS

Many companies are currently piloting AI predictive ability on data and after adoption it is expected to replace data scientists. According to the prediction of Gartner, in 2020, 40% of data science tasks will be automated. This will further the amount of data that can be processed and expand the insights, making data even more important going forward.

### DATA WILL CONTINUE TO GROW AS A COMMODITY, SHARED BETWEEN INSTITUTIONS

Gartner predicts that by 2022, 35% of large organizations will be either sellers or buyers of data via formal online data marketplaces, up from 25% in 2020. Data marketplaces and exchanges will emerge to provide single platforms to consolidate third-party data.

### DATA PROTECTIONS AND PRIVACY IS A MAJOR AREA OF CONCERN

As the amount of data grows and what companies can learn from the data expands, governments and citizens are becoming increasingly concerned about the use and ownership of data, particularly personal data. This will continue to be an area of concern.

SOURCE: ORACLE, GARTNER



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# GIVEN DATA'S IMPORTANCE, VARIOUS ORGANIZATIONS ARE SUPPORTING THE USE OF DATA IN AGRICULTURE

**Insight: AgriFin's work intersect with a number of data agenda's and complements the work of other partners. AgriFin works across the data openness spectrum and focuses less on the policy side**

AGENDA	DATA FOCUS	EXAMPLE*	AGRIFIN WORK	DATA OPENNESS		ACTIVITY TYPE	
				Closed ----- Open	Technical ----- Policy		
Digitization Initiatives	Primary	National Government	-----	▲		▲	
Open data hubs & access initiatives	Primary	CABI, KALRO	Data audit & use case identification		▲	▲	
Data partnerships & platforms	Secondary	GIZ, Gates Foundation	Broken data partnerships	▲		▲	
Data-driven service delivery use cases	Secondary	CGAP, UNCDF	ROI analysis for use case	▲		▲	
Open data standards & principles	Primary	ODI, GODAN	-----		▲		▲
Data systems strategy & compliance	Primary	ODI	Develop data strategies		▲		▲
Data privacy & regulations	Primary	General data Protection Regulation	Highlight importance of privacy	▲			▲

\* THESE EXAMPLES ARE REPRESENTATIVE AND NOT EXHAUSTIVE



# AGRIFIN HAS BEEN ON THE FOREFRONT OF PIONEERING DATA PARTNERSHIPS WITH THREE TYPES OF SERVICE MODELS

**Insight: A wide variety of institutions are seeking to collaborate with others to realize the potential of data to support service provision in smallholder agriculture**

## MULTILATERAL SERVICE PROVISION

**Description:** Two partners are jointly delivering services to the same target farmers and to facilitate delivery, they share data on the target farmers.



**Use of data:** Data is often personal in nature, allowing deeper insights on a farmer-level. Typically allowing complimentary services that minimize risks for farmers in getting higher yields.

## PLATFORMS

**Description:** Two partners are jointly delivering services to the same target farmers and to facilitate delivery, they share data on the target farmers.



**Use of data:** Farmer-level, and can be shared with multiple partners to ensure that farmers are getting access to the best services by creating competition around use of data, rather than data itself.

## OPEN DATA INITIATIVES

**Description:** Typically government/NGO led, data is made publicly available to improve public service delivery and also enable other actors to innovate to address outstanding issues.



**Use of data:** Given the open nature, data tends to be non-personal in nature and typically gives location-based insights. Can help triangulate data for private companies and inform policy.



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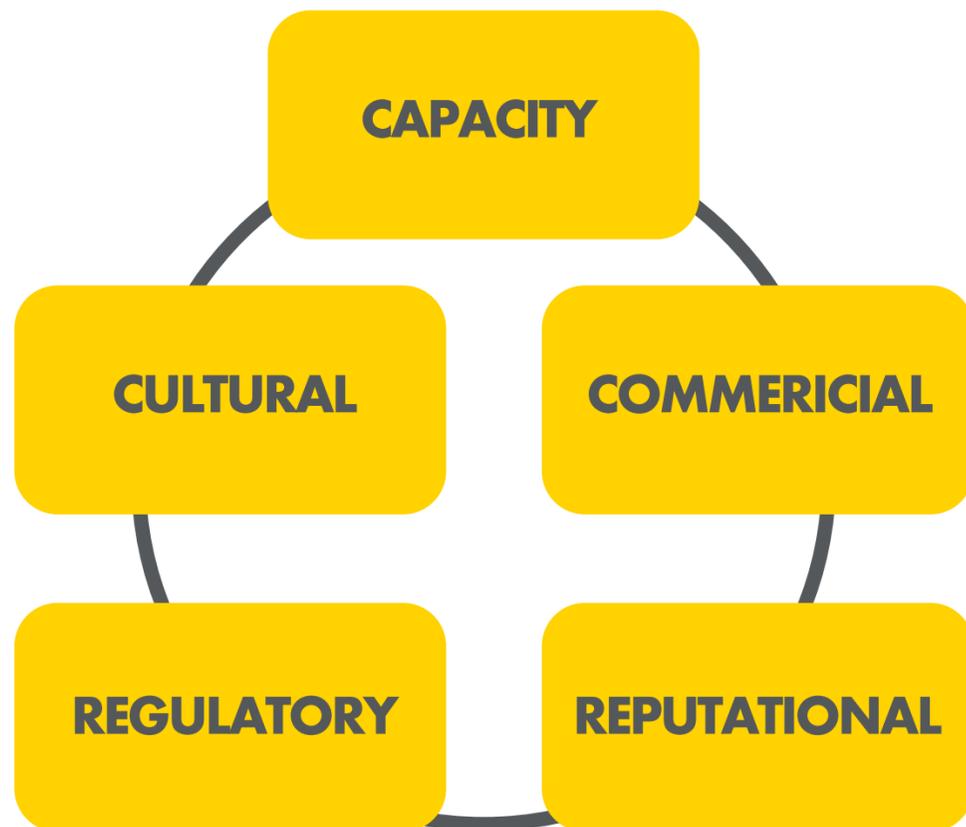


## **2. BARRIERS AND CHALLENGES TO EFFECTIVE DATA SHARING**

# DATA SHARING PARTNERSHIP BARRIERS TYPICALLY FALL INTO FIVE BROAD CATEGORIES

**Insight:** AgriFin has reviewed 30+ engagements to identify common barriers faced in data sharing. These findings are broadly applicable, beyond AgriFin’s work, and are meant to support others identify and address barriers as they explore data sharing arrangements.

## HIGH-LEVEL BARRIERS TO DATA SHARING



- The type of partner, type of data, use case for the data and country where data is shared typically shape which barriers a partnerships will face
- The culture and interests of the partners involved also have a major impact on how data-partnerships are identified, negotiated and managed
- Despite these key differences in data-sharing arrangements, considering the five high-level types of barriers reveals a number of insights
- Under each of these high-level barriers, a series of sub-barriers has been identified from AgriFin’s work

# HIGH-LEVEL DATA-SHARING BARRIERS BROKEN DOWN (I OF II)

BARRIER TYPE	SPECIFIC BARRIER	IMPLICATION
<b>CAPACITY</b>	<b>Human Resources</b>	Do not understand what data they have, how it can be useful to others or how other data could help them
	<b>Skills</b>	Do not have the internal capacity to analyze data
	<b>Literacy</b>	Do not have the digital literacy to understand how data could be collected and can be skeptical of the data collected
	<b>Technology</b>	Even if partners want to share, they often resort to excel sharing, which is not sustainable as datasets grow and does not allow real-time decision making
	<b>Non-standardized language</b>	Ensuring the two systems can speak to each other technologically can be an issue/ interoperability or common ontologies
	<b>Data reliability</b>	Reliance on farmer-initiated data (locust reporting) requires a large amount of awareness and incentivization
	<b>Experience with farmers</b>	Partners that have never worked with farmers in the past and need to build out the infrastructure will not be able to optimize use of data provided to fullest extent
<b>COMMERCIAL</b>	<b>Data as an asset</b>	Companies see their data as a valuable asset and do not want to lose their competitive edge, so prefer not to share
	<b>Cost of data</b>	Data collection and analysis involves costs and in low margin businesses, the cost of integrating data may not outweigh the costs
	<b>Power imbalance</b>	Imbalances in partnership where both partners may not be on the same level of capacity, making negotiations often unfair and execution sometimes uneven
	<b>IP</b>	Some companies use data to learn how to do something and then steal business model
	<b>Investors</b>	Impact investor vs more traditional impacts view on sharing
	<b>Competition</b>	Some data partners want exclusive partnerships rights, limiting the other partner's ability to work with competitors



# HIGH-LEVEL DATA-SHARING BARRIERS BROKEN DOWN (II OF II)

BARRIER TYPE	SPECIFIC BARRIER	IMPLICATION
<b>CULTURAL</b>	<b>Internal data sharing practices</b>	Companies have data sharing culture set up between departments and sister companies that translate into other relationships. Larger companies tend to be stricter than smaller start-ups
	<b>Leadership change</b>	Informal data sharing agreements means that they are not institutionalized and changes in leadership or personnel can impact sharing
	<b>Lack data culture</b>	Companies that have never worked with data before do not always see the value of data partnerships, particularly ag companies, which can limit potential benefits
<b>REGULATORY</b>	<b>National data policies</b>	When not fully understood, partners are hesitant to engage for risk of doing something wrong
	<b>Lack of data sharing protocol</b>	Do not have sharing protocols set-up and almost impossible to find the skill-set needed to write the protocols
	<b>Policy interpretation</b>	Policies, government and GDPR, can be interpreted differently by different partners, impacting the internal data sharing polices they put in place. Understanding is not standardized on what is and is not allowed
	<b>Legal jurisdiction</b>	When working across countries/regions, legal jurisdiction of agreements can be an issue
<b>REPUTATIONAL</b>	<b>Personal data</b>	As most data shared is personal, linked to a single individual, companies are hesitant to share for reputational risks
	<b>Past experience</b>	More established entities may have experienced issues of reputational concerns regarding information they shared, making them hesitant to share data
	<b>Market entry</b>	For newer players who are just building their reputation in the market, they are concerned with ensuring their reputation is not impacted by any data sharing



# LOOKING ACROSS AGRIFIN ENGAGEMENTS, THERE ARE SOME COMMON SUB BARRIERS THAT EMERGE IN DATA SHARING

## PRIOR TO SHARING DATA AGREEMENT

### General lack of understanding of potential value of data and use cases

- **Lack of human capacity and skills:** Without a team with data analytics skills, do not recognize the potential use cases or know how to value them, limiting investment in data analysis capacity and data partnerships
- **Lack of data culture and leadership support:** Data partnerships involve time and resources of various departments. Creating a data-driven culture needs to come from top management and often management is hesitant or changes
- **Data as an asset:** Certain companies view data as their core asset and are very hesitant to share, not recognizing the benefits that could come from data sharing, if done properly
- **Regulations:** Given the increased regulations and scrutiny on sharing personal data, there is a wariness to share data at the farmer-level

## FOLLOWING DATA SHARING AGREEMENT

### Inefficient processes and delayed data sharing

- **Lack of human capacity and skills:** Without a team committed to the agreement, sharing can often be delayed because staff either does not have sufficient time or know-how to fulfill the agreement
- **Lack of technology:** To gain the most out of shared data, it would ideally be real-time data linked directly into one system, however, most data sharing is done via static reports, limiting potential value
- **Farmer experience:** Understanding how to work with farmers and having a field force on the ground is often necessary to make use of the data. Often partnerships are formed without this experience and data is not readily available or is unreliable

**Going Deeper:** While these were the most commonly seen barriers across engagements, more nuanced findings are possible classifying barriers via a taxonomy and mapping against other characteristics of data sharing arrangements



# CERTAIN BARRIERS ARE ALSO MORE LIKELY TO BE PRESENT DEPENDING ON THE TYPE OF PARTNER

HIGH-LEVEL BARRIER	PROVIDER TYPE				
	MNO	FSP	TECH COMPANY	GOV'T	NGO'S
REGULATORY	X	X			
COMMERCIAL	X		X		
CULTURAL	X				
CAPACITY	X			X	X
REPUTATIONAL	X	X	X		

- **Governments and NGOs face skill capacity barriers.** Data is not the core of what governments and NGOs do, and thus finding the right skills can be an issue. Also, given the growing demand for data skills, they often can not compete for talent.
- **MNOs face human capacity barriers.** MNOs typically have the skills, but those with the skills are already being used on other projects and getting them to focus on agriculture is seen as low priority.
- **Commercial barriers are highest for tech companies.** Tech companies are more data driven and typically small with less bargaining power, thus data plays an important role in their businesses and commercial risks are higher for them
- **MNOs and FSPs face cultural and regulatory barriers** that tend to be large, well-established entities with higher levels of bureaucracy, making data sharing culture more difficult; Their sectors also have been some of the first to come under scrutiny in many countries regarding data privacy,

**Insight: Commercial barriers are the most common barrier type that AgriFin has seen because it works closely with the private sector.**



# THE USE CASE FOR THE DATA IMPACTS THE TYPE OF BARRIERS THAT ARE LIKELY TO APPEAR

HIGH-LEVEL BARRIER	USE-CASE* RATIONALE					
	RISK SCORING	PRODUCT DEV	TARGETED TRAINING	PUBLIC INFO	AGENT OPTIMIZ	INPUT SALES
REGULATORY					X	
COMMERCIAL	X	X	X			X
CULTURAL			X		X	
CAPACITY	X	X		X		
REPUTATIONAL					X	X

- **Risk scoring and new product dev. face capacity barriers.** These are two of the more complicated applications, often requiring complex data analysis skills, resulting in capacity gaps.
- **Open data initiatives face higher capacity barrier.** Often governments, who face skill capacity barriers, are involved in these initiatives, making them also correlated with this barrier
- **Commercial barriers are less likely for public info. or agent optimization.** Because public information is non-commercial in nature and typically deals with location-based data, rather than farmer level data. Also agent optimization is mostly internal data and others are not involved.

\* THESE USE CASES ARE BASED ON THE AGRIFIN'S ENGAGEMENTS AND NOT EXHAUSTIVE

**Insight: knowing what the data will be used for can help to identify potential barriers early and come up with mitigation strategies**





## **3.1 UNDERSTANDING DATA FUNDAMENTALS**

# EFFECTIVE ENGAGEMENT MEANS UNDERSTANDING THE FUNDAMENTALS

## 6 FUNDAMENTAL QUESTIONS

**1. WHAT TYPES OF DATA ARE THERE?**

**2. WHERE DOES THAT DATA COME FROM?**

**3. WHAT ARE COMMON DATA TRAITS?**

**4. HOW CAN DATA BE USED?**

**5. HOW CAN DATA BE SHARED?**

**6. HOW CAN DATA BE SHARED?**

## RATIONALE

- Understanding the fundamentals allows an institutions to identify data that they have available, how they could be applicable and where more data
- Data fundamentals allow for analysis of data dimensions across different scenarios, helping to draw out specific insights
- Having a common understanding and language allows different department in an institution as well as outside partners to communicate about data, facilitating collaboration
- Different sectors view data differently and ensuring that agriculture has a common language to speak about data can allow other sectors to engage more actively

**Specific data is used within different systems and applications to create value for specific service delivery models**

**Note: The following slides answer these questions by looking at data through three levels: (Data, Systems and Organizational) to create a common baseline for considering data within service delivery**



# 1. DATA TYPES: WE EXPANDED ON GODAN'S DATA CLASSIFICATION- WHICH WAS ALREADY AGRICULTURE SPECIFIC

ADMINISTRATION & LEGLISATION		SOCIO-ECONOMIC DATA		NATURAL RESOURCES, EARTH AND ENVIRONMENT DATA		DEMOGRAPHIC DATA	
<ul style="list-style-type: none"> <li>• Government, agricultural law</li> <li>• Official records</li> <li>• Government finance data</li> <li>• Rural development project data</li> </ul>		<ul style="list-style-type: none"> <li>• Land use &amp; productivity (inputs &amp; land size)</li> <li>• Value chain data</li> <li>• Infrastructure data (roads, water, ICT)</li> <li>• Market data</li> </ul>		<ul style="list-style-type: none"> <li>• Meteorological</li> <li>• Elevation</li> <li>• Hydrological</li> <li>• Soil</li> <li>• Satellite imagery</li> </ul>		<ul style="list-style-type: none"> <li>• Personal</li> <li>• GPS/location</li> <li>• Communication</li> <li>• Financial instruments</li> </ul>	
TRANSACTIONAL DATA	ONLINE DATA	MACHINE DATA	AGRONOMIC DATA	PSYCHOMETRIC DATA			
<ul style="list-style-type: none"> <li>• Financial transactions</li> <li>• Telecom transactions</li> </ul>	<ul style="list-style-type: none"> <li>• Social media usage</li> <li>• Web behavior (comments)</li> </ul>	<ul style="list-style-type: none"> <li>• Interest of things/sensors</li> <li>• Data exhaust (cookies)</li> </ul>	<ul style="list-style-type: none"> <li>• Production</li> <li>• Pest &amp; disease management</li> </ul>	<ul style="list-style-type: none"> <li>• Personality traits</li> <li>• Skills &amp; knowledge</li> <li>• Attitudes</li> </ul>			

**Desk Research Finding: There are no commonly accepted ways of understanding data, for agriculture and beyond, and a wide variety of models and taxonomies exist.**

SOURCE: GLOBAL OPEN DATA FOR AGRICULTURE AND NUTRITION (GODAN)



# 2. DATA SOURCES: THERE ARE VARIOUS SOURCES FOR FARMER DATA & EACH SOURCE HAS ITS OWN INTERESTS

DATA SOURCE	DATA TYPE & INTEREST
<b>GOVERNMENT DATABASES</b>	<ul style="list-style-type: none"> <li>• Various government entities collect information to inform their strategies, policies and show impact</li> <li>• Databases are often siloed and include large data sets on demographics, land, and production</li> </ul>
<b>USERS/FARMERS (FIELD DATA)</b>	<ul style="list-style-type: none"> <li>• Farmers provide primary data, often via one of the other data sources, but also directly via surveys, interviews, etc. Currently their consumption of data is limited but used to improve production and connect to value chain players</li> <li>• Data is typically demographic, socio-economic household data, agriculture usage and production</li> </ul>
<b>PRIVATE SECTOR VALUE CHAIN ACTORS</b>	<ul style="list-style-type: none"> <li>• This includes input providers, aggregators, processors and exporters who are interested in growing their businesses via data</li> <li>• Data is typically around sales, revenues, and basic customer data</li> </ul>
<b>COMPLEMENTARY SERVICE PROVIDERS</b>	<ul style="list-style-type: none"> <li>• This includes financial services, telecoms, and various AgTech companies who are interested in expanding their products to farmers and increasing revenue</li> <li>• Data is typically around behaviors outside of agriculture (credit score, calling patterns, product usage) but AgTech in particular have more agriculture related information, including satellite data</li> </ul>
<b>DATA COMPANIES</b>	<ul style="list-style-type: none"> <li>• This includes companies who collect weather, soil, environmental data</li> <li>• Their interest is to then monetize and sell to others, sometimes adding analytical value to the data</li> </ul>
<b>INTERNET OF THINGS</b>	<ul style="list-style-type: none"> <li>• Along with an increased use of data gathered from sensors in objects, citizens are also increasingly becoming sensors through their mobile phones and other connected devices.</li> </ul>
<b>ONLINE DATA</b>	<ul style="list-style-type: none"> <li>• This includes social media data, data exhaust and other online data footprints left by people</li> </ul>
<b>INT'L ORGS &amp; NGOS</b>	<ul style="list-style-type: none"> <li>• This includes UN, World Bank, FAO, BMGF and others who are interested in creating a public good</li> <li>• Data is typically open access and aggregated from various government entities into a central database or sharing project results, increasingly trying to standardize (i.e. IATI)</li> </ul>
<b>RESEARCHERS</b>	<ul style="list-style-type: none"> <li>• Scientific communities and academia collect large amounts of data for their studies</li> <li>• Results can be open access or paid, often depending on who paid for the research</li> </ul>



# 3. DATA PROFILE: DATA CAN BE EVALUATED BASED ON A NUMBER OF CHARACTERISTICS

**Insight: The nature of the data being used determines what is possible in service delivery to farmers. Also, the unit of analysis (farmer level, farm level, village-level) has a major impact.**

CHARACTERISTIC	DESCRIPTION	IMPLICATIONS
<b>INTERNAL VS EXTERNAL</b>	<ul style="list-style-type: none"> <li>Internal data is generated from within the business, covering areas such as operations, maintenance, personnel, and finance.</li> <li>External data comes from the market, including customers and competitors. It can be from surveys, questionnaires, research, etc.</li> </ul>	Determines if a data is available or needs to be procured from outside
<b>OPEN VS CLOSED DATA</b>	<ul style="list-style-type: none"> <li>Open data is data that anyone can access, use and share, though may require attribution</li> <li>Closed data is available only through internal access, typically employees</li> </ul>	Determines if external data needs to be procured through a partnership or is readily available
<b>PERSONAL VS NON PERSONAL</b>	<ul style="list-style-type: none"> <li>Personal data is any information which are related to an identified or identifiable natural person, i.e. name, telephone, credit card</li> <li>Non-personal data did not originally relate to an identified or identifiable natural person, such as data on weather conditions</li> </ul>	Impacts data sharing options, as personal data typically has stricter regulations on how it can be shared
<b>REAL-TIME VS HISTORICAL</b>	<ul style="list-style-type: none"> <li>Real-time data is information that is delivered immediately after collection and typically updated frequently</li> <li>Historical data is information from the past in a static snapshot</li> </ul>	Real-time allows informed strategic decisions and improves business, but also requires technology infrastructure
<b>STRUCTURED VS UNSTRUCTURED</b>	<ul style="list-style-type: none"> <li>Structured data is highly organized, quantifiable business intelligence. It's easier to put in a database, search, and analyze.</li> <li>Unstructured data is a newer type of data, not pre-defined, typically text-heavy information, such as customer comments.</li> </ul>	80% of all data today is unstructured, but finding insights buried in it can be difficult. Requires analytical skills to sift through.
<b>LINKED VS UNLINKED</b>	<ul style="list-style-type: none"> <li>Linked data is data that is connected via a common identifier (i.e. GPS location, person's name, etc.) which defines the unit of analysis</li> <li>Unlinked data does not share, or not recognize that it shares, a common identifier with other data</li> </ul>	Linked data allows multiple datasets to be used together to gain deeper insights., thus common identifiers are important.

# 4. USE CASES: DATA USES IN AGRICULTURE FALL INTO THREE BROAD CATEGORIES BASED ON THE FARMER PERSPECTIVE

DIGITAL FINANCIAL SERVICES	DIGITAL MARKETS	DIGITAL INFORMATION	DIGITAL LOGISTICS
<p>e.g. Using farmer data for credit risk scoring to determine loan eligibility</p>	<p>e.g. Using farmer data to support seed distribution to meet demand</p>	<p>e.g. Improving production by linking soil data to fertilizer application</p>	<p>e.g. Facilitating tractor sharing via smart phones with equipment tracking</p>
<ul style="list-style-type: none"> <li>• Credit and loans</li> <li>• Input financing</li> <li>• Credit scoring</li> <li>• Crowdfunding</li> <li>• Insurance</li> <li>• Digital agri-wallet</li> <li>• Savings</li> <li>• Payments</li> </ul>	<ul style="list-style-type: none"> <li>• Access to Inputs                             <ul style="list-style-type: none"> <li>◦ Seeds</li> <li>◦ Fertilizer</li> <li>◦ Pesticides</li> <li>◦ Tools and Equipment</li> </ul> </li> <li>• Access to Outputs/ Production                             <ul style="list-style-type: none"> <li>◦ Grains/Fruits/Veg</li> <li>◦ Livestock/Fish</li> </ul> </li> <li>• Traceability</li> <li>• Smart contracting</li> </ul>	<ul style="list-style-type: none"> <li>• Weather information</li> <li>• Soil information</li> <li>• Pest and disease management</li> <li>• Product verification</li> <li>• Record keeping</li> </ul>	<ul style="list-style-type: none"> <li>• Shared asset management</li> <li>• Equipment monitoring</li> <li>• Field force management</li> <li>• Transportation</li> </ul>

SOURCE: ADAPTED FROM GSMA



# 5. DATA SHARING MODELS: THE TYPE OF SERVICE DELIVERY MODEL IMPACTS THE WAY DATA IS COLLECTED/SHARED

SERVICE DELIVERY MODEL	DESCRIPTION	DATA SHARING MODEL	TYPICAL CHALLENGES	EXAMPLE
<b>1.INDIVIDUAL SERVICE PROVIDER</b>	One company is providing services directly to farmers	- User data sharing - Paid data sharing	To fill data gaps, reliant on own data collection capacity or must purchase data, then have skills to analyze data	Agro-dealers, Traders
<b>2.MULTILATERAL SERVICE PROVISION</b>	Various companies collaborate to provide services	- User data sharing - Bilateral data sharing - Multilateral data sharing - Paid data sharing	Agreeing on data sharing terms, ensuring data standardization, regulatory policies on data sharing (personal data)	Value chain initiatives
<b>3.PLATFORM</b>	Services are bundled together typically by a technology company	- User data sharing - Platform data sharing	Agreeing on data sharing terms, regulatory policies on data sharing (personal data)	DigiSoko
<b>4.OPEN DATA INITIATIVES</b>	Typically government publishes data to improve service delivery of others as well as inform policy	- Open access sharing	Ensuring data standardization and interagency politics	Government data hubs

SOURCE: ISF ADVISORS



# 6. DATA INTERESTS: DIFFERENT ORGANIZATION TYPES TYPICALLY BRING DIFFERENT DATA ASSETS TO SERVICE DELIVERY

**Insight: Realizing the value of the data depends on the data available to the service provider and how they are able to use it, making data sharing agreements important**

SERVICE PROVIDER	INTERESTS	DATA TYPE	CAPABILITIES
<b>MNO</b>	New services that monetize their offering	-Transaction data -Geolocation	Large network coverage with big data backend and analytical teams reviewing data
<b>FINANCIAL INST.</b>	Expansion to new markets	-Credit history -Savings history	Client database with backend data system, access to credit bureau data, and analytical teams reviewing data
<b>AGRO DEALERS</b>	Augment competitive position and own supplier relationships	-Input purchases -Market data	Paper-based tracking and limited data points collected
<b>TRADERS/EXPORTERS</b>	Create quality supply and ensure traceability	-Production quality -Production quantity -Market data	Ranges from no data collection to traceability systems to understand exactly which farm they are purchasing from; often depends on size and end buyer
<b>AGTECHS</b>	Incubate new disruptive technologies	-Sensor data	Strong primary data collection mechanisms, databases, and analytical teams; often ability to share data built-in
<b>NGOS</b>	Create impact for clients	-Socio economic data -Demographic data -Agronomic data	Often paper-based collection through limited M&E team based on donor requirements. Limited analytical resources; May standardize data via IATI or make open
<b>SOCIAL MEDIA PLATFORMS</b>	Increase interactions on platform	-Online behavior data -Machine data	Large amount of unstructured data requiring strong analytical system to draw insights
<b>FIN TECH</b>	Incubate new, disruptive technologies	-Transaction data -Machine data	Capacity for large amounts of data an increasingly using alternative data; often ability to share data built-in
<b>GOVERNMENT</b>	Create enabling environment to improved lives of citizens	-Administrative and legislative data	Large amount of primary data collection, but often not digitized or effectively shared





## **3.2: ASSESSING ORGANIZATIONAL READINESS**

# THE FIRST STEP TO BREAKTHROUGH BARRIERS, IS TO ASSESS DATA SHARING READINESS ALONG FOUR MAJOR DOMAINS

## DATA READINESS ASSESSMENT FRAMEWORK



## RATIONALE

### Who is this framework meant for?

•This framework is applicable for any institution that is thinking about using data to improve its work and/or looking to partner with others around data sharing

### Why is the framework important?

•These four key domains have been shown to be pivotal in determining whether institutions can effectively engage with data internally and are ready to maximize impact of data sharing arrangements

### When should it be applied?

•It should be applied early on when thinking about using data, to help guide the institutions to maximize impact of data and then revisited periodically to ensure that improvements are being made and/or maintained

SOURCE: ADAPTED FROM CCSSE'S INSTITUTIONAL DATA READINESS ASSESSMENT TOOL



# OVERVIEW OF SUB-DOMAINS AND INDICATORS (I OF II)

DOMAIN	SUB-DOMAIN	MEASURE
<b>1. DATA AVAILABILITY</b>	<b>Completeness</b>	<ul style="list-style-type: none"> <li>• Volume and breadth of data is sufficient from which to draw analysis</li> <li>• Historical data is available for a sufficient period to conduct predictive analysis</li> </ul>
	<b>Integrity</b>	<ul style="list-style-type: none"> <li>• Data sources are confirmed for reliability</li> <li>• Databases are monitored to ensure contents are accurate and are cleaned if needed</li> </ul>
	<b>Linked</b>	<ul style="list-style-type: none"> <li>• Standardized categories and codes regardless of who is responsible for collecting</li> <li>• Institutional data systems are linked to other internal systems</li> </ul>
	<b>Timely</b>	<ul style="list-style-type: none"> <li>• Data requests are meet quickly and efficiently.</li> <li>• Data is available before decisions are made, not after.</li> </ul>
<b>2. DATA MANAGEMENT</b>	<b>Infrastructure</b>	<ul style="list-style-type: none"> <li>• Data warehouse exists to combine information from databases to permit customized analysis</li> <li>• User-friendly, graphical software allows non- IT users to access databases,</li> <li>• Snapshots of data are taken at pre -defined times and are archived as historical reports</li> </ul>
	<b>Communication</b>	<ul style="list-style-type: none"> <li>• An official data dictionary is available to all users of data</li> <li>• An inventory and flowchart of the relationship of various data systems is available for end-users</li> <li>• A schedule of routine data reports is shared throughout the institution</li> </ul>
	<b>Procedures</b>	<ul style="list-style-type: none"> <li>• Standard roles and responsibilities have been assigned for data management and shared</li> <li>• There are standard written procedures for using and altering data, to ensure data is not lost</li> <li>• Privacy, confidentiality, and appropriate access to data, particularly for personal data</li> </ul>

SOURCE: ADAPTED FROM CCSSE'S INSTITUTIONAL DATA READINESS ASSESSMENT TOOL



# OVERVIEW OF SUB-DOMAINS AND INDICATORS (II OF II)

DOMAIN	SUB-DOMAIN	MEASURE
3. PROCESS	Policies	<ul style="list-style-type: none"> <li>Internal data policy covers collection, storage, analysis and sharing, and aligns with national regulation</li> <li>There is a process for reconciling competing information that may not agree</li> <li>Regular audits of data and databases are conducted to ensure data quality.</li> </ul>
	Assessment	<ul style="list-style-type: none"> <li>There is frequent dialog about what information is critical for the institution to know</li> <li>The institution routinely assesses its ability to use data to make decisions.</li> <li>There is a periodic review of which routine reports are actually used and by whom</li> </ul>
	Data-driven culture	<ul style="list-style-type: none"> <li>The institution regularly collects, analyzes, and reports data</li> <li>The strategic plan that uses data and converts that data into actionable information</li> <li>In general, data is used to guide discussion</li> </ul>
4. PEOPLE	Leadership	<ul style="list-style-type: none"> <li>Frequently use data to make decisions</li> <li>Emphasizes the importance of data across the organization</li> <li>Promotes a culture of data sharing, connecting data, IT and end-users</li> </ul>
	Data team	<ul style="list-style-type: none"> <li>Able to use a range of analytical techniques, to meet institutional needs</li> <li>Helps users make sense of large amounts of data and assess data reliability</li> <li>Takes an active role in identifying big picture issues facing the institution</li> </ul>
	IT team	<ul style="list-style-type: none"> <li>Routinely prepares data for decision-making</li> <li>Puts data tools, e.g., software and hardware, in the hands of end-users and trains them</li> <li>Has adequate programming expertise to meet the institution's demand for data</li> </ul>
	General team	<ul style="list-style-type: none"> <li>Provided the tools and training needed to use data</li> <li>Encouraged to use data-driven decision making</li> <li>Skilled at converting data to actionable information and can clearly communicate why</li> </ul>

SOURCE: ADAPTED FROM CCSSE'S INSTITUTIONAL DATA READINESS ASSESSMENT TOOL



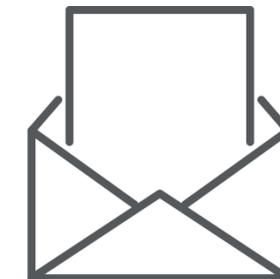
# THE ASSESSMENT TOOL HELPS TO IDENTIFY WHICH AREAS NEED MORE WORK IN ORDER TO MAXIMIZE DATA IMPACT

## OUTCOMES OF ASSESSMENT:

- High-level scoring by domains and sub-domains
- Understanding of areas that need improvement and/or support
- Facilitation of productive dialogue internally, that pushes the institution closer to data readiness

## EXAMPLE OF ASSESSMENT RESULTS

DOMAIN	DATA AVAILABILITY (90%)	DATA MANAGEMENT (70%)	PROCESS (20%)	PEOPLE (50%)
SUB-DOMAIN	COMPLETENESS (70%)	INFRASTRUCTURE (80%)	POLICIES (20%)	LEADERSHIP (40%)
	INTEGRITY (100%)	COMMUNICATION (50%)	ASSESSMENT (30%)	DATA TEAM (90%)
	LINKED (90%)	PROCEDURES (50%)	DATA DRIVEN CULTURE (10%)	IT TEAM (80%)
	TIMELY (90%)			GENERAL STAFF (20%)



**INVITATION: AGRIFIN HAS DEVELOPED THIS DATA READINESS TOOL THAT IT IS BEING TESTING INTERNALLY. IF YOU ARE INTERESTED IN TESTING THE TOOL WITH US, PLEASE CONTACT US AT:**

**EMAKAU@MERCYCORPS.ORG**





### **3.3: CONSIDERING THE PROCESS OF ESTABLISHING DATA SHARING**

# IF EVALUATION SHOWS DATA SHARING READINESS, THEN ONE CAN EXPLORE PARTNERSHIPS USING THE FOLLOWING STEPS

PARTNERSHIP DEVELOPMENT STAGE	DESCRIPTION
<b>1 CATALOGUE INTERNAL DATA</b>	Understanding all data sets available within the organization, where they sit and who is responsible for them
<b>2 PRIORITIZE USE CASE</b>	Analyzing what data could be used for, prioritizing based on cost-benefit analysis, and identifying data gaps
<b>3 GET LEADERSHIP BUY-IN</b>	Presenting business case for proposed use case and getting sign off to move forward and partner
<b>4 IDENTIFY DATA PARTNER</b>	Identifying partners that can fill data gap, understanding interests, ensuring aligned vision
<b>5 NEGOTIATE AGREEMENT</b>	Reviewing legal frameworks, institutionalizing data arrangement in terms of data type, sharing mechanism, frequency, etc.
<b>6 OPTIMIZE SHARING / ANALYSIS</b>	Developing data sharing protocols, building internal capacity in terms of skills and technology; Optimizing data sharing process and analytics



# 1. CATALOGUE INTERNAL DATA: MAXIMIZING INTERNAL DATA WILL RESULT IN HIGHER RETURN FROM SHARED DATA

## STEPS



## COMMON BARRIERS

- **Valuing data** in a way that makes opportunities apparent
- **Data literacy** to look for data sets, assess the reliability and potential of that data
- **Human resources** to dedicate to cataloging internal data
- **Lack of data culture** to facilitate alignment across the organization

## LEARNING FROM AGRIFIN'S PORTFOLIO

- Most providers are at an **early stage** in their understanding and work with data. Without successful examples in the market, **support is often needed to spark interest** in what can be done around specific use cases
- However, **starting with internal data** identification and organization can help organizations identify opportunities
- From this point **ensuring that key staff have required data skills** from the outset is critical to successfully developing data-partnerships
- Additionally, creating an executive level **endorsed data-driven culture** helps to ensure alignment around data-related opportunities across an organization



# 2. PRIORITIZE USE CASE: DATA HAS MANY USES; IDENTIFY THE USE CASE THAT CREATES THE MOST VALUE

## STEPS



## COMMON BARRIERS

- **Myopic thinking** about how data could be used by other departments or partners
- **Data literacy** to read and assess data uses
- **Skills** to conduct data analytics needed to identify potential use cases
- **Lack of data culture** to be able to think of potential use cases
- **Lack of experience** with farmers limits understanding of data needed

## LEARNING FROM AGRIFIN'S PORTFOLIO

- Using data involves costs in collecting, storing and analyzing data and these **costs must be weighed against the potential benefits**; The business-case for investment in different data-related use cases is often a significant “leap” from current operations for providers, who don’t have the information/benchmarks needed to make the case, often requiring outside expertise
- **Agriculture data is unique** and can be complicated to know what is needed if **internal agricultural experience** is not present
- **Use cases are at the core of data sharing** and are about identifying value and maximizing value across partners



# 3. GET LEADERSHIP BUY-IN: GIVEN THE TIME AND RESOURCES REQUIRED, LEADERSHIP BUY-IN IS ESSENTIAL

## STEPS



## COMMON BARRIERS

- **Valuing data** to calculate ROI of data use case, making it difficult for investment
- **Past experience** with penalties for improper data sharing
- **Internal data sharing practices** if not place make it difficult to advocate for partnerships
- **Data literacy** to translate the value of data sharing to non-data staff

## LEARNING FROM AGRIFIN'S PORTFOLIO

- Maximizing data potential takes time and resources. Without leadership buy-in and often investor support, it is often not feasible to move forward large scale-data sharing partnerships
- Teams must be able to **present the business opportunity in a quantifiable way** along with **mitigation methods for risks**. Otherwise, leadership will not agree as they see only risks with no reward
- Leadership changes can impact data sharing arrangements later down the line and thus it is best to get wide support across the organization, to help minimize this future barrier



# 4. IDENTIFY DATA PARTNERS: BOTH PARTNERS MUST SEE A BENEFIT AND HAVE ALIGNED VISION TO SUCCEED

## STEPS



## COMMON BARRIERS

- **Data as an asset** means companies must see adequate value to share their data
- **Cost of data** increases with sharing and impact needs to be weighed against this
- **Competition** for early-stage companies perceive a loss in competitiveness
- **IP** for early-stage companies concerned others will steal it and cut them out
- **Market** entry for early stage companies is important to keep their reputation
- **Investors** can push the idea of selling data, limiting partnership opportunities

## LEARNING FROM AGRIFIN'S PORTFOLIO

- Both partners need to see value in the partnership, and **ensure interests are aligned**
- Partnerships where both sides **see each other as enablers**, rather than competitors, tend to have greater success
- Partners must **be clear on who owns the client** and how branding to the clients work
- There must be a **clear revenue model** for both partners that is commensurate with the level of risk and effort they put in
- **Ensuring the internal capacity of the partner** to deliver on what is agreed is essential. A pilot may be needed to determine this



# 5. NEGOTIATE AGREEMENT: AGREEMENTS SHOULD BE AS SPECIFIC AS POSSIBLE TO INSTITUTIONALIZE THE PARTNERSHIP

## STEPS



### COMMON BARRIERS

- **National data policies** and interpretation set the foundation for what is possible and changes depending on the country
- **Legal jurisdiction** for the agreements when partners domiciled in different places
- **Personal data** has extra regulations and additional reputational risks
- **Power imbalance** between early-stage companies and established players can impact negotiations

### LEARNING FROM AGRIFIN'S PORTFOLIO

- Interpretation of national data policies can vary between organizations as wording may be vague. **Ensuring that legal council is involved** and that policies are uniformly interpreted is important.
- When dealing with international partners, sometimes **a neutral 3rd party jurisdiction** can be a compromise.
- Most data shared between companies is personal in nature, particularly linking datasets to learn more about individual farmers, **ensuring that this data is adequately protected, proper consents are collected and the use cases are clearly laid out is essential**
- Data must not only be collected properly, but **must be secure and stored in a location that meets national regulations**
- Uneven power balances between partners can be detrimental, but **laying out clear terms** in the agreement can help mitigate these imbalances



# 6. OPTIMIZE SHARING/ANALYSIS: BARRIERS EXIST EVEN AFTER A DATA SHARING AGREEMENT IS SIGNED

## STEPS



### COMMON BARRIERS

- **Lack of data sharing** protocol to follow and ensure sharing is optimized and secure
- **Human resources** to prepare, share and analyze data to draw insights
- **Skills** to analyze complex datasets
- **Data literacy** for general staff to be able to use data to drive decisions
- **Leadership change** can change data sharing dynamics if not institutionalized
- **Technology** can limit real-time data sharing
- **Non-standardized language** makes combining datasets hard, limiting insights
- **Data reliability** is essential in understanding data sources and level of faith in the data
- **Lack of experience** with farmers means data collection at farmer level can fail

### LEARNING FROM AGRIFIN'S PORTFOLIO

- **Standardizing data sharing** facilitates data sharing between the partners, makes the data more usable, and ensures leadership changes will not impact the arrangements
- Without the capacity, data sharing agreements will not bring the full potential value. That means **investing in the development of the skills and technology**; While initial investments may seem large, if spread across multiple data sharing arrangements, they can make sense.
- **Finding the right skills can be challenging** given the highly competitive market
- **Working with farmers is unique** and if organizations do not have experience doing this or a field force already set up, that can lead to a breakdown in the the partnership
- **Sensitization of all levels within partner**, especially if a government partner, is necessary to facilitate sharing





## **4. ADDITIONAL LEARNING RESOURCES**

# ADDITIONAL LEARNING RESOURCES ON DATA (I OF II)

TITLE	PUBLISHED BY	DESCRIPTION
<b>GENERAL REPORTS</b>		
<u><a href="#">Understanding personas in agricultural data ecosystems-</a></u>	ODI/ CABI	Personas help us to understand the learning needs, barriers, motivations and goals of real people. Highlights 6 personas common in agriculture.
<u><a href="#">How can we improve agriculture, food and nutrition with open data?</a></u>	GODAN/ ODI	Examples of how open data can enable more effective decision making, create innovation and promote transparency around food security
<u><a href="#">Digital farmer profiles: Reimagining smallholder agriculture:</a></u>	USAID/ Grameen	Documents experiences in managing digital farmer data, highlights innovative models of farmer data management and sharing.
<u><a href="#">Digital Agriculture Maps: 2020 state of the sector in low and middle income countries:</a></u>	GSMA/ IDH	Provides a window into the digital agriculture landscape to help industry practitioners and potential investors understand key trends and emerging opportunities, including the increasing creation and use of data.
<u><a href="#">Data strategies for agricultural organizations serving SHFs</a></u>	AgriFin	Learnings from Safaricom DigiFarm, Farm to Market Alliance and the Ethiopian Agricultural Transformation Agency
<u><a href="#">Unlocking smallholder insights for FSPs</a></u>	AgriFin	Examples of how open data can enable more effective decision making, create context of the importance of data in unlocking insights for FSPs and the techniques used to assess impact of the resulting financial interventions
<b>CASE STUDIES/USE CASES</b>		
<u><a href="#">The value of sharing data to build trust: A case study agriculture sector</a></u>	ODI	How Syngenta publishes open data to help evidence its commitments to being a more trustworthy organization in the agriculture sector.
<u><a href="#">Plantwise knowledge bank: Delivering plant health information</a></u>	CABI	Process of creating a shared database, open access online resource on plant health
<u><a href="#">Improving financial inclusion through data for SHF in Kenya;</a></u>	GSMA	Looks at the rise of digital agriculture tools in Kenya and the use of digital farm and farmer data generated by these tools to facilitate financial inclusion.
<u><a href="#">Digital credit scoring in Agriculture</a></u>	SAFIRA/ GrowAsia	Current market trends and farmer credit assessment practice; Guide looks at how stakeholders can partner around data
<u><a href="#">Data strategies for agricultural organizations serving SHFs</a></u>	AgriFin	Understand the landscape and gaps of precision advisory and earth observation service providers operating in Kenya



# ADDITIONAL LEARNING RESOURCES ON DATA (II OF II)

TITLE	PUBLISHED BY	DESCRIPTION
<b>TOOLKITS &amp; GUIDES</b>		
<a href="#"><u>Open up Guide for Agriculture</u></a>	GODAN	Provides guidance on the key elements of opening datasets in agriculture answering why open data is important, what data is needed and how to create an open data strategy
<a href="#"><u>Code of Conduct Toolkit</u></a>	GODAN	Provides the conceptual basis for general, scalable guidelines for everyone dealing with the production, ownership, sharing and use of data in agriculture.
<a href="#"><u>Designing data sharing agreements checklist</u></a>	ODI/ CABI/ GODAN	Steps to consider your data sharing needs, whether a data sharing agreement is right for you and what to include
<a href="#"><u>How to create a data inventory</u></a>	ODI/ CABI/ GODAN	Helps users understand why data has been collected, what it contains, how it is managed and the ways it will be made available for others to use
<a href="#"><u>Developing a data management plan checklist</u></a>	ODI/ CABI/ GODAN	Points on how to create a plan where data is not lost, is secure, is FAIR and open.
<a href="#"><u>Creating FAIR and Open data ecosystems for agricultural programmes</u></a>	ODI/ CABI/ GODAN	The guide introduces key concepts and points to resources that support open, sustainable data ecosystems.
<a href="#"><u>The GSMA AgriTech Toolkit for the digitisation of agricultural value chains</u></a>	GSMA	Illustrate how digital technologies can address pain points in last mile delivery. Highlights the opportunity to bridge the data gap in smallholder financing





# THANK YOU

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# CONTACT

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