

Agricultural Value Added Services (Agri VAS): Market Entry Toolkit

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Introduction

The furious growth of mobile in developing countries, and rural regions in particular, presents a landmark opportunity to deliver critical, information-based agricultural services to rural poor smallholder farmers. There are over 2.3 billion people living in poverty and the majority earn their primary livelihood from small farms in developing countries. The yields of these farmers, especially those in sub-Saharan Africa, typically represent a fifth of those in the developed world. There is a raft of reasons for this, one of which is a lack of access to relevant and actionable agricultural information. Yet this problem is eminently superable. The right information, absorbed and applied correctly, can double or triple productivity in many of these households. Mobile is the leapfrog technology that allows us to complement existing extension efforts by stepping up and meeting this information need.

About the Authors

This document was written by members of the GSMA mAgri Programme. The GSM Association represents the interests of mobile operators worldwide and within this, the GSMA Development Fund works to identify opportunities in emerging markets for social, economic and environmental impact through mobile services.

In partnership with USAID and the Bill and Melinda Gates Foundation (BMGF) the GSMA has recently launched the mFarmer Initiative to support mobile operators and agricultural partners in Sub-Saharan Africa and India in creating commercially viable and scalable mobile information services to benefit over 2 million smallholder farmers. For more information on the initiative and challenge fund please contact mfarmer@gsm.org



There are no hard and fast rules to follow when building an Agricultural Value Added Service (Agri VAS).¹ This document does not provide a blueprint, nor act as a guarantor of success. Those Agri VAS deployments that have achieved success have often done so through clever adaptation to their environment. Replicating them elsewhere would be to remove a crucial piece of the jigsaw. However, from the GSMA mAgri Programme's involvement in Agri VAS deployments in Asia and Africa, and from market research on best practice amongst existing service providers, it is possible to discern similarities in the challenges faced, and responses to those challenges, from which we can learn. This document represents current best practice in dealing with them and is primarily addressed to Mobile Network Operators (MNOs), other service providers, and agricultural organisations who are looking to partner and launch Agri VAS.

A significant trend is the complimentary benefits emerging from partnership models. Due to the scalability and reach of mobile networks, partnership models are emerging between mobile operators and agriculture organisations in developing mobile solutions for agriculture.

Mobile Network Operators (MNOs) and Agriculture Organisation Partnerships:

MNOs face the task of growing average revenue per user (ARPU) and market share in rural areas. In a congested marketplace, they seek to find ways to differentiate within a commoditised industry. Agricultural extension organisations face the challenge of servicing geographically dispersed farmers while lacking scalable service infrastructure.

The challenges, therefore, that MNOs and agricultural extension organisations face are complimentary in nature. Agricultural organisations can help MNOs differentiate by targeting rural farmers with their services, augmenting their relevance, attraction and quality. MNOs can help agricultural organisations rapidly scale services and reach distant farmers via their network and distribution infrastructure. This forms the basics of a partnership model for Agri VAS.

The purpose of this document is to help key players recognise, understand - and act upon - the opportunities in the mobile agriculture sector. We begin by defining the sheer size of this market.

Fiona Smith | Director, GSMA Development Fund mAgri Programme.



¹ Agricultural Value Added Services form part of the rural VAS portfolio for mobile network operators and VAS providers. A Value Added Service is a non-core service of a mobile operator. The term can be used to refer to all services beyond standard voice-calls. VAS are supplied either in-house by the MNO themselves, or by a third party VAS provider.

Chapter 1

Market Opportunity

Agricultural Value Added Services (Agri VAS) present a considerable business opportunity due to the enormous potential user base in developing countries. The farming sector in these countries often suffers from chronically low productivity. Lack of information acts upon productivity and income levels like a glass ceiling. However, with increasing teledensity in the developing world, the mobile channel is uniquely positioned to address the information needs of farmers – an intervention that can help increase their income and yield. By delivering relevant, actionable content, providers of mobile services for agriculture can offer a valuable and sustainable product.

In order to appreciate fully the business opportunity for Agri VAS, it's important to identify certain key variables in the market place – typically mobile penetration levels, user base and agricultural productivity trends.

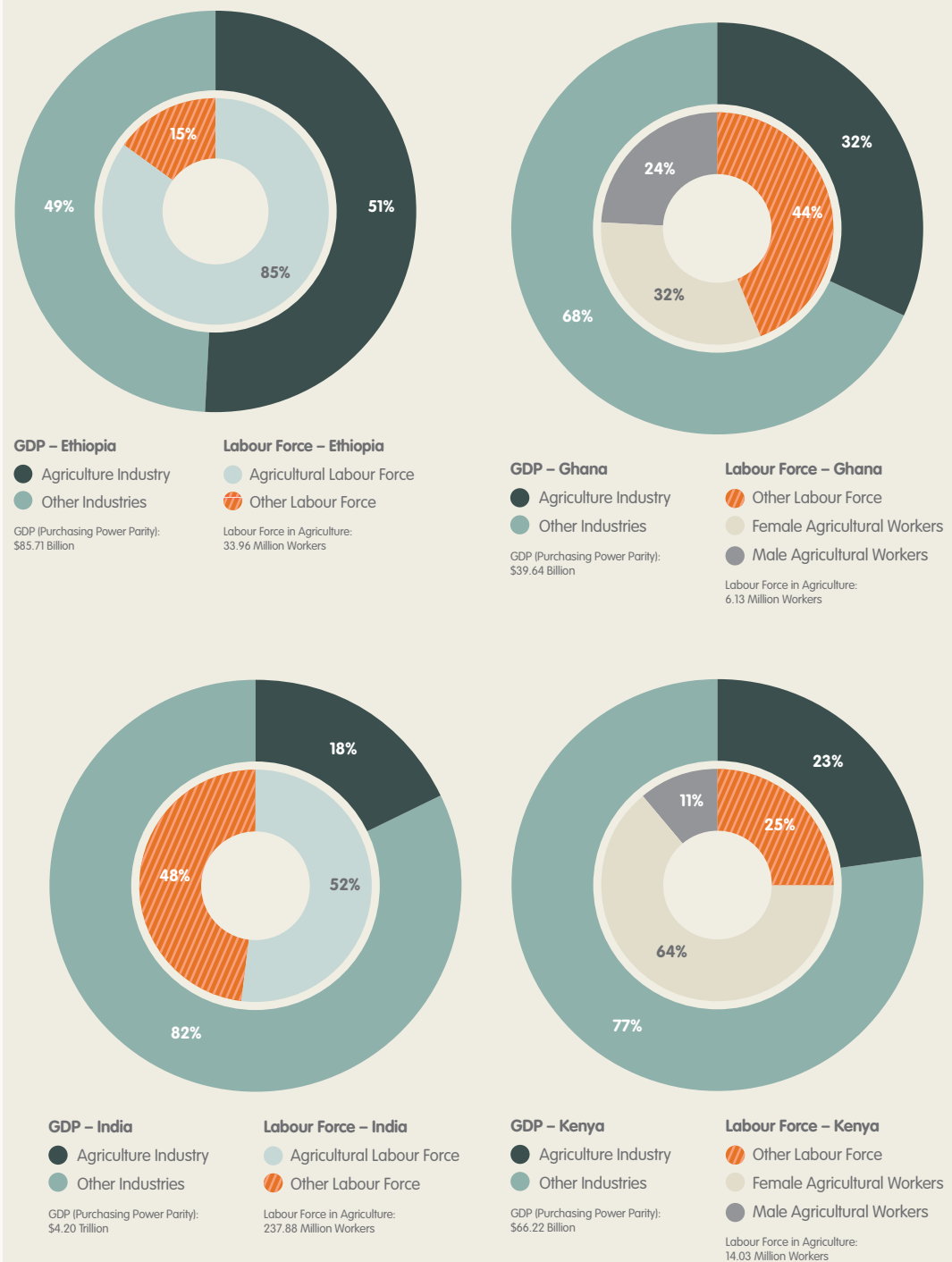


The Potential User Base for Agri VAS

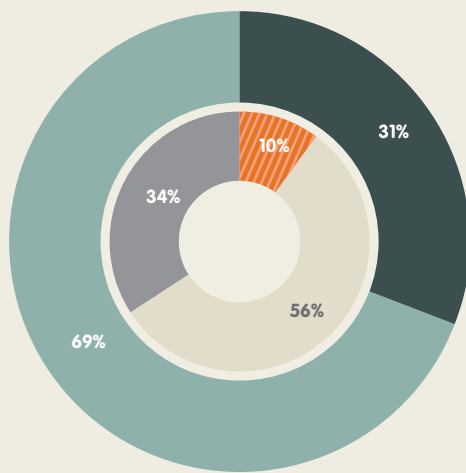
It's important to understand the sheer size of the agricultural sector in the target markets (Figure 1.1). In developing countries the majority of the labour force works in the agricultural sector. This population constitutes the potential user base for Agri VAS. Almost 250 million people in

India work in agriculture – this forms 52% of India's work force. In Sub-Saharan Africa, the agricultural sector is the largest employer too. In many of the African countries, over 80% of the work force is employed here – and a significant proportion of these are women.

Figure 1.1: Agricultural Sector Size



Source: The World Bank and CIA The World Factbook



GDP – Malawi

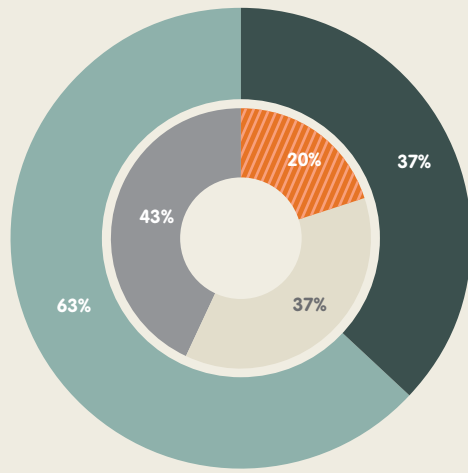
- Agriculture Industry
- Other Industries

GDP (Purchasing Power Parity):
\$13.05 Billion

Labour Force – Malawi

- Other Labour Force
- Female Agricultural Workers
- Male Agricultural Workers

Labour Force in Agriculture:
5.68 Million Workers



GDP – Mali

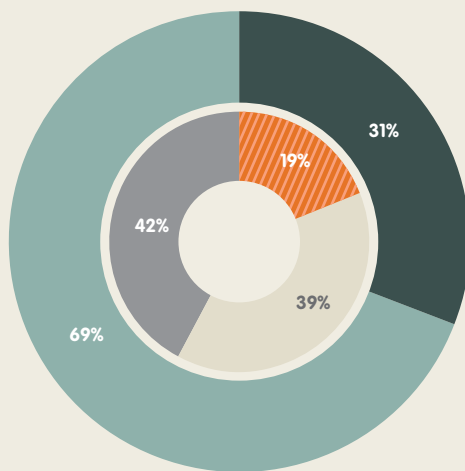
- Agriculture Industry
- Other Industries

GDP (Purchasing Power Parity):
\$16.24 Billion

Labour Force – Mali

- Other Labour Force
- Female Agricultural Workers
- Male Agricultural Workers

Labour Force in Agriculture:
3.02 Million Workers



GDP – Mozambique

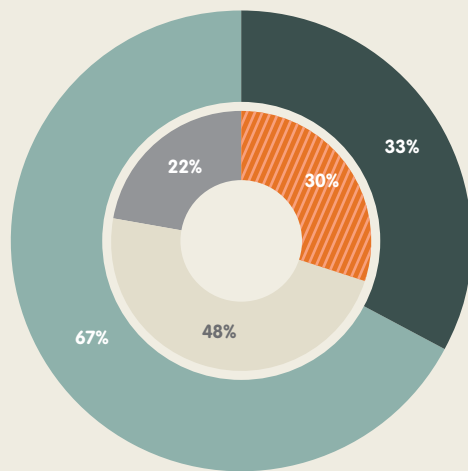
- Agriculture Industry
- Other Industries

GDP (Purchasing Power Parity):
\$21.87 Billion

Labour Force – Mozambique

- Other Labour Force
- Female Agricultural Workers
- Male Agricultural Workers

Labour Force in Agriculture:
8.91 Million Workers



GDP – Nigeria

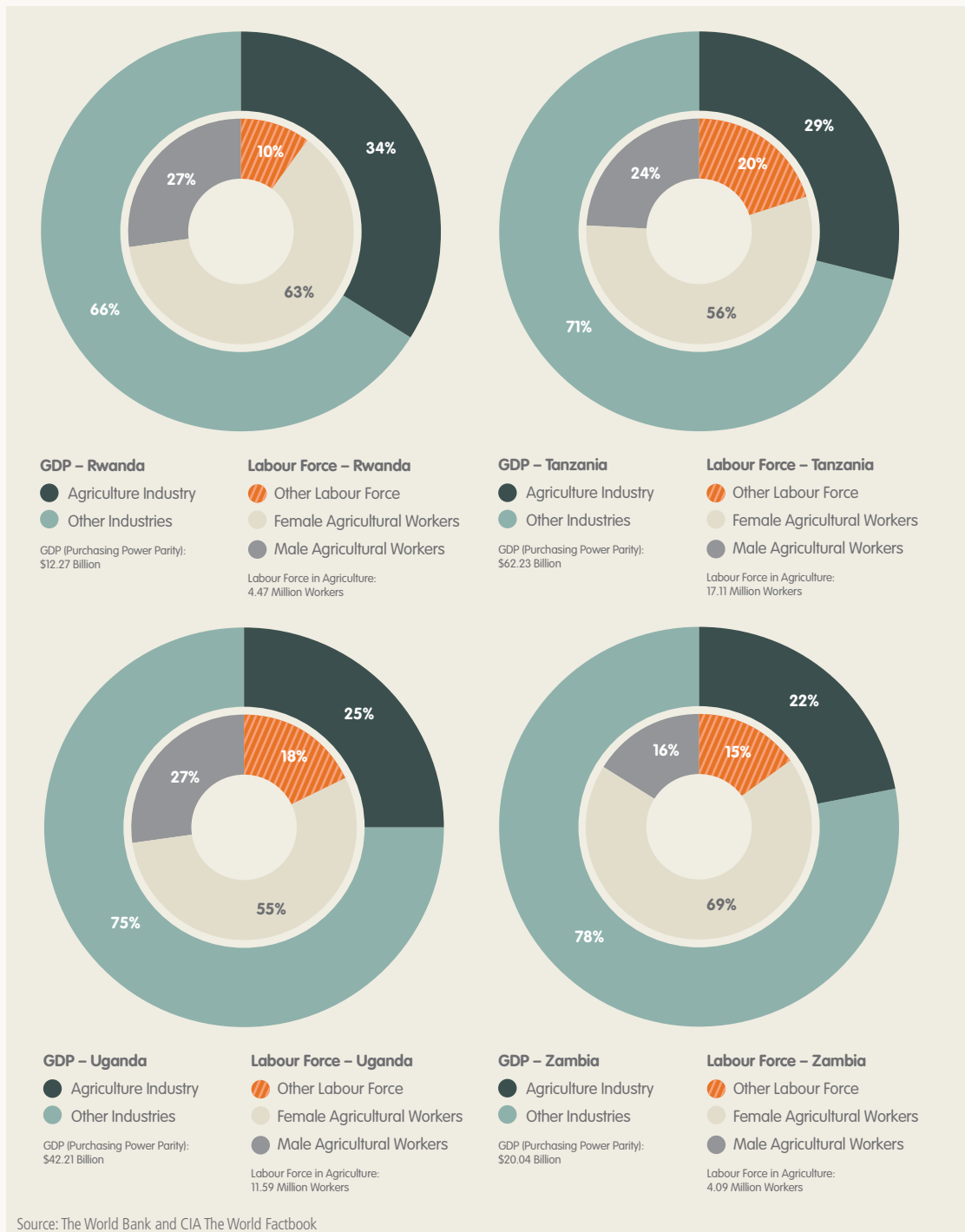
- Agriculture Industry
- Other Industries

GDP (Purchasing Power Parity):
\$374.34 Billion

Labour Force – Nigeria

- Other Labour Force
- Female Agricultural Workers
- Male Agricultural Workers

Labour Force in Agriculture:
34.98 Million Workers



However, despite the enormous number of people working in agriculture, productivity from this sector is disproportionately low. It is not unusual for outputs to be two thirds lower than those in developed economies. Often, the figures are lower even than this. A raft of sub-Saharan countries regularly produces yields that are 80% smaller than those in the USA and UK (Figure 1.2). Given that agriculture accounts for around 30% of a typical sub-Saharan countries' GDP, the scope for exponential GDP growth due to optimised farming practices is significant.

The Growth of Mobile

Access to mobile phones is growing dramatically in developing countries, especially in rural areas. Since most urban areas are approaching or have surpassed 100% teledensity, it is the remote rural regions that represent the largest untapped market of potential users. Mobile network operators are addressing this and rural penetration rates are climbing very quickly. Estimates of total subscriptions in the developing world now exceed 4 billion and with shared access almost every poor person on the planet can tap the benefits of these networks. In Ghana, for instance, the overall mobile penetration reached 78% by the third quarter of 2011.²

Figure 1.2: Cereal Productivity Gap

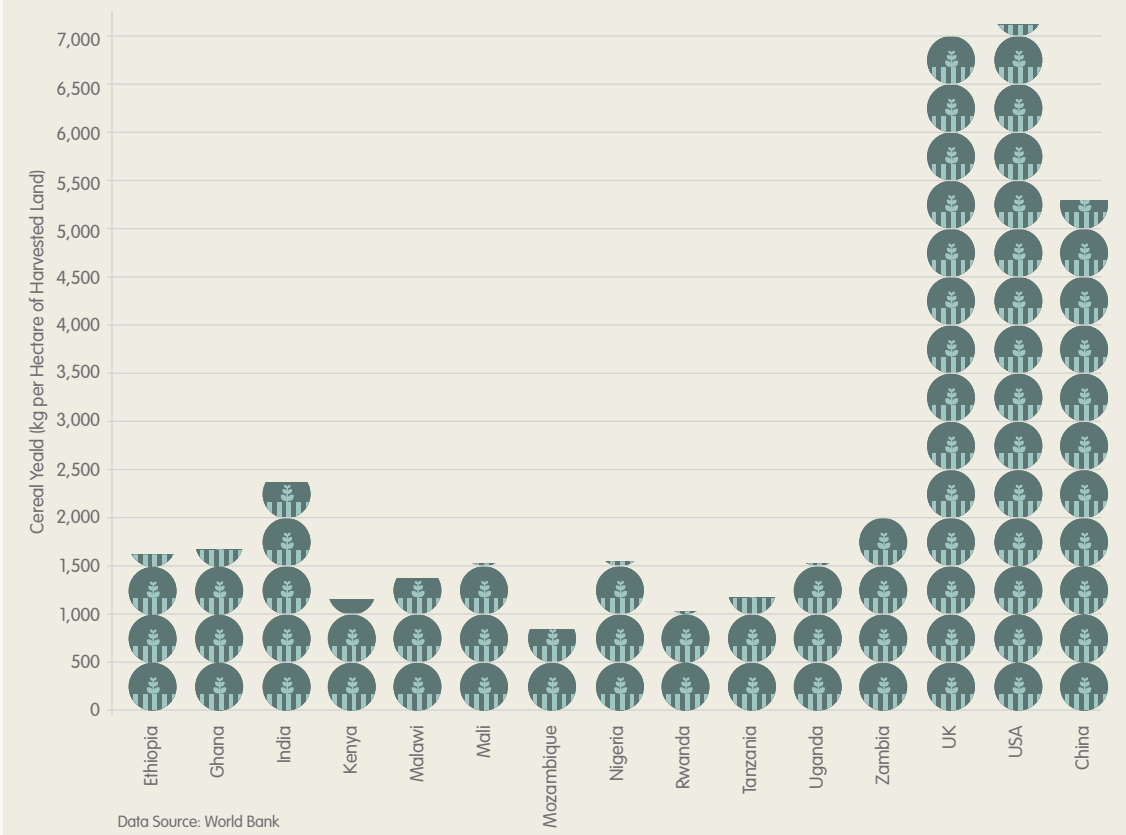
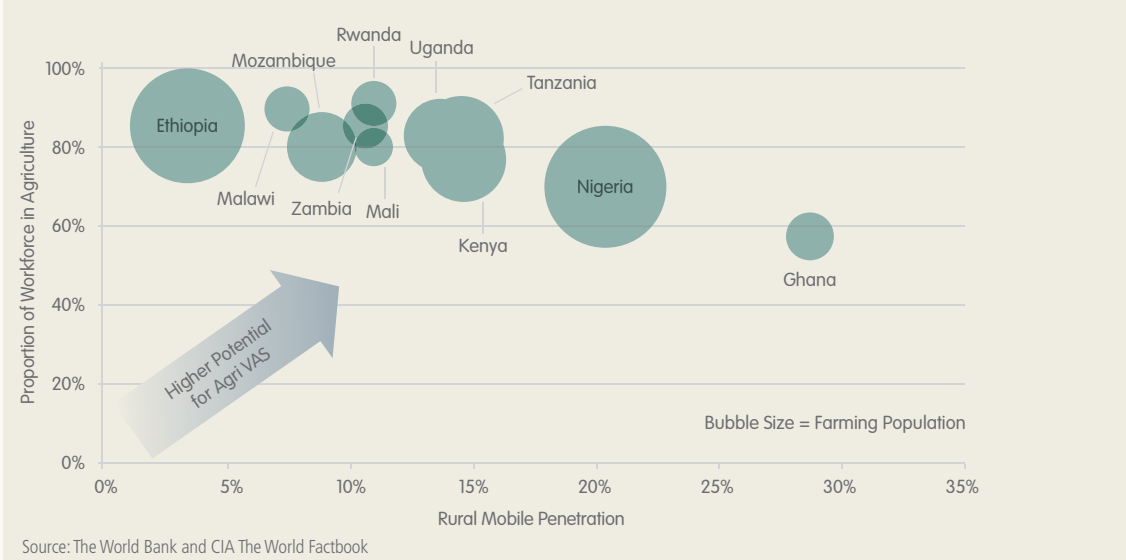


Figure 1.3: Market Potential for Agri VAS.



Indeed, in the race to gain market share among rural subscribers, the pricing wars have largely been played out and operators are increasingly turning to other, more innovative ways to differentiate themselves from their competitors. Agri VAS presents a compelling opportunity to meet this need.

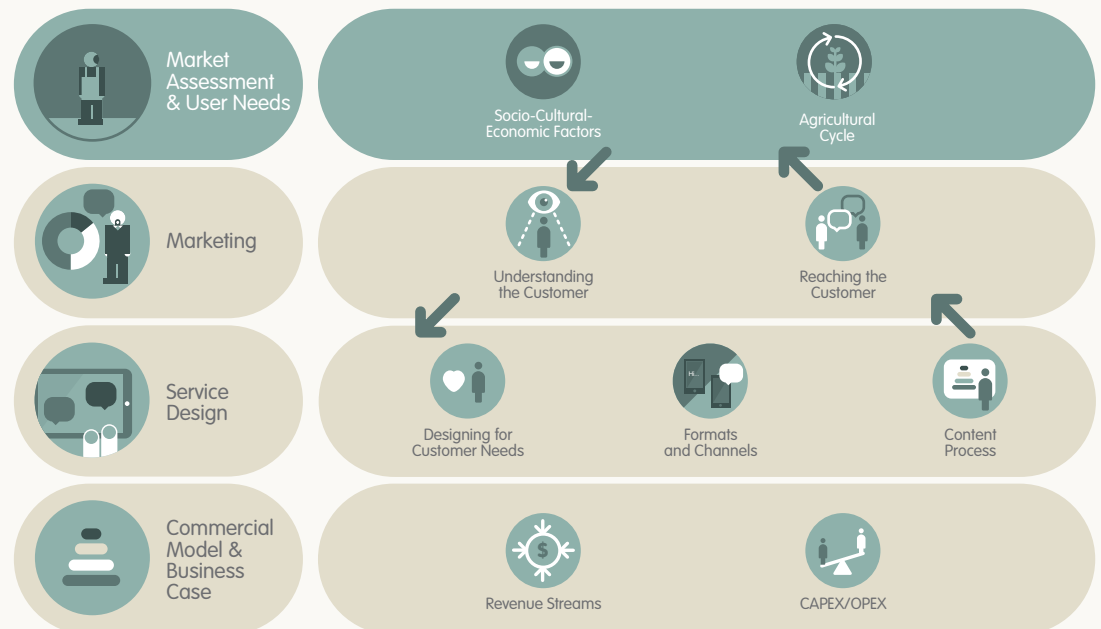
The ubiquity of mobile phones means that they are ideally placed to act as information channels for farmers. Mobile services, in many instances, are the first and only source of

reliable agricultural information for agrarian workers. Analysis can be conducted to understand the potential market size for an Agri VAS. In figure 1.3, the size of the bubble depicts the farming population plotted against the percentile proportion of workforce in agriculture (Y axis) and the rural mobile penetration (X axis).

Chapter 2

Market Assessment and User Needs

The framework below outlines the components to consider when designing an Agri VAS, from understanding the customer at the outset (Ch. 2), marketing the service (Ch. 3), service design (Ch. 4) and finally, the underlying business model (Ch. 5).



At the design stage of any new product or service, it is critical to understand the user's needs and to identify the unique demographics that exist within the target market. This is especially crucial for Agri VAS as base of pyramid users tend not to be surveyed extensively. The danger posed by a lack of understanding of the target market is significant and can make or break a deployment, leading to products and services that serve no immediate user requirement; a solution in search of a problem. We advise prospective service providers to focus their efforts on the following key activities.

- 1. Consumer Market Segments** Segmentation of the market is a crucial keystone of product design. Each demarcation may well have unique problems and needs. Identifying these is a logical first step.
- 2. Market Research** Once segmentation has occurred, methodical market research and analysis need to be conducted for each.
- 3. Agriculture Cycle** Consideration should be given to the fact that a farmer's activities are almost entirely governed by the overarching super-structure of the agricultural cycle. At different points in this cycle (planning, planting, growing, harvesting or selling) the farmer will have a uniquely different set of information needs. The Agri VAS must fulfil these.

Consumer Market Segments

Market segmentation is vital to understand the various categories of consumers in the target market, and ensuring the product or service is relevant to them. For rural smallholder farmers, it may be most useful to focus segmentation on agro-ecological zones, crop, language, gender, and attitude (especially proclivity to change).

1. Language/Culture

The boundaries of a language and a region's geo-political boundaries are often one and the same. However, this is not the case everywhere and care must be taken to identify the language(s) spoken in a market segment during the service's design phase. The service must be delivered in the local language and provide information relevant to that geography's agro-climatic characteristics, which determine the crops that can be grown there. Cultures in different geographies may well focus on specific types of crop or have developed specialised methods of cultivating them. Knowing these local traditions is a prerequisite for making information services pertinent and actionable.

2. Agro-ecological Zone

In larger territories, a market segment may straddle more than one agro-ecological zone. These zones present a unique set of challenges to a farmer and it is not uncommon for a maize cultivation technique to work well in one zone and fail in another. Even if the market segment inhabits a single zone, care must be taken to ensure that the service designers are aware of the information needs specific to that zone. This will be of particular importance where content generation is concerned.

3. Gender

To promote equal access and utility to both genders, it is important to understand the perceptions of gender and the role that they play in agricultural activities. It is a fact that the greater proportion of agricultural labour falls to women, and yet, women tend to earn less than their male counterparts and, generally, have less control over the business decisions taken on the farm. This divide remains significant³, although indications in Bangladesh suggest⁴ it is closing there, at least, as populations of male migrant workers move around the country leaving womenfolk at the helm of the agrarian businesses. The same phenomenon occurs when male workers decamp to urban areas in search of jobs.

Gender and cultural sensitivities should be borne in mind during the design, content generation and marketing phases of a product launch. Grameen Foundation found, through their Community Knowledge Worker (CKW) Initiative in Uganda, that female farmers were much more receptive to receiving assistance from female CKWs. This new information was obviously extremely valuable to them in their efforts to make the CKW programme equally accessible and useful to both genders.

4. Attitudinal Factors

Psychological or attitudinal segmentation deals with identifying groups of farmers who share similar attitudes towards farming and external interventions. Understanding and identifying attitudinal segments can provide powerful insights into how marketing messages should be customised to maximise impact.

A recent study⁵ by TNS Research International in Tanzania shed valuable light upon the make-up of that country's agrarian market as well as offering useful attitudinal demarcations within it.

Their findings suggest six broad distinctions within the mind-sets of farmers, ranging from 'Competent Optimists', to, at the opposite end of the scale, those who are 'Trapped' in farming and wish to leave.

We summarise their categorisations below, however it must be noted that these segments are not wholly distinct from one another and there will be some overlap:

1. **Competent Optimists** Seeks information and networks well with others. Enjoys farming, is open to new techniques and quick to try them out.
2. **Contented Dependents** Has a very positive attitude towards farming but needs the

assistance of others. Adopts new techniques after others have proved they work.

3. **Independents** Generally savvy, open to new information but not particularly engaged with farming. Will follow best practice but would never try new methods by themselves.
4. **Frustrated Escapist** Trying to make the best fist of farming but would change jobs if the opportunity arose.
5. **Traditionalist** Enjoys farming but does not seek out new methods and is resistant to change.
6. **Trapped** Does not enjoy farming and sees no future in it. Hopes children do not have to farm as a career.

For example, by identifying attitudinal segments, marketing agents can target initial messages on 'Competent Optimists' with the aim of getting them to influence the 'Contented Dependents' and 'Independents'. Agents can avoid wasting time and resources targeting 'Traditionalists' or the 'Trapped' until the service reaches critical mass, and the new technique(s) attain orthodoxy. As usage matures across each segment, marketing messages can be adapted, and made more efficient. Though attitudinal segmentation – by nature – is a complex task, the following steps seem to represent a logical approach:

1. **Scope** Survey a sample population to identify psychological/attitudinal segment members.
2. **Segment** Segment identifiers can be uncovered by finding common traits/characteristics (Contented Optimists, or, from a marketing perspective 'early adopters', tend to focus on cash crops while Traditionalists focus on staple crops).
3. **Assign** These identifiers can then be used more broadly and applied to segment the entire population (ie. we can assume that those who focus on cash crops can be grouped as early adopters while staple crop farmers are Traditionalists).
4. **Correlate** Map these findings against other indicators such as region or district. For instance, the TNS RI study discovered that 47% of farmers in the Iringa region of Tanzania were Competent Optimists (suggesting a high uptake of a new product or idea) whereas in Singida only 7% were Competent Optimists and 34% were Traditionalists (suggesting a correspondingly low uptake). By cross-referencing the segments in this way, a valuable picture begins to emerge which will inform decisions about which areas to focus on when promoting the service to ensure maximum uptake.

3 Food and Agriculture Organisation of the UN <http://www.fao.org/sd/ifsdirect/fbdirect/FSP001.htm>

4 Innovations in Rural Extension: Case Studies in Bangladesh, CABI Publishing, April 2005

5 Listening to the Farmer Voice: Overlaying macro-segmentation with micro-level data on farmer needs and attitudes. – TNS Research International, March 2011.

Market Research

Once the market has been segmented using the parameters outlined above, systematic research must be conducted in order to understand the users' activities and needs. When conducting the research, care should be taken to cross-tag each data set according to the attitudinal segments identified during the initial segmentation process.

Our research and findings suggest focusing on the following key components:⁶

1. Crop Types and Varieties

Understanding the agriculture focus and crop varieties grown (along with their associated seasons) will help determine which information services to provide.

Usage Case It may be useful first to select crops that the project team has the most data and experience working with. Then, from these crops, further prioritise based on their prevalence within the target market. Alternatively, start with a select few crops and develop deeply impactful, successful information services on those crops before growing the service portfolio by introducing additional crops as time and expertise allow.

2. Farming Techniques

Specific farming techniques vary by farming culture, crop type and agro-ecological zone. It is important to understand farming communities' existing in order to identify areas for improvement.

Usage Case If a community already benefits from a specialised, unique method of pest control that is proven and effective, advising them on alternative pesticides available on the market may not be seen as useful. In this case, it may be preferable to work with local organisations to learn their methods and incorporate them in the content management system for Agri VAS. The storehouse of global agricultural knowledge is still growing and a successful Agri VAS will seek to broaden its own knowledge as well as disseminate it. These new learnings can then be shared with other farming communities who face similar pest problems.

3. Existing Information Sources

There is usually a complex web of information service providers available to farmers although the degree to which farmers have access to this information will vary. Understanding what sources of information your target farmers are currently using and forming partnerships with other information service providers can help

when designing and marketing new services. Radio programmes, newspapers, oral tradition, extension workers and word of mouth are some of the typical information vehicles for remote, rural farmers.

Usage Case If the farming community knows and trusts particular radio programmes, it makes sense to partner with the radio show producers and leverage them as a delivery channel for Agri VAS. Furthermore, complementing existing communications channels with up-to-date agricultural information is an efficient way to fill the knowledge gap. This partnership can also play a role in marketing the Agri VAS and earning the faith and loyalty of the target market.

4. Finances

Many rural smallholder farmers are both poor and caught up in the poverty cycle. Thus, they may have an ultra-low (or non-existent) willingness to pay for Agri VAS. Efforts should be made to investigate their income sources and spending behaviours. A lot more work needs to be carried out to understand the farmers' ability or willingness to pay for particular products and services. However, limited-scope market surveys that we have seen suggest that farmers are willing to pay for information they deem to be relevant, helpful and actionable, for example agri-specific, localised weather forecasts that could impact growth or yield during the farming cycle.

Usage Case In the likely event that some target farmers (poor rural smallholders) will be unwilling and unable to pay for an Agri VAS, it will be incumbent on the service provider to secure revenue from other sources, namely other actors in the agricultural value chain who benefit from farmers having access to the Agri VAS. These alternative revenue streams can come from MFIs and insurers who wish to penetrate and transact business in the rural markets, contract farming companies who want to increase the reach and quality of their extension services, as well as input suppliers/dealers. Further details on these B2B revenue models can be found in Chapter 5.

⁶ Although this document focuses mainly on crop farming, it is important to conduct market research on other agricultural practices including livestock, fisheries and agro-forestry.

More detailed information on farming practices, agriculture extension and the agriculture life cycle is available at <http://www.g-fras.org/en/> or <http://www.meas-extension.org/home/>

5. Gender

Any Agri VAS targeting rural smallholder farmers in less developed countries must be proactive in catering to the female populations. Indeed, due to the inescapable fact that the majority of farm work is undertaken by women and that women are slowly assuming more control over farming decisions, understanding their cultural environment and information needs is crucial.

Successful Agri VAS must:

- Carry out marketing / sales campaigns specifically targeting women.
- Design aspects of the service specifically for the agriculture roles and functions most women typically play.
- Ensure face-to-face interaction with women (by outreach workers, distributors or field agents) is conducted sensitively and in accordance with local custom.

Women do the majority of food production, processing and preparation in developing nations. Although women produce 60-80% of the food in the developing world, they earn 22% less than their male counterparts, have less access to resources and receive only 5% of extension services.⁷ These facts highlight a clear failure in the market to provide Agri VAS where they are needed most.

The Agricultural Cycle

The need for agricultural and marketing information amongst rural and farmer communities is part of a broader need for diverse information including health, natural resource management, and community services information as off-farm income activities are often integrated with farm production.

The information needs of farmers are diverse due to the fact that mono-cropping is uncommon amongst smallholders. In order to make best use of their resources available and minimize risk, farmers tend to diversify by planting multiple crops and keeping livestock.

Farmers' needs are governed by their progress through the agricultural cycle and change over the course of the year. It's important to understand that the cycle is dependent upon local growing seasons and will therefore vary from region to region. Consequently, although the focus areas we suggest below are broadly typical, their implementation period may well vary by agro-ecology zone.



Crop Planning

Before the farmers begin to plant crops, they must first decide which crops to grow in this cycle. In order to make this decision, a farmer must consider a range of factors including the demand and market price of specific crops, the cost of that crops' inputs, seasonal weather expectations and other crops to be grown on the same plot.

Access to finance can also play a vital role in crop planning. Farmers caught up in the poverty cycle lack proper resources to invest in quality inputs, thereby affecting long-term planning and reducing yields, productivity and ultimately income. This cascades into next year's crop planning and continues the cycle.



Planting and Growing

Once the land has been prepared and inputs sourced, the farmer plants his/her seeds or seedlings and begins monitoring and caring for the crop. If plants encounter any disease or pest infestation the farmer must quickly diagnose the problem and implement an appropriate solution before the crop is lost. At this stage, assistance with pest or phytopathology issues is required, along with an understanding of which pesticide to use and how and where to go about sourcing them.



Harvesting and Selling

When crops are ready for harvesting, farmers decide where, with whom and how to sell their crops. In order to reach a successful sale, the farmer will require access to accurate, up-to-date market prices to make the best decision possible for the business. Issues of transportation may also arise which a well-designed Agri VAS should bear in mind. Information about storage procedures and costing are also in demand.

⁷ Food and Agriculture Organisation of the UN <http://www.fao.org/sd/fsdirect/fbdirect/FSP001.htm>

Information Needs During the Agricultural Cycle

The following chart lists examples of possible information topics farmers may need at each stage of the crop agriculture cycle.



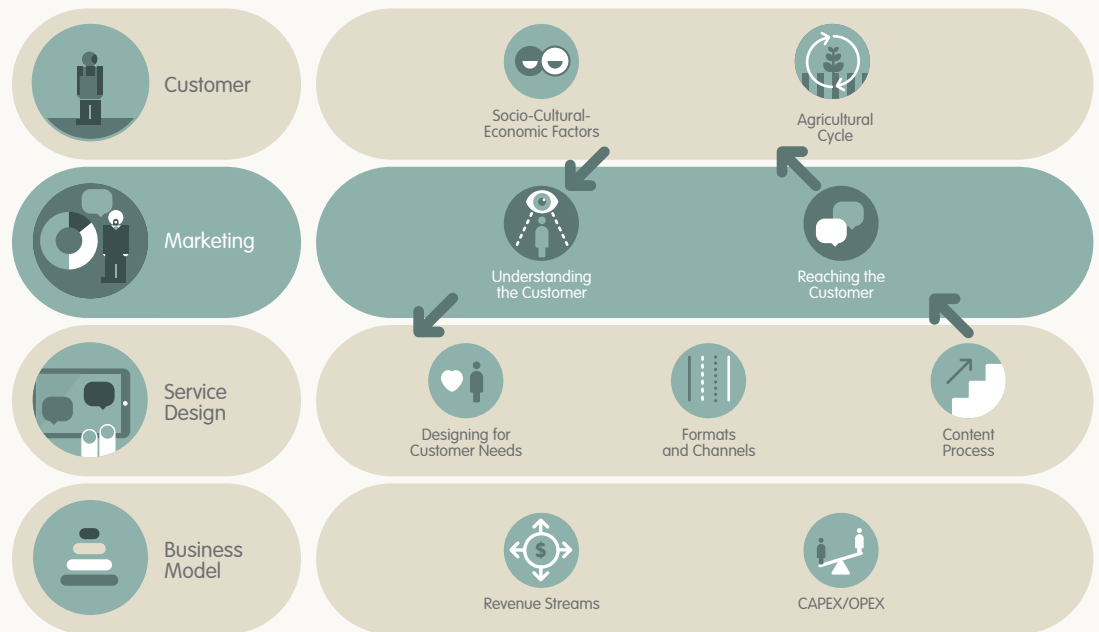
	 Planning	 Planting and Growing	 Harvesting, Post Harvesting and Selling
 Market Information and Access	<ul style="list-style-type: none"> - Expected crop demand. - Potential price fluctuations. - Cost and availability of transport of inputs. - Market contacts. 		<ul style="list-style-type: none"> - Accurate and competitive market pricing. - Potential price fluctuations. - Cost and availability of transport to market. - Marketing, sales or negotiation tips.
 Inputs	<ul style="list-style-type: none"> - Seeds/fertiliser availability, prices and location. 	<ul style="list-style-type: none"> - Pesticides. 	<ul style="list-style-type: none"> - Availability, cost and location of storage services. - Instruction for self-storage.
 Farming Advisory	<ul style="list-style-type: none"> - Crop and seed selection. - Land preparation. 	<ul style="list-style-type: none"> - Techniques to protect against and prevent disease and pest infestation. - Diagnose and treat disease and pest infestation. 	<ul style="list-style-type: none"> - What is the best time and method of harvesting.
 Financial Services	<ul style="list-style-type: none"> - Loans and insurance availability, rates and contacts. 	<ul style="list-style-type: none"> - Loan availability and rates for non-farming activities. 	<ul style="list-style-type: none"> - Savings account rates and availability.
 Weather	<ul style="list-style-type: none"> - Long term weather forecast. - Implication of local agro-environment. 	<ul style="list-style-type: none"> - Short-term weather forecast. For example, to know when to plant. 	<ul style="list-style-type: none"> - Weather forecast and implication for storage.

Collecting the Data

Typical methods for developing this market intelligence include surveying sample populations in the field, organising focus groups and desk-bound research of the demographic.

Collecting this information can be quite challenging and at times (depending on your level of resources) impractical. Working with agriculture organisations or NGOs who already have data in these areas or have the capacity to conduct extensive field research and sampling can help to expedite this process.

Chapter 3 Marketing



When introducing new products and services, the role of marketing is twofold and serves to:

1. Understand the consumer and their changing information needs (continuously incorporating new insight into the marketing strategy and service design).
2. Drive consumer demand through advertising, sales and optimised distribution.

This section briefly reviews consumer needs and then examines the marketing process in more depth.

Understanding the Customer

A thorough understanding of the consumer’s unmet needs and requirements is critical to designing relevant products and services.

Some things to consider before embarking on designing the service and marketing campaigns include:

- Are there potential partner organisations with on-the ground expertise that can provide insights into customer behaviour and help to shape the marketing strategy?

- Qualitative research (backed up by quantitative data) should provide the basis for customer segmentation; information needs mapping, language preference, level of technical capability, channels, formats and frequency of information delivery.
- What are the on-going methods of collecting the information on customer needs? How will the customer feedback be incorporated to make sure that changing information needs are reflected within the service design?

Reaching the Customer

The Customer Journey

The complexity of the adoption process (along with the requisite tools and methods of facilitation) can be mapped out with the help of a customer journey framework. Based on findings from GSMA experience with Agri VAS deployments in Kenya and India, and from research conducted on current best practice in mobile for agriculture space, this framework provides a simplified tool for structuring a marketing strategy for Agri VAS:

The Customer Journey				
	Aware	Understand	Try	Regular Use
Challenge	<ul style="list-style-type: none"> ■ Low Media Consumption. ■ Illiteracy, Language etc. ■ Low Distribution Reach. 	<ul style="list-style-type: none"> ■ Communicate: 'What', 'How', 'Why' of Agricultural VAS. 	<ul style="list-style-type: none"> ■ Modify Consumer Behaviour. ■ Gain Trust. 	<ul style="list-style-type: none"> ■ Engage Users. ■ Personalise Service. ■ Address Broader Needs.
Focus	<ul style="list-style-type: none"> ■ Existing Brand Equity. ■ Local Media. ■ Local Events/Meets. ■ Agricultural Cycle. 	<ul style="list-style-type: none"> ■ Simple Procedures. ■ Face-to-Face. ■ Align Incentives to Communication. 	<ul style="list-style-type: none"> ■ Cost of Trial. ■ Accessibility. ■ Comparative Benefits. 	<ul style="list-style-type: none"> ■ User Profiling. ■ Service Rendering. ■ Complimentary Needs. ■ Innovation Access.
Marketing Tactics	<ul style="list-style-type: none"> ■ Above-the-Line & Below-the-line ■ Posters. ■ Radio & TV Spots. ■ Mobile Van Promos. ■ Village Events. ■ Agricultural Events. 	<ul style="list-style-type: none"> ■ Experiential ■ Partner Agents. ■ Canopy Events. ■ Experts. ■ Peers/Family. 	<ul style="list-style-type: none"> ■ Experiential ■ Discounted Trials. ■ Agricultural Cycle Based Trials. 	<ul style="list-style-type: none"> ■ Direct ■ Free (push) Information Messages. ■ Interactivity. ■ Feedback Drives.
Leverage Partner Networks				
Align Planning and Execution with Agricultural Cycle				

Following the steps of the customer from “unawareness” to “regular use” helps identify and understand bottlenecks within the adoption process. Each bottleneck needs to be addressed with relevant marketing activities designed to bring the customer to the next stage.



Examples of poster campaigns by M-Kilimo (Kenya) and IKSL (India)

A. Awareness phase

Any proposed Agri VAS is likely to constitute a new concept to target consumers. Therefore, expect initial awareness of the brand or value proposition to be extremely low. Further complicating the awareness stage are the low levels of media consumption and literacy rates in rural areas, making print advertising ineffective or redundant.

Things to consider in the awareness phase include:

- Does the service have a strong, relevant, memorable brand that is sensitive to the local culture and aesthetics of the target market? We know of at least one Agri VAS whose visual marketing had to be 'translated' from developed world-designed collateral into something more adapted for the visual traditions of its target audience after an initial rejection of its advertising campaign.
- Leveraging the existing brand of the MNO or agricultural partner organisations in rural areas may allow the service to build awareness and establish credibility in a swift, cost-efficient way, providing the MNO's brand is well-received in that community.
- How will the brand be visible to consumers? For regions with low literacy levels, these advertising messages need to be intuitively understood and should not be dependent purely upon text. Rather, image-based marketing channels should focus on trying to capture the value proposition of the product in simple, visual terms using people who are representative of the target market.
- Radio normally has the highest penetration rate among available media channels. Explore the possibility of collaborating with existing agriculture-related radio programmes to reduce the cost of airtime and optimise efficacy.

B. Understand Phase

Moving customers from awareness of the service to understanding the value proposition of the service is a complicated process and one best served, we find, by using experiential marketing techniques.

Attitudinal segmentation suggests that only a minority of any given market have a proclivity to take up new techniques and ideas. These people then become powerful exponents of

the product and influence adjacent segments, gaining crucial market penetration. For the service's value proposition to be clearly communicated, it is vital to have field agents who can demonstrate the product in action. These are (relatively) more costly as they rely upon face-to-face interaction and therefore require a trained sales force of mobile field staff. However, they have proved to be much more effective at successfully explaining the product to new customers and demonstrating its value than traditional channels.

It may be useful to explore partnerships with existing networks of field extension workers. An agricultural organisation, network of cooperatives or an NGO may have existing channels of communication to farming communities which already benefit from high levels of access and trust with the audience and can be leveraged for such campaigns. A more thorough understanding of a product's workings and value will also prevent customer churn and in this sense, experiential activity is good not only for customer acquisition but also for repeated usage.



Canopy marketing activity undertaken by IKS field agent to local farmers.

C. Trial Phase

Experiential marketing techniques are important when it comes to encouraging customers to try the service. The focus should be on minimising the cost-barrier of service trials for prospective users and ensuring service trials are easily available in the rural areas.

Scheduling focused trial campaigns to coincide with the phases of the agricultural cycle might increase the effectiveness. For instance, right before harvesting, a marketing drive focused on the Agri VAS offering of up-to-date market information and access, coupled with a free trial and registration offer, could demonstrate the relevance and value of the service and drive customer acquisition.

D. Regular Usage

There is a crucial difference between buying a service or product and having one sold to you that is often over-looked at product launch. In the case of the former, the customer recognises the potential benefits, comprehends how to use it and acts upon this understanding. The latter case tends to result in a service being bought but not used. Indeed, converting 'fallow' customers to regular users is a big challenge for the majority of Agri VAS providers. Absolute numbers of subscribers do not necessarily indicate the actual demand for the service. Indeed, it's not uncommon for regular users to constitute less than 10% of a total subscriber database.

Regular usage comes after trust is built and value to the end user is demonstrated. Once the service is able to solve a particular issue for the user, they are more likely to come back and re-use the service.



Example

When mobile inputs insurance service, Kilimo Salama in Kenya, opened a customer care call-centre to support their insurance services, farmers seized upon the opportunity to call in with a raft of generic agriculture questions. This demand for agricultural tips and best-practice information was not anticipated by Kilimo Salama. However, they quickly saw the opportunity to expand the scope of their offering to include these types of service and reinforce their value and convenience to their customer base.

In this sense, a comprehensive customer relationship management (CRM) system that captures customer data and feedback would help service providers understand how subscribers are using the services. Clearer insight into usage patterns and an understanding of the user's in-demand information needs will enable the service to remain useful and relevant. This will have a concomitant and positive effect on usage frequency.

Additional Drivers of a Successful Marketing Campaign

Trust

- Trust is difficult to build. Farmers will only begin to trust a service after seeing it resolve real life issues. It may take multiple interactions of this nature to prove that the service is trustworthy.
- Trust is easy to break. Even a single negative experience can erode previously established trust, especially if it results in farm losses and impacts livelihood. Similarly the trust in the service's name could be ruined if it's used for aggressive or unrelated advertisement and sales of other products.
- Partners of the Agri VAS (and their brands) also have a direct impact on the development and maintenance of trust. Farmers have limited ability to differentiate between services provided by different partners under the same initiative, as overall perception is blended. It's important to ensure all stakeholders are committed to work to maintain and nurture consumer trust.

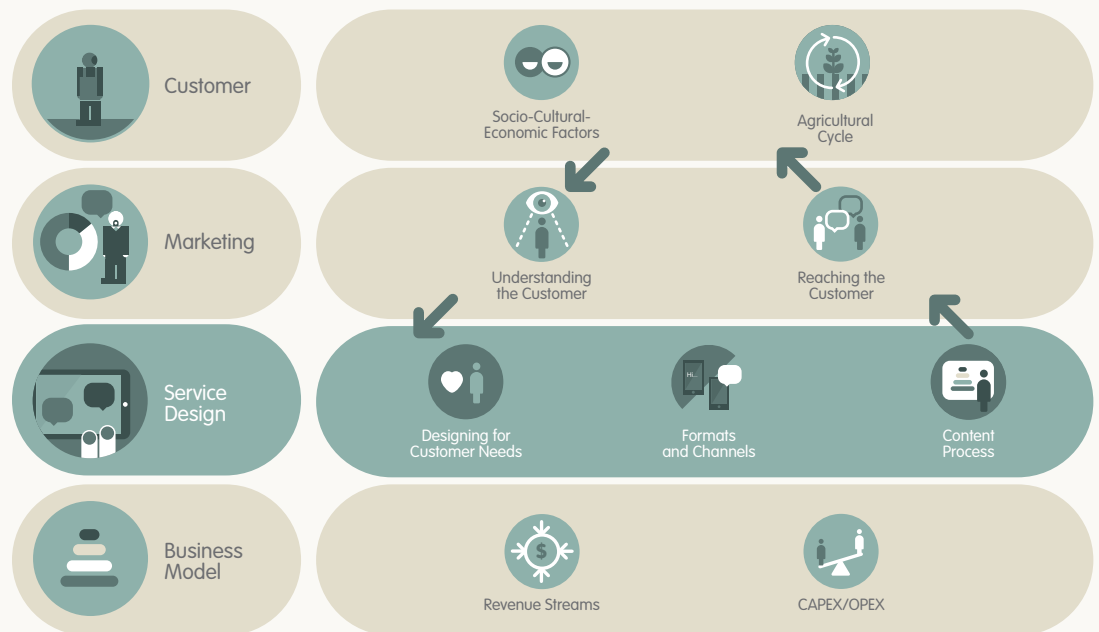
Partners/Roles

- Working with partners who have already established trustworthy relationships with farming communities allows the Agri VAS to benefit from these pre-extant positive relationships with the end user.
- There is no need to invest in assets that can be leveraged through partnerships. Scan the market: are there available distribution networks, strong consumer brands to leverage, established on-the-ground, face-to-face networks to use?

Gender Inclusion

- Women make up the majority of the agricultural labour force in many developing countries. How do planned marketing strategies incorporate female farmers? Female agents, female imagery and voice used in marketing messages help reach out to, and include, women.
- Men are often the decision makers in a farming household. How do planned marketing strategies educate male farmers on the value of the service to women?
- Explore the ecosystem: which partners could market and distribute the service to women farmers? What networks of female farmers exist and could be leveraged for marketing and distribution?

Chapter 4 Service Design



Characteristics of Successful Service Design

Irrespective of the nature of the target market, a successful Agri VAS design will always endeavour to provide information that is timely, actionable and relevant - (TAR):

- **Timely** In order to satisfy the challenge of providing users with the information they need when they need it, consideration must be given over to appropriate delivery channels. Services designed in an “on-demand”, or “pull” fashion, for example call-centres with advertised opening hours, are well-placed to serve ad hoc user needs as they emerge. They also reduce a technological barrier to adoption since they only require a customer to be able to use a telephone to dial in. Conversely, those services designed around ‘Push’ architectures should poll their target communities to identify which time is best for services to be delivered. A contingent benefit to Push services are that the information relayed can be consumed at a time of the user’s choosing and can be replayed to others.
- **Actionable** The advice or information delivered has value when it can be acted upon. This means that the methodologies and tools expounded by the information services should be locally available and practical. Farmers are more likely to act

on information when it’s reliable, feasible and trustworthy. Reliability of the service is achieved through robust service delivery and accurate information provided. Quality assurance processes need to be in place to ensure this.

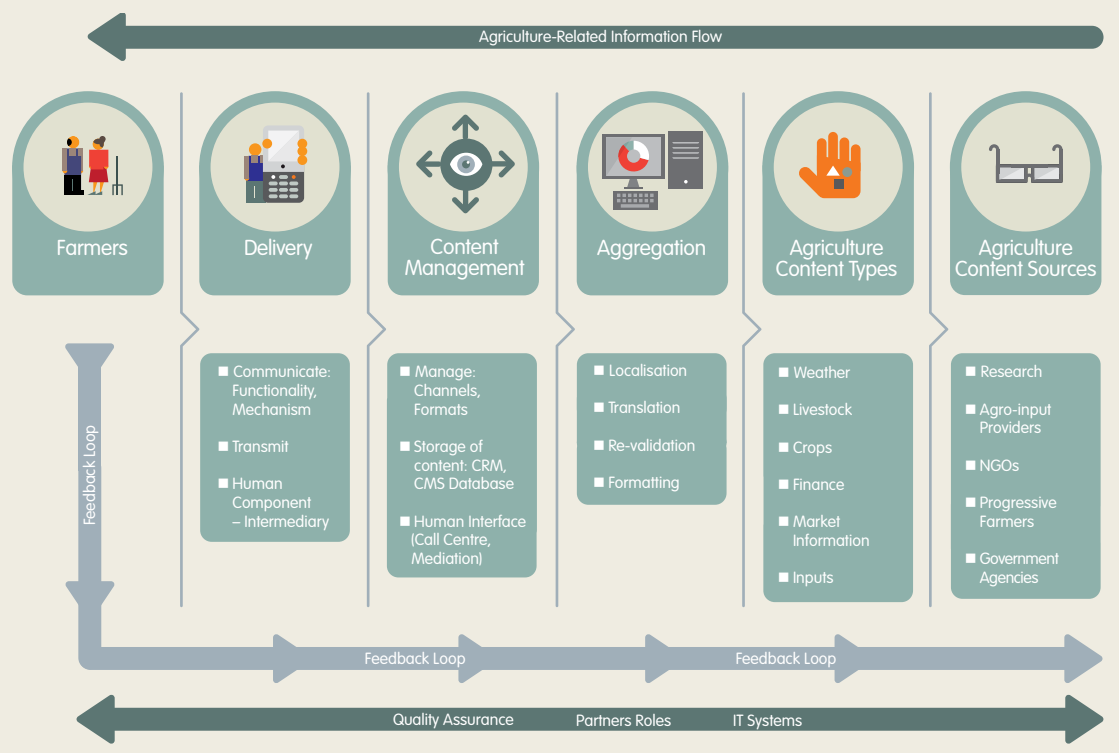
- **Relevant** Information needs to be relevant to the farmer’s location, climatic zone, current position in the agricultural cycle, income level, farming activity and native language. To make sure that the service is valuable and usable, it must be customised to meet farmers’ local needs and translated to local languages.

Co-creative Approach to Design

Understanding all the needs and requirements of farmers and designing sophisticated mobile services is a difficult undertaking. Thus, a co-operative approach to design can help ensure the service maintains focus on and relevancy to the farmer. Co-creation is a design methodology, which incorporates the consumer in the design process. This includes iterative designs shared with consumer focus groups, prototyping with consumers and pilots, all incorporating feedback. Additionally, live Agri VAS should include an on-going, hard-wired feedback loop to ensure the changing needs of farmers are reflected in the revised service design and further product development.

Components of service models

The following diagram depicts the service design process. Further below is a detailed explanation of each stage beginning with delivery, (working from left to right).



1. Delivery

Communication

This is the layer that faces the user. When working on this component, it may be useful to consider various use cases of the service and in particular how the user will interact with the device.

Examples of use cases are:

1. Information requests.
2. Asking specific questions.
3. Receiving information and answers.

Key considerations:

- What is the handset functionality required to access the service? What are the technological functions of the user's phone?
- Could the service be accessible from the most basic handset available on the market?
- What are the user's preferred channels of communication - text or voice?
- What language does the user speak? How comfortable is the user with written information?
- What is the user willingness and ability to pay for the service?

Transmission

The ability to transmit the information to the end users' devices depends on the network quality in critical areas. Although 3G is a regular standard in urban areas, and affordability of smartphones is improving, the target customer for the Agri VAS is still facing the realities of remote areas and doesn't benefit from technological advantages of developed areas. Service design should incorporate the answers to a range of questions:

- What is the availability of the data network in the target area?
- What is the quality of the network? What is the working standard? Is it sufficient to retrieve data-based services?
- What is the data service pricing model? How does it fit with user's ability to pay and the revenue model?

Mediation

In the case that Agri VAS are too technologically advanced, or expensive, the 'last mile' of service delivery may need to be more closely managed. Exclusion from the service will occur when it is:

- Accessible from advanced or smartphones only.
- Targeting regions with low mobile penetration or ownership rates.
- Not provided in the local language.
- Dependent on text in areas of low literacy rates.
- Out of the financial reach of the farmer or dependent on cost sharing models.

In each of these cases, a mediator is required to ensure 'last mile' delivery. The role of the mediator is to fill the gap between the factors of exclusivity and the excluded consumer. Building and maintaining the network of mediators and agents to provide this 'last mile' of service delivery needs careful planning and continuous management.

Example

Grameen Foundation's Community Knowledge Worker (CKW) project in Uganda relies on their network of on-the-ground that operate Android-based smartphones to retrieve information on farmer's requests, translate them and explain them back to the farmer during face-to-face consulting visits. Community knowledge workers operate as individual micro-entrepreneurs within a franchise model, with monitoring, support and supervision from the service provider. (See more at <http://www.grameenfoundation.applab.org/section/community-knowledge-worker-project>).

Key considerations for the design of mediation components:

- An incentive system for mediators/field agents can help to motivate them to deliver a high quality of service. Incentive systems can also mitigate the effects of agent churn which can afflict Agri VAS deployments.
- A minimum level of education and/or experience needs to be applied to determine the eligibility and qualification of agents. Continuing education and training must also be in place to increase the quality of agents and customer service.
- Quality assurance practices must also extend and include the mediator/field agents.

Partnerships and Roles

Possible ways of creating a network of 'last mile' mediators include:

- **Build from scratch** This option is timely and expensive, however it confers full ownership and control over the network.
- **Build with a partner organisation** An existing organisation's asset can be leveraged, such as existing distribution network or Community Phones operators. In this case, additional investments are only needed in selecting from, and educating, existing agents up to the required level of proficiency.
- **Leverage existing partner network** A partner's network, such as existing private or public extension agents may be the best option. This may be cheaper and faster to implement, however, this requires a high level of trust and commitment between the partner and the Agri VAS provider.

2. Content Management System (CMS) Management

This stage in the service delivery process deals with how information is managed, processed and redirected. Decisions on channels and formats for information distribution should be based on user preferences as well as the potential for scale and automation. While technology allows high-scale customisation,

balancing these two attributes (high-scale and customisation) is best done through a mix and match of different channels within a single service design.

Voice, SMS and data communication are the main media for delivering information to mobile users. The selection of media will be determined by the nature of the information to be transmitted and the audience. For example, simple weather information can be delivered via SMS, but detailed advice on crops would not be, due to the message's length limitations. With regards to the audience, literacy levels need to be taken into consideration when choosing communication channels.

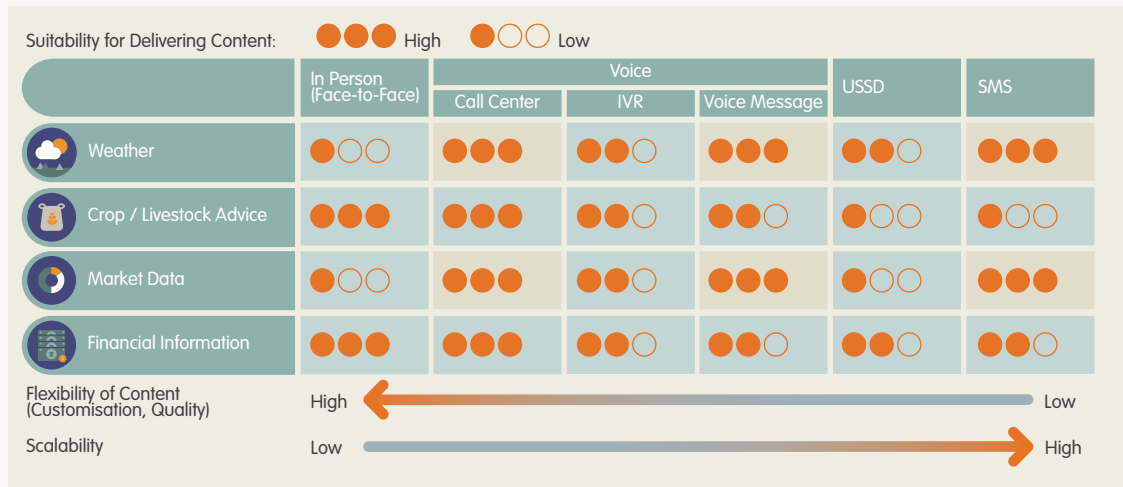
The complexity of the information service is another critical factor to consider when selecting media to use. Farmers' questions could be classified into two broad categories:

- 'What' type queries asking for standard information, e.g. weather, prices, input supplier contacts etc.
- 'How' type queries can be further classified as:
 - Asking about standard practices, e.g. how to take a sample for a soil test.
 - Asking about specific issues that need further assessment.

The 'What' type queries, regarding standard practices and data collection, lend themselves best to automated mobile services. Alternatively, 'How' type queries may need solutions ranging from voice (helpline), or demonstrations.

Example

Agricultural tips delivered via voice message are a priority format used by IKSL in India. The use of voice overcomes low literacy level and automates information distribution for the millions of subscribers. In the event that a user has specific problems or questions, they can access agricultural experts via the farmer helpline.



Service providers must also decide whether to leverage push or pull models or structure both in complementary ways. Push services allow service providers to establish an on-going presence and thus command a higher degree of loyalty. Alternatively, pull models allow for more specific queries and two-way interactions leading to more valuable information exchange. The combination of both functionalities can leverage the positive qualities of each resulting in a more robust service (high-scale automation and individualised services).

Key considerations when designing the information management process:

- Is it a mass (more suitable for automated SMS) or a niche service (farmer helpline)?
- What is the future scale of the service and what channels could maintain it?
- What is the balance between customisation and automation of an information distribution process; how is it going to be achieved?

Store

Agri VAS should maintain a database for both agricultural content and user profiles and queries.

The content database houses the agricultural data queried by service requests. The software solutions would vary depending on the service needs and complexity. However it should always allow quick access and navigation, categorisation, tagging and monitoring, as well as support multiple formats of information.

The customer relationship management (CRM) system stores information about users and their requests as well as information received via the service. A comprehensive CRM system allows for a detailed segmentation and data collection, which leads to a better understanding of the customer needs and, eventually, a more targeted offering. Additional revenue opportunities exist in the sales of the dataset to third party stakeholders.

Important factors to consider when designing the databases:

- Scalability of the database with increased numbers of users and complexity of the service.
- Integration with the data sources and distribution platforms.

Interpret

Not all types of information are suitable for automated delivery. A helpline component allows Agri VAS to bypass the literacy barrier while providing more comprehensive, customised, and, consequently, impactful services. To develop such helpline services, helpline agents will need content management systems containing full fact-sheets on agricultural information. For agricultural advisory on pests and diseases, however, additional decision support tools need to be developed. The quality of any given helpline service is highly dependent on the operators' level of expertise and knowledge. Factsheets simply back-up the advice provided, but can rarely be used without interpretation or case-by-case adjustments to farmer's situation. The operators must be in a position to think on their feet and adapt their knowledge to the particular questions put to them.

Example

M-Kilimo, a pilot helpline service run by Kenyan call-centre KenCall, employed agricultural experts that hold a minimum of a bachelor's degree in agriculture and at least two years of field experience. Farmers, typically, have a range of information needs and the team was recruited to cover this spectrum bandwidth. Thus, M-Kilimo could provide advice on horticulture, aquaculture, climatology, pests, plant disease, animal husbandry, agricultural engineering, market advice, and environmental and veterinary issues.

Requests for all sorts of expert advice may come from farmers even when the information required is not part of the value proposition. Trust in the service, if established properly, eventually leads to a demand for other types of information beyond the service's initial scope.

Key considerations when establishing a helpline component:

- The qualifications of agricultural experts are crucial, and should ideally be augmented by field experience.
- Having highly qualified experts as a front-line support is expensive, and this OPEX might be mitigated by establishing a second and third line of support for highly complex queries that can be accessed on an ad hoc basis.

Partners and Roles

Considering their existing infrastructure and readily available platforms, MNOs are best positioned to manage the technical components of the service. However, in some instances, it makes sense for the content provider to undertake a role of managing and interpreting the content, as well as collecting user profiles.

3. Aggregation

Aggregation of agricultural information is one of the main bottlenecks for many service providers. Although there are numerous sources of information, their formats are not always suitable for distribution via mobile networks. Thus the role of an aggregator is a challenging one, as the MNO remains a gate-keeper of both the information and of access to the end user.

Localisation

For information to be valuable, it must be localised to the environment, geography and other conditions. The complexity of the agricultural sector, even within one country may require localisation at the sub-region level (dependent upon the agro-climatic zones).

Translation

Translation of content into local languages can be expensive, but is necessary to provide customised offerings. At the same time if information requires additional manipulation or interpretation, it could be handled by the agent in each particular case.

Formatting

Once information is identified, it has to be reformatted according to the delivery channels chosen. Short or full information pieces, voice or text based, need to be recorded and categorised.

Re-validation

Content coming from reliable sources is considered valid when received. However, after it is manipulated, to be localised, translated or reformatted, it needs to be re-validated by an agricultural expert organisation.

Partners and Roles

An independent content provider, that works across multiple mobile networks, might take the aggregation role. At the same time MNOs see the value in investing in an aggregation component to maintain ownership over the valuable asset.

Example

HandyGo in India is an experienced content provider with expertise in sourcing and aggregating a variety of content for mobile channels. HandyGo aggregates content from dozens of sources and prepares it for mobile distribution. The company works across multiple mobile networks, capitalising on assets developed in-house.

4. Source

Most Agri VAS will begin with a limited scope and then broaden from there. Focusing content on a few crops will make development and management easier at the start. When selecting content areas, it may be useful to keep in mind the agricultural life cycle (for the crops you are focusing on) and match the content accordingly. Please see the Agricultural Lifecycle diagram on page 11 and 12.

- **Plan**
 - Market price and demand forecasts.
 - Seasonal weather forecasts.
 - Advise on crop and seed selection.
- **Buy Inputs**
 - Input availability and prices (seeds, fertiliser, equipment, etc.)
- **Plant**
 - Short-term weather forecast.
 - General advise on the focus crops.
 - Soil preparation.
 - Pest management.
 - Fertilising.
 - Irrigation.
- **Harvest**
 - When to harvest.
 - Updated market price and demand forecast.
 - Storage.
- **Sell/Market**
 - Advise on processing.
 - Transportation availability and prices.
 - Live market prices.

Partners and Roles

Given the complexities and varieties of local agricultural environments, finding a reliable and thorough source of localised agriculture data can be difficult. It may be valuable to incorporate established and experienced agriculture partners responsible for the population and quality assurance of the agricultural database (agricultural institutions, NGOs, universities, research entities, meteorological department).

Example 1

IKSL service in India has partnered with the CABI agricultural consultancy to develop their management process whereby they source an aggregate content from multiple high-quality sources across India. CABI also manage the quality assurance process.

Example 2

CKW Uganda works with dozens of content partners, who provide the agricultural data, while AppLab aggregates and formats the content in-house in accordance with the designed format.

Another method of sourcing content is the peer-to-peer model. This involves farmers reviewing and endorsing or rejecting pieces of advice. The main challenge with user-generated content however is the quality assurance process that is needed to maintain the quality of the information disseminated.

Gender Inclusion

To ensure equal access and utility of Agri VAS to women farmers, their specific needs and barriers must be considered. Specifically, service designers should consider women-specific needs related to the type of commodities and tasks they are involved in. For example, the type of content, content formatting, as well as gender split within a human component of service design.

Key questions to consider when designing a service with equitable access:

- What is the gender split between the agents/ mediators/ helpline experts? How does this influence the gender split among users?
- Do the collected farmer profiles offer any insight into female user preferences and how these might best be served?
- What are the women-specific services and content for the service model? Is women specific content tagged accordingly?
- What are the potential partners from whom to source the women-centric content?
- How often is the female voice used for the provision of information?

Example 1: CKW Uganda recognised that using female community workers increases the number of female farmers that subscribe to and use the service, as women farmers find it more comfortable to speak to female agents.

Example 2: IKSL created a gender strategy to help increase women's use of the IKSL service. It included measuring male and female usage, identifying and delivering women-centric agriculture content and marketing and distributing via existing women's agriculture groups.

Quality Assurance Summary

Maintaining a high degree of service quality requires transparent targets for each of the service components as well as the regular monitoring of each component.

Quality assurance should assess and monitor:

- **Accessibility** technological constraints for the user to access the information service (coverage, phone functionality, etc.)
- **Accessibility** how long does it take the user to access the information he needs?

- **Usability** of the information in relation to its format, language, channel (can the farmers understand and act upon the information received?)
- **Timeliness** of information delivered.
- **Quality** of all types of human interaction with the customer under the service model, levels of proficiency of the human component (how do different agents effect the service adoption?)
- **Scientific accuracy**, relevance and diversity of both new and existing content.
- **The changing information needs** of farmers and the relevance of the existing content database.
- **Adoption indicators** for the services within the portfolio offered, and how they change over time.

Additionally, developing (or investing in) a Quality Dashboard which indicates the key quality metrics, targets and their timeliness is a useful tool to incorporate for the on-going assurance process.

Providing weather forecasts to small-holder farmers

One of the most crucial types of information required by small-holder farmers in developing countries is accurate, relevant and localised weather forecasts. Unfortunately, this is also among the most challenging to provide. Here, we take a look at some of the drivers and challenges around this topic from a service design point of view.

Accuracy

Accuracy of the weather forecast is an area of the most concern for service providers, as the wrong information could mislead the farmer into undertaking harmful activities which may damage the inputs as well as existing crops. One of the reasons for the low accuracy of weather forecasts is a lack of meteorological stations in the developing countries. Kenya, for example, with a total area of more than 580.000 sq km, has only 33 meteorological stations operated by the Kenyan Meteorological Department (KMD)⁸ that are used for developing the official country-wide weather forecast.

The geographical spectrum of data available is not sufficient to provide relevant and accurate weather predictions for most of Kenya's rural areas due to its disparate topography. Still, the KMD is the main source of weather data in Kenya, partly because it provides government sanctioned information. At the same time most of the countries in sub-Saharan Africa also have non-government operated weather

stations, as stakeholders reliant on this type of data sometimes find it easier to build their own capacity for collecting and analysing the weather information, than to work with existing providers. This approach is well illustrated by the Kilimo Salama service that provides crop-insurance services via mobile to small-holders in Kenya. Heavily dependent on quality weather data, Kilimo Salama has built 30 meteorological stations of their own. Even with the availability of independent weather recordings, the interpretation of the data and actual forecasting is still an issue as it has to be performed by a credible institution.

Another challenge in providing weather forecasts to small-holder farmers lies in ensuring they are localised and relevant. Where the topographical characteristics of the region are highly diverse, the climatic conditions of two locations separated by as little as 50km could be significantly different. To provide a useful forecast, the service provider should store the information about the exact location of the farm. Although relatively easy to collect by smartphones with GPS functionality, this information is difficult to collate on a large scale, as most of the small-holders own very basic phones. Community Knowledge Worker Uganda uses roving knowledge managers operating the android devices to geo-locate the users of the service. This collection of the geo-location data can easily be gathered during the user registration process, especially if done via call-centre functionality. Using the closest market centre, or a village with known GPS coordinates, might be the best possible

⁸ Kenya Meteorological Department <http://www.meteo.go.ke/customer/farmer/stations.html>

⁹ <http://searchengineland.com/cell-phone-triangulation-accuracy-is-all-over-the-map-14790>

approximation to each individual farm's coordinates if the farm itself is without known coordinates.

Offering a choice of weather forecasts for one of the large market centres, is another option if other methods of subscription are used such as USSD or paper-form. However this would impact the relevancy of the forecast provided. Despite these challenges of accurately locating the farms, it's important to note that MNOs have a technical capacity to locate each of the network's subscribers with a triangulation method, using the information about the location of the three closest to the user base stations.⁹ The question of whether MNOs will choose, or be permitted, to start using this data to provide relevant (agricultural) information services to their users, or keep it to themselves, remains moot.

Given that forecasts don't appear to be predictable with much accuracy beyond a few days at most, it is even more difficult to deliver a reliable piece of information to the farmer. However, doing so is critical as climate change is putting a high pressure on the small-holders, as seasons don't follow the traditional rhythm any longer.

Recent findings show that five days is the most reasonable length of a forecast, giving a farmer some opportunity for planning, but not compromising the accuracy of the information provided.

Seasonal vs short-term forecast

Given the low accuracy of week-long forecasts, it seems counterintuitive to suggest that it may be possible to provide forecasts for an entire season. However there are models based on a different source of predictability than weather forecasting, models that assess the likelihood of certain climate conditions. For sub-Saharan Africa, such seasonal forecasts are being developed by Regional Climate Outlook Forums (RCOFs). Ironically the main challenge for RCOFs is in distributing their seasonal forecasts, as they have to reach the end user to make a quantifiable difference in the agriculture sector. One of the initiatives that try to disseminate seasonal forecasts to the farmers is RANET (Radio and Internet for the Communication of Hydro-Meteorological and Climate Related Information) that uses digital radio technology as its primary distribution channel.

Formatting

Once the weather information is sourced and the users of the information are identified and located, there is still a challenge of interpreting the forecast and formatting it to suit the

chosen delivery channel as well as address the usability requirements. Interpreting the weather forecast is important, as small-holder farmers often wouldn't be aware of the meaning of well-accepted weather condition metrics, such as precipitation chances or humidity percentage. The end user may not even be familiar with a Celsius temperature scale. The interpretation of number-based metrics into understandable categories can add value and usability to the forecast. If SMS is chosen as a main channel for weather forecast distribution, service provider will have to face the challenge of matching the length of the forecast within the 160 character restriction.

Below is an example of interpretational forecasts for the SMS channel:

- **ENG** Week starting 25 October. On average warm during the day (22C), and very cold at night (14C). Little chance of rain (49% chance), wind is normal (3 km/h).
- **Swahili** Wiki mpya Oktoba 25. Joto wakati wa mchana (28C), na baridi wakati wa usiku (17C) Kuna nafasi ndogo ya mvua (42% nafasi) upepo wa kawaida (2kmh).

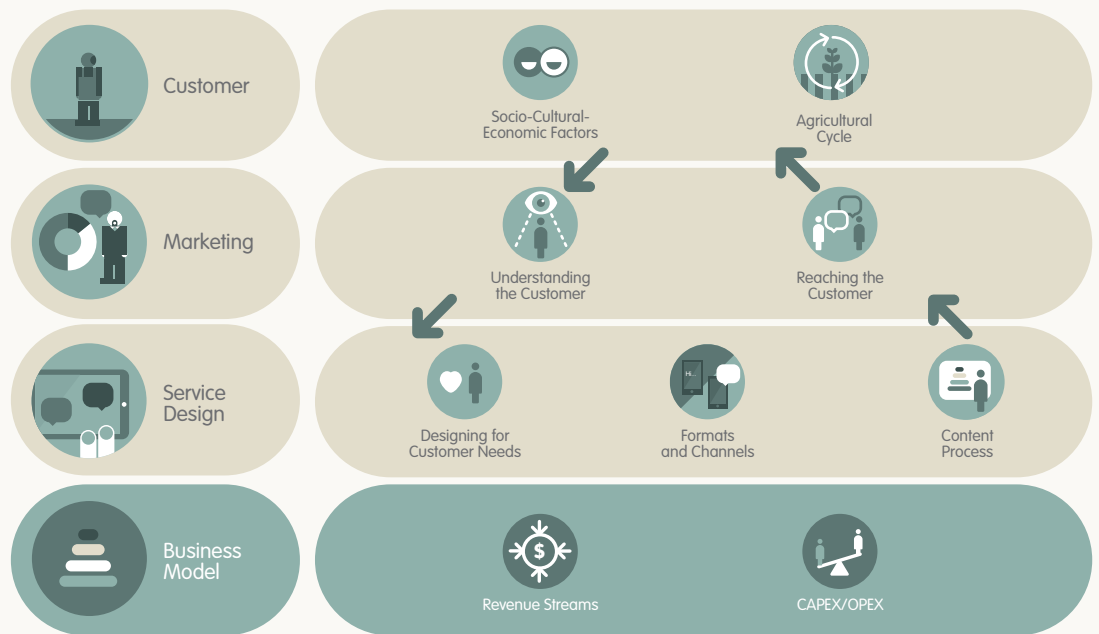
The interpretation of the number-based metrics would vary between the regions, as there is a perceptual difference. It is particularly important to translate the forecast to the local language(s), and in case of a low literacy level among the customer base, vocalise the message and manage its distribution via voice-based channels such as IVR or outbound voice messages.

The next step in the provision of an interpreted weather forecast is to combine it with agronomic advice. The effects on crops of certain weather patterns can be mitigated by appropriate and timely farming actions. IKSIL service in India provides contextual agro-climatic information for several states, and was found to be highly beneficial to the farmers. For example, consistent hot weather combined with high humidity encourages pests and fungal development. An agricultural university is best placed to process the weather information and create the relevant, actionable advice about pest-prevention techniques.

Forecast providers

There are lots of independent forecast providers that develop predictions based on comprehensive modeling systems. Among those providing forecasts for sub-Saharan Africa, some are already working with mobile and radio services to deliver forecast information to smallholders including aWhere, Foreca, and IGNITIA.

Chapter 5 Commercial Model and Business Case for Agri VAS



The Need for a Commercial Model

Agri VAS should be set up with a long-term commercial and financial model in mind. Although many Agri VAS will leverage 'seed' funding for their initial piloting and start-up phases, it is important to avoid the ensuing strictures of donor dependence by adhering to a viable, sustainable business case.

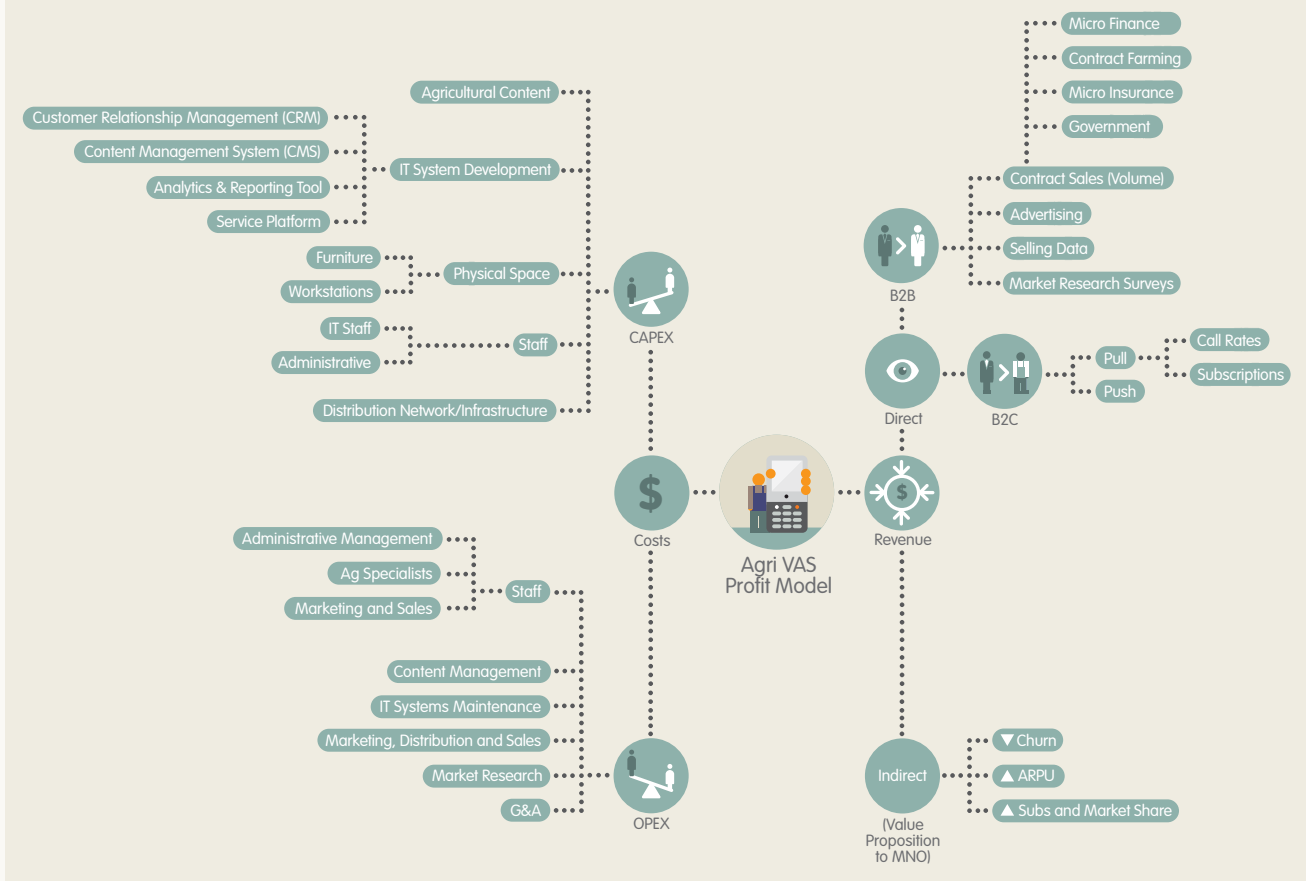
To ensure financial sustainability and commercial viability of Agri VAS, it is crucial to:

1. Develop reliable revenue streams with which to offset operational costs.
2. Provide critical partners with a unique value proposition and a clear rationale for their continued support.

This section aims to give Agri VAS providers the tools and knowledge necessary to develop their services within financially sustainable models.

Agri VAS Profit Model

The following diagram charts possible direct revenue streams, indirect benefits to MNOs and cost drivers.



Revenue Model Considerations

Direct Revenue B2C (Business to Consumers)

Most Agri VAS collect payment directly from the consumer via monthly subscriptions or a pay-per-use model. These fees are usually deducted from the subscriber's pre-paid account (billed through the MNO) while revenue is shared according to content partnership agreements.

When designing Agri VAS, it is important to consider the consumer's ATP and WTP (ability and willingness to pay). Unfortunately, very little data exists in support of rural consumer's ability and willingness to pay for mobile VAS or other forms of extension services. Thus we must use other methods to determine how best to collect revenue from farmers (the pricing architecture) while maintaining a degree of flexibility to collect revenue from other sources.

An early model, which has achieved notable success, is the 'freemium' model used by IKSL. Farmers pay standard pricing for a 'Green SIM'. In return, they receive five, free, localised voice messages each day. Users can also access the farmer helpline to get answers to specific questions. For these calls, farmers are charged at the standard call rate.

By leveraging the complimentary nature of the push/pull model, IKSL uses the proceeds from premium services (pull) to offset some of the costs of free services (push). In this manner, IKSL can reach and impact more farmers.

Another important factor to consider in the case of IKSL is the value proposition they bring to their partnership with Bharti Airtel. This is explored in detail in the section "**The Business Case for MNOs**"

Although a rural farmer's ability or willingness to pay is uncertain, charging a modest fee may be useful to establish credibility and prevent abuse. Because these modest fees will not be a source of meaningful revenue, Agri VAS should be designed with alternative revenue streams (B2B) independent of the farmers.

B2B Revenue Models

Two approaches were taken in analysing B2B revenue streams. The first was to examine the agricultural value chain and determine what other actors would gain significant, indirect value from Agri VAS and be willing to pay for it. This leads us to a variety of contract sales and outsourcing opportunities. The second approach was to study what unique assets and resources Agri VAS develop which we can be leveraged into other products and services outside the scope of our target market (smallholder farmers). By shaping these assets and resources to fulfil other unmet market needs, Agri VAS can generate alternative sources of direct revenue. This is discussed towards the end of the section.

Contract Sales

Contract Sales are bulk purchases or subscriptions ordered by an organisation on behalf of a particular community of farmers. Other actors in the agricultural value chain may be willing to pay for Contract Sales if presented with a compelling value proposition or a clearly defined ROI. Agribusiness Firms, Micro Insurers and Government Agencies are examples of such value chain actors who would benefit from increased agriculture output and productivity and may be willing to pay for Agri VAS for their farming partners.

1. Agribusiness Firms

Large Agribusinesses rely on contract farming to source critical raw materials, which they process into finished goods (Nile Breweries - beer, Mukwano Industries - cooking oil, Tilda Limited - rice, etc.) By ensuring their suppliers (farmers) have the best possible information to manage their business and crops, there could be a case for them (Agribusiness Firms) to benefit from the farmer's increased productivity, product quality and lower costs of production. They may be a source of contract sales whereby they purchase bulk subscriptions for their contract farmers. Many large Agribusiness firms already invest in traditional agriculture extension activities and may be qualified prospects for Agri VAS.

Example

1. Agribusiness firm buys bulk subscription to Agri VAS for their contract farmers.
2. Contracted farmers use Agri VAS to improve crop yield and quality.
3. Agribusiness firm's supply source has increased in both quality and quantity (higher quality raw materials and more options which to purchase from).
4. Financial burden can be shared between the Agribusiness firm and the contracted farmers.

Critical to Value Proposition There is a real need to prove an ROI to the Agribusiness firm (for instance the increase in yields leads to other cost reductions in their manufacturing process/ supply chain) or demonstrate increased efficiency for their agriculture extension budget.

2. Micro Insurers

Micro Insurance firms are beginning to offer crop or drought insurance to farmers. In order to reduce the risk of crop failures (the likelihood of paying claims) Micro Insurance firms may be willing to provide their clients with information services bundled into their premiums.

Example

1. Micro Insurance firm sells crop insurance policy to a farmer bundled with Agri VAS.
2. Farmer benefits by increasing yields and produce quality and reducing the likelihood of crop failure.
3. Micro Insurance firm benefits by reduced occurrence of crop failure claims.

Critical to Value Proposition Need to tie information services to a reduction in crop failures and claims.

It is important to remember that when selling or positioning Contract Sales, it's vital to have a solid ROI or business case for an organisation to participate. They need to have a clear idea as to the size and magnitude of the value they stand to receive.

Out-Sourced Services

Government Agencies

As government extension relates to public information that may not be of immediate interest to farmers, such as soil and water conservation, governments may use the Agri VAS platform to push out such information to farmers.

Governments currently offering agriculture extension services may be willing to outsource parts (or all) of their program. Existing Government extension services are typically under-resourced, mobile networks can provide a more cost effective channel to provide agriculture extension services to these rural farmers.

Governments wanting markedly to improve the reach of their extension services may be willing to outsource parts of their services to, or partner with, an Agri VAS provider.

Example

1. An existing government extension programme possesses a great deal of locally relevant and critical agriculture knowledge, but lacks the capacity to serve a geographically diverse constituency.
2. Extension workers are under-utilised because they spend more time on administrative tasks and travelling than they do working with farmers.
3. The Agri VAS provider proposes a government partnership whereby government extension workers and knowledge is fed through the Agri VAS platform to scale up service offerings.
4. Government extension workers are able to spend more time assisting farmers through the Agri VAS delivery platform, and only needing to travel to visit farmers facing extreme cases.
5. The Government saves money by eliminating the majority of travel costs and can reposition those funds towards provisioning the Agri VAS delivery platform.

Critical to Value Proposition Agri VAS should be viewed as being complimentary to existing face-to-face interventions. It is imperative not to alienate existing stakeholders (Government extension employees). It is also necessary to tie cost savings to the amount invested in using the Agri VAS delivery platform. The extension workers can either be employed by the Agri VAS or use the service to obtain additional expert advice when in the field with farmers.

Alternative Sources of Direct Revenue

Successful Agri VAS are expected to develop a level of trusted brand recognition and a relationship with rural farming communities on a large scale. This unique asset can be leveraged to provide services to organisations wanting to connect with or learn about the rural farming sector.

1. Advertising and Public Service Announcements:

The vast sub-Saharan African mobile advertising market has yet to be explored fully. Research by advertising firm InMobi¹⁰ suggests that the market is characterised by a high demand for mobile advertising that exceeds that of Europe and the United States.

We summarise their findings below:

- 69% of Africans are ‘very’ or ‘somewhat comfortable’ with mobile advertising. This figure is world-leading and in advance of the US and Europe (at only 61%). Consequently, African publishers have a significant opportunity to capitalise on this consumer interest in mobile. Early movers will secure a sizeable competitive advantage over their rivals.
- Typically, men are more accepting of mobile ads (76%) than women (63%). However, African women remain more receptive than their peers in America or Europe. Mobile is an empowering tool conferring manifold benefits to women including the ability to connect more widely with their peers, friends and families and conferring significant increases in personal security and business opportunities.
- Users see “helping me find new information” as the primary value-add of (45%) of mobile advertising.
- In exchange for mobile advertisements on their phone, consumers prefer a relevant message (57%) over 10% savings on the phone bill (55%) or free content (49%). Advertisers, therefore, need to offer genuine value in the content of their mobile advertising. Free content or discount campaigns will not suffice.

Given these findings, Agri VAS suppliers should explore the possibility of working with producers of agricultural inputs, banks or Consumer packaged Goods (CPG) companies who have an interest in connecting with rural users and who purvey services or information, which those users would find beneficial. Currently, not many platforms exist to reach out to this market on a large scale. However, an Agri VAS platform may well have the resources to satisfy this need.

Example 1

1. By tracking and logging farmer behaviour, the Agri VAS develops enough intelligence to predict when a subset of farmers may need to replenish certain supplies (fertiliser, seeds, pesticides, etc.)
2. An agricultural input supplier needs to distribute its marketing message to its target market (farmers in need of fertiliser).
3. An agriculture input supplier pays to send a targeted advertisement to the subset of farmers who are within the target market and who are expected to replenish their supplies.

Example 2

1. The Agri VAS collects demographic data on subscribers and their families.
2. A healthcare NGO plans an immunisation event for children of particular ages in rural communities.
3. A healthcare NGO pays to distribute this notification to Agri VAS subscribers with children within the age range.

Critical to Value Proposition: The more targeted and more personalised the advertising is, the more value it is for the farmer and the more effective it will be for the advertiser.

2. Data Collection and Market Research Sales

Research organisations, government agencies, NGOs and corporations require specific and unique sets of data to support their decision-making. Gathering timely and customised data can be expensive, time consuming or simply impractical. An Agri VAS may have the tools and resources in place to collect such data with less time and financial requirements.

10 In Mobi research “A Global Consumer View of Mobile Advertising: Africa Results” is available at http://www.inmobi.com/wp-content/uploads/2010/11/InMobi_Consumer_Mobile_Ad_Effectiveness_Africa_Nov_2010.pdf

Example

1. A CPG Company needs to conduct market research surveys to feed into the development of a new product for the rural market and its accompanying advertising campaign (income levels, willingness to pay, desires and preferences, etc.)
2. An Agri VAS has a large enough sample size (in the CPG Company's target market/ demographic) ready and willing to be the subject of market research activities.
3. Agri VAS carries out the market research surveys on behalf of the CPG company.
 - a. Based on their intimate understanding of the rural market, Agri VAS providers could add value by assisting the CPG Company in designing the market research survey.

By thinking creatively about how its specialist access to, and understanding of, these remote, underserved and (often) ignored market segments can be leveraged, an Agri VAS can open up additional income streams by partnering with other businesses who are looking to penetrate this territory.

The Business Case for MNOs

Because a typical MNO's existing infrastructure reaches deeply into rural villages, their platform is best positioned to launch and scale Agri VAS. Non-MNOs seeking to launch Agri VAS should consider a strategic partnership with an MNO. The right partnership can be an attractive opportunity to reach rapid scale.

In order to get the most value from the MNO and make best use of its scale, it is critical to provide it with a clear business rationale for their support beyond philanthropy or CSR. The more Agri VAS are aligned with the MNO's core business and strategy, the more willing an MNO is likely to be to resource such a partnership.

Since the farmer's willingness to pay is uncertain and limited, this cannot be relied upon to provide significant revenue for the Agri VAS or the MNO. Instead, value will be realised by focusing on longer-term objectives, which support the realisation of an MNO's rural extension strategy.

Indirect Commercial Value

We expect successful Agri VAS to provide some of the following indirect commercial benefits to an MNO:

1. Reduction in churn

An Agri VAS product offering provides a real differentiator to the MNO's SIM card in a crowded market place. It therefore gives the customer a real reason to select it over other VAS-less SIMs. MTN's Ugandan Mobile Money product exemplifies this perfectly as it demonstrated a significant drop in churn rate from 4.5% to 0.2%. An Agri VAS is likely to have a similar impact on churn; a phenomenon that will excite significant interest for most MNOs engaged in the race to saturated rural teledensity.

2. Increased market share and 'sticky' SIMs

Farmers who previously had little reason (aside from price) to select one MNO over another are now able to identify a very good one in the shape of an Agri VAS. A service designed specifically for farmers significantly differentiates one MNO from the rest and offers a compelling reason for farmers to select this MNO over others and, in the case of users with multiple SIMs, use it more frequently.

3. ARPU uplift (increased share of wallet)

Drawing on another synergy from mobile money, 44% of mobile money users in the Philippines carry multiple SIMs. 68% of them report using their mobile money SIM as their primary SIM. Further, it stands to reason that if Agri VAS are successful and farmer's productivity and incomes increase, their willingness and ability to pay for mobile services increase as well.

Rural Market Strategy

As farmers benefit from Agri VAS (improved yield, quality and incomes) so their incomes rise and they become more attractive consumers to MNOs. Having an established relationship (via the Agri VAS) provides the MNO with a competitive advantage over other operators.

The agricultural industry's connection to finance presents an opportunity to tie mobile money services to Agri VAS. Farmers need access to financing, especially the sending and receiving of payments. This presents MNOs with a great opportunity to offer mobile money services to Agri VAS subscribers simultaneously. Also, GSMA mAgri Programme pilots in India and Kenya both experienced farmers requesting health care information services for family members. Therefore, we see an opportunity for MNO's to build a portfolio

11 For more details, please see the mAgri Programme's case study on IKSL by downloading from <http://www.gsmworld.com/documents/iksl-case-study-v2.pdf>

of services that span the industry verticals (mobile health, mobile money, mobile learning and mobile agriculture) and offer real value to base of pyramid users.

Cost Model Considerations

Along with researching revenue streams, it's important to understand the main drivers of cost in order to measure and manage them. Capital Expenditures (CAPEX), and Operating Expenditures (OPEX) typically constitute the two main cost pillars within an Agri VAS and there are a number of ways to mitigate them.

CAPEX

Most start-up and fixed costs can be classified as Capital Expenditures. The role of 'soft' funding and grants are to cover some of these costs with the aim of giving standard operations a chance to become financially sustainable.

Elements of CAPEX:

- IT System Development.
 - CRM.
 - Content database.
 - Analytics and reporting systems and tools.
- Physical Space.
 - Furniture.
 - Workstations.
- Service Platform.

Minimising CAPEX

Some elements of CAPEX can be minimised or even eliminated through certain partnerships or in-kind contributions.

Many software companies offer free or highly subsidised software licenses to non-profit organisations. Having a non-profit partner apply for such programs will help the Agri VAS provider to qualify.

Partnering with organisations that possess a high level of capacity and resources can also help lower the costs of other expenses.

OPEX

It is expected that most, or all, operating expenses will be offset by revenue. These are formed of those costs not classified as capital expenditure. It's also important to anticipate how operating expenses will increase with operations. There is an ineluctable and consonant uplift in operating expenditure as the business and customer base grows. This factor must be designed into the service's budget.

Elements of OPEX

Typical Operating Expenditures include the following:

- Staff.
 - Agriculture specialists.
 - Marketing and sales staff.
 - IT staff.
 - Administrative staff.
- Content aggregation, maintenance and quality assurance.
- IT System Maintenance.
- Marketing and Sales.
- Training.
- Market Research.
- General and Administrative.

Minimising OPEX

By working with partners who possess existing resources, it's possible to reduce or eliminate the need to invest in certain OPEX categories. Agricultural organisations may already have a network of field extension workers who could be trained in marketing and selling Agri VAS once the shared benefits are explained. Indeed this was the route taken by India's successful IKSL service who partnered with IFFCO (the Indian Farmers Fertiliser Cooperative Limited), the largest farmers' co-operative, in order to leverage their enormous membership, access to (and trust of) the target market and distribution outlets.¹¹ Alternatively, an MNO's network of sales agents and village phone operators could also be leveraged for the distribution of Agri VAS.

The obvious benefit of partnering with a mobile network operator to deliver Agri VAS is that it already possesses the infrastructure necessary for effectively reaching the target market. This infrastructure not only greatly enhances the reach of the service but also acts to drive down CAPEX and mitigates against the financial risks involved in the launch of new services. Similarly, an MNO's call centres, billing and revenue collection facilities - not to mention the bearer channel and ownership of short-codes - are all highly desirable from an Agri VAS perspective, and could be critical in helping that service achieve sustainable growth.

mAgri Glossary

Agricultural Input Dealer

Organization producing and/or distributing agricultural inputs (fertilizers, seeds, pesticides, agricultural equipment, etc.)

Agri-business

Denotes the collective business activities that are performed from farm to fork. It covers the supply of agricultural inputs, the production and transformation of agricultural products and their distribution to final consumers.

Agricultural Content Dashboard

Free agricultural and health content database in development by ACE Icon Group and Professor Phil Parker under a grant from the Bill and Melinda Gates Foundation.

Agricultural Crop Cycle

The annual cycle of activities related to the growth and harvest of a crop. These activities include loosening the soil, seeding, special watering, moving plants when they grow bigger, and harvesting, among others.

Agricultural VAS

Agricultural Value Added Services.

Agriculture Extension Organisation

Organization responsible for developing and delivering extension services.

Agriculture Extension

The dissemination of expert agricultural knowledge and practice.

Agriculture Extension Worker

Professionals in the extension system responsible for developing and delivering extension services.

ARPU

Average Revenue Per User.

ATP

Ability to Pay.

B2B

Business to Business.

B2C

Business to Consumer.

BMGF

Bill and Melinda Gates Foundation.

CAPEX

Capital Expenditure.

CMS

Content Management System.

CRM

Customer Relationship Management.

GSMA

GSM Association. The GSMA represents the interests of mobile operators worldwide. Spanning 219 countries, the GSMA unites nearly 800 of the world's mobile operators, as well as more than 200 companies in the broader mobile ecosystem, including handset makers, software companies, equipment providers, Internet companies, and media and entertainment organisations. The GSMA also produces industry-leading events such as the Mobile World Congress and Mobile Asia Congress.

LDC

Less Developed Country.

MEL

Monitoring Evaluation and Learning.

mFarmer Initiative

GSMA Development Fund initiative to stimulate the development of high-scale, high-impact Agri VAS.

MFI

Microfinance Institution.

MNO

Mobile Network Operator.

NGO

Non-Governmental Organisation.

OPEX

Operating Expenditure.

Pull Service

Mobile services 'pulled' by the subscriber, specifically queried and requested.

Push Service

Automated mobile services 'pushed' or broadcasted after an initial subscription by the user.

QA

Quality assurance.

VAS

Value-added Service.

WTP

Willingness to pay.

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