GSMA

Agricultural Value-added Services (Agri VAS) Toolkit 2.0

How to design, develop and market next generation VAS for the rural market

CONTENTS

Introduction

With over two billion people in the world living in smallholder settlements and depending on agriculture as their main source of income, boosting agricultural productivity has never been more important. However, for smallholder farmers in the developing world, a number of barriers stand in the way. These are lack of access to relevant market information and local and timely agronomic and weather information, continued use of inefficient farming techniques, lack of access to finance for investment in better agricultural technology and equipment and inefficient distribution, transport and storage systems. All of these challenges represent missed opportunities for farmers to generate meaningful income for their families.

As the most ubiquitous ICT platform in the developing world, mobile offers a unique opportunity to address this knowledge and information gap for farmers. Agricultural Value-added Services (Agri VAS) delivered over voice (e.g. IVR, helplines), text channels (SMS and USSD) and, increasingly, rich media (online content and apps), provide much-needed information on agricultural practices, market prices and marketplace services and local weather forecasts. By transforming the mobile phone into a productivity tool for smallholder farmers, Agri VAS can generate positive socio-economic change. For the mobile industry, these services are a way to target the fast-growing rural segment more effectively.

In the developing world, the agricultural labour force is made up of over 550 million people across emerging markets in Sub-Saharan Africa, South Asia and Latin America, while the number of agricultural workers with a mobile phone is close to 200 million. If high-quality, relevant mobile services are made available, we estimate that the Agri VAS user base could double from a potential addressable market of 47 million users in 2015 to 91 million in 2020. In revenue terms, annual direct revenues from Agri VAS in Sub-Saharan Africa, South Asia and Latin America is estimated to grow from just over USD 200 million in 2014 to over USD 500 million in 2020.

For mobile network operators (MNOs), the indirect business benefits of Agri VAS will be the main drivers of these initiatives. In a congested marketplace, value-added services have the potential to increase market share and rural acquisitions, increase usage of core services (SMS and voice), drive data usage and improve customer loyalty and overall brand awareness. In addition, the build-up of an Agri VAS base creates cross-selling opportunities for other mobile-based VAS such as mHealth and offers the potential to develop bundles with mobile money-enabled agricultural mobile financial services (Agri MFS).

Since we wrote our first Agri VAS toolkit in 2011, an increasing number of MNOs and VAS providers have begun offering these kinds of services to smallholder farmers. However, many of the Agri VAS launched in emerging markets have suffered from low user adoption. In order to reach scale with services that target bottom of the pyramid (BoP) users, providers not only have to launch relevant services and market them effectively, but also build sustainable and agile partnerships with ecosystem players (e.g. content providers, agribusinesses). In this toolkit, we will feature some of the key lessons Agri VAS providers have learned from developing services that address farmers' needs and which ones have the most potential to reach the target market and scale.

This toolkit is intended to provide operational guidance for developing and implementing Agri VAS and is aimed primarily at MNOs and VAS providers. It incorporates the lessons from our mFarmer and mNutrition initiatives, through which we partnered with MNOs and VAS providers to launch services in Sub-Saharan Africa and South Asia.[1] It also features best practices from the broader ecosystem in developing services aimed at the rural segment.

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1.   Learn more about the GSMA mAgri Programme at: http://www.gsma.com/mobilefordevelopment/programmes/magri/programme-overview/

The toolkit applies a user-centred design approach to product development, which we have tailored to the mobile agriculture context together with our partner, frog design.[2] As an iterative approach to product design, user-centred design puts farmers and their experience at the centre of the process. It is grounded in a continuous and structured interaction with end users, from the early moment of identifying the opportunities and generating concepts to the advanced stages of product realization, execution and scaling. This approach helps to translate the understanding of target users into iterative designs and ensure that all aspects of the service—from the overall experience to every detailed feature—are verified by users. Armed with a deep understanding of the user when designing Agri VAS, providers are in the best position to develop relevant and commercially viable services.

The toolkit is structured into five parts covering the entire process of developing an Agri VAS, from initial scoping and market assessment to launching and marketing services. The first part outlines the market opportunity for Agri VAS by showing how the sector has evolved since 2011 and introducing our market estimates. We also describe the direct and indirect business benefits for MNOs and VAS providers to enter into Agri VAS projects and present the key questions service providers should ask when defining the business model.

The second part describes the preliminary phases of entering into Agri VAS projects. This chapter outlines the prerequisites for ensuring these projects have the necessary capacity and internal support and identifies the key factors to take into account when conducting market segmentation.

The third part marks the start of the user-centred design process, as it outlines best practices for conducting end user research at service inception, which in turn leads service providers to develop a full value proposition and to define partnerships for the Agri VAS projects.

The fourth part describes the key steps involved in service development, including the user validation process for testing the value proposition with the target market, the content creation process and go-to-market strategy. This chapter also outlines the criteria for product iteration, a continuous process of ensuring the changing needs of farmers are reflected in new service designs and product development.

Finally, the fifth part presents best practices in Agri VAS downstream marketing to drive consumer demand through advertising, sales and distribution.

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2.   See http://www.frogdesign.com/

1 Market opportunity

1.1 The socio-economic opportunity

Smallholder farmers in the developing world face a number of socio-economic challenges. These include poor access to relevant market information, lack of local and timely agronomic and weather information, inefficient farming techniques, lack of access to finance for investment in better agricultural technology and equipment and inefficient distribution, transport and storage systems. All of these represent missed opportunities for farmers to generate income for their families and contribute to low overall productivity levels.

The challenge of agriculture productivity in emerging markets is best illustrated by the gap between the agricultural labour force and the agriculture sector's contribution to GDP. In emerging markets around the world (Sub-Saharan Africa, South Asia and Latin America), just under 50% of the labour force is active in agriculture (on average), yet agriculture contributes to only about 10% of GDP.[3] Globally, cereal yield is 3,200 kg/hectare in emerging markets compared to 4,800 kg/hectare in developed markets.[4] In India, Kenya and Rwanda, the gap between agriculture-dependent GDP and the labour force is even wider.

FIGURE 1

Agriculture's contribution to GDP and labour force, by region

GDP – South Asia
- Agriculture industry
- Other industries

Labour force – South Asia
- Agricultural labour force
- Other labour force

GDP – India
- Agriculture industry
- Other industries

Labour force – India
- Agricultural labour force
- Other labour force

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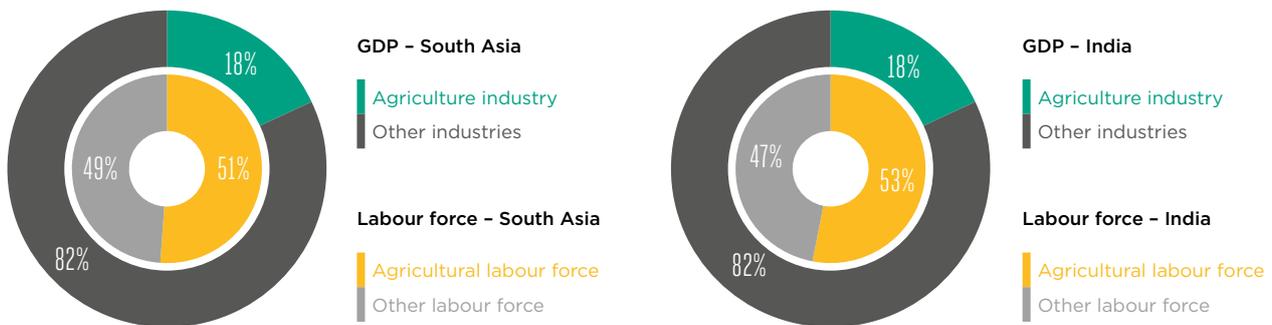
3. Data from The World Bank. Emerging markets include low-income, lower middle-income and upper middle-income economies. As of 1 July 2014, low-income economies are defined as those with a gross national income (GNI) per capita (calculated using the World Bank Atlas method) of USD 1,045 or less in 2013; lower-middle income economies are those with GNI per capita between USD 1,045 and USD 4,125; and upper-middle income economies are those with GNI per capita between USD 4,126 and USD 12,735.

4. Data from The World Bank and the Food and Agriculture Organization of the United Nations (FAO).

GDP – Bangladesh

16%

43%

57%

84%

- Agriculture industry
- Other industries
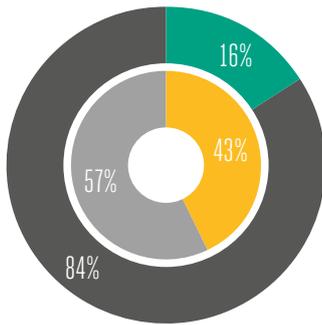
Labour force – Bangladesh

- Agricultural labour force
- Other labour force

GDP – Pakistan

25%

38%

62%

75%
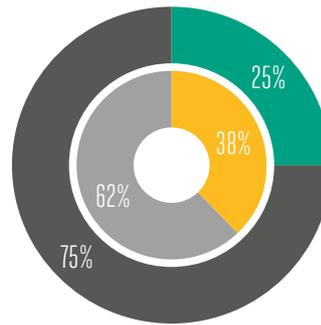
- Agriculture industry
- Other industries

Labour force – Pakistan

- Agricultural labour force
- Other labour force

GDP – Africa

15%

52%

48%

85%

- Agriculture industry
- Other industries
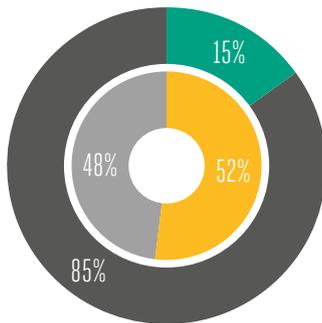
Labour force – Africa

- Agricultural labour force
- Other labour force

GDP – Kenya

29%

31%

69%

71%
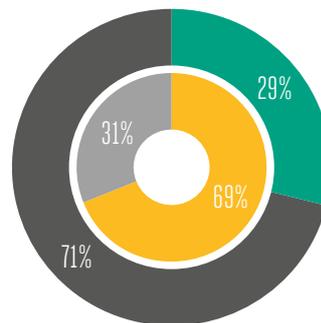
- Agriculture industry
- Other industries

Labour force – Kenya

- Agricultural labour force
- Other labour force

GDP – Nigeria

21%

23%

77%

79%

- Agriculture industry
- Other industries
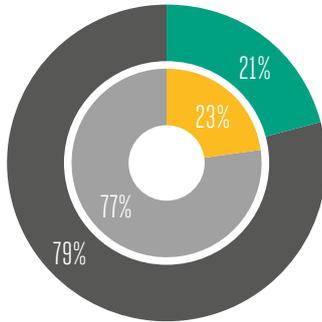
Labour force – Nigeria

- Agricultural labour force
- Other labour force

GDP – Ethiopia

24%

45%

55%

76%

- Agriculture industry
- Other industries
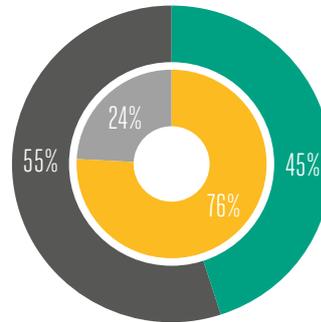
Labour force – Ethiopia

- Agricultural labour force
- Other labour force

GDP – Latin America

5%

14%

86%

95%

- Agriculture industry
- Other industries
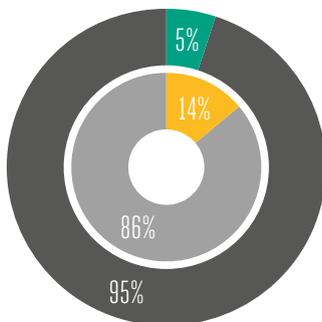
Labour force – Latin America

- Agricultural labour force
- Other labour force

GDP – Brazil

6%

10%

90%

94%
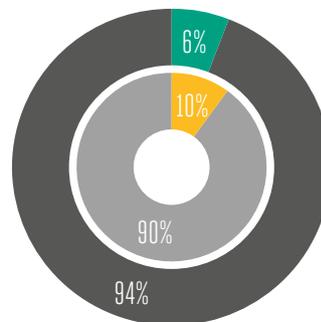
- Agriculture industry
- Other industries

Labour force – Brazil

- Agricultural labour force
- Other labour force

Source: GSMA Intelligence, GSMA mAgri

Cereal productivity gap*
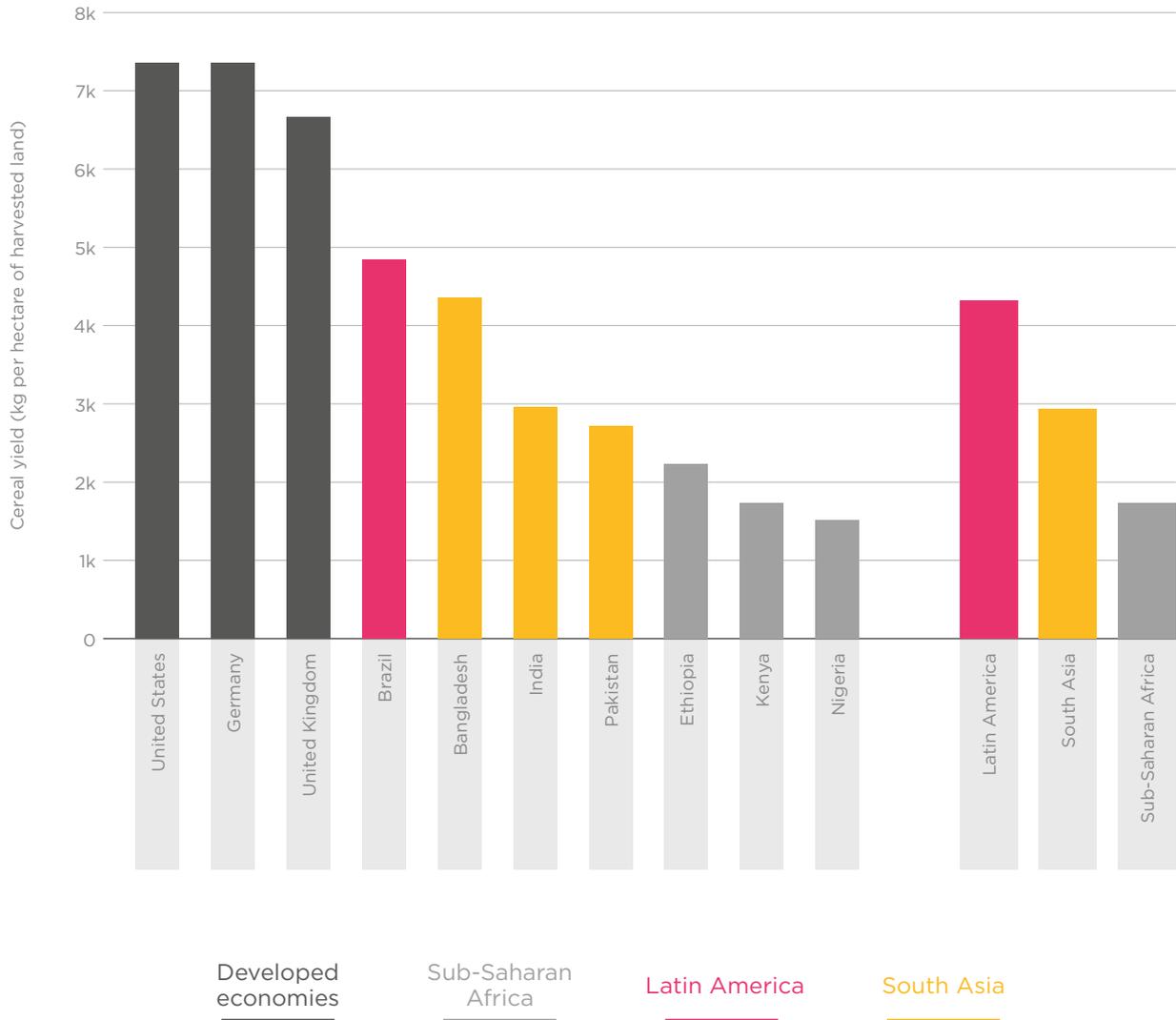
Source: World Bank

As the most pervasive ICT tool in the developing world, mobile presents an opportunity to address the knowledge and information gap farmers face and to become a productivity tool. However, this potential will only be achieved when relevant, high-quality services are available to farmers and reach the scale required to have a major socio-economic impact. In this toolkit, we will draw on some key lessons to explain how to develop services that address farmers' needs and have the greatest potential to reach this target market.

Agricultural value-added services (Agri VAS) typically include agronomic information that improves farmers' knowledge of farming practices; market price and marketplace services that match buyers with suppliers of agricultural products; and weather forecasts with regional and district-level predictions. Today, a growing number of Agri VAS services are being launched around the world, with a few reaching significant scale in markets such as India, Kenya, Turkey and Bangladesh.

1.2 Progress of Agri VAS initiatives since 2011

GSMA Mobile for Development (M4D) tracks just over 140 Agri VAS globally.[5] Africa has the highest number of live services (49), followed by Asia (41), Latin America (9) and the Middle East (4). The number of Agri VAS has more than doubled from 2011 to 2015.

Agri VAS initiatives are led by a range of service providers, including mobile network operators (MNOs), value-added service (VAS) providers, NGOs

and, in some cases, technology vendors, government and regulatory agencies, often in partnership with MNOs. Globally, MNOs lead most Agri VAS initiatives (24%), followed by NGOs (20%), but there are regional differences. In Africa, for example, many NGOS are directly engaged in Agri VAS projects, while in South Asia, where the VAS market is more mature (e.g. in India and Bangladesh), more services are led by MNOs and VAS providers.

FIGURE 3

Agri VAS evolution by lead organisation
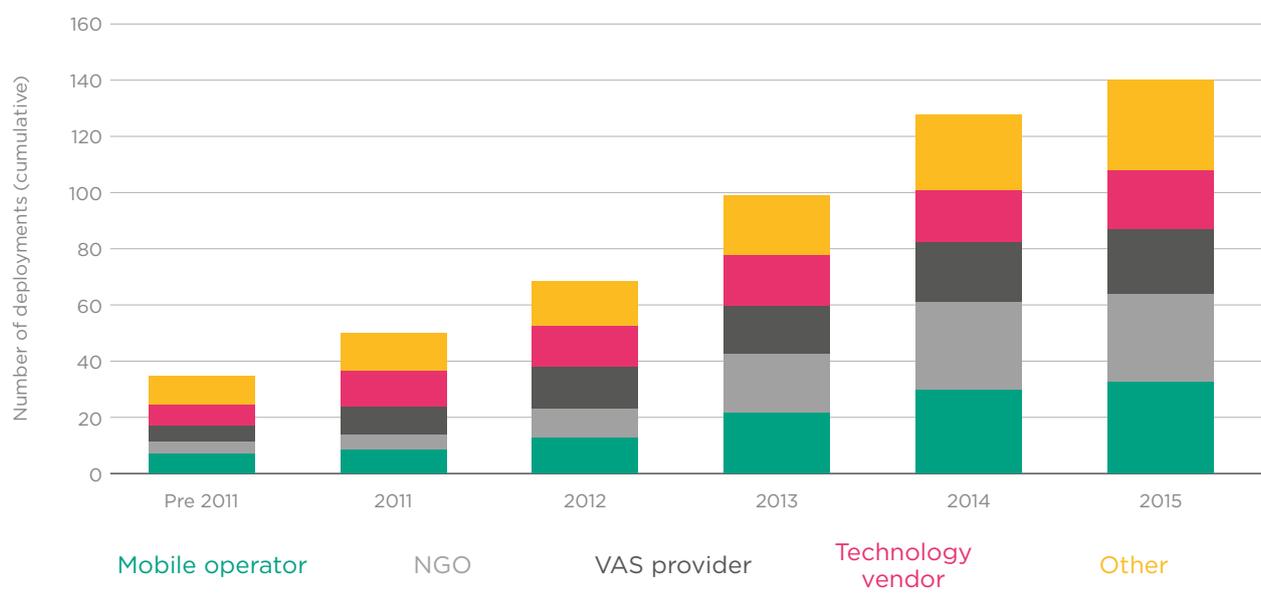
Source: GSMA Products and Services Tracker
Note: 'Other' includes academia/think tank, agricultural supplier, association, automotive, transportation, banking/finance, consultancy, government/regulatory and media.

Generally, MNOs and VAS providers are better placed to scale services given their existing customer base and, in the case of MNOs, their established brands and marketing assets. MNOs and VAS providers lead Agri VAS projects in all major markets. In India, some of the most established services are IFFCO Kisan Sanchar Limited (IKSL), a joint venture between the

Indian Farmers Fertiliser Cooperative (IFFCO) and Bharti Airtel, as well as VAS provider-led services, such as HandyGo and Reuters Market Light. In Turkey, the largest deployments are operator-led, with the Turkcell Farmers Union and Vodafone Farmers' Club providing services. In Kenya, the iCow Agri VAS is offered in partnership with Safaricom.

5.   See the GSMA mAgri Deployment Tracker: http://www.gsma.com/mobilefordevelopment/programmes/magri/tracker

TABLE 1

Agri VAS by number of users

Country	Product name	Lead organisation	Launch date	Users
Bangladesh	Krishi Jigyasha 7676	Banglalink	2008	1.3m
India	RMLdirect	Reuters Market Light	2007	1.4m
	Green SIM	IFFCO Kisan Sanchar Ltd	2008	3.3m
	mKisan	Handygo Technologies	2014	0.8m
	Monsanto Farm AgVisory Services (MFAS)	Monsanto	2013	0.8m
	Kisan Mitra	Vodafone	2015	0.5m
Kenya	iCow	Safaricom	2013	0.3m
Tanzania	Tigo Kilimo	Tigo	2012	0.4m
	Kilimo Klub	Vodacom	2015	0.2m
Turkey	Vodafone Farmers' Club	Vodafone	2009	1.0m
	Turkcell Farmers' Union	Turkcell	2011	1.1m

Source: GSMA Mobile for Development Products and Services Tracker

1.3 Sizing Agri VAS markets

GSMA Intelligence has modelled the market size (addressable market and annual revenue) for Agri VAS in Sub-Saharan Africa, South Asia and Latin America[6] based on the intersection of the agricultural labour force, mobile subscriber penetration and the potential uptake of Agri VAS. These estimates show the extent to which Agri VAS could reach smallholder farmers, provided that MNOs, VAS providers and other ecosystem players develop relevant and scalable services.

If these conditions are met, the Agri VAS user base could almost double from 47 million in 2015 to 91 million in 2020, with a compound annual growth rate of 14% over this period. Growth will be driven mainly by South Asia, which will contribute 60% of total users in 2020 (54 million), most of whom will come from India. In Sub-Saharan Africa, the number of Agri VAS users in 2020 is estimated to be 30 million and 7 million in Latin America.

Annual direct revenues from Agri VAS in Sub-Saharan Africa, South Asia and Latin America are estimated to grow from just over USD 200 million in 2014 to just over USD 500 million in 2020. South Asia accounts for approximately 70% of total annual revenues

generated from Agri VAS, which not only reflects a larger user base, but also higher average revenue per user (ARPU), due to more mature VAS markets, particularly in India and Bangladesh.[7]

Agri VAS addressable market and potential annual revenue

Source: GSMA Intelligence, World Bank, FAO

7. Agri VAS ARPU in South Asia and Latin America has been estimated at USD 0.60, which would give, on average, 20 SMS or 10 minutes of IVR calls per month in Bangladesh, or 25 minutes of IVR calls per month in Pakistan. The Agri VAS ARPU in Sub-Saharan Africa has been estimated at $0.25, which would give, on average, five SMS per month in Kenya or six minutes of IVR calls in Ghana.

India is by far the largest market for Agri VAS users due to its size, the expected growth in mobile subscribers, the comparatively high share of agricultural labour and an already dynamic VAS market. After India, the largest markets for potential Agri VAS users in 2020 are Ethiopia, Kenya, Pakistan, Bangladesh and Tanzania. This is based, first, on the size of the rural and agricultural population and, second, on the largest growth of agricultural workers with a mobile phone between 2014 and 2020 (according to GSMA Intelligence data). In terms of potential revenues generated by Agri VAS, the biggest markets after India, with an estimated revenue potential of USD 325 million, are Pakistan, Bangladesh, Ethiopia and Kenya.

FIGURE 5

Largest potential markets for Agri VAS in 2020
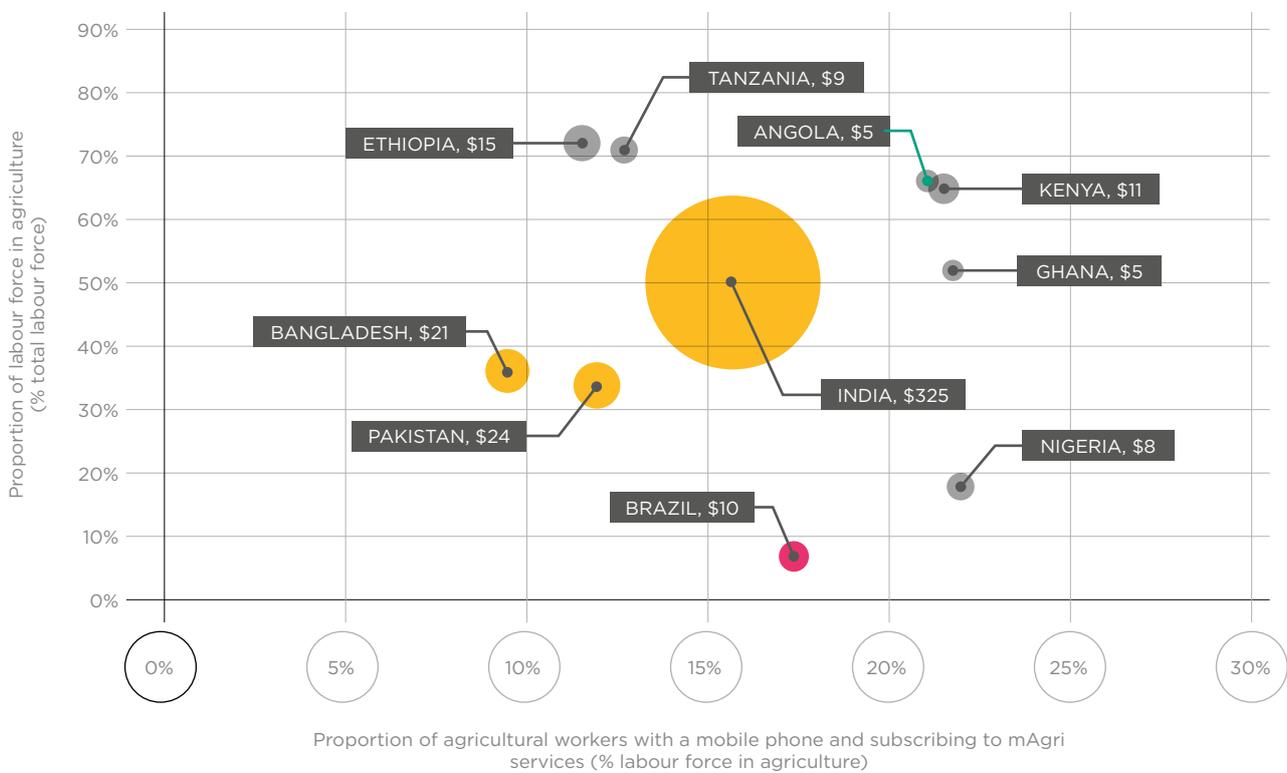
Source: GSMA Intelligence, World Bank, FAO
Note: Size is the potential annual direct revenue in 2020 (million US$)

Agri VAS can be delivered via SMS (short messaging service), USSD (unstructured supplementary service data), automated voice such as IVR (interactive voice response) or OBD (outbound voice dialling) and online content or apps (rich media). Given the literacy challenge in emerging markets (see part 2), voice will remain the most popular delivery channel through to 2020, followed by SMS (see Figure 6). The number of potential Agri VAS users using rich media services will increase by 2020, accounting for approximately 60% of total potential VAS users. This is driven by the declining prices of smartphones in emerging markets and the fact that rich media can help address literacy issues by using static and dynamic images while delivering content in a more engaging way.

FIGURE 6

Agri VAS users by delivery channel in South Asia, Sub-Saharan Africa and Latin America

Voice/IVR   SMS   Rich media
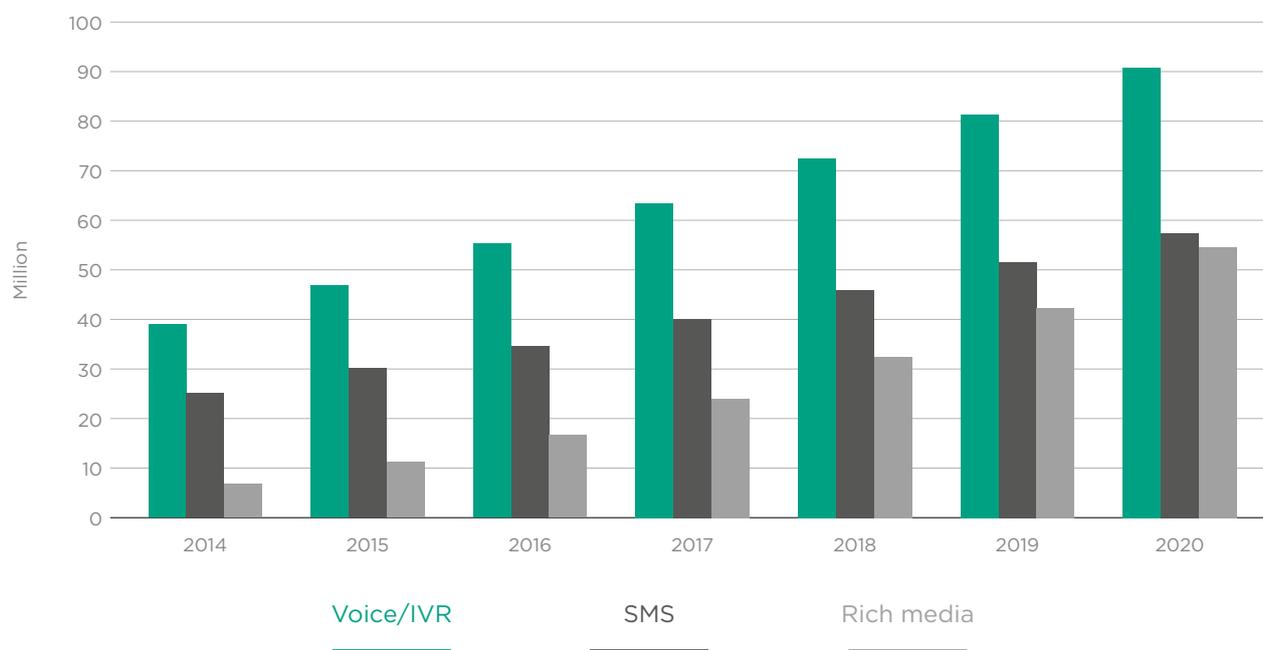
Source: GSMA Intelligence, World Bank, FAO
Note: The three delivery channels are not mutually exclusive; Agri VAS users can use more than one channel at a time.

1.4 Business benefits for service providers

Regardless of the ownership structure (e.g. operator-led, VAS provider-led), it is essential that an Agri VAS operates on a financially sustainable business model that supports long-term growth and meets the overall business objectives for providing the service. For an operator-led service this will justify continued support from the mobile operator and, for third-party Agri VAS, it will attract much-needed investment and funding during critical phases of the business development cycle. The business models of existing Agri VAS can be grouped into two broad categories based on what drove the mobile operators and third-party service providers to launch the service: a direct revenue model and an indirect benefits model.

Under a direct revenue model, the Agri VAS generates cash revenue from delivering services to end users. In this case, smallholder farmers and/or third-party organisations are willing to pay for farmers to access

the service. There are three types of direct revenue models depending on where revenue is generated: business-to-consumer (B2C), business-to-business (B2B) and hybrid.

The indirect revenue model is applicable only to mobile operators. There is no direct revenue stream under this model, but mobile operators can derive non-cash benefits, such as increased market share and rural acquisitions; higher usage of SIM cards for core services, data usage, or other VAS usage; customer loyalty; and related churn reduction and brand awareness. In a subsidised model, the Agri VAS relies mainly on NGOs, government agencies, or private companies to sustain their operations.

A service can contribute to multiple core business KPIs, depending on the service provider. For example, a mobile operator may derive indirect benefits from

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providing a service while its content partner receives direct revenue based on the terms of the agreement with the MNO. To ensure growth and sustainability in the Agri VAS space, providers and investors must weigh the major advantages and barriers of each model against local market dynamics to ensure they develop and support services with the best prospects

for financial sustainability. For example, a service may initially offer basic functionalities for free with a view to grow market share and eventually upgrade customers to data services.

The main features and barriers of each model are described in Table 2 below.

TABLE 2

Business model features and barriers

Business model	Key feature	Specific barriers	General barriers
Direct revenue – B2C	Smallholder farmers pay a fee to use the service	Poor rural smallholder farmers have low disposable income and, consequently, very low ability and willingness to pay (ATP and WTP) High marketing cost to drive initial uptake and maintenance cost to sustain user interest Commoditisation of information as farmers discover cheaper information sources Strong tendency of farmers to share information amongst themselves, creating many indirect users	Poor network coverage in rural areas where most smallholder farmers live Cost of ownership of mobile devices is still prohibitive for many poor rural farmers High cost of acquiring and maintaining content, particularly in markets with underdeveloped agriculture ecosystems Forging agreements with critical partners, such as content providers Language and literacy barriers, especially in multilingual countries Growing involvement of women in farming activities and overall gender gap in rural areas Technology barriers, especially among older farmers and women in rural areas, leading to high education costs Forming strategic partnerships between mobile operators and third-party Agri VAS providers to ensure sufficient value creation for both parties
Direct revenue – B2B	Agribusinesses pay for farmers to access the service	Limited scope for scale in markets having weak agriculture ecosystems Some mobile operators may have limited skills and experience in managing enterprise relationships Market decentralisation if agri-businesses develop in-house systems in attempt to reach farmers directly	
Direct revenue – hybrid	Agri VAS generates revenue from both smallholder farmers and enterprise customers	Creating value for both sets of customers may prove expensive, especially content development and delivery	
Indirect benefits	Mobile operator provides support for the service on the basis of indirect benefits around subscriber uptake, ARPU appreciation from network usage and customer loyalty	Difficulty in quantifying indirect benefits to the mobile operator could negate the business case for continued support	

Business model	Key feature	Specific barriers	General barriers
Subsidised model	Donors/NGOs fund the service, mainly for developmental purposes; or private companies fund the service as part of a corporate social responsibility (CSR) effort	Continued support depends on the primary objectives of the main donor A change in the main donor's funding strategy could lead to a scaling back of operations or complete closure	

The business case for the direct revenue model (B2C) may be challenging as it depends on the ability and willingness of users at the bottom of the pyramid (BoP) to pay. This is especially important in low-income economies, where the majority of the population is BoP.[8] However, Agri VAS have shown potential to generate direct revenues for mobile operators and VAS providers, provided sufficient time is allowed for services to break even.

EXAMPLES

In India, **IFFCO Kisan Sanchar Limited (IKSL)** sells the Airtel Green SIM, which provides access to core network services, as well as voice and text-based content at special rates for farmers. The service generates direct revenue through the sale of SIM cards and airtime recharges. It was launched in 2007 and broke even in 2011.[9]

Behtar Zindagi in India (recently merged with mKisan) offers advice and information on crop agronomy, animal health, weather forecasts and market prices for major crops to farmers in India. This is done through SMS (push) and IVR and helplines (pull) for a subscription package of INR 1 (US$ 0.02) per day, purchased in packs of 10, 20, or 30 days.[10]

For mobile operators, indirect benefits have been the main business driver in Agri VAS projects in most cases. The indirect benefits business model is dependent on the value of the service to the mobile operator, as the benefits derived from the service need to be enough to justify continued investments in content development and marketing. Therefore, mobile operators need to actively evaluate the benefits they derive.

One notable advantage of the indirect benefits model over the direct revenue model is that it is relatively easier to build up a critical mass of users, especially in markets where poor rural smallholder farmers have very low ATP and WTP. Many countries in Sub-Saharan Africa fall into this category, which in part explains the comparatively larger number of donor-funded services in the region.

For MNOs, building a large user base for Agri VAS creates additional opportunities for cross-selling other mobile-based VAS, such as health, education, news and financial services (see part 3). MNOs also benefit from bringing new customers into their network, especially the currently unconnected rural segment and by building the loyalty of the existing base by offering sticky services.

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8.   According to The World Bank, the global poverty line is USD 1.90 per day (based on 2011 prices). Just over 900 million people globally lived below this line in 2012 (based on the latest available data) and just over 700 million were living in extreme poverty in 2015. See http://www.worldbank.org/en/topic/poverty/brief/global-poverty-line-faq

9.   See GSMA, March 2015, 'Case Study: Airtel Green SIM', http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2015/03/GSMA_Case_IKSL_web2.pdf

10. See http://vas.bsnl.co.in/vas/behtar_zindagi.jsp

EXAMPLES

Since it launched its **Green SIM** service, in partnership with the Indian Farmers Fertiliser Cooperative (IFFCO), Bharti Airtel India has recorded an increase in rural market share—5% of all the mobile operator's rural acquisitions came through IKSL in 2014—and customer loyalty, with 60% of customers using their Green SIMs for longer than 12 months.

Indirect benefits have been a key driver for **Airtel Madagascar's 3-2-1** service. In partnership with Human Network International (HNI), the MNO bundles content on health, gender, agriculture and other topics. Airtel recorded KPIs for increased network activity from its 3-2-1 service user base, such as double the amount of outgoing SMS sent by 3-2-1 users compared to non-3-2-1 users (July–November 2014).

Vodafone Turkey experienced significantly lower churn rates in its Farmers' Club base than its total customer base in 2015—23% lower on average. Vodafone uses top-of-mind awareness (TOMA) surveys to track awareness and emotional bonding with the brand and its most recent survey revealed that brand awareness among Farmers' Club members was 16% higher than the whole Vodafone GSM base.

Source: IKSL

Another important indirect business benefit MNOs can derive from Agri VAS is enhanced customer knowledge. Having a more complete understanding of the needs and preferences of rural users is particularly important for incumbent operators in emerging markets, which are facing declining growth in urban areas and are increasingly looking to rural markets. Agri VAS is an opportunity to drive uptake of data services in rural

areas, with a view to upgrading customers to 3G services once coverage improves and smartphone penetration increases. Furthermore, gaining insights on rural users and improving customer knowledge overall gives MNOs the opportunity to sell valuable data to third parties, such as agribusinesses and financial organisations.

EXAMPLE

Reuters Market Light is a SMS-based service providing agricultural advice, weather forecasts and market prices to Indian farmers. It uses data and insights on farmers, crops, markets and prices to provide commercial data and intelligence services to agribusinesses and financial organisations.

B2B   The direct revenue B2B model

For agribusinesses, it is challenging to ensure that contract farmers are able to produce high-quality products and that the production process is transparent, traceable and conforms to food safety and sustainability standards. Direct revenue B2B services can be used to address inefficiencies in the agricultural value chain and create platforms for smallholder farmers and agribusinesses to engage more effectively. Organisations along the value chain, such as agribusinesses, cooperatives, commodity traders and trade organisations, micro-insurers and public institutions, can all use B2B solutions to order bulk purchases or subscriptions on behalf of a particular community of farmers.

In addition to addressing value chain inefficiencies, the direct revenue B2B model can be used to provide other solutions for enterprise clients in the agriculture ecosystem, such as:

Advertising: Agribusinesses that want to promote their products and/or services to farmers through targeted marketing campaigns can utilise B2B Agri VAS.

Selling data: Agri VAS providers are well placed to build data analytics on farmers and farming practices based on the large amounts of data and feedback they collect from farmers on local farming conditions and their households.

Market research surveys: In addition to general data analytics, Agri VAS providers can also deliver customised research surveys for external clients by leveraging their relationship with farmers on their database.

For MNOs, the direct revenue B2B business model depends on having the right enterprise customers in place who are keen to engage with smallholder farmers. This model is at a nascent phase of development in most markets in South Asia and Sub-Saharan Africa, with only a few established providers. However, it offers a compelling case for long-term growth and commercial viability considering the predominance of unstructured agriculture value chains in both regions. In addition, B2B solutions that address value chain inefficiencies can be replicated across markets more easily, compared to information services that provide market-specific solutions. To take advantage of this opportunity, mobile operators need to leverage their existing enterprise solution capabilities or develop new ones in partnership with competent organisations to build up their B2B solutions portfolio.

EXAMPLE

The Connected Farmer Alliance (CFA) is an enterprise platform provided by Vodafone in partnership with TechnoServe in Kenya, Tanzania and Mozambique. CFA allows agribusinesses to engage more efficiently with farmers in three ways. First, by managing data on farmers, agribusinesses can build data analytics for their supplier network. Second, agribusinesses can establish direct lines of communication with farmers by sending them messages or requesting information, such as which stage they are at in the growing season. Third, the application facilitates financial transactions between agribusinesses and farmers, such as issuing loans to farmers and paying for crops purchased from farmers.

Usage of the platform is free and device-agnostic for farmers, although they have to be on a Vodafone-owned mobile network (e.g. Vodacom in Tanzania, Safaricom in Kenya and Vodacom in Mozambique) to fully benefit from the transaction feature of the service. CFA charges its agribusiness clients on a monthly basis based on the number of individual farmers on the system.

1.5 The business model canvas

All the components of the proposed service business model can be documented in a business model canvas.[11] In the following sections, we describe the main steps involved in developing a business model, beginning with customer segmentation, technology channels, the value proposition, key activities and resources, customer relationships and channels and partnerships.

The Agri VAS business model canvas: Key questions for service providers

Customer segments	Value proposition	Key activities	Customer relationships	Key partners
For which farmers is the service providing value? Who are the most important customers of the service? (e.g. community leaders, lead farmers, middlemen?) What are the farmer archetypes in the target market?	What value does the Agri VAS deliver to the farmer? What problems is the service helping to solve for farmers? Which farmer segment is the service targeting? What bundle of services is the organization offering to the farmer segment/s? What is the minimum viable product?	What key activities does the value proposition require? What information does the Agri VAS provide? What activities does it enable?	How does the service provider acquire, keep and grow customers? Which customer relationships are already established? How integrated are these customer relationships with the rest of the business? Do farmers subscribe to other VAS? What is their existing voice and data usage? How costly is customer acquisition?	Who are the content partners? (e.g. local , international, content aggregators) Who are the technology partners? (e.g. VAS platform, CMS, CRM?) Who are the distribution partners? Who are the marketing partners? Does the service have any institutional partners? (e.g. government, NGOs) Which key activities do partners perform?
		Key resources What key resources does the value proposition require? Which assets are crucial? (e.g. timely content, ability to locate farmer)	**Channels** Through which channels do farmers want to be reached? What channels are competitors using? Which channels work best? Which are more cost efficient?	

Cost structure	Revenue stream
What are the most important costs inherent to the business model? Which key resources are most expensive? Which key activities are most expensive?	How much are farmers willing to pay? What is the revenue model? What are the pricing models?

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11. The business model canvas is a well-known framework for representing the business model of a given organisation. For more details, see http://www.businessmodelgeneration.com/

2 Market assessment

To develop successful services, it is crucial to understand user needs and the unique demographics of the target market. This is especially important for Agri VAS because rural users tend not to be well understood in terms of market research. We advise service providers to take a gradual approach to scoping and planning an Agri VAS project.

Before actual market segmentation starts, the first step in an Agri VAS project should concern the identification, sizing and location of rural mobile users. The MNO's ability to ensure extensive and reliable rural coverage and to use network infrastructure to locate users play an important role in obtaining a clear picture of rural users spread and density.

Once rural users have been identified, a further step to identify smallholder farmers within the broader rural segment would be beneficial. Service providers may have access to government, industry association or NGO databases, such as farmers unions and farmers' national registries or government agricultural extension databases.

After that, market segmentation will help identify the various categories of consumers within the target market and understand their information and financial needs. This research must cover all key socio-demographic factors including gender, language and culture, economic status, language literacy and digital literacy, as well as agriculture specific factors such as agro ecological zones, crop types and varieties and farming techniques.

FIGURE 8

Stages to market segmentation

| Rural Mobile User | Farmer Mobile User | Farmer Segmentation |

Source: GSMA mAgri

2.1 Prerequisites for Agri VAS

Before starting market segmentation and the design process, service providers should first and foremost ensure network coverage in rural areas is sufficient to serve the target market and consider challenges and solutions to provide services to rural users. Other preconditions to Agri VAS projects are the ability to locate users to have a clear picture of the broader rural segment and then, within the rural segment, the ability to actually identify farmers within the broader rural segment.

Key questions to guide service providers include:

- What is the coverage and quality of the network in the target area?

- What is the working standard of the network?

- What is the availability of the data network?

- Where are rural users?

- Within rural users, who are actual farmers?

Step 1: Addressing network coverage in rural areas

Variations in geography, terrain and population density across different markets mean that service providers have unique challenges reaching remote rural customers. Although network coverage, including 3G, is standard in urban areas and smartphones are becoming more affordable, the target segment for Agri VAS does not have the same technological advantages as customers in urban areas.

Extending coverage to rural areas is challenging in some countries due to the high cost of building and maintaining network infrastructure in hard-to-reach communities, many of which are not connected to the electricity grid. This problem is further compounded by low-income levels in rural areas and the lack of a critical mass of users in sparsely populated communities. This makes investment in conventional cellular network infrastructure, which can be up to USD 250,000 per site,[12] difficult to justify. However, a range of cost-saving solutions are addressing the rural coverage challenge (see Box 1).

BOX 1

Addressing rural coverage in emerging markets

Cost-saving solutions for rural coverage include network sharing, outsourcing solutions, targeted government support (universal service funds and subsidies) and more recently, software-defined networks (SDN) and aerial solutions (drones).[13]

Network sharing: In India, tower sharing has stimulated investment and competition, with the overall tower count rising to more than 450,000 by the end of 2014, an increase of 4.5x since 2007. In 2014, 2G network coverage had expanded to 87% of the population, making mobile services available to previously unreached communities. Although India only launched commercial 3G service in 2010, 75% of the population was covered by the 3G network in 2014 thanks to network sharing.

Outsourcing: To meet their coverage targets, Myanmar's two MNOs (Telenor and Ooredoo) adopted a tower-sharing strategy and outsourced the build-out and management of tower infrastructure. This has allowed them to focus on developing a variety of value-added services and to transfer some of the cost savings from tower sharing to consumers in the form of lower service tariffs.

Government support: Universal service funds have been established in several countries, with mixed success. In Lesotho, the Universal Service Fund (USF) imposes a 1% levy on operators and receives a minimum 25% of revenues raised by its parent body, the Lesotho Communications Authority. Funds are invested in infrastructure projects in areas MNOs consider uneconomical. Since its inception in 2009, the USF has subsidised 27 GSM projects and claims this has expanded network coverage to at least 63,400 people across 320 villages

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12. GSMA Intelligence, July 2015, 'Rural coverage: strategies for sustainability. Country case studies', https://gsmaintelligence.com/research/?file=53525bcdac7cd801eccef740e001fd92&download

13. For more on the role of SDN in addressing rural coverage in Africa, see http://www.atlantic-acm.com/why-sdn-will-be-at-the-centre-of-african-telecoms-infrastructure-development/. For the emergence of aerial solutions, see http://www.telecomstechnews.com/news/2015/jul/07/drones-begin-their-shift-telecoms-industry/

Step 2: Identifying rural users

Once MNOs have sufficient rural coverage to justify an Agri VAS project, they need to understand the size and geographical dispersion of rural users. Obtaining a clear picture of where rural users reside and how many there are is not a straightforward task. In a recent survey, GSMA found that only 24% of MNO respondents knew the proportion of their customers residing in rural areas.[14]

To identify the most common locations of users, MNOs can use mobile station international subscriber directory number (MSISDN) location data. Using cell-ID techniques to identify each base station, or sector of a base station, with a location area code (LAC) allows operators to identify the most frequently logged location. A more accurate way to retrieve location data is by triangulating the location data of the three base stations closest to the user. This method requires deploying network-based, location-based software (LBS).[15]

In spite of the negligible cost of geolocation techniques, as of 2013, only 40%[16] of MNOs globally had deployed some type of LBS, primarily driven by government mandates (e.g. public safety, national security and law enforcement). This lack of investment is due to unclear use cases for commercial LBS.

In the absence of GPS-enabled smartphones, we advise MNOs interested in Agri VAS projects to consider implementing geolocation techniques to identify the rural segment and to provide highly localised and therefore relevant, content. LBS systems are an opportunity to provide farm-level forecasts to smallholder farmers and to digitise agricultural insurance (e.g. weather insurance). This is done by replacing the main features and transactions of a traditional insurance model with technology-based solutions, such as using mobile technology to locate, register and pay farmers via mobile money. This kind of insurance product can be a gateway to Agri MFS[17] and can potentially be bundled with Agri VAS to offer holistic packages to the rural segment.

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14. GSMA Mobile Money for the Unbanked, 2015, '2014 State of the Industry: Mobile Financial Services for the Unbanked', http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2015/03/SOTIR_2014.pdf

15. Location technologies can be divided into handset-based technologies (GPS) with intelligence mainly in the handset; network-based technologies (Cell-ID, RF Pattern Matching and Uplink-Time Difference of Arrival, U-TDOA) with intelligence mainly in the network; and hybrid technologies (e.g. Assisted GPS and Observed Time Difference of Arrival, OTDOA) with intelligence in both the handset and the network.

16. Berg Insight, December 2013, 'LBS Platforms and Technologies – Fifth Edition', http://www.berginsight.com/ShowReport.aspx?m_m=3&Id=175

17. By offering financial security to high-risk rural customers, mobile insurance is an entry point to other financial services, such as savings and credit. See GSMA mAgri, 2015, 'Weather forecasting and monitoring: mobile solutions for climate resilience', http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2016/02/Weather-forecasting-and-monitoring-mobile-solutions-for-climate-resilience.pdf

EXAMPLE

In Kenya, **Safaricom** uses triangulation to obtain customer location data for the Agriculture and Climate Risk Enterprise (ACRE) seed replanting guarantee service (formerly Kilimo Salama), a pioneering mobile weather index insurance product. After purchasing a bag of insured seeds, a farmer sends an SMS with a registration code found inside the package. The MNO's LBS system identifies the farmer's location at the time the SMS was sent and passes it on to the insurer.

While service providers may assume the majority of rural users are either directly or indirectly involved in some form of agricultural activity and will therefore be interested in Agri VAS, it would be beneficial to identify smallholder farmers within the broader rural segment (if feasible). Service providers may have access to government, industry association or NGO databases, such as farmers unions and national registries or government agricultural extension databases.

EXAMPLES

A national farmer registration system has enabled **Vodafone Turkey** to better focus its Farmers' Club on the target segment, for example, by allowing it to offer special tariffs only to registered farmers.

To identify its target segment, **Dialog Sri Lanka** used the database of Dialog customers who have called the government agricultural helpline 1920. In this way, the MNO has been able to launch its first OBD promotional campaign for its Agri VAS, targeting only farmers.

Step 3: Ensuring operational support

A user-centred approach to Agri VAS requires cross-functional, aligned and agile project teams that can gather existing knowledge, share assumptions and ensure that farmers' voices and the dynamics of their ecosystem are integrated in the service. From product and user experience (UX) design to marketing and sales, these teams should align their key messaging and adapt the go-to-market strategy to user behaviour observed in the field. To do this, service providers should establish business and farmer impact KPIs that apply to the product and UX teams as well as the marketing and sales teams.

Agile teams, dedicated resources and C-level buy-in are critical to the success of an Agri VAS, especially for MNOs with large and complex operations. C-level support and understanding of the strategic value of the service provide the flexibility and time necessary to put sufficient resources in place (e.g. dedicated teams and objectives) and for the project team to go out to the field and include the user in the design process.

C-level support has been key to the success of the **Vodafone Farmers' Club**. The Club was launched in Turkey in 2009 under the leadership of then CEO Serpil Timuray, a former general manager of food company, Danone Turkey. Armed with an understanding of the food supply chain, the CEO also understood the potential of the mobile channel to improve productivity and incomes for smallholder farmers and saw an opportunity for Vodafone to target the rural segment more effectively. Continuous C-level support from Serpil Timuray, now Chief Executive of Vodafone Africa, Middle East and Asia Pacific, has helped the Farmers' Club become a model of best practice as Vodafone brings mAgri services to new emerging markets.

2.2 Market segmentation

When farmers have been identified through government or NGO data, switching focus from a broader rural segment to actual smallholder families requires proper market segmentation. These efforts will reveal the various categories of consumers in the target market, as well as their information and financial needs.

EXAMPLE

Research by **CGAP** (Consultative Group to Assist the Poor) on the segmentation of the financial needs of smallholder households[18] in Pakistan, Tanzania and Mozambique has found that different types of rural households (non-commercial smallholders, commercial smallholders in loose value chains and commercial smallholders in tight value chains) have different types of needs. These needs are related not only to their agricultural activities, but also to more universal household needs like education, weddings and home improvements, which smallholder families often prioritise. Farmers are often willing to redirect resources from important farm investments, or to sell valuable assets at a loss, with significant consequences for the household income.

Qualitative research to understand farmers' activities and needs, backed by quantitative data, should provide the basis for customer segmentation. Qualitative research is conducted through engagement with potential users on the ground, including at places where farmers meet, such as agricultural input dealers, farmers' union meetings, cooperatives and agribusiness collection centres. When segmenting the market for rural smallholder families, factors to take into consideration include language and culture, gender, literacy and technical/digital literacy, farmers' finances, as well as agriculture-specific factors such as agro-ecological zones, crop types and varieties and farming techniques.

Step 4: Segmenting the market

LANGUAGE AND CULTURE

The boundaries of a language and a region are often one and the same, but this is not the case everywhere. Before the service design phase begins, attention must be paid to the languages spoken in the target market segment. This is especially important in some of the

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18.   Max Mattern and Michael Tarazi, CGAP, October 2015, 'Designing Digital Financial Services for Smallholder Families: Lessons from Zimbabwe, Senegal, Rwanda and Cambodia', Perspectives No. 1, http://www.cgap.org/sites/default/files/Perspectives-Designing-Digital-Financial-Services-for-Smallholder-Families-Oct-2015.pdf

larger countries, where large farming communities are also extremely linguistically diverse. For example, in India, there are more than 20 official languages and over 400 languages are spoken and in Nigeria more than 500 languages are spoken.[19] In order to reach the target market, the language mix selected for the Agri VAS must include the major languages spoken in rural areas.

It is also important to consider how culture and agricultural roles affect market segmentation. Local communities often have specialised farming practices

they have developed over hundreds or thousands of years that have become part of the community's shared knowledge and are passed from one generation to the next. Cultures in different regions may only grow certain types of crops or cultivate them in ways unique to their geographical area. Cultural barriers to women using mobile phones can also vary, even from village to village, as has been seen in neighbouring villages in India.[20] Understanding local knowledge and practices such as these are essential to ensuring information services are relevant and practical to all users.

EXAMPLES

One of the strengths of **Nokia Life**, an emerging market VAS covering healthcare, agriculture, education and entertainment, was its ability to support local languages (although the service was discontinued in 2013). In every country where it was available, the service maximised the potential for scale by prioritising language. In India, where the service first launched in 2009, it was available in 12 local languages. In Nigeria, the service was available in the three most widely-spoken languages, while in Indonesia it was feasible to offer the service only in the official Bahasa language.

GENDER

Any Agri VAS targeting smallholder farmers in developing countries must cater proactively to women. Gender should be considered at every phase of product development: market assessment, design, content generation and marketing. According to the Food and Agriculture Organization of the United Nations (FAO), women make up to 50% of the agricultural labour force in developing countries, or an estimated 556 million potential users globally.[21] As labour migration leaves women to take over farm work from men, they are also assuming more responsibility for farming decisions, which makes it crucial to understand their roles and information needs.

In rural areas across developing countries, there is a notable and persistent gender gap in mobile ownership. In Mexico, for example, rural women are estimated to be 26% less likely to own a phone than rural men, compared with urban women who are just 2% less likely to own phones than urban men. This gap is reflected in women's low adoption of Agri VAS. In India, mKisan found that only 11% of its customers were female. However, the ratio of female Agri VAS customers has been as high as 37% for Airtel Kilimo in Kenya and 41% for Tigo Kilimo in Tanzania.[22] When service providers target women more effectively, evidence suggests they are more likely to become loyal service users, as they typically have access to fewer information sources than their male counterparts.[23]

19. The Economist Online, 15 February 2012, 'Speaking in Tongues', http://www.economist.com/blogs/graphicdetail/2012/02/daily-chart-9

20. GSMA mWomen and mAgri, 2014, 'Women in Agriculture: A Toolkit for Mobile Services Practitioners', http://www.gsma.com/connectedwomen/wp-content/uploads/2014/06/Women_in_Agriculture-a_Toolkit_for_Mobile_Services_Practitioners.pdf

21. FAOSTAT 2013 estimate, includes least developed countries in the Americas, Africa and Asia (including China).

22. See GSMA mAgri, August 2015, 'Airtel Kilimo midline', http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2015/09/mAgri_airtelkilimo_caststudy_sept4.pdf and 'Tigo Kilimo: Impact evaluation', http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2015/09/GSMA_Tigo_Kilimo_IE.pdf

23. GSMA, 2015, Tigo Kilimo: Impact evaluation', http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2015/09/GSMA_Tigo_Kilimo_IE.pdf

To develop successful Agri VAS, service providers should adopt an approach that takes the following factors into account:

- Women play different roles in agricultural production and the household. They generally have more informal roles that are often smaller scale, localised, or 'invisible';[24]

- Women have different price sensitivities and purchasing priorities than men, reinvesting an estimated 90% of their income in their families, while men reinvest just 30–40%;[25]

- Women access information through different, often informal channels;

- Women are less likely to have access to technology due to cultural barriers and less disposable income; and

- Even when women have access to mobile phones, they generally have lower literacy levels than men and may be unable to use text channels.

Consumer research should analyse all the wants, needs and interests related to women's responsibilities as an agricultural worker, ranging from agricultural information and services to basic household responsibilities (e.g. education, health), entertainment and social interactions, access to government services and support for legal rights.

Agri VAS content should be especially appealing and engaging to women. Delivering messages in a way that women find entertaining will make the content more appealing, for example, including popular music or partnering with local TV or radio personalities. In some markets, providers of IVR-based services have found that women tend to trust a message more when it is delivered in a woman's voice.[26] It is therefore important to always analyse and test women's content preferences in the field.

EXAMPLE

IKSL in India has adopted gender guidelines for its content managers to integrate gender-sensitive practices into the content management system for both voice messages (OBD) and the helpline. Wherever possible, voice messages aimed at women are narrated by a woman, while the actual timing of OBD messages are adjusted to the local custom to ensure women have maximum opportunity to listen to them. Also, every month content managers study the questions women have asked on the helpline and prepare an analysis for an internal expert committee, which then makes recommendations for voice messages with new topics of interest to women.

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24. For instance, women are often not official land title owners, but they may be the primary decision-makers for household purchases.
25. Andrew Mason and Elizabeth King, 2001, 'Engendering development through gender equality in rights, resources and voice', World Bank, http://documents.worldbank.org/curated/en/2001/01/891686/engendering-development-through-gender-equality-rights-resources-voice
26. It is worth noting that in other markets it has been found that women prefer a male voice because it sounds more authoritative.

DELIVERY CHANNELS

Identification of the best delivery channels for Agri VAS should be guided primarily by literacy considerations, both language and technical literacy.[27] Other key factors to consider include:

• The type and complexity of content to deliver;

• Striking a balance between automated and customised content;[28]

• The current capacity and cost of deploying new channels; and

• The scalability of different channels.

Decisions on channels and formats for content delivery should be based on both user preferences and the potential for scale and automation. Whether a provider selects voice, SMS, or even rich media will depend on the nature of the information to be transmitted and the audience. For example, simple weather forecasts can be delivered via SMS, but detailed advice on crops would not, due to the length limitations of the message. The literacy levels of the audience also need to be taken into consideration when choosing communication channels.

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

• Fact-based queries about standard information such as weather forecasts, prices, or the contacts of input suppliers.

• 'How to' advice, such as:

  » Common agricultural practices, e.g. how to take a sample for a soil test; and

  » Specific issues that require further assessment, e.g. pest or disease management.

27.   'Digital literacy' in the case of services delivered though smartphones.

28.   While automated channels (SMS, USSD, IVR) with limited message length are suitable for delivering standard factual information, such as weather and market prices, queries asking for advice on specific issues or farming practices (e.g. how to take a sample for a soil test) may need customised solutions, such as voice helplines.

Fact-based queries lend themselves best to automated mobile services, while 'how to' queries may need voice solutions such as a helpline. Service providers must also decide whether to leverage push or pull models, or use both in complementary ways. Push services allow service providers to establish an on-going presence, which results in greater customer loyalty. Pull models, on the other hand, allow for more specific queries and two-way interactions, which results in more valuable information exchange. Combining these functionalities can leverage the positive qualities of each and build a more robust service.

Other key questions to consider when selecting delivery channels include:

• Is it a mass service (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 customising and automating the information distribution process and how will this be achieved?

TABLE 3

The strengths and weaknesses of technology channels for Agri VAS delivery

	Channel	Strengths	Weaknesses
COST OF DEPLOYMENT (LOW → HIGH)	**SMS**	• Automated • Push or pull services • Enables information storage • Low cost, exploits existing capacity • Highly scalable • Standardised/ubiquitous	• Language literacy • Technical (mobile) literacy • 160 character limitation • Limited analytics for MNO/VAS provider • Less targeted (for push only)
	USSD	• Automated • Low cost, exploits existing capacity • Scalable • Interactive experience	• Basic (language) literacy • Technical (mobile) literacy • Limited network capacity • Cost and effort of product design
	OBD	• Automated • Scalable • Low cost, exploits existing capacity • Highly scalable • Standardised/ubiquitous • Works with illiterate users	• Push only • Potentially causes user fatigue • Not interactive
	IVR	• Automated • Scalable • Works with illiterate users • Interactive experience • Uses voice and audio	• Limited by technical competency/literacy • Potentially causes user fatigue • Requires UX focus for navigation • Cost and effort of product design
	Helpline	• Customisable, personal • Interactive experience • Works with illiterate users	• Cost of deploying contact centers • Less scalable than automated channels • Requires high human investment
	Rich media	• Uses static and dynamic content (text, audio, still images, animation, video) • Can overcome basic literacy challenge • Can provide interactive experience	• Limited by smartphone penetration • Cost of data plans • Technical and digital literacy • Cost and effort of product design

LANGUAGE LITERACY

Although literacy rates[29] vary between markets, there are typically wide disparities between urban and rural populations which are also compounded by gender. For example, in India, 71% of the population in rural areas are literate compared to 86% in urban areas. Ethiopia has experienced urban and rural disparities in literacy rates as high as 58%.[30]

Regardless of the literacy rates in the target market, service providers may be inclined to use its existing channels for Agri VAS projects. SMS in particular may be considered the default option, due to existing capacity, lower cost compared to voice platforms and strong potential for scalability. The short-term costs of implementing SMS-based services are generally lower than voice-based services, such as IVR and helplines. However, the addressable market for text-based services is often limited by low language literacy.

EXAMPLES

Although almost all users of **Airtel Kilimo**, a Kenyan Agri VAS offering advice on crops, weather and market price information, had some level of formal education, many famers with just a year or two of primary school education were illiterate and relied on younger relatives to read the Airtel Kilimo SMS messages for them, which reduced their ability to understand and act on them.

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

TECHNICAL LITERACY

In addition to language literacy, research should be conducted to understand users' levels of technical literacy. In the developing world, the ability to use a mobile phone and non-voice, non-core functions has been identified as a barrier to awareness and usage

of mobile services.[31] Generally, lower technical literacy is related to lower mobile ownership, lower levels of education and language literacy and is compounded by gender. Evidence from live and planned Agri VAS consistently show the difficulties rural users with low technical literacy face navigating through service menus (e.g. IVR) and finding relevant content.

EXAMPLE

For **Tigo Kilimo** in Tanzania, illiteracy and low technical literacy have been barriers to uptake, as the USSD channel requires users to navigate through the menu interface and comprehend text-based information. Illiterate or low literacy users have been reluctant or unable to sign up to the service when they are not able to use the USSD menu, or if voice channels are not accessible.

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29.   The World Bank defines adult literacy rates as the percentage of the population age 15 and above who can, with understanding, read and write a short, simple statement on their everyday life.
30.   UNESCO's 2006 Global Education Monitoring Report, 'Literacy for Life', found that in Ethiopia, regional disparities in literacy rates ranged from 83% in the Addis Ababa region to 25% in the Amhara region. See http://en.unesco.org/gem-report/report/2006/literacy-life - sthash.MnYYICOu.dpbs
31.   GSMA Connected Women, 2015, 'Mobile technical literacy toolkit', http://www.gsma.com/connectedwomen/mobile-technical-literacy-toolkit/

The growing penetration of smartphones in emerging markets presents an opportunity to transition Agri VAS to rich media services and drive data uptake for MNOs. Rich media services also have the potential to address literacy challenges through the use of engaging visual content. However, there are technical barriers to uptake in a digital environment, such as when users do not connect smartphones to the internet due to the cost of data plans and use them only for basic communication due to a lack of understanding of their functionalities.[32]

For service providers evaluating the opportunity to launch rich media services, it is therefore essential to obtain a clear picture of data usage, the market barriers to data uptake in rural areas and the digital literacy of rural users with smartphones. In developing countries with high levels of smartphone adoption and strong appetites for data services, MNOs have an opportunity to leapfrog standard VAS channels completely.

EXAMPLE

As a 3G-only MNO, **Ooredoo Myanmar** has leapfrogged traditional VAS channels, launching a mAgri app dubbed Site Pyo in early 2016.[33] The app offers weather and price information for the major crops and agricultural regions. The percentage of unique subscribers with a 3G/4G-enabled device in the country has increased rapidly, from 4% in 2011 to 54% in 2015 (GSMAi). At 87%, literacy in rural areas is on par with urban areas (95%), making it more likely that rural users will also be more digitally literate.

ECONOMIC STATUS

Many smallholder farmers are caught in a cycle of poverty and therefore may have ultra-low (or no) ATP and WTP for VAS. Efforts should be made to investigate their spending priorities and disposable income, including what proportion is spent on mobile services. ATP depends on a farmer's disposable income, while WTP depends on quality, relevance and timeliness of content, as well as the availability of alternative sources of information.

When evaluating whether to charge potential users, service providers must take several factors into account. First, consideration must be given to farmer incomes, dependence on agriculture as their main economic activity, their level of involvement in the cultivation of staple crops for subsistence or cash crops for sale, the average size of farms, whether farmers own the farm or are casual labourers, access to output markets and the role played by intermediaries (middlemen) and the level of integration of farmers in structured value chains.[34] It is also important to evaluate the maturity of the VAS market and the extent to which potential users are accustomed to paying for services other than core communication (voice and SMS).

Considerations of farmers' finances should be guided by an awareness that early adopters are likely to be younger and more tech-savvy users. This demographic has a higher percentage of phone ownership, higher literacy rates and levels of education and more disposable income to spend on this kind of services.

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32. A 2013 Nielsen study in India found that 50% of smartphone owners had deactivated the internet capability of their smartphone due to the cost of monthly data plans. See the Indian Smartphone User Study, http://www.nielsen.com/us/en/insights/news/2013/smartphones-keep-users-in-india-plugged-in.html

33. See http://www.ooredoo.com.mm/en/Personal/Services/SitePyo.aspx

34. Farmers who are highly integrated in formal value chains may rely on regular sources of income from agribusinesses, which would increase their ATP. When smallholders are integrated in informal value chains, service providers also have the opportunity to generate revenue from agribusinesses under B2B models.

EXAMPLES

In Kenya, less than 5% of **Airtel Kilimo** users surveyed one year after launch lived below the national poverty line (USD 0.56 per day) for rural areas compared to approximately 42–49% of the overall population.

Results from the GSMA baseline survey for **Tigo Kilimo** in Tanzania showed the poverty rate among customers six months after launch was only 13% (based on Tanzania's national poverty line), but about 30% in the wider population, even though the main USSD channel was free of charge by this time.

ATP and WTP may vary significantly when services are targeted to the mass market. Even so, service providers should consider that the poorest smallholders may depend on Agri VAS as a primary source of information and show stronger customer loyalty, whereas wealthier users may consider it a supplemental source of agricultural information to government extension services, for example. When target farmers (poor rural smallholders) are unwilling or unable to pay for an Agri VAS, service providers may consider freemium models (see part 5). Otherwise, it will be incumbent on the service provider to secure revenue from other actors in the agriculture value chain (e.g. agribusinesses) to subsidise the service for farmers.

Evidence from existing Agri VAS suggests that farmers are willing to pay for information they consider relevant, helpful and practical, such as local, agriculture-specific weather forecasts that could have an impact on crop growth or yield. It is therefore important for service providers to identify potential information gaps for farmers and evaluate the opportunity to offer highly specific, targeted services.

EXAMPLE

MTN Ghana, in partnership with weather company Ignitia, offers highly localised weather forecasts as a standalone product for farmers. The service costs GHP 0.08 (USD 0.02) per SMS, with subscribers receiving daily text messages during the rainy season. Six months after launch, about 30,000 farmers had signed up to the service.

Looking at the main Agri VAS deployments globally, users have shown a willingness to pay for premium content and for services with a broader value proposition (e.g. agronomic information, market prices and weather forecasts). In South Asian markets such as India and Bangladesh, where the target market is generally more accustomed to paying for low-cost VAS such as sports and music content, there appears to be a stronger case for paid services. In other regions, the adoption of freemium models is critical to deriving revenue directly from users.

GSMA

TABLE 4

Paid service components for selected Agri VAS

	Country	Service Provider	Text	Voice messages	Helpline	Rich media
Robi Krishibarta	Bangladesh	MNO	--	Paid	Paid	--
Banglalink Jigyasha 7676	Bangladesh	MNO	--	--	Paid	--
Green SIM	India	VAS	Free	Free	Paid	--
mKisan	India	MNO	Paid	Paid	--	--
Reuters Market Light	India	VAS	Paid	--	--	Free
Tigo Kilimo	Tanzania	MNO	Free	Paid	--	--
Turkcell Farmers' Union	Turkey	MNO	Free/paid	--	Paid	Free
Vodafone Farmers' Club	Turkey	MNO	Free/paid	--	--	Free
Eco Farmer	Zimbabwe	MNO	Free/paid	--	--	--

Source: GSMA mAgri Tracker

AGRICULTURAL PRACTICES

In larger territories, a market segment may straddle more than one agro-ecological zone. These zones present a unique set of challenges to farmers and it is not uncommon for a cultivation technique for one crop 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 service designers are aware of the information needs specific to that zone. This will be particularly important when content is generated.

Once service providers understand the agro-ecological zones they are targeting, methodical market research is needed to identify the seasonal mix of crops and crop varieties grown there. This knowledge will inform the content selection for the services. In order to develop relevant services from the beginning, providers could begin by selecting the most widely cultivated crops in the major agricultural areas in a given market, such as subsistence crops (e.g. maize, rice) or cash crops (e.g. tea and sugar) and then expand the service portfolio by adding more crops as time and expertise allow. Another approach could be to introduce farmers to crops they have not grown before (and provide crop advice) to help them make informed decisions about crop selection.

EXAMPLE

In Mali, the Agri VAS **Orange Senekela** initially targeted the two main agricultural regions of Sikasso and Koulikoro. While the farmer helpline was available nationally, market prices for the most common crops were sent out to farmers via the USSD channel only in those two regions. Languages included French (the official language of Mali) and Bambara (spoken by a third of Malians).

Besides crop mix, attention should also be paid to farming practices. Practices vary depending on factors such as farming culture, irrigation methods and agro-ecological zone. It is important to understand the unique knowledge and practices of different farming communities in order to identify areas for improvement. For example, instead of advising farmers how to improve soil fertility by traditional means such as fertilisers, it may be better to provide information on how to reduce the leaching of soil nutrients, introduce fallowing, incorporate green manure and practice water conservation techniques.

In this case, it may be best to work with farmer organisations (e.g. farmers' associations, cooperatives) to learn about the farming methods unique to the area and incorporate them in the Agri VAS content. As global and local agriculture knowledge changes, a successful Agri VAS will expand and constantly update its content.

THE AGRICULTURAL CYCLE

Service providers must also keep in mind that farming activities are almost entirely governed by the annual agricultural cycle. At different points in this cycle (planning, planting, growing, harvesting, selling), the farmer will have different information needs and the mAgri service will need to adapt the content it provides.

Below is an overview of farmers' activities at various stages of the season:

Planning

Before farmers begin planting crops, they must first decide which crops to grow. These decisions are ideally based on past knowledge and experience as well as a range of other factors, including demand and market prices of crops, availability and accessibility of potential buyers, cost of crop inputs, seasonal weather expectations and other crops to be grown on the same plot. Monocropping is rare in smallholder communities in the developing world. To make the best use of available resources and minimise risk, farmers tend to diversify by planting multiple crops and keeping livestock.

Planting

Once the land has been tilled, farmers plant seeds or seedlings. At this stage, farmers may seek advice on soil preparation, as well as seasonal weather forecasts and potential local impacts. Access to finance (credit and insurance) is also vital; farmers caught in a cycle of poverty lack the resources to invest in quality inputs, which in turn affects yields, productivity and ultimately income. This overlaps into next year's crop planning and the cycle continues.

Growing

After planting, farmers begin monitoring and tending to the crop as necessary. At this stage, practical agronomic information is required, such as advice on pest infestations or plant disease. Farmers must be able to quickly diagnose these problems and take appropriate action before a crop is lost, so advice on which method to use is important. Farmers will also be constantly monitoring the weather and considering the potential impact on their crops.

Harvesting

When crops are ready to harvest, farmers will need information on timing and harvesting methods. At this stage, farmers will also begin to think about when and how to sell their products, so access to market prices and finance becomes important. Farmers may need access to insurance services in particular (e.g. crop, weather and price insurance).

Packaging, storage and transport

After harvest, information about packaging and storage procedures is always in demand. Farmers will be concerned about the availability, cost and location of packaging and storage services (e.g. warehouses) and may need advice on on-site storage (e.g. how to protect stored grains from pests and disease). Transportation issues may also arise and a well-designed Agri VAS should respond to these information needs.

Selling

For many smallholder farmers, access to markets is limited. In many cases, they will depend on a small number of intermediaries to whom they sell on a regular basis. Marketplace services that match buyers with sellers give farmers the opportunity to sell to a more diverse group of buyers and potentially increase their income. At this stage, farmers will require accurate, up-to-date market prices to make more informed decisions about selling their products.

FIGURE 9

The agricultural cycle

B2B   Market assessment for B2B services

In the market assessment stage, prospective B2B service providers should develop an understanding of the major agricultural value chains and key players (e.g. agribusinesses and cooperatives) in a given country. Overall, countries with a developed agriculture ecosystem or established contract farming schemes are best suited to B2B services. In some developing countries with weak agriculture ecosystems, there is a relatively small number of agribusinesses that can be targeted for B2B Agri VAS. This creates high entry barriers for later entrants and means that the sustainability of the service will depend on local market dynamics.

Where the agriculture sector presents attractive opportunities, MNOs must segment the market to assess different agricultural value chains and evaluate opportunities for B2B services. Major factors to consider include the size of the value chains by production volume, exports and farmer employment; the structure of the value chain (level of formality); the major buyers or producers impacting supply and demand; price trends at regional and national markets; and the seasonality of the value chain.

Key questions to take into account are:

- Does the value chain present a compelling business case for B2B offerings?

- Does the MNO have the internal expertise and capability to capture the B2B opportunity? Should it partner with third parties?

- Is the business opportunity sustainable and viable in the long term?

2.3 Outcomes and questions

Once the market assessment is complete, service providers should be able to:

- Establish cross-functional, aligned and agile teams to collect and share knowledge;

- Secure the required C-level support within the organisation to ensure the Agri VAS project can progress quickly;

- Identify the geographical dispersion of farmers within the target market and the overall size of the addressable market;

- Understand the various categories of smallholder families in the target market and their information and financial needs; and

- Generate some initial assumptions about specific farmer needs that can be addressed by the Agri VAS.

Key questions that may emerge at this stage are:

- What persona, or consumer archetype, should the service target?

- What actors in the agriculture ecosystem have an influence on the farmer and what connections to these stakeholders should be considered in product design?

- What are the specific pain points farmers experience at different stages of the agricultural cycle and how can the Agri VAS help address them?

- How can the service create value for the user in terms of alleviating specific pain points?

- What features should the service include to satisfy early adopters while minimising business risks?

- How can the Agri VAS provider ensure full product ownership while establishing workable collaboration models with all partners (e.g. content providers and technology solution vendors)?

3 Service Inception

Once market segmentation is complete, the user-centred design process can begin. At the service inception stage, service providers focus on understanding the farmers and their ecosystem, preparing the team for field research, gathering insights from user and transforming the data that has been collected into opportunities and service ideas. During this stage, it is crucial to test and validate the knowledge gathered on the ground, the hypotheses generated during market segmentation and to identify pain points (and potential gains) for smallholder farmers that can be addressed by Agri VAS.

3.1 Key steps leading to the value proposition

Applying a user-centred design approach, service providers should focus on the following activities:[35]

- **Generating hypotheses:** This involves formulating assumptions about farmers' needs based on the knowledge acquired during market segmentation, which will be subsequently validated;

- **Mapping the farmers' ecosystem:** Map the ecosystem to identify key stakeholders in the farming community and their needs;

- **Identifying information needs throughout the agricultural cycle:** Effort will be required to understand and build upon farmers' existing knowledge of agro-ecological zones, crop types, farming techniques and the agricultural cycle, in order to identify the pain points and potential gains that Agri VAS can address; and

- **Segmenting farmers based on attitudes and behaviours:** Attitudinal segmentation reveals the motivations and behaviours of farmers, which helps to clearly identify who to design for and who will be the early service adopters. These user archetypes are generated based on data gathered in the field.

These four steps should result in a full value proposition for the Agri VAS, minimum viable product (MVP) specifications and a business model. They should also move service providers from inception to actual product development and dictate the design and strategic decisions along the way.

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35.   See GSMA mAgri, 2015, 'The mAgri Design Toolkit: User-centered design for modern agriculture', http://www.gsma.com/mobilefordevelopment/magri-design-toolkit

FIGURE 10

Four steps of service inception

Market segmentation

Hypothesis generation

Attitudinal segmentation

Identify farmer pain points and potential gains

Ecosystem mapping

Agricultural cycle mapping

Value proposition
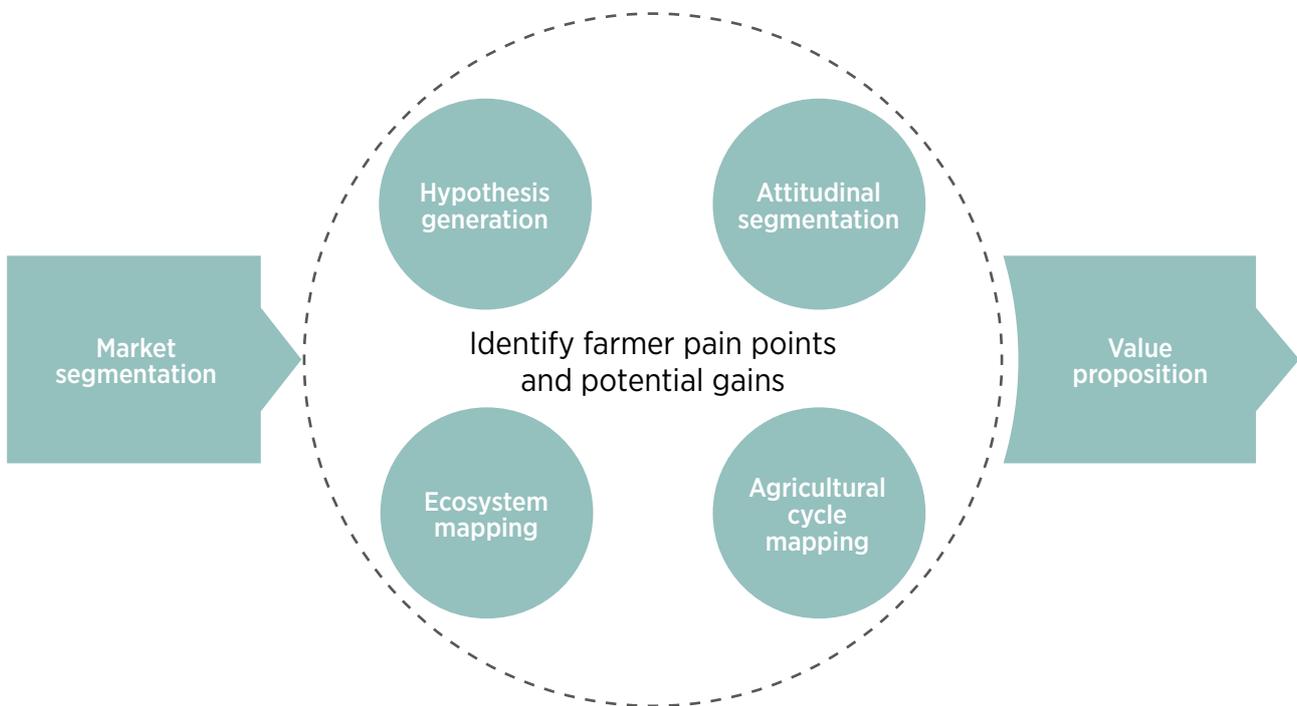
Step 5: Generating hypotheses

Based on the knowledge acquired during market segmentation, the project team should identify the main assumptions or hypotheses they have about farmers' needs. These hypotheses must then be carefully tested and validated by the farmers themselves. Hypotheses can first be generated by reviewing the data that has been gathered and noting key assumptions about the potential unmet needs of farmers (e.g. 'farmers do not have access to accurate price information'). Hypotheses are typically refined by then analysing why these needs are not being met (e.g. 'farmers do not have access to accurate price information because radio broadcasts cover the whole country and are not specific to their village').

All of the hypotheses can then be tested in the field by identifying specific questions to ask, or by designing

hands-on activities to be conducted with the farmers. At the end of the field activities, the hypotheses are revised based on the data collected. Our experience shows that hypotheses are often refined or corrected, proving how important it is to verify every assumption and not take anything for granted.

Step 6: Ecosystem mapping

In the early stages of product inception, service providers should draw ecosystem maps to identify all the actors who have an influence on a farmer and to thoroughly understand which stakeholders to include in the product design. The ecosystem map is primarily organised around actors and touchpoints.[36] Once all the actors and touchpoints have been listed, connections can be drawn to show the exchanges of money, information, resources and values that shape the relationships within the ecosystem.

36. An effective way to draw ecosystem maps is to create a list with all the elements of service delivery, using sticky notes of different colours to represent actors and touch points, as well as missing elements related to information gaps or pain points in the ecosystem. See GSMA mAgri, 2015, 'mAgri Design Toolkit: User-centered design for mobile agriculture', http://www.gsma.com/mobilefordevelopment/magri-design-toolkit

FIGURE 11

Ecosystem mapping*

EXTENSION OFFICER

GOVERNMENT

FARMERS GROUP

MONEYLENDER

FARMER

AGRI DEALER

BUYER

LOCAL STORE

INFORMATION

MONEY

MIDOLEMEN / TRADER

TRADITIONAL MARKET
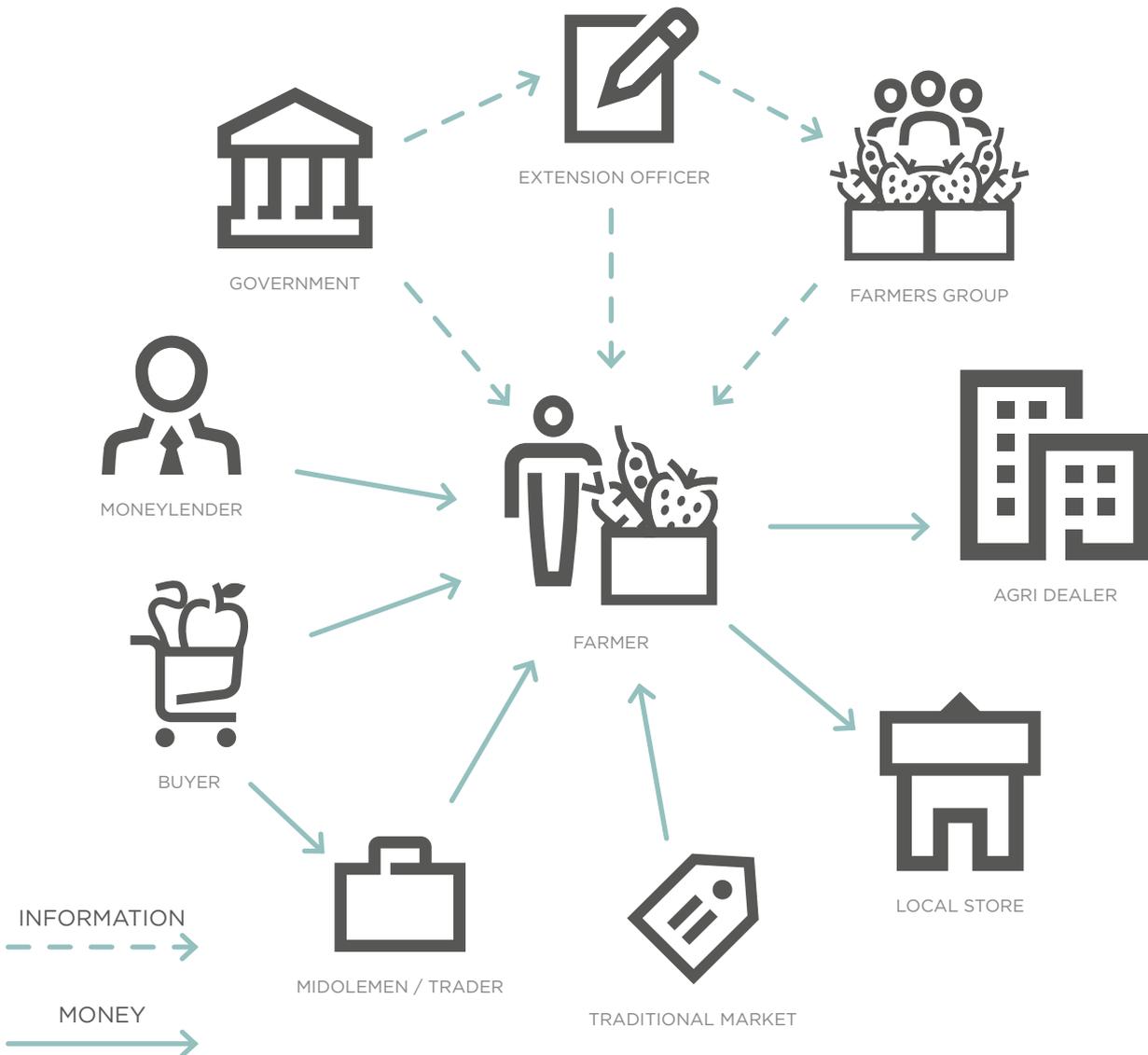
*Simplified scenario: Ecosystem mapping cards, labelled by type of group and their role in the community help to map the connections and relative importance to the farmers in the target market.

The ecosystem map helps to clarify information gathered in the initial assessment and facilitate analysis of pain points and potential gains, which can be further explored during field research. The ecosystem map is therefore a tool for the service provider design team throughout the entire design process. It is a starting point for identifying research participants during the planning phase, a framework for mapping insights during the field research and a helpful visualisation tool to communicate learnings afterward.

Ecosystem mapping has helped MNOs identify the key stakeholders who can become trusted advisors for the service or endorsers, such as extension officers, agro veterinary dealers, opinion leaders, or other actors in the agriculture value chain who are trusted by rural communities.

For its Site Pyo mAgri app, **Ooredoo Myanmar** uses endorsements from agricultural knowledge leaders who are trusted by farming communities, such as Dr. Htun Lwin, a Burmese meteorologist who operates a free, non-profit online service called Myanmar Climate Change Watch (MCCW).

Dialog Sri Lanka has found that farmers trust the local Department of Agriculture (DOA) a great deal for advice. As a result, the MNO is emphasising in its marketing and distribution material that the content is approved by DOA.

B2B Ecosystem mapping for B2B services

Ecosystem mapping in a B2B context involves systematic assessment of agricultural value chains. Value chain mapping is critical to identifying attractive opportunities and suitable entry points for information and potentially financial services (Agri MFS). The mapping exercise should focus on the following factors:

• Key value chain characteristics, including size, agro-ecological zones and trends;

• Key actors in the value chain, their size and primary activities;

• Relationships and power dynamics in the value chain;

• Information and financial needs of various actors; and

• Volume and flow of products and transactions.

The exercise should help service providers discover the following:

• Structure and functioning of the value chain;

• Ability and willingness of key actors to adopt mobile solutions;

• Information exchanges and transaction flows that are suitable for digitisation;

• Drivers and approaches to catalysing behavioural change; and

• Barriers, suitable entry points and existing structures that can be leveraged to offer B2B services.

A focus of the mapping exercise is identifying the structure of the value chain and how actors are linked. This map is a blueprint of how the value chain functions and helps to clarify the sequence of activities and flow of products and information along the value chain.

FIGURE 12

Generic structure of agricultural value chains

More formalised and attractive for digitisation

INFORMATION FLOW   PRODUCE FLOW   B2B CUSTOMER
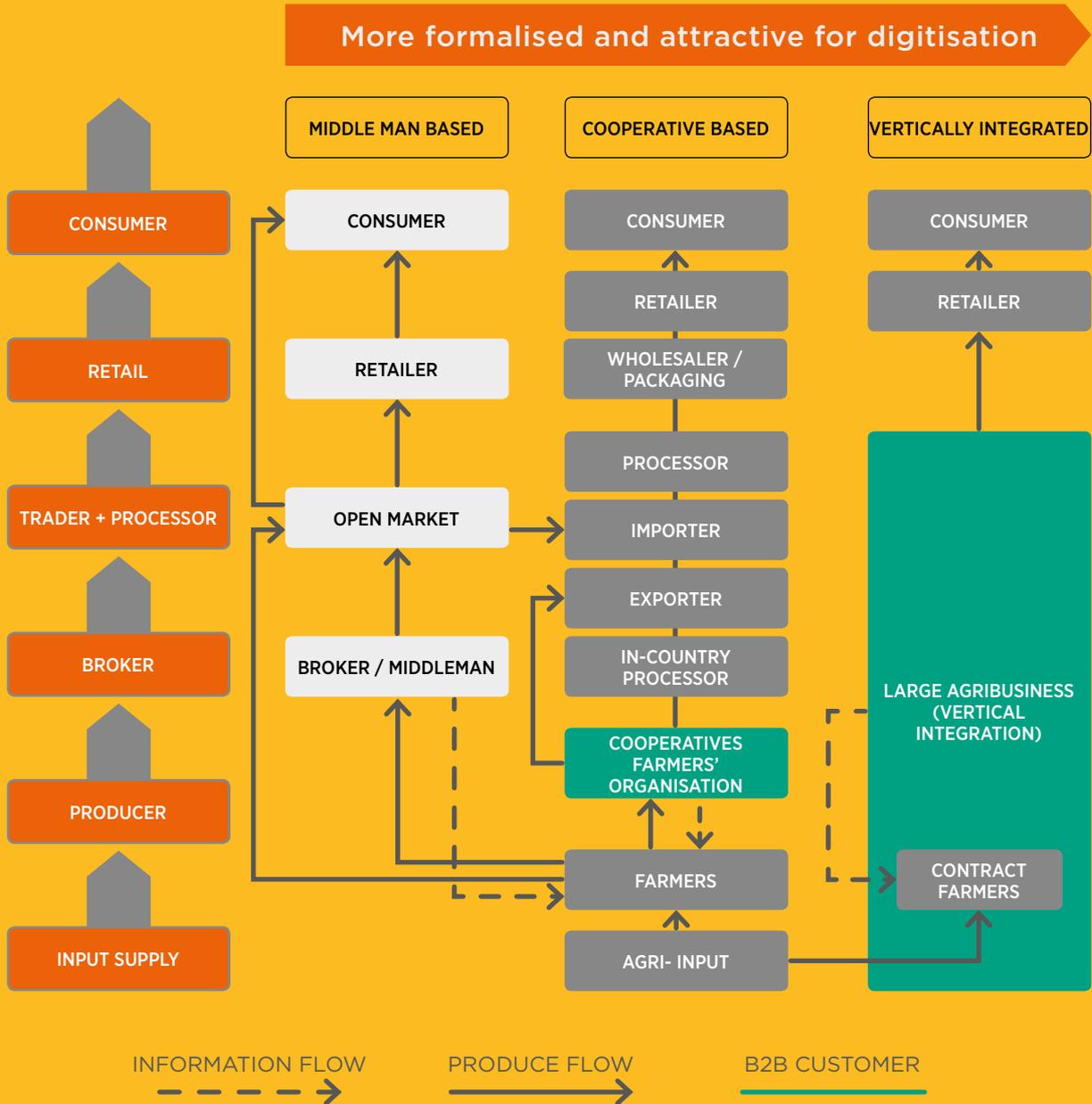
The research should provide some initial indications of the size and relative importance of each actor and the nature of their relationships. The research should also identify broad challenges and bottlenecks at various levels of the value chain and look at barriers to the use of mobile technology and overcoming challenges such as illiteracy and established cultural norms.

Relevant information and data for the mapping can be obtained from a combination of primary survey work, focus groups, interviews, as well as by collecting secondary data from various sources. The focus groups and interviews can provide rich information and these contacts can then be used for further follow-up interviews.

BOX 2

Collecting data

Typical methods for developing market intelligence at the inception stage include in-depth interviews, intercept interviews, focus groups, sample population surveys and desk research of the target market. Collecting this information can be quite challenging and at times impractical, depending on the service provider's resources. Working with agriculture organisations or NGOs that already have data in these areas, or the capacity to conduct extensive field research and sampling, can help expedite this process. If working with third parties, service providers must ensure they own the process and maintain full visibility of the assumptions, tools applied and suggested solutions.

An important activity in the inception phase is the in-depth interview, a one-to-one conversation with farmers aimed at developing a deep understanding of their behaviours and motivations, in order to identify the real needs of target users. Participants of in-depth interviews are a selected sample of farmers, identified based on specific recruiting criteria such as gender, region, age and level of income (determined in the market segmentation phase). Establishing credibility is essential to set the right tone for the conversation and a structured approach is needed to ensure all the research points are addressed. The interviewers must remain open, listen carefully, shape the dialogue around what the participant shares and always ask follow-up questions to dig deeper and uncover hidden needs and motivations.

Sometimes hands-on activities can be used during in-depth interviews to tackle specific issues that may be sensitive for the participant or too complex for a quick verbal exchange. An example is the trust circle, which reveals who farmers trust for information. To conduct this activity, a set of cards representing all the ecosystem players will be needed.[37] During the in-depth interview, the cards are placed in front of the participant so they can see all of the players. The participant moves each card onto one of the circles of trust, with the players they trust the most at the centre and those they trust less in the outer circles. The exercise provides a way to dig deeper into each trust relationship, by asking why each card was placed in a certain position, or by reviewing the entire map to make broader considerations about the ecosystem and how the participant perceives it.

Step 7: Agricultural cycle mapping

Having gathered intelligence during market segmentation on agro-ecological zones, crop varieties, farming techniques and the seasonal activities in a given market (see part 2), mapping the agricultural cycle helps to generate ideas for a value proposition. This exercise should help service providers understand the information gaps that can be addressed by mobile. Although the different phases of the farming cycle are broadly typical, the length may vary by agro-ecological zone. It is therefore critical for service designers to spend time interviewing farmers in order to:

- Identify key phases in the cycle;

- Map the information collected in the field by phase; and

- Identify key pain points in each phase.

Once the entire farming cycle has been described, it is possible for service providers to identify how the Agri VAS can address the pain points farmers experience and how it can help farmers improve their farming practices. This understanding must then be validated through field research with farmers.

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37. See GSMA mAgri, 2015, 'mAgri Design Toolkit: User-centered design for mobile agriculture', http://www.gsma.com/mobilefordevelopment/magri-design-toolkit

FIGURE 13

The agricultural cycle and farmers' information needs at different stages

	Plant	Seed	Grow	Harvest	Market
PAIN RELIEVERS AND GAIN CREATORS: AGRI VAS SOLUTION (EXAMPLES)					
	• Farmer success story (IVR) • Farm management course (IVR) • Nutritional tips (SMS) • Seasonal weather forecasts (SMS)	• Calls to agriculture specialists (helpline) • Farming 'how to' tips (IVR) • Farmer success story (IVR) • Seed prices information (SMS)	• Calls to agriculture specialists (helpline) • Farming alerts on milestones, pests and disease (SMS) • 1/2 day weather forecasts	• Calls to agriculture specialists (helpline) • Farming 'how to' tips (IVR) • 1/2 day weather forecasts	• Market prices (SMS) • Marketplace service

	Plant	Seed	Grow	Harvest	Market
PAIN POINTS AND POTENTIAL GAINS FOR FARMERS					
Market access	• Price trends and fluctuations • Cost and availability of transport		• Accurate market pricing • Potential price fluctuations		• Accurate market pricing • Potential price fluctuations
Inputs	• Seeds/fertilizer availability, prices and locations			• Availability, cost and location of storage services • Instructions for self-storage	
Agronomic advisory	• Crop and seed selection • Land preparation	• Techniques to protect against and prevent disease and pest infestation • Weather adaptive planting advise	• Diagnose and treat disease and pest infestation • Weather adaptive growing advise	• Timing and methods of harvesting	
Weather forecasts	• Long term (seasonal) weather forecasts • Implications of local agro-environment	• Short-term, localized weather forecast (e.g. to know when to plant)	• Weather forecasts and implications for storage		• Long term (seasonal) weather forecasts • Implication of local agro-environment
Financial services	• Credit and insurance (crop, weather, price insurance) availability, rates and contacts	• Credit availability and rates for non-farming activities	• Savings account rates and availability	• Credit and insurance (crop, weather, price insurance) availability, rates and contacts	• Credit availability and rates for non-farming activities

It is important to note that most farmers will be involved in multi-cropping practices. Thus, agricultural cycle mapping needs to be repeated for all the main crops of interest in order for the Agri VAS to provide comprehensive information (e.g. subsistence and cash crops, annual and seasonal crops). In addition, service providers must always be aware of the broad range of needs that go beyond the annual crop cycle, such as sourcing equipment and buyers.

B2B   Agricultural cycle mapping for B2B services

A similar framework should be applied for B2B services in order to assess pain points and potential gains of agribusinesses throughout the cycle and create a mobile solution that addresses their needs. A well-executed B2B platform should enable agribusinesses to work more efficiently with networks of smallholder farmers, with the overall objective of increasing their productivity level and maintaining safety and sustainability standards. Some key activities in the agricultural cycle that a mobile solution can help streamline include:

• Coordinating the activities of field staff and farmers throughout the cycle (e.g. app and SMS-based real-time communication);

• Sourcing labourers at different stages (e.g. planting, harvesting) via matching platforms;

• At the planting stage, ensuring that farmers use inputs approved by agribusiness (pushing information through mobile) and potentially managing cash and input loans (via mobile money);

• Providing accurate and consistent weather and agronomic advice to farmers at planting and growing stages;

• Tracking growing and harvesting activities in real time (e.g. app and SMS-based);

• Accessing digital records (e.g. on products stored) that are centralised and always up-to-date;

• Streamlining overall logistics, including storage and packaging;

• Ensuring overall traceability and compliance with food safety standards throughout the agricultural cycle; and

• At harvesting time, paying farmers via mobile moneyons and helps to clarify the sequence of activities and flow of products and information along the value chain.

EXAMPLE

The Syngenta Foundation for Sustainable Agriculture (SFSA) operates **Farmforce**, a web interface and mobile application that helps organisations such as agribusinesses and cooperatives working with large numbers of smallholder farmers improve the effectiveness of contract farming schemes. Field workers employed by an agribusiness can use the platform to record information related to the farmers' growing cycle, such as planting dates, input loan disbursements, pesticide spraying records, yield forecasts and harvest information. Agribusiness staff can then view this information via the online interface and access forecasts, crop quality and management reports in real time. The solution also enables agribusinesses to process payments to farmers on a case-by-case basis.

Step 8: Performing attitudinal segmentation

At the inception stage of Agri VAS, segmenting farmers based on their motivations and behaviours is required to clearly identify who to design for and who will be the early service adopters. Attitudinal segmentation is also used to identify potential influencers in farming communities (e.g. community leaders, middlemen).

Psychological or attitudinal segmentation deals with identifying groups of farmers who share similar attitudes towards farming and external interventions. Psychographic profiles are widely used for consumer products in market segmentation, as well as in advertising. The main driver for attitudinal segmentation is the need to account for the complexity of consumers' aspirations and needs that inform decision-making other than purely economic factors. Knowledge about consumers' ultimate tastes and attitudes enables better product design and more effective communication with target markets.[38]

In developing countries, evidence suggests that farmers' attitudes influence the adoption of tools that increase productivity, including mobile services. For example, an attitudinal study of the adoption of inorganic fertiliser in Tanzania showed that the overall optimism and willingness of farmers to make changes to their agricultural practices were more significant predictors of fertiliser use than any price concerns.[39]

Attitudinal segmentation ultimately generates user archetypes based on data gathered in the field. The first step in the process is to cluster the research findings, looking for patterns amongst farmers with similar attitudes, aspirations, community engagement, technical literacy, financial access and access to information.

Below are four examples of common user archetypes identified by frog design and GSMA:[40]

- **The Influencers:** They see the future as a bright space where they are eager to continually develop their farming business and knowledge to improve productivity and efficiency. They are less afraid to try new things as they are optimistic that taking risks will improve their farm, even if it means taking a short-term loss. They engage more with technology and are more likely to use their mobile for services other than basic communication (voice and SMS). They are well-respected in the village; people follow their good example.

- **The Traditionalists:** They keep busy tending to the duties of their already productive farm and are the head of the family and a model farmer. Their deep sense of responsibility prevents them from engaging with friends and relaxing through leisure activities. Traditionalists usually trust their own experience more than anyone else's. They are savvy with financial products to fund their successful farms. They trust the information they receive and follow best practices.

- **The Followers:** They experience a consistent lack of access to the goods needed to farm and everyday tasks in the farm get in the way of normal living. This archetype relies heavily on governmental support and their community to make ends meet and feel trapped in a cycle of poverty. They listen to advice from others.

- **Trapped:** They barely harvest enough to feed their family, so they take on labourer jobs to make up for the lack of income and low productivity. They feel and carry the weight of life on their shoulders, being mostly concerned about the everyday. They may not feel positive about what the future might bring for the family and do not feel empowered to change their situation.

By identifying attitudinal segments, marketing agents can target initial messages to 'Influencers' with the aim of getting them to influence the 'Followers'. Agents can avoid spending precious time and resources targeting 'Traditionalists' or the 'Trapped' until the service reaches critical mass. As usage matures across each segment, marketing messages can be adapted and made more efficient.

38. Angela Gaffney, Elysia Slakie, C. Leigh Anderson & Mary Kay Gugerty, 2013, 'Why Attitudes Matter: Measuring Farmer Attitudes in Agricultural Development', EPAR Brief No. 205, University of Washington Evans School Policy Analysis and Research (EPAR), Prepared for the Agricultural Policy Team of the Bill & Melinda Gates Foundation. http://evans.uw.edu/sites/default/files/public/EPAR_UW_Number 205_Farmer attitudes_Public_012913.pdf
39. Katie Stahley, Amy Pennington & C. Leigh Anderson, 2012, 'Drivers of Inorganic Fertilizer Use in Tanzania: A Comparison of the TZNPS and FF datasets', EPAR Brief No. 201, University of Washington Evans School Policy Analysis and Research (EPAR). Prepared for the Agricultural Policy Team of the Bill & Melinda Gates Foundation. https://evans.uw.edu/sites/default/files/public/EPAR_Request_201_Drivers of Inorganic Fertilizer Use in Tanzania_090713_af.pdf.
40. See GSMA mAgri, 2015, 'mAgri Design Toolkit: User-centered design for mobile agriculture', http://www.gsma.com/mobilefordevelopment/magri-design-toolkit

Segmenting user attitudes is a complex task, but the following steps represent a logical approach:

1. **Cluster:** Look for patterns amongst farmers with similar attitudes, aspirations, community engagement, access to information, financial access and technical literacy (segment identifiers).

2. **Name:** For each group with similar traits, assign a representative name. It is often useful to identify a farmer who represents the group and let him or her be the 'face' of the group.

3. **Extend:** Identifiers can then be used more broadly and applied to the entire population (e.g. we can assume that those who focus on cash crops can be identified as early adopters or Influencers while staple crop farmers are Traditionalists).

4. **Repeat:** Beyond the farmer, if there are other key players who must be considered for the service (e.g. middlemen), repeat the exercise for them. Archetypes should be representative of the complexity and dynamics of the ecosystem.

EXAMPLE

During the inception of their Agri VAS Khushhal Zamindar, **Telenor Pakistan** performed attitudinal segmentation to identify a unique group of farmers who tended to be influencers—those who pride themselves in sharing the latest knowledge with their community and seek out new innovations to try. Telenor has used this opportunity to identify influencers across Pakistan to trial the product. By identifying different archetypes, Telenor has been able to be more targeted with their marketing efforts and create a GTM strategy that engages first with farmers who would be most open to the new product.

Step 9: Defining the value proposition

The efforts described in the previous sections should eventually lead service providers to develop a full value proposition that reflects the aspirations and specific needs of farmers. This stage also marks the transition from concept development to realisation and dictates design and marketing decisions.

The value proposition should reflect a deep understanding of the customer's specific pain points and the potential gains to be derived from the service.41 For example, information about pest diseases while crops are growing would represent a pain reliever, while accurate and timely market price information at the harvesting stage would be a gain creator for smallholder farmers.

The solution the service offers should address the specific challenges farmers face, but the overall value proposition should ideally cover several areas of interest and concern. Generally, evidence has shown that a stand-alone Agri VAS (e.g. forecast or agronomic information) may target specific needs effectively, but it tends not to address most of the barriers farmers face throughout the season. Bundling services to offer holistic value propositions has proved more effective.

A helpful tool for outlining the value proposition is the service blueprint. The service blueprint defines how farmers interact with the service at each stage of the farming cycle. It captures the entire service experience, including delivery channels and all the players participating in the service. It is worth noting that even at early stages of service inception, the value proposition and service blueprint may extend to more than one target user segment. For example, at the 'market' stage, a service may offer free calls to middlemen for smallholder farmers, as well as free calls for middlemen to farmers.

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41. Strategyzer, 2014, 'Value proposition design: How to create products and services customers want', https://strategyzer.com/books/value-proposition-design

Based on the service blueprint, the provider should be able to define the minimum viable product (MVP) with the essential features to satisfy the target segment. The MVP is a minimal version of the service that is able to satisfy early adopters while minimising business risks. It therefore does not include, at least initially, 'nice to have' features that would improve it but may incur additional costs for the service provider. It is important to note that the MVP is only the first product to go to market and new features may be conceptualised at this stage as part of the product road map. The MVP should be documented, as it will form the basis for further iterations post-launch (see part 3).

Conceptualising the service blueprint and the MVP requires incorporating all insights about farmer preferences for content and channels. This must then be balanced with the technical resources and capabilities of the service provider, those of its technology partners and what is feasible to bring to market based on cost and revenue considerations.

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FIGURE 14

The Agri VAS blueprint: Key considerations

In the value proposition stage, service providers will have a clear picture of their goal for the service, i.e. the business requirements (see part 1). Based on the insights gleaned from user preferences, the provider will have also defined what the service will perform for users (user requirements). The provider will also need to define system requirements, addressing how the technology platform should behave (functional requirements) and the criteria that can be used to judge how the system is the operating (non-functional requirements).[42]

Based on the value proposition, the business model will then define how the service provider will create, deliver and capture value. For existing and new Agri VAS to reach their commercial and developmental potential, they must have a strong business case that will carry it to financial sustainability feasibly. This depends mainly on the business model of the service and the barriers it has to overcome in a given environment.

42. See GSMA mAgri, 2013, 'Agri VAS Functional Requirements & Best Practice: SMS & IVR',
http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2013/12/Agri-VAS-Functional-Requirements-Best-Practice-SMS-IVR.pdf

2

GSMA

FIGURE 14

The Agri VAS blueprint: Key considerations

In the value proposition stage, service providers will have a clear picture of their goal for the service, i.e. the business requirements (see part 1). Based on the insights gleaned from user preferences, the provider will have also defined what the service will perform for users (user requirements). The provider will also need to define system requirements, addressing how the technology platform should behave (functional requirements) and the criteria that can be used to judge how the system is the operating (non-functional requirements).[42]

Based on the value proposition, the business model will then define how the service provider will create, deliver and capture value. For existing and new Agri VAS to reach their commercial and developmental potential, they must have a strong business case that will carry it to financial sustainability feasibly. This depends mainly on the business model of the service and the barriers it has to overcome in a given environment.

42. See GSMA mAgri, 2013, 'Agri VAS Functional Requirements & Best Practice: SMS & IVR', http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2013/12/Agri-VAS-Functional-Requirements-Best-Practice-SMS-IVR.pdf

B2B

Value proposition for B2B services

With B2B services, the value proposition and service blueprint always extend to multiple target segments. B2B services must primarily provide solutions for agribusinesses (paying customers), but to do so, they must also offer value to the contract smallholder farmers who work for them. The service blueprint and MVP for B2B services must therefore meet the preferences and needs of both farmers and agribusinesses. This is especially true for B2B services that push agronomic advice from agribusinesses to contract farmer networks. To ensure farmers act on the advice, the platform designer must have an equally clear understanding of farmers' user requirements.

3.2 Product ownership and partnerships

Given the complexity of designing, developing and managing Agri VAS, the projects are prone to risks. Mitigating these risks requires strong, consolidated ownership. Given the value proposition and business model, the product owner (MNO or VAS provider) and individual product managers need to keep a close watch on all the activities involving partners (e.g. content providers, technology solution providers, marketing and distribution) and vendors. This requires committing resources for all key activities, from conducting end user research to validating content, to marketing the service.

For MNOs in particular, owning the Agri VAS requires performing a range of activities often not contemplated in a traditional VAS model or MNO core competencies. At service inception, a committed Agri VAS provider must be able to deploy its own team on the ground and lead all the activities required at that stage (e.g. qualitative research to segment farmers based on attitudes and behaviours), even when there is support from an external agency to conduct end user research. When the service is live and running, a product owner should be able to react quickly to any issues arising in the customer journey, regardless of whether a specific activity is performed by a third party or not.

TABLE 5

Key questions for an Agri VAS provider along the customer journey (example)

SALES CHANNELS	ONBOARDING	PAYMENT	CONTENT	HELPLINE	NOTIFICATIONS	UNSUBSCRIBE
Is the farmer receiving all information about the benefits of the service?	Are customers receiving all necessary instructions on how to use the service? Are agents capturing all essential customer data in the system?	Is the billing platform working properly?	Are customers receiving the content? Are there any delays due to technical issues? Is the content of the required standard? Is the content relevant and delivered in the required style?	Are dedicated agents able to call customers and capture their data in the system? Is the helpline responding to customers calls effectively and timely?	Are farmers receiving notifications and reminders? Are they given the opportunity to opt out?	Are customers provided with all the necessary information to unsubscribe?

Product ownership ultimately means the Agri VAS provider needs to be able to set clear objectives and therefore accountability, for both the project team and the partners responsible for delivering the service. Well-defined, granular KPIs must be established to measure their performance and should be derived from and contribute to the business KPIs set for the Agri VAS (e.g. churn reduction, data ARPU increase in rural areas, etc.). Using the service blueprint model, it is possible to broadly apply the performance KPIs to:

- User KPIs that measure service performance against both user requirements and how the service provider and partners respond to these requirements;

- Technology KPIs that measure the extent to which the technology platform supports the product requirements; and

- Business KPIs that measure service performance against business requirements, allowing product owners to assess their cost and revenue assumptions and adapt their strategy (e.g. budget allocation and pricing strategy for different service components).

TABLE 6

KPIs to measure the performance of the project team and partners in Agri VAS projects (examples)

	What do they measure?	Examples
User KPIs	• Service performance against user requirements; and • Product team/partner responsiveness against user requirements.	• Content popularity ranking; • Listenership of voice content; • Percentage of customer base complaining about the service; • Frequency and percentage of user profiling; • Time required to make changes to content offering; • Frequency of content updates; and • Frequency of user testing sessions.
Technology KPIs	• Support of the technology platform to product requirements.	• Frequency and duration of service downtime; • Content delivery rates; • Wait time to access content; and • Average time from notification of payment.
Business KPIs	• Service performance against business requirements (cost and revenue assumptions).	• Cost per user of a service helpline; and • Cost of billing as a percentage of revenue.

Step 10: Defining partnerships

Maintaining clear product ownership and accountability for key activities is vital for product development. To be responsive to user needs, it is just as important to have flexible partnership and collaboration models. When defining partnerships with content and technology providers, during the service lifecycle through its multiple iterations, service providers should ask the following questions:

• What visibility does the product owner have into the partner's activities for the delivery of service components (e.g. content, technology platform)?

• What user needs are likely to evolve over time (e.g. content preference and usability) and what would be the implications for the partner's activities?

• To what extent is the partnership flexible enough to respond to changing user needs?

• What quality assurance mechanisms are in place in the supply chain or development cycle?

• How are contracts and service-level agreements incorporating agile collaboration?

• How much flexibility does the service provider have to change agreements with content partners during the product iteration processes?

When considering potential partners, the service owner will have already completed market segmentation and all the activities required at service inception. Thus, it should have clear service requirements to guide the partner selection process. Ideally, content and product development partners should be chosen only once the MVP and product requirements have been defined. However, in a limited ecosystem (e.g. a handful of institutions with relevant agricultural content), Agri VAS providers often have pre-existing agreements with a VAS aggregator, content provider, technology platforms provider, etc.

Regardless of the partner selection process, our work with Agri VAS providers has consistently shown it is important for the product owner to assess and test the partner's solution (e.g. technology platform, content offering), both to maintain visibility into third party operations and to ensure all partners are responsive to changing user needs. In the case of content providers, a truly collaborative approach would see the product owner testing and validating the partner's content offering with the target market (e.g. user testing, phone surveys) to align it with user requirements. Once the content is tested and validated, then the partner should be able to implement any necessary changes in a timely manner.

Effective collaboration depends on the product owner ensuring the partner has the capacity and skills to deliver, the partner's solution is operationally feasible and flexible and the Agri VAS project is a viable business for all parties.

Guiding questions for partner assessment

Partner assessment	Guiding questions (examples)
Partner's overall capacity and skill set	• What experience or demonstrated expertise does the marketing partner have training field agents to sell to rural customers? • What experience or demonstrated expertise does the content partner have engaging a rural customer base in behaviour change?
Operational feasibility of partner's solution	• Is the partner able to adapt its technology solution to respond to changing customer needs? • How long does it take to implement the required changes? • To what extent is the content management system able to deliver new content?
Business viability of partnership	• Is the partnership revenue model sustainable for both parties in the long term? • Is there sufficient value for all partners to continue investing in the service and maintaining the required focus?

When workable, sustainable and mutually beneficial partnerships are established between service providers and content providers, there is a greater chance to form agile collaboration models. With services targeting BOP users, however, these types of partnerships with content providers can be challenging. To form workable partnerships for Agri VAS, MNOs and VAS providers must be willing to invest in partners and when necessary, even consider partnership models other than revenue share. Introducing minimum fees in revenue share agreements, for example, is a way to secure commitment from both parties, which in turn enables the content provider to continue investing in the service and drive innovation.

Step 11: Establishing content partnerships

MNOs lacking the in-house capacity to source and maintain Agri VAS content, like they would for other generic mobile-based VAS, need to form strategic partnerships with content providers or a third-party Agri VAS provider. Given the amount of resources required to execute a competitive Agri VAS solution, specialised content providers are in a better position to generate customisable, relevant and timely information for farmers, which is crucial to maintain stickiness and user interest in the service.

Depending on the service provider (e.g. MNOs and VAS providers), we have seen three main approaches to forming content partnerships:

• Partnerships based on the value proposition;

• Partnerships based on the initial assessment of user requirements, but before the value proposition is defined; and

• Established partnerships are in place prior to the Agri VAS project being initiated.

The first model most closely aligns with a user-centred design approach, which defines demand and the value proposition (based on end user research) before identifying the most appropriate content partners.[43] Under the second model, the service provider takes time to identify potential content partners as it gathers intelligence on the target market, but before specific use cases and a value proposition have been defined.

43. Under this approach, end user research may identify specific use cases (e.g. advice on pesticide use for plants) best served by content from international providers with agricultural expertise (e.g. CABI, www.cabi.org) than a local content provider (e.g. the Ministry of Agriculture).

EXAMPLES

Telenor Pakistan finalised local content partnerships for the Agri VAS Khushhal Zamindar only once it had developed a full value proposition that reflected the specific needs of farmers. This way, Telenor was better able to plan specific requirements for content providers.

For the Agri VAS Govi Mithuru, **Dialog Sri Lanka** conducted about three months research with the target market and mapped out the local content ecosystem before identifying content partners. Content partners were identified as a result of this initial assessment of user demand, but before the value proposition was defined.

In the third and most common model for MNOs, content partnerships are in place before the Agri VAS project is initiated. Due to the scarcity of ecosystem players, Agri VAS initiatives often begin as a joint effort between an MNO and a local content provider. Under this model, the MNO's level of engagement in the Agri VAS project depends on whether it wholly owns the service. Often the MNO is mainly responsible for the operational elements of the service, including marketing, development of delivery channels and customer care.

EXAMPLE

For its **Farmers' Club**, Vodafone adopted a model whereby content is outsourced to a local content aggregator that is responsible for the overall content proposition, while the MNO focuses on marketing and sales, delivery channels and customer care. This model was initially tested in Turkey, where the Farmers' Club began as a joint initiative between the MNO and TABİT, a social enterprise focusing on ICT enablement for smallholder farmers and the publisher of a popular agriculture information portal.[44] Similarly, in Ghana, Vodafone had a pre-existing agreement with Esoko, a specialised VAS provider offering agricultural content to African markets.

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44. See http://www.tabit.com.tr/. TABİT is the publisher of the agriculture information portal Tarimsal Pazarlama (Agriculture Marketing): http://www.tarimsalpazarlama.com/

Content ownership

When forming content partnerships, service providers must recognise that the development and release of agricultural content may be subject to regulations on content authorisation and sources, the use of certain agricultural inputs, or the adoption of certain agricultural practices. Such regulation may even originate outside national borders (e.g. European Union directives).

Service providers must be aware of the following regulatory considerations:

- **Copyright and ownership:** Parties involved in content development must adhere to intellectual property rights laws, as these are stipulated by international treaties and conventions and national legislation. Especially when aggregating publicly available content from third parties, content developers may need to identify and contact the rightful owner of the content and obtain permission to use it while following widely accepted citation rules. Ownership aims to protect the rights of the Agri VAS owner to use agricultural content created specifically for its Agri VAS platform.

- **Liability:** This refers to the legal risks of publishing, broadcasting, or selling agricultural content. Liability lies with the parties involved in content development, such as local content providers, MNOs, end users and validators (government stakeholders). Liability is particularly important in this context considering the risk for farmers acting on inaccurate or poor quality information.

- **Validation and sign-off:** Validation is the process that verifies Agri VAS content conforms with local rules and practices (e.g. Agri VAS agronomic advice is consistent with the Ministry of Agriculture guidelines on pesticide use). Providers may consider getting a government body, typically the Ministry of Agriculture and other government stakeholders (e.g. Ministry of Health, national meteorology department for weather forecasts), to sign-off on the content. In some countries, providers may be required to get local authorities to sign-off on content before making it available on the VAS platform.

3.3 Outcomes and questions

Once the service inception activities are complete, service providers should be able to:

- Understand the dynamics of the agriculture ecosystem and identify farmers' pain points and information needs.

- Identify who the early service adopters are likely to be, as well as potential future segments to target.

- Develop a full value proposition for the proposed Agri VAS, including a service blueprint and minimum viable product.

- Establish partnerships with content providers, technology solution providers and marketing and distribution partners.

- Commit internal resources and ensure continuous ownership of the service.

- Set clear objectives and accountability for both the project team and the partners responsible for delivering the service components.

Key questions to raise at this stage of the Agri VAS project are:

- What areas should user testing and validation cover and what methodologies should be used to conduct user testing?

- What factors should service providers take into account when creating and aggregating content?

- How can service providers ensure content is a good fit with how the target audience communicates?

- How should service providers set up the content management system?

- What are the key considerations for a successful go-to-market strategy?

- What criteria should be in place for iterative planning and how regularly should product iterations be conducted?

- What tools are required for product monitoring and evaluation activities?

- How can business intelligence inform decisions on product improvement?

4 Service development

To move from concept to realisation, a user validation plan needs to be in place. Validation should be central to the entire design process and last throughout the product lifecycle. This allows providers to regularly gather feedback from the target market on new service concepts and additional features. All the major components of the business model should be validated with users and partners, including the content, usability, marketing and pricing models.

Once service concepts have been tested, Agri VAS providers can begin developing the actual content proposition, keeping in mind that agricultural content needs to be highly customised, timely, actionable and relevant. It also needs to be presented or stylised in a way farmers can digest it best. Then, providers need to develop a go-to-market (GTM) strategy to coordinate internal and external resources (e.g. sales force and marketing) and deliver the unique value proposition of the Agri VAS to customers.

Once the product is finally launched, the iterative design process, which includes feedback from users and other stakeholders in the ecosystem (e.g. marketing agents), will enable service providers to refine and improve the product over time, examining all the elements that shape the user experience.

4.1 Validation process

Having developed one or possibly more ideas for the Agri VAS, service providers and their partners must test the product with users to validate their initial assumptions.

User testing must cover all aspects of the proposed service, including:

- The relevance, quality and style of the content;

- Usability, including user experience (UX), navigation and overall performance of the delivery channel (e.g. SMS, IVR, helpline); and

- All elements and activities related to bringing the product to the market such as:

  » Pricing of the service or its components and pricing mechanisms;

  » Processes and materials for on-boarding customers (e.g. promotions, advertising); and

  » Processes for educating customers about the value of the service (e.g. use of field agents and service ambassadors, experiential marketing activities).

It is important to emphasise that in a user-centred design approach, user validation is a regular activity that begins before launch and lasts throughout the entire lifecycle of the product. As the product evolves, the Agri VAS provider will bring different concepts to market, collect user feedback and improve the product based on the suggestions.

Product testing is best performed through focus groups and interviews with farmers who are representative of the target market. Agricultural knowledge and the farming calendar should always be kept in mind when planning validation sessions. Especially in large markets, product testing should be conducted in multiple locations to reflect a variety of agro-climatic conditions. To avoid postponing launch, the testing should be held at time that fits into farmers' schedules.

All the feedback collected during user testing should be carefully analysed and used to continuously improve the service. This feedback will help service providers make decisions on all aspects of the service, including content (the type, timing and style of content), user experience (UX design, delivery channels) and all elements of the GTM strategy, such as pricing, customer on-boarding (advertising) and customer education.

TABLE 8

Key areas and questions for service validation

Content	Usability	Marketing		
		Pricing	Customer on-boarding	Customer education
• How actionable and relevant is the information? • How different is the information from what is currently understood and believed? • To what extent do farmers believe in the content? • Does the content reflect the way the audience communicates? • To what extent does the language used in the service match the target market's literacy level?	• To what extent are users able to navigate through the service given their technical literacy? Do user interactions with the service match the initial assumptions? • Are there any bottlenecks in the service flow? • Are there any additional functions that could improve the user experience?	• Do farmers see enough value in the service to pay for it (or for certain features)? • How much are farmers prepared to pay for the service (or for certain features)? • To what extent do farmers understand the pricing mechanisms? • To what extent are farmers aware of being charged for using the service? Do they understand how charging works (e.g subscribing and opt-in/out)?	• What advertising methods work best with the target audience? • What images resonate with the target audience most (e.g. posters and testimonials)? • Are there any public figures or organisations the target market trusts and can help raise awareness of the service?	• What face-to-face activities (promotional events, field registration campaigns) are most effective at conveying the value of the service and educating customers? • What cultural and gender issues should be considered when organising and conducting face-to-face activities? • Which stakeholders do the target market trust (e.g. community leaders, extension workers) and can help educate customers about the service?

EXAMPLE

Ooredoo Myanmar decided to test its Site Pyo app by creating stories about farmers using each of the service concepts that had been developed early on. The purpose of the stories was to explain to participants not only the product idea, but also the need it was addressing, how customers could engage with the service and the benefits they could derive from it. Users could then provide feedback and suggestions for each of the service ideas, choose their favourite and indicate how much they would be willing to pay for it. By the end of the user testing, the MNO had discovered that users' favourite concepts were not the same as those assumed at the beginning.

BOX 4

Prototyping Agri VAS

Since users may react differently to concepts than to the products themselves, one or more prototypes should be developed to conduct user testing. Prototyping does not need to be a complex or costly activity for the service provider. Successful examples include drawing mobile interfaces on paper to simulate a menu or an SMS and voice recordings to simulate IVR messages. The advantage of such prototypes is that they are easy to simulate and adjust in real time with users and can be easily updated as needed.

Figure 15: Low-fidelity prototype for mAgri app in Myanmar

Source: frog design

4.2 Key steps in content creation

Once service concepts have been tested, Agri VAS providers can start developing content. All the core components of Agri VAS—agronomic advice, weather forecasts and market information—are dynamic and require a high level of customisation to be relevant and practical for local farmers. Agronomic content, for example, must cover a variety of soil and climatic conditions, supplies (e.g. seed varieties, pesticides, irrigation) and farming practices. Similarly, district or regional-level weather forecasts are most valuable to farmers and in tropical areas they should be farm-level forecasts.[45]

Regardless of the target segment, a successful Agri VAS will always strive to provide content that is timely, practical and relevant:

- **Timely:** For content to be available when farmers need it, it must be provided at the right stage of the agricultural cycle and reach farmers at the time of day they are most likely to be seeking information (e.g. weather forecasts delivered in the evening for the following day; agronomic tips provided when farmers are not out in the field). It must also be delivered through appropriate channels. 'On demand' or 'pull services' such as farmers' helplines are well-suited to ad-hoc users and those with low technical literacy (a barrier to adoption) (see part 2). Push services (e.g. SMS), however, should poll target users to identify which times are best for information to be delivered. An additional benefit to push services is that the information can be viewed when the user chooses;

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45. Localised, granular weather forecasts have been identified as a key element in Agri VAS in tropical regions, where weather patterns can vary considerably even within short distances. See GSMA mAgri, 2016, 'Weather forecasting and monitoring: mobile solutions for climate resilience', http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2016/02/Weather-forecasting-and-monitoring-mobile-solutions-for-climate-resilience.pdf.

- **Actionable:** Farmers are more likely to act on information that is reliable, feasible and trustworthy. The methods and tools the service recommends should therefore be accurate, locally available and practical. Quality assurance processes also need to be in place to ensure the information and service delivery are robust; and

- **Relevant:** Information must be relevant to a farmer's location, climatic zone, farming practices and activities, stage of the agricultural cycle and native language. To ensure the information is valuable and usable, the service may require several levels of customisation to meet the needs of different farmers (see table 9).

TABLE 9

Levels of customisation for Agri VAS

Soil and climatic conditions	Different soil and climatic conditions create unique sets of challenges and determine the mix of crops that can be cultivated, the prevalence of pests and diseases and the most suitable seed varieties to plant.
Language and jargon	Content should be available in all national and local languages (in large, linguistically diverse countries like India this can be a major undertaking) and should use the local terms or jargon of a farming community (e.g. commonly understood words for crops, farming tools, or techniques).
Measurements	Standard measurement units may not be recognised or accepted by the target segment. For example, instead of providing data points (e.g. degrees Celsius or 'do not spray fertiliser if the temperature is 32 degrees or higher'), offer practical, verbal tips (e.g. 'do not spray fertiliser if the sun is hot enough that it burns your hand within x seconds').
Dietary customs	The dietary needs and customs of a particular segment need to be taken into account with agricultural content. In certain cultures, for example, information related to the consumption and preparation of specific types of meat may be irrelevant or even offensive, creating mistrust in the service.
Farming practices	Many communities have developed specialised farming techniques over the years that have become part of their shared knowledge and are passed from one generation to the next. Successful uptake of agricultural content requires respect for local traditions and the cultural aspects of farming.
Prevalence of pests and disease	Content needs to include information and advice on not only native pests, but also invasive species that may have only recently reached the country and which farmers may know little about.
Inputs and supplies	Agronomic advice should always mention inputs that are locally available and approved/certified (see below), as well as common farming practices. This also applies to important factors such as dependency on rain and the availability of irrigation systems.

Step 12: Aggregating content

Aggregating agricultural information is one of the main bottlenecks for many service providers. Although information is plentiful, the format is not always well-suited to mobile. This challenging task may be taken on by an independent content provider that works with multiple MNOs (e.g. VAS provider). Due to the scientific nature of agronomic and weather content, the VAS provider should, in principle, have in-house agronomists.

EXAMPLES

At **mKisan** in India, in-house agronomists have used instructions on weather warnings from the website of the Agricultural Meteorology Division of the India Meteorological Department and repackaged them for the Agri VAS.

Similarly, VAS provider **Miaki** in Bangladesh has internal VAS specialists who source and repackage weather data from the open data online content aggregator, Toto Agriculture. In turn, Toto Agriculture sources weather feeds from weather forecasting company Foreca, which relies on its own modelling and other data sources to create global weather models.

The four main steps in aggregating content are:

- **Localisation:** For information to be valuable, it must be tailored to the local environment and geography. The complexity of the agricultural sector, even within one country, may require content to be customised at the sub-regional level (depending on the agro-climatic zones);

- **Translation:** Translation of content into local languages can be expensive but necessary to provide customised offerings. However, if information requires additional editing or interpretation, this could be handled by marketing agents on a case-by-case basis;

- **Formatting:** Once information is identified, it must be reformatted to the delivery channel. Short or lengthy information pieces, voice or text-based, need to be recorded and categorised; and

- **Validation:** Content from reliable sources is considered valid when received. However, after it has been localised, translated, or reformatted, it needs to be validated by agricultural experts. As part of user-centred service design, it is also advisable to involve farmers' organisations. Finally, for the content to be legitimately offered to farmers, it will need to be validated and formally approved by government bodies, such as the Ministry of Agriculture (see part 3).

Step 13: Stylising content

Once content has been aggregated and validated, service providers should begin to style the content in a way that reflects how the target audience communicates.[46] Through our work with service providers, we have learned that the delivery style of agricultural content, which often comes from the source in scientific format, is as important as the actual information.
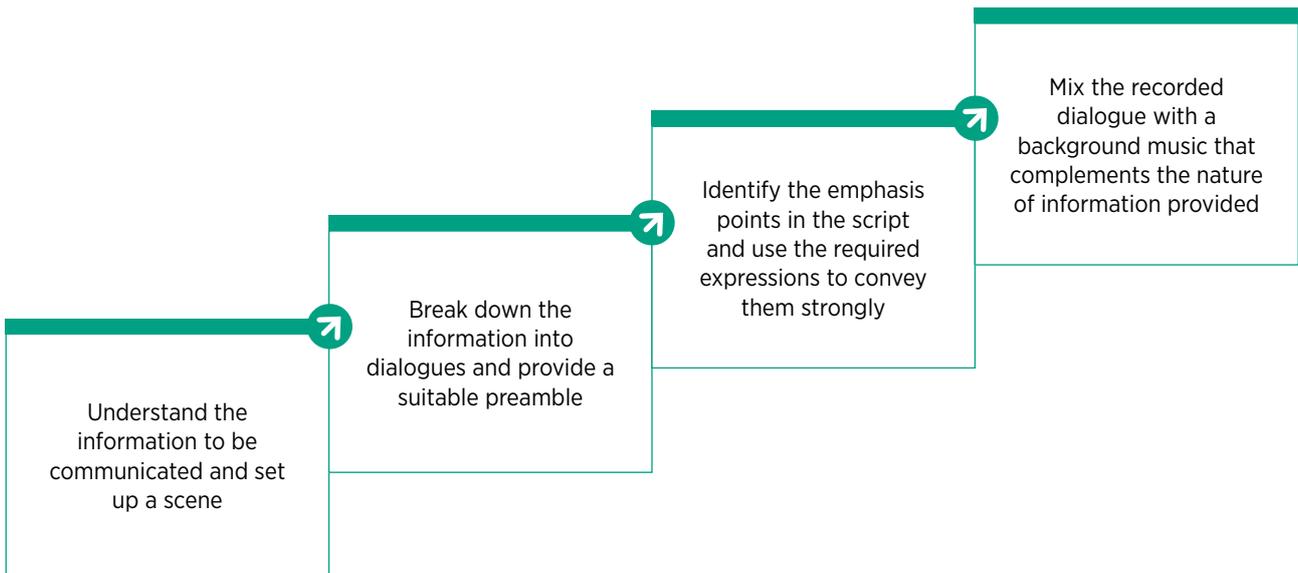
The main objective of content stylisation is to convey scientific information in a way that is understandable, engaging and actionable. Stylising the content to the local population's culture, communication style and traditions enhances user engagement and, in turn, helps to drive uptake and create the desired impact on farmer behaviour.

Stylisation is usually performed by local marketing or creative agencies and should aim to involve agricultural experts as a way to ensure content quality is maintained post-stylisation. Possible formats include the use of monologue and dialogue in storytelling (e.g. success stories), question and answer, expert interviews and songs.

FIGURE 16

Steps in stylising content

Understand the information to be communicated and set up a scene

Break down the information into dialogues and provide a suitable preamble

Identify the emphasis points in the script and use the required expressions to convey them strongly

Mix the recorded dialogue with a background music that complements the nature of information provided

Source: GSMA mAgri, Telenor Pakistan

46. Content stylisation concerns mainly those Agri VAS providers using in the service mix voice-based channels (e.g. IVR) and increasingly rich media channels. However, service providers focusing mainly on text based channels (e.g. SMS) should also be aware and reflective of the way their target audience communicates.

EXAMPLE

Airtel Malawi's Agri VAS M'Chikumbe provides agronomic advice on a range of crops and farming practices, including tips for addressing challenges at different stages of the agricultural cycle. To convey agronomic information via the IVR channel in a way that engages the target audience and is more easily understood, the MNO has created short stories set in a typical Malawian smallholder community (dialogue with background music).

Sample instructions for weeding

Original instructions from content source:

- Weed at two weeks after planting and subsequently when weeds appear;

- You may use recommended pre- and post-emergence soya bean herbicides for weed control; and

- Delay in weeding can cause significant reduction in soya bean yields.

Actual service experience:

Dialogue: A conversation between Nasiketi and Nanyoni (farmers' wives)

Nanyoni: "Last year, your soya field was full of weeds. Did you have any profit from it?"

Nasiketi: "Not at all. It seems like we failed miserably where weeding was concerned, because we weren't aware that weeding in a soya field was necessary."

Nanyoni: "Weed at two weeks after planting and then when weeds appear."

Expert voice (emphasis):   "Delay in weeding can cause significant reduction in soya bean yields."

Nasiketi: "Really? But we did apply herbicides in order to kill weeds?"

Nanyoni: "If herbicide is applied, only one weeding may be required at five or six weeks after planting."

Nasiketi: "What is the best time for weeding then?"

Nanyoni: "Avoid weeding immediately after rains, as this could lead to transplanting the weeds. Also avoid delay in weeding, as this can cause significant reduction in soya bean yields"

Nasiketi: "You have really helped me."

Nanyoni: "If you want to know more about herbicide and weeding, contact your nearest extension office."

Did you find this information relevant?

If relevant, press 1; If not important, press 2; If you want to repeat this message, press 1; If you want to listen to a different message, press 2.

It must be noted that although decisions on content stylisation are often made at a late stage of service design, it is best to keep them in mind from inception through service development. Stylised content should then be tested by user experience (UX) teams and validated by users. As part of an iterative approach, the content and style should be assessed on an on-going basis to capture changes in the market, technology and society.

EXAMPLE

At the service inception stage, VAS provider **Miaki** understood that agriculture was perceived as a very important and serious topic within the target community. Initially, a decision was made to present the content in a monologue style through narration by an agricultural expert (e.g. extension worker). However, when an alternative conversational storytelling style was tested by the product and UX teams, the user feedback was positive and the VAS provider decided to migrate content to this new style.

BOX 5

Sourcing content for Agri VAS

The local nature of agricultural content means that content sourcing for Agri VAS is challenging compared to health or entertainment VAS, which can be targeted to multiple segments and markets. Agricultural content can be drawn from only a narrow range of local and global sources as it requires scientific knowledge and input from domain experts. Given the complexities and varieties of local agricultural environments, finding a reliable and comprehensive source of localised agriculture data can therefore be difficult. Experienced local agriculture partners could be very helpful in providing quality assurance for the content database.

Local content partners typically include the Ministry of Agriculture and agricultural consultancies for agronomic content, national meteorological agencies for weather forecasts and a range of trade organisations (e.g. farmers' unions, chambers of commerce) for market information. International providers may include NGOs (e.g. HNI, Oxfam), organisations that specialise in agriculture (e.g. CABI, ILRI) and VAS providers with agricultural content (e.g. Esoko, Miaki). A number of weather forecast companies also provide data sets for multiple markets (e.g. Foreca, Ignitia). While most of these organisations operate on a commercial basis, a growing number of open data resources are becoming available to content aggregators.[47]

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47. Funded by the Bill & Melinda Gates Foundation, Toto Agriculture is an open data agricultural database that integrates a wide range of agriculture-related content from multiple sources, including weather forecasts and is able to translate content into different formats (text, audio, video, calendar, charts and maps) and languages. See http://www.totoagriculture.org/

Step 14: Setting up a content management system

Once the content proposition has been defined, the service provider must determine how content will be managed, processed and redirected. In MNO-led services, MNOs themselves may be well positioned to manage the technical components of the service. However, in most instances, it makes sense for the content provider (VAS provider) or a separate VAS platform provider to take on this role.

Agri VAS should maintain a database for both agricultural content and user profiles and queries. The content database houses the agricultural content queried and requested by users. The software solutions would vary depending on the needs and complexity of the service. However, it should always allow quick access and navigation, categorisation, tagging and monitoring and support multiple information formats.

The granularity of the data from the content management system (CMS) will determine how much the content can be analysed and evaluated. To allow comprehensive analysis, the CMS should assign the following to each item of content:

- A unique identifier which can be captured in the transactional data to point to the specific content item;

- The message type (e.g. weather forecast/ agricultural tip);

- The subject (e.g. crop/livestock type);

- Stage of the farming cycle (e.g. post-harvest/ breeding); and

- Total duration of the message (where appropriate).

The customer relationship management (CRM) system stores information about users and their requests, as well as the information received via the service (transactional data). A comprehensive CRM system allows for detailed data collection and segmentation, which produces a clearer picture of customer needs and, eventually, a more targeted offering. To comprehensively analyse user interaction with the service, the CRM should at minimum assign the following to each piece of content:

- A time stamp for each service access/service delivery;

- Status of service access (success/failure); and

- Duration of listening (where applicable).

There are additional revenue opportunities (as mentioned in part 1) to sell the dataset to third party stakeholders. In general, important factors to consider when designing the databases are:

- The scalability of the database as the number of users increase and the service becomes more complex; and

- Integrating the database with the data sources and distribution platforms.

BOX 6

## Content management systems for farmer helplines

When the information provided by the Agri VAS is not suitable for automated delivery, service providers will need to set up a helpline.[48] Helplines provide more comprehensive and customised advice for decision-making along the agriculture value chain. To provide this kind of service, helpline agents will need content management systems containing comprehensive fact sheets on a range of agricultural topics.

The quality of any helpline service is highly dependent on the expertise and knowledge of the operators. Fact sheets will support the advice they provide, but operators must be able to adapt the fact sheets based on a caller's unique situation and apply their knowledge to the questions they ask. To ensure the information provided to callers is high quality, relevant and timely, it is important to build the capacity of operators through training, emphasise continuous quality improvement and monitor the call centre.

4.3 Go-to-market strategy

With a unique value proposition and a platform to support an efficient service, the service provider now needs a go-to-market (GTM) strategy to deploy internal and external resources (e.g. sales force and marketing) and deliver the service to customers. The GTM strategy is used when new products or services are introduced and it also guides the downstream marketing plan (discussed further in part 5). In preparation for launch, a growing number of stakeholders become involved in product development, such as the marketing and sales teams.

The foundation of a strong GTM strategy are marketing and product teams with a shared understanding of farmers' needs, their context and the value of user testing. It is important that the expected business benefits (see part 2) determine the priorities of the GTM strategy. For MNOs, therefore, a GTM strategy for services operating on an indirect business benefits model should focus on existing customers. Meanwhile, services operating on a direct revenue model must reach out to both existing customers and potential new ones.
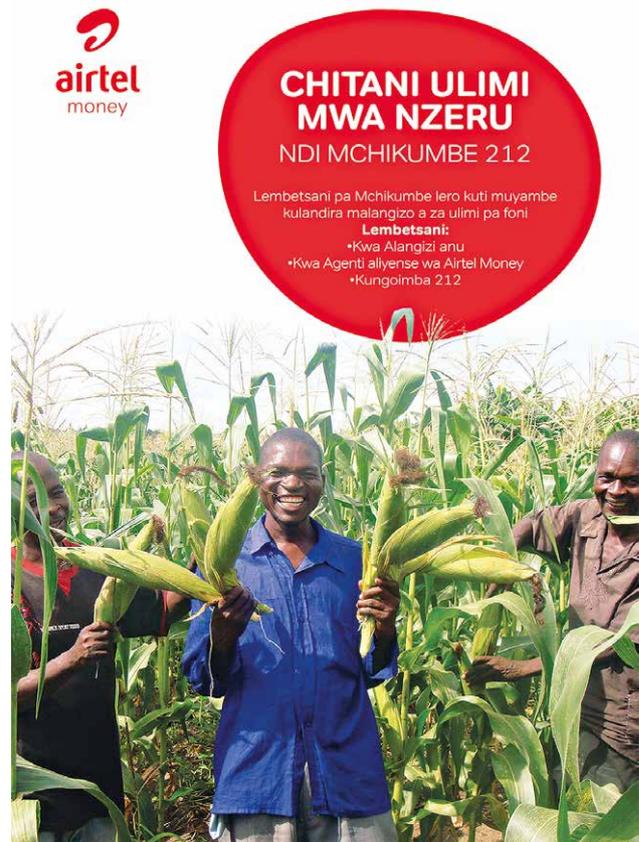
Source: Airtel Malawi

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48. See Michael Nkonu, GSMA mAgri, 2014, 'Guidelines for agricultural call centres', http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2014/08/Guidelines-for-Agri-Call-Centres.pdf

Step 15: Beta testing and soft launching

Especially in highly competitive mobile markets, service providers may be tempted to treat Agri VAS as any other type of value-added service and rush commercial launch ahead of the competition. However, due to the nature of the target segment and depending on the level of maturity of different markets, it is very possible that Agri VAS will be the first VAS service rural users have encountered. It is therefore important to allocate time and resources for proper piloting and collecting user feedback before launching commercially.

Beta testing involves opening the service to a few 'champions' to test features and functionalities, gather feedback and make any necessary changes before the service is soft launched. Beta testers are a close user group, for example, just a few users in the target market or even within the service provider working group. Beta testing might aim to answer questions like:

- Is the service functioning correctly?

- Do all the service components link correctly?

- Is there any missing content?

A soft launch is the actual release of a product to a limited audience. Soft launching is a slower process than beta testing because it allows data to be gathered on product usage and acceptance in the marketplace before making it generally available. With Agri VAS, soft launching may involve making the service available only to users in specific areas or regions. Our experience has shown that at soft launch, a period of up to three

months is typically required to collect sufficient user data and to perform user research, such as telephone surveys and in-depth interviews. It is also important to consider the actual timing of the soft launch. As with any other activity during inception, validation and iteration stages, it is critical that the launch takes place when farmers are likely to be most engaged.

Step 16: Launching commercial services

Once the pre-launch phase is complete, the commercial launch is set based on the ability to bill customers and make the service available to the entire customer base. Key questions guiding commercial launch should be:

- Are all the service features well supported and fully usable?

- Is the service being delivered as advertised?

- Does the billing mechanism work properly?

- Has the service received all required internal (C-level) approvals?

- Has the service received all required external (e.g. regulatory/ministerial) approvals?

- Are the terms and conditions of the service clear?

It is important to note that no successful Agri VAS can be static after launch. Depending on the product roadmap, a service provider will plan ahead for multiple re-launches when new features are added.
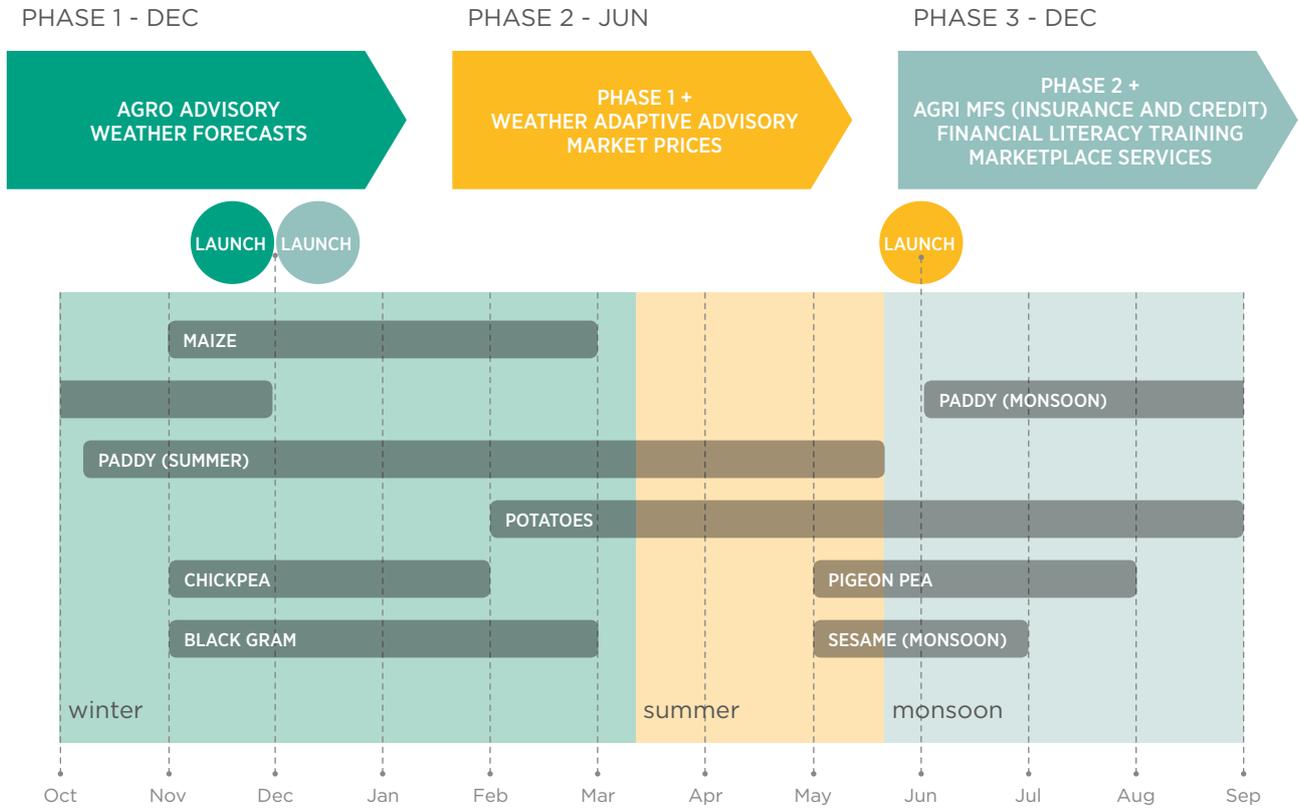
EXAMPLE

Grameenphone Bangladesh timed the launch of its service, which provides weather forecasts and agronomic advice, to the paddy season, the most common crop in the country. Most paddy farmers grow their crop during monsoon season. A second paddy crop is possible with proper irrigation, but farmers may choose to grow better-suited warm weather crops in between paddy seasons to conserve soil nutrients, such as groundnuts and black gram. Based on this farming calendar, the MNO chose December as the best month for the first commercial launch, followed by a second release with new features in June and another major launch with a new and expanded value proposition for the following December.

FIGURE 17

Timeline for Grameenphone Bangladesh's Agri VAS launch

Source: GSMA mAgri, Grameenphone Bangladesh

Source: Grameenphone Bangladesh

4.4 Product iteration

Commercial launch is only the beginning of the journey for service providers. Taking an iterative approach to service design means refining hypotheses and user testing on an on-going basis, from product inception to service development and post-launch. Hypotheses, user archetypes and ecosystems will all evolve as the market, technology and society change and an iterative process will capture the changing needs of farmers in both service revisions and new product development.

The iterative process is made up of three phases:

- Phase 1: Generating consumer insights through field research, user tests, user feedback surveys and user logs;

- Phase 2: Revising the service design, concept and marketing; and

- Phase 3: Relaunching the service and realigning existing resources.

Step 17: Product iterative planning

An on-going activity at this stage is iterative product planning, which brings all internal stakeholders together on a regular basis to discuss product iterations and their respective roles and responsibilities. The first step, once a product is launched, is to set a schedule for the release of new product iterations. Our experience shows that service providers should aim for regular iterations, for example, once every season or every quarter,[49] to ensure the product is always improving. Based on the release plan, resources should be balanced between improving the current service and introducing new features. User testing results typically set the priorities for each iteration, indicating what needs to be improved with the current service and the new features users want to see.

As a design methodology, co-creation incorporates the consumer in the design process, which helps ensure the voice of the farmer is heard, even after the product has been launched. Successive iterations capture new insights from farmers, which inform the new or updated inception phase, the value proposition, product development and subsequent iterations. It is also important to consider the role of other key stakeholders in the product, such as marketing agents.

FIGURE 18

The service design process and user feedback loop
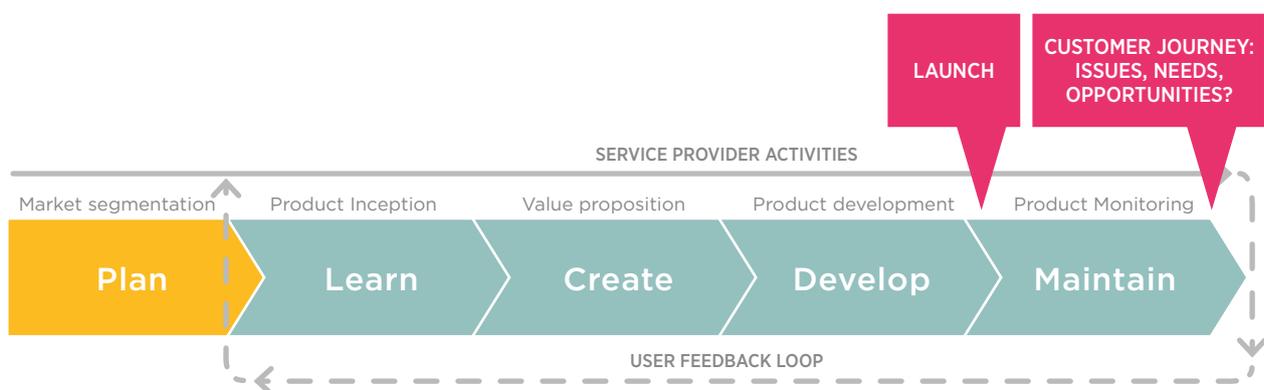
Source: GSMA mAgri

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49. GSMA mAgri is currently working with mNutrition partners on a quarterly schedule for product iterations.

Step 18: Monitoring and evaluating performance

Business intelligence can be loosely defined as information which helps a service provider make decisions about how to move a product forward. Its primary objective is to get an overview of how the service is performing and identify areas where further research is required, which in turn will inform new iterations of the product. However, it is often interpreted narrowly as information which evaluates a service's commercial performance or leads to a particular commercial gain. In many cases, the most commonly used KPIs for reporting (e.g. number of users) barely skim the surface of analytical possibilities, offering only a high-level view of the service performance. In the worst-case scenario, generic KPIs may create a false view of the service and prevent service providers from improving the product.[50]

A number of tools are available to service providers to monitor and evaluate performance more comprehensively. These are broadly categorised as:

- **Platform analytics –** insights drawn from data stored by the platform as evidence of actual user behaviour; and

- **Customer interviews –** through phone surveys, structured or exploratory interviews and focus groups.

To assess product performance effectively, service providers should choose the monitoring and evaluation tools that best suit the type of service being delivered. It is worth emphasising that pull services (e.g. IVR and rich media services) record more interactions from the end user and thus generate a larger volume and more actionable amount of user data. On the other hand, push services (e.g. SMS), which require less interaction and no feedback from the user, produce fewer data points to evaluate.

Platform analytics are used for monitoring service performance and are a low-cost, high-output resource for any VAS. They can provide quantitative responses to questions such as:

- What are the most effective ways to on-board customers?

- What content is most popular?

- What barriers cause users to abandon the service?

Based on our experience with MNOs, we have outlined three platform analyses which help identify gaps in service delivery, as well as more conventional measures, such as average revenue per user (ARPU) and number of registered users. These suggestions are by no means exhaustive—the analyses will differ depending on the research question, delivery channel and level of granularity required—but they provide a good overview from which to conduct deeper analysis. This may include:
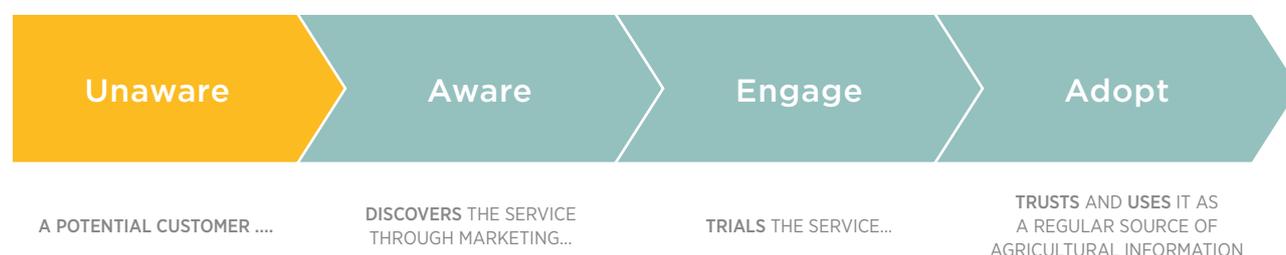
- Customer segmentation to assess the level of loyalty in the user base;

- Content segmentation to understand user preferences and the level of interaction across different content components; and

- Agent segmentation to show the quality and quantity of users generated by marketing agents.

Customer segmentation is the foundation of all other analyses. As many mAgri services are intended as vehicles for indirect business benefits rather than direct revenue (see part 1), segmenting the user base by level of use, rather than a more conventional ARPU segmentation, reveals interesting and relevant insights for the service provider.

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50. For many services, bigger is better, but a KPI like 'number of users' is usually a vanity metric with insufficient depth to capture the meaningful impact of a service (e.g. how many users are active?). See Ken Banks and Adam Wills, GSMA M4D Impact, 2015, 'Making the most out of your data in mobile for development', http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2016/02/Making-the-most-out-of-your-data-in-M4D.pdf

Agri VAS customer journey

Unaware	Aware	Engage	Adopt
A POTENTIAL CUSTOMER	DISCOVERS THE SERVICE THROUGH MARKETING...	TRIALS THE SERVICE...	TRUSTS AND USES IT AS A REGULAR SOURCE OF AGRICULTURAL INFORMATION

Source: GSMA mAgri

Customer segments along the customer journey include those who are unaware of the service (potential users); those who are aware of the service but have not started using it; trial users who have engaged with the service by accessing content; and repeat users who have accessed the content multiple times. Across these segments, analysis can be conducted using KPIs that shed light on the way different farmers interact with the service. Segmenting users into these groups allows hypotheses to be formed about varying customer experiences between segments. These differences help to pinpoint what service improvements could move customers to become repeat users.

In the example below, we see that repeat users, who spend the most time on the service, are also most likely to be long-term SIM owners and least likely to be registered by an agent. This suggests the way in which agents are educating users on new SIMs needs further investigation. Transactional data is the bedrock of this analysis, although additional data collected at registration can also be extremely valuable depending on where the service provider focuses its research (e.g. registration data on farm size when the research focus is smallholder farmers).

Agri VAS KPIs by customer segments (examples)

	Unregistered	Registered	Trial users	Repeat users
% of user base	44.4%	33.0%	8.4%	14.2%
Avg. duration on service	00:00:12	00:00:00	00:01:13	00:05:40
Avg. days between SIM and VAS registration	N/A	21	160	318
% agent registered	0%	100%	93%	82%

Source: GSMA mAgri

Content segmentation shows the level of interaction with each content component by measuring the length of time users interact with it (e.g. voice-based services). The assumption is that content which is accessed for longer periods is generally more engaging. Overall, this type of analysis is best suited to content with a recordable start and end (e.g. an OBD message), although parallel analysis could be performed, for example, by counting the amount of time spent on an app page.

EXAMPLE

In this simplified IVR service, messages about cassava received the highest listenership overall, with almost half of answered voice messages resulting in users listening to at least 50 per cent of the entire message. Messages about okra received much lower listenership, with 80 per cent of users hanging up halfway through the message.

Figure 20: Listenership for IVR service by content type
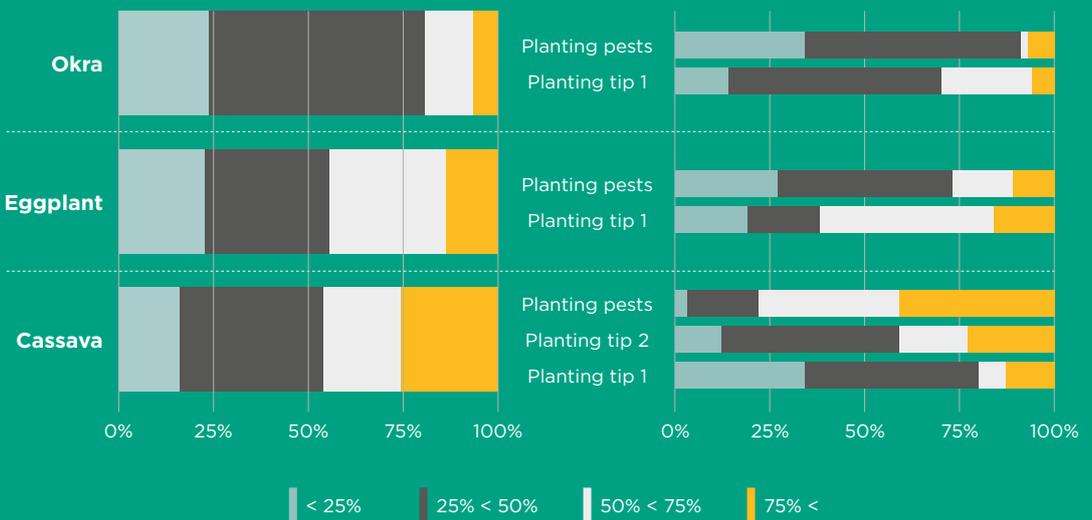
The 'planting pests' content for okra performed particularly badly, whereas the 'planting pests' content for cassava was very well received. Service providers may wish to use this information to:

- Immediately run bug checks on the worst-performing messages. For example, ensure the menu leads to the correct content and the voice is audible.

- Check other variables which might be causing the discrepancies. For example, are many of the users receiving the okra content in areas with poor network coverage?

- Compare the two 'planting pests' messages to identify any major differences in format and then test the content with relevant users to gauge their reactions.

- If there is an ongoing problem, compare the content quality assurance process for okra and cassava to see if improvements can be made.

In addition to customer and content segmentation, agent segmentation can reveal the quality and quantity of users signed up by marketing agents. This helps to locate high-performing agents and identify

best practices, calculate the return on investment from expensive in-field marketing and understand whether the performance of the agent network as a whole is satisfactory.

EXAMPLE

To assess how well an agent is performing on the Govi Mithuru service, Dialog Sri Lanka created scores based not only on the number of users an agent acquires, but also the quality of users in terms of customer loyalty. Each small dot on the graph represents an individual agent, while the larger numbered dots represent clusters of agents with similar performance. Self-registration is represented by the red dot. Interestingly, self-registration in this particular service generates very high-quality users.

Figure 21: Scoring system for agent performance, Dialog Sri Lanka

Next steps could be:

• Contacting the 'agents to watch' to understand what methods they have used to attract more and more loyal customers.

• Offering training to the 'lower performing agents' based on findings and review agent training materials.

It is important to note that acting on business intelligence analysis alone does not necessarily provide actionable insights.[51] Additional qualitative research is recommended to understand customer behaviour and explain the motivations behind users' actions. For example, content segmentation can tell us that a certain message is not being completed regularly and whether this is likely caused by network issues. However, it cannot tell us why the content was unsatisfactory. This research can take a number of forms, such as customer-facing quantitative research (e.g. in-field or phone surveys), qualitative surveys, case studies and user testing, which observes farmers interacting with the product. The type of research method selected will depend on the research question asked and the breadth and depth of responses required.

EXAMPLE

GSMA mAgri conducted an in-depth analysis of the **Agriculture and Climate Risk Enterprise (ACRE)** seed replanting guarantee service (formerly Kilimo Salama), a mobile weather insurance product offered by Safaricom in Kenya.[52] Under this service model, farmers register for the insurance product after purchasing a bag of insured seeds and sending an SMS with a registration code found inside the package. In the early stages of the service, business intelligence showed very low registration figures compared to the overall number of farmers purchasing the seeds. Only through further research (in-depth interviews with input dealers and farmers) was it possible to determine that ineffective marketing was one of the reasons for low awareness of the service and therefore, low registration rates.

4.5 Outcomes and questions

The activities described in this chapter should allow service providers to:

- Create a plan for user testing and validation that covers all aspects of the service, including content, usability and bringing the service to market;

- Develop Agri VAS content customised to farmers' needs;

- Understand the content aggregation process and identify those actors in the ecosystem best placed to aggregate content;

- Set up a CMS that allows comprehensive monitoring and analysis of content;

- Establish a GTM strategy aligned with the overall business drivers for the service;

- Deploy internal and external resources (e.g. sales force and marketing) to implement the GTM plan and deliver the service to customers;

- Have a plan for successive product iterations to respond to the changing needs of farmers; and

- Define KPIs and methodologies to monitor and evaluate service performance.

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51. The only exception is when business intelligence is used to identify technical errors with service delivery.
52. GSMA mAgri, 2015, 'Micro-Insurance in Mobile Agriculture: Case study and takeaways for the mobile industry', http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2015/05/ACRE-Africa-Final-Report.pdf

When service providers are ready to introduce the new Agri VAS to the market, they will be concerned with driving consumer demand through advertising, sales and optimised distribution. However, before embarking on marketing campaigns, service providers should ask the following questions:

- What are the best marketing channels and methods for this particular audience?

- When is the best time to market the service?

- What internal marketing assets can be leveraged and what external resources should we seek?

- Are there potential partner organisations with on-the-ground expertise that can help shape the marketing strategy?

- What marketing techniques should be deployed at different stages of the customer journey?

5 Marketing

A thorough understanding of user requirements and unmet needs is critical, not only to design relevant products, but also to prepare effective marketing campaigns.[53] Qualitative research and customer segmentation should provide the basis for understanding language preferences, level of technical capability, channels and formats. All these factors should be taken into account when planning marketing activities. It is also important to consider what time of year marketing efforts would be most effective. Seasonal targeted marketing (e.g. providing weather adaptation advice in the rainy season) may help to convince farmers to try the service, while also helping users trust the information they receive.

Although the range of assets VAS providers and MNOs can use for marketing activities is very different, evidence from existing Agri VAS shows that backing up below-the-line (BTL) marketing (e.g. SMS campaigns, agent networks) with above-the-line (ATL) channels (e.g. print media, flyers, posters, TV, radio adverts) is a successful way to reach rural areas and raise awareness of services.[54] Overall, investment in customer education and more 'touch-points' are critical to on-boarding customers. Some of the most successful Agri VAS providers have deployed a combination of ATL and BTL marketing techniques.

EXAMPLE

With over a million users, **Vodafone Turkey** relies on both ATL and BTL activities for marketing the Vodafone Farmers Club. ATL marketing is conducted in a variety of sector magazines and on broadcast television through adverts on an agriculture-focused satellite channel. BTL marketing has become more prominent in the last two years. The main BTL initiative is an educational truck that visits rural areas year-round and is used to host talks and discussions with agronomists and to promote the service with field agents. This initiative is operated by content partner TABİT and is fully funded by Vodafone.

Rather than investing in new assets, service providers should leverage existing resources and explore the potential for marketing partnerships. In most markets there will be a range of established and trusted local partners in farming communities (e.g. agricultural organisations, cooperatives, NGOs) with on-the-ground distribution networks. Working with marketing partners that already have positive relationships with farming communities is beneficial for the Agri VAS, but it is crucial that all stakeholders are committed to maintaining and nurturing consumer trust, which in the farmer segment can be difficult to build and requires multiple interactions.

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53. This section focuses on what is commonly referred to as 'downstream marketing'. This kind of marketing involves all activities related to advertising, promotion, brand building and communicating with customers. In contrast, 'upstream marketing' refers to the strategic process of identifying and fulfilling customer needs and takes place during product development. In this report, upstream marketing activity is dealt with in parts two and three (e.g. market segmentation, service inception).

54. See GSMA, June 2015, 'Case Study: Vodafone Turkey Farmers' Club', http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2015/06/GSMA_Case_VodafoneTurkey.pdf

EXAMPLE

The importance of leveraging the strengths of different partners is exemplified by the joint venture between **Bharti Airtel** and the **Indian Farmers Fertiliser Cooperative (IFFCO)** for **IKSL**. For the MNO, the joint venture has been critical to building a robust marketing campaign with strong distribution and promotion. IFFCO has a cooperative network totalling around 40,000 societies and runs over 150 Farmers' Service Centres where farmers can purchase agro inputs. These established contact points give to the MNO multiple channels through which potential new customers might encounter their brand and become aware of the Green SIM service.[55]

Gender inclusion should always be a consideration in marketing strategies. Given that women make up the majority of agricultural labour force in many developing countries and are playing an increasingly important role in farm decision-making (see part 2), Agri VAS marketing strategies should always address the needs and interests of female farmers. The use of female agents, female imagery and voices in marketing messages all help to reach out to and include, women.[56] At the same time, service providers should consider which partners might be able to market and distribute the service more effectively to women farmers and potentially what networks of female farmers exist and can be leveraged for marketing and distribution.

55.   See GSMA, March 2015, 'Case Study: Airtel Green SIM', http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2015/03/GSMA_Case_IKSL_web2.pdf

56.   Timing is another consideration when marketing services to women. IKSL determined that messages aimed at women should be sent between noon and early afternoon, which is generally a quieter time of day for both men and women.

5.1 Best practices in experiential marketing

When targeting a consumer segment with low media consumption and low literacy, face-to-face marketing activities are very important. Best practice in Agri VAS has consistently shown that successful adoption requires experiential marketing tactics to create a closer bond between the consumer and the brand. As a BTL strategy, experiential marketing is a more personal and engaging way to reach end users through presence at agricultural fairs and events. Telling a story about how the product works and why it is valuable helps to build trust in the information service and attract customers that are traditionally underserved. A better understanding of the value proposition also helps to prevent customer churn, which makes experiential activity good not only for customer acquisition, but also for ongoing usage.

For the value of the service to be communicated clearly, it is vital to have field agents who can demonstrate the product in action. This kind of resource is (relatively) more expensive as it relies on face-to-face interaction and therefore requires a trained sales force of mobile field staff. However, field agents have proved more effective at explaining the product to new customers and demonstrating its value than traditional channels.

In addition to field agents, service providers have also relied on service ambassadors within farming communities to market Agri VAS. The ambassador is a farmer and trusted opinion leader who is also an advocate and reference point for the service. Typically ambassadors perform functions such as hosting events and, unlike field agents, may not necessarily receive monetary compensation.

EXAMPLE

Acknowledging the diversity in the rural landscape, **IKSL** has introduced a variety of ways to acquire new customers. Kisan mitra, or 'farmer's friend', are respected local farmers recruited as knowledgeable members of target farming communities. This model was introduced in 2013 and today, about 2,000 kisan mitras are active in the field. These service ambassadors promote and distribute the Green SIM to groups of farmers in their village and nearby areas and receive incentives for enrolling farmers. Being on the ground, they are able to educate potential users through live service demonstrations. Their position in the village lends further credibility to the IKSL brand.

B2B   Marketing B2B services

Agribusinesses and cooperatives pushing mobile-based information to networks of contract farmers face similar challenges in driving awareness and boosting usage. Given the crucial role of face-to-face interaction in marketing Agri VAS, agribusinesses are particularly well positioned to leverage their existing network of field workers with established relationships with farmers.

When it comes to commercial B2B solutions, MNOs and VAS providers tend to have limited skills and experience dealing with enterprise customers, particularly in emerging markets and the agriculture sector. This can affect business relationships and impede the growth of the service. However, the use of indirect sales channels (e.g. technology resellers) can enable B2B VAS providers to reach enterprise customers more effectively, provided they are able to form mutually beneficial relationships.

Step 19: Agent planning

Service providers willing to use field agents in marketing Agri VAS have three options:

• Leverage their existing agent networks;

• Build a new dedicated agent network; and

• Partner with organisations with existing agent networks (e.g. agricultural organisations, networks of cooperatives, NGOs).

Each of these approaches has advantages and potential drawbacks that must be carefully evaluated. Success will depend on the current capacity of the service provider, the availability of organisations with networks of agents on the ground and the existing relationships and preferences of the target market. Building upon an existing agent network may, in principle, be the most feasible approach, but it is crucial that the agent profiles suit the target market. Furthermore, agent incentives for selling the Agri VAS must be aligned with existing incentives for selling other services, as conflicting interests will inevitably arise. Building a new dedicated agent network for Agri VAS requires a higher upfront investment, but the service will not be competing with other services. The advantage of working with partner networks is the

opportunity to recruit potentially high calibre agents who already enjoy high levels of access and trust with their customer base. However, in this case, the service provider will have lower visibility and overall control over this strategic element of the marketing strategy.

Step 20: Recruiting and training agents

For all service providers and MNOs in particular, recruiting agents requires careful thinking to balance existing distribution channels and identify the right agent profile. Attitudinal segmentation suggests only a minority of consumers in any given market (e.g. early adopters, influencers) take up new techniques and ideas. These people can then become powerful exponents of the product, helping it to penetrate the market. The evidence collected during the trust circle exercise (see part 2) can help service providers identify the most trusted members in the farming community (e.g. respected farmers, extension workers) and leverage them as agents or service ambassadors.

Service providers need to adapt their recruitment strategies and invest in rural agents who have the greatest likelihood of success. GSMA evidence on mobile money agent recruitment in Sub-Saharan Africa shows that to be successful in rural areas, agents should be literate, trusted by the community and have established relationships.[57] The most proactive and

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57.   GSMA Mobile Money for the Unbanked, October 2015, 'Spotlight on Rural Supply: Critical factors to create successful mobile money agents',
       http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2015/10/2015_GSMA_Spotlight-on-Rural-Supply-Critical-factors-to-create-successful-mobile-money-agents.pdf

successful agents are often those who have personal relationships or even family ties with customers.[58]

Once agents have been recruited/selected, they need to be trained appropriately. The importance of effective training is backed by consistent evidence that agents with only basic training, or who have not been trained at all, tend to perform poorly. The training programme will need to provide agents with a deep understanding of the functionalities, value proposition and target market of the product and how they should explain the product. Best practice in agent training for mobile money services can also be applied to Agri VAS:[59]

- Agent training is not a one-time event. Agents will need refresher courses on a periodic basis as well as training on new products;

- An effective training curriculum covers much more than just the basic 'how to' of the service. It should also cover how the service can help the user increase their productivity and, potentially, income;

- Low agent to trainer ratio is necessary for effective training. A feasible ratio would be one trainer to approximately 25 agents;

- Centralised training is effective at the beginning of a deployment, but will likely need to shift to regional decentralised training as the agent network grows;

- The availability of dedicated trainers with clear KPIs for performance management is necessary to deliver effective agent training; and

- The choice to use in-house trainers or to outsource training depends on the size of the distribution network and the quality of the training resources available.

Having established a training programme, mechanisms for monitoring the quality of agents over time should be introduced to ensure they are providing the right information to farmers and advocating for the service properly. Ongoing monitoring of agents will also help to assess the effectiveness of the training and identify future training needs.

58. The importance of personal relationships is evidenced by the tendency of rural customers to use the same agent. This was particularly clear in Chad, where 80% of rural customers stated they regularly return to the same mobile money agent.

59. M. Yasmina McCarty and Gerald Rasugu, 2012, 'Designing and Delivering Agent Training for Mobile Money Deployments', GSMA Mobile Money for the Unbanked, http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2012/10/MMU_Agent-Training.pdf

Step 21: Incentivising agents

Establishing effective agent recruitment criteria and ensuring agents are properly trained are no guarantee of return of investment for on-the-ground marketing campaigns; agents must also receive proper incentives for selling the services. The value proposition of a bundled Agri VAS service is likely to be more complex than other products conventional airtime agents sell. Thus, the agent's role is not simply to secure a transaction (e.g. getting farmers registered), but to properly educate farmers how to use the service and subscribe to Agri VAS content. At times, they may also need to educate farmers on basic mobile literacy (e.g. how to open and delete an SMS, how to call a helpline, how to use an IVR menu). When agents do not receive an incentive to spend time training farmers how to use the product,

customer journey bottlenecks (e.g. failure to access content) and user dropouts are likely.

Besides the traditional commission structure based on airtime or SIM card sales, it is crucial that MNOs consider Agri VAS-specific incentives for agents. Options to consider include linking commissions to quality parameters (e.g. customer loyalty and listening behaviour) to encourage field agents to attract high-quality, 'information hungry' farmers. Non-financial incentives can also help to sign up loyal customers. These may include offering best performers the opportunity to move up the ladder and sell other products (e.g. mobile money), or providing agents with gadgets, sun umbrellas and branded clothing to give them a sense of pride and belonging in the service community. In addition, recognition from their peers and community could be a low-cost but highly valued incentive.

5.2 Marketing activities along the customer journey

The complexity of the adoption process and the marketing tools required at each stage can be mapped out with the help of a customer journey framework. The customer journey illustrates how a user must progress through a series of stages, from becoming aware of the service, through registering, subscribing, to using the service. Customers may get

'stuck' at each stage of the customer journey due to different barriers related to service design, content, or marketing. The following section looks at the key challenges at each step of the customer journey and focuses on marketing tactics and tools that can be used to take customers to the next stage.

FIGURE 22

Marketing activities along the customer journey

DRIVE UPTAKE			BOOST USAGE	
Unaware	**Aware**	**Register***	**Engage**	**Adopt**
Potential user who has never heard about the service	Potential user who has heard about the service through marketing	User who has registered to the service but does not receive content	User who has trialed the service	User who has accessed content multiple times
		Face-to-face events		
Radio & TV, social media, posters and flyers		Agent registration	Pricing (freemium models)	
SMS blast			SMS blast/OBD promotions	SMS blast/OBD (promotions an loyalty rewards)
Contact centres				Bundles

*Not all services require registration. For example, helpline and IVR services just require users to dial in to start accessing content.

5.3 Driving service uptake

Any proposed Agri VAS is likely a new concept to target users. Service providers should therefore assume initial awareness of the service will be extremely low. To drive awareness, the service provider should be primarily concerned about the brand. Given that the service is based on a strong understanding of the target segment and a user-centric design, at this stage, the service should have a brand that is memorable, recognisable and sensitive to the local culture and aesthetics of the target market. When partnerships with agricultural organisations (e.g. content providers) have been established, the service provider may also consider using the partner organisation brand to build awareness and establish credibility in a swift, cost-efficient way.

Step 22: ATL marketing for service uptake

Evidence from existing Agri VAS shows that to raise awareness with ATL marketing communication techniques, campaigns must be sensitive to and reflect the specific communication preferences of the target market. Overall, low levels of literacy and media consumption in the rural market has meant the most commonly used and cost-effective ATL initiatives, such as print advertising (e.g. flyers and posters), are more challenging to implement in rural areas. For regions with low literacy, advertising messages need to be intuitively understood and should not be dependent purely on text. Image-based marketing channels

should always focus on trying to capture the value proposition in simple, visual terms, using people who are representative of the market.

ATL campaigns have an important role in raising customer awareness of an Agri VAS. With wide geographical reach, TV, radio and print media campaigns can attract large numbers of users. In most markets, radio has the highest penetration rate of all available media channels. Service providers should explore the possibility of advertising Agri VAS on radio or collaborating with agriculture-related radio programmes.[60] ATL methods are costly, however and must be highly targeted to be most effective. In addition, our experience working with service providers shows that ATL campaigns that are not supported by focused BTL activity, such as presence at farmers' events, may result in low numbers of active users.

EXAMPLE

Orange Senekela launched in July 2013, but only in April 2014 did the MNO undertake large-scale ATL marketing efforts, buying radio spots on popular agricultural programmes in Mali. The marketing campaign was implemented after the launch of the USSD service and resulted in exponential user uptake, adding up to 177,000 new users by September 2014.

Figure 23: Successful USSD queries and radio spots, Orange Senekela, July 2014

Successful USSD queries and radio spots July 2014

Legend: Number of successful USSD queries — Radio adverts
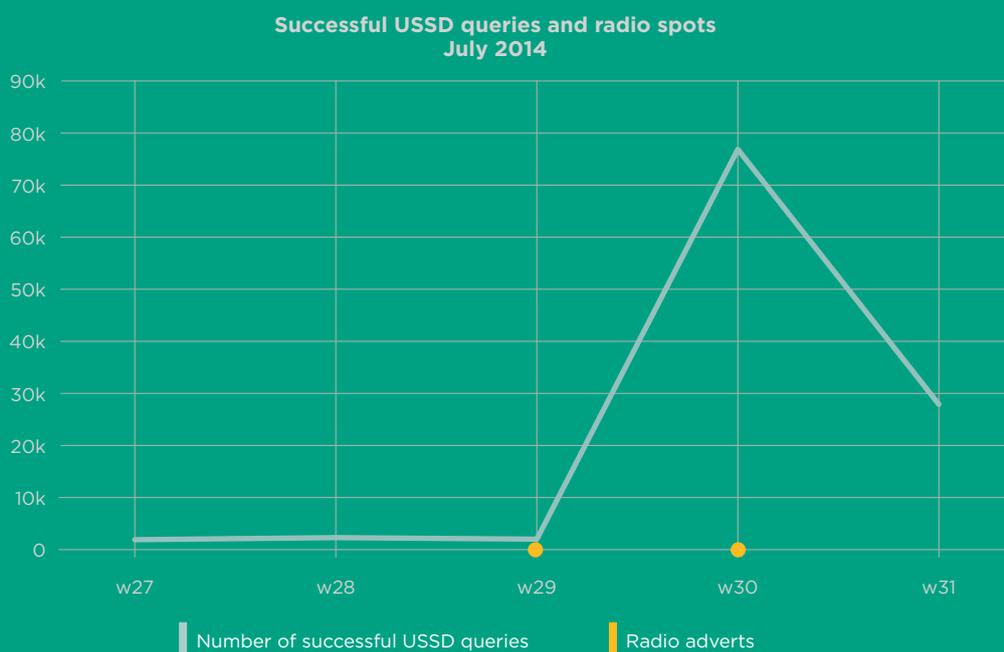
Subsequent monitoring and evaluation, however, showed that a significantly low number of users acquired with the ATL push returned to the service or adopted it long term.

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60.   See USAID and FHI 360, 2012, 'Interactive radio for agricultural development projects. A toolkit for practitioners', http://ictforag.org/toolkits/radio/index.html

In markets where technical literacy and overall ICT penetration is higher, social media campaigns are increasingly being used to capture younger, more technically literate users.[61] Especially in the early stages after launch, the use of social media can help raise awareness amongst early adopters, or influencers, as identified during attitudinal segmentation. Service providers should consider engaging with farmers' groups through targeted campaigns (e.g. Facebook) and leverage partnerships with agricultural organisations that may have their own social media platforms.

Step 23: BTL marketing for service uptake

BTL tactics commonly used to raise awareness include SMS campaigns (SMS blasts), targeted calls through contact centres and face-to-face events such as agricultural fairs and other farmer events. We advise service providers to consider face-to-face marketing, which offers the best potential for educating farmers by teaching them how to use the service through field agents and service ambassadors (e.g. IKSL in India). It also allows cross-selling of different products such as SIMs, mobile money and other VAS.

EXAMPLE

Airtel Kenya has effectively used its presence at agricultural fairs to raise awareness of Agri VAS KIlimo. When the Kenya Livestock Producers Association (KLPA) became a marketing partner, Airtel SIMs with the pre-enabled Airtel Kilimo service were distributed at regional agricultural fairs. Subsequent monitoring and evaluation showed that 24 per cent of users surveyed by phone were not Airtel customers until they signed up for the Airtel Kilimo service. While some sought out the service, 50 per cent of these new Airtel customers signed up after receiving the free, pre-enabled SIM cards at an agricultural fair, which was a key part of Airtel's marketing strategy.

Limited geographical reach and the cost and time involved in educating field agents and service ambassadors are obvious challenges. Ideally, service providers should seek to complement face-to-face, ground-level marketing with ATL initiatives that have wider reach. It is also important to note that ground acquisition at agricultural fairs or through distribution agents does not necessarily produce regular users if farmers are not receiving enough instruction on how to use the service effectively. This reiterates the need for appropriate incentives for agents and sales staff at the events, as well as the importance of demonstrating the service to ensure customers understand the value of the Agri VAS and how the service can be used to meet their needs.

EXAMPLE

A third of all customers have reported hearing about **mKisan** via face-to-face promotion through fellow farmers. However, unlike other Agri VAS services, ground acquisitions contributed to the registration of only a very small proportion (4%) of repeat users and created more inactive and trial users.

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61.   See USAID, 2013, 'Social Media Handbook for Agricultural Development Practitioners', http://ictforag.org/toolkits/social/SocialMedia4AgHandbook.pdf

For service providers with a low marketing budget for the service, SMS blasts are often a primary (if not the only) marketing tool. As an automated solution, SMS blasts allow MNOs and VAS providers to promote the service to potentially their entire customer base at a low cost. As a method of raising awareness, however,

SMS has limitations because it requires a certain level of literacy, as well as trust and understanding of mobile outside of voice channels. In addition, the character limitation of SMS limits the provider's ability to convey the value and features of the service.

EXAMPLE

In Tanzania, **Tigo Kilimo** was initially able to attract a large majority of registrations from its current customer base. Approximately 94% of users claimed they had learned about Tigo Kilimo from a promotional SMS. Many SMS recipients, however, also stated they were unclear on how to sign up, how charges were accrued, how to use the service, or even that the information from the service could lead to benefits on the farm.

The brand reputation of the MNO or VAS provider is another factor to consider in SMS campaigns, given the reputational damage that can result from spamming customers with unrequested promotions. In some countries, the issue of unrequested promotional SMSs has attracted the attention of the regulator, making this marketing tool more difficult to use. In India, regulations introduced in 2013 set limitations on the number of promotional SMSs MNOs can send out per day and has resulted in much more limited and carefully planned SMS campaigns. Double confirmation rules require that a user must confirm they understand the service and its associated costs twice before signing up.

In addition to SMS campaigns, service providers also have the option to use targeted calls from call centres to raise awareness in the target market. To identify farmers in the user base and implement such a programme, service providers will most likely need partnerships with agricultural organisations with farmer contact lists or access to farmer registrars, when available. MNOs can also use their own network intelligence to locate rural users and identify customers who are most likely to be interested in agricultural content (see part 2). As with face-to-face marketing, the use of call centres can be effective in raising awareness, but if not complemented with ATL marketing, may also create a bottleneck to scaling services.

BOX 7

User registration and profiling

Registration is the first time farmers experience the service, so Agri VAS providers should ensure users are properly profiled and receive all the information necessary to understand the service features and how to use them.

Registration can be an automated activity (e.g. SMS enabled) or performed face-to-face (e.g. agent registration). Using automated channels offers potential to scale up services, but can be a bottleneck to actual usage. A potential customer may in fact be clear about (and attracted by) the value proposition, but not clear on how to register and begin receiving content.

Our experience has shown that experiential marketing techniques work well with registration and profiling. The deployment of agents has proved to be effective in engaging farmers and helping them understand and trust the service. Leveraging field agents for registration is a particularly efficient way to convey the value proposition to farmers by telling a story of how the product works and why it is valuable. Agent-supported registration may also help to overcome barriers to service adoption such as technical literacy (e.g. teaching farmers how to delete an SMS to keep inboxes from filling up).

Scalability, cost and quality issues are the main challenges associated with agent registration. As a process based on human interaction, agent registration requires more time than automated solutions. Agri VAS providers also face a coverage challenge, especially in large markets where implementing nationwide registration campaigns can be difficult. At the same time, training and incentives for agents to act as local experts require time and resources.

Agent registration should be seen as an opportunity to complement profiling from automated channels (e.g. profiling based on service navigation data). Overall, implementing both automated and face-to-face approaches to register and profile customers can be an effective way to move customers along their journey and begin using the service.

EXAMPLES

Econet Wireless in Zimbabwe has recruited agents (brand ambassadors) from the Zimbabwe Farmers' Union (ZFU) to manually register and profile users for the EcoFarmer VAS and insurance product. Agents use the ZFU location directory, a physical booklet listing wards and villages where the service is available, to select the correct location of the farmer.

For its Agri VAS Khushhal Zamindar, Telenor Pakistan was able to scale up customer profiling by combining an automated solution with targeted call centre calls. The MNO uses network intelligence to collect location information from farmers (most frequently used cell towers). Based on this information, a default content option is automatically set up for the region where the farmer resides. However, farmers are able to opt out from the default profile and request a call from the contact center, which fully profiles users so content is customised to their needs.

5.4 Boosting service usage

After registration, or after customers have used the service once, user drop-out is a common pitfall due to a lack of clarity on how to use the service and a lack of incentives to use it repeatedly. Our evidence also shows that farmers often experience a lack of immediate gratification with the service which, if prolonged, can cause them to lose interest. To convince customers to try the service in the first place, Agri VAS providers should focus on supporting education of the value proposition, overcoming any technical barriers to usage and minimising the cost barrier for trialling.

After that, regular usage comes once trust is built and the value to the end user is demonstrated. For farmers to become repeat users they have to fully recognise the service benefits, understand how to use it and act upon this understanding. Once the service is able to solve a particular issue for farmers, they are more likely to re-use the service. Moving farmers from trial to regular usage, however, is a significant challenge for the majority of Agri VAS providers. In fact, it is not uncommon for regular users to constitute less than 10 per cent of a total subscriber base.[62]

Marketing initiatives that can help move customers along the customer journey and eventually to become regular users include:

- BTL techniques:

  » Face-to-face events at both the trial stage (e.g. trialling campaigns) and at repeat usage stage (e.g. promotional campaigns) to support customers' understanding of the functionalities and value of the service; and

  » SMS, OBD and call centre campaigns to convey the value of the service to farmers (trial phase) and channel promotions to drive repeat usage (e.g. loyalty rewards).

- Pricing models that are well suited to the target market, including the offering of a free period or freemium content for users interested in a service trial and the offering of both package subscriptions and pay-as-you-go (PAYG) options for repeat users; and

- Bundling Agri VAS with core MNO services (e.g. integrated farmers' voice and data plans), other VAS (e.g. mHealth) and potentially with mobile-money enabled financial services (e.g. agriculture insurance) to offer a holistic value proposition.

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62.   See GSMA mAgri, February 2015, 'mFarmer case studies', http://www.gsma.com/mobilefordevelopment/programme/magri/mfarmer-case-studies/

Step 24: BTL marketing for driving usage

Both experiential marketing (e.g. face-to-face trialling campaigns and complementary training events) and communication campaigns via SMS, OBD and call centres play an important role in helping farmers understand how to use the service and increase the likelihood of repeat usage.

Face-to-face activity has proved to work especially well in driving repeat usage because it helps develop a more thorough understanding of how a product works and the value of the product to customers' lives, which in turn helps to prevent customer churn. Evidence from our work with Agri VAS providers has shown that users who learned about services through other users or sales agents at face-to-face events were much more likely to return to the service.

EXAMPLE

BBC Janala in Bangladesh is an education VAS that provides short audio lessons in English. To educate users on the service, BBC Janala partnered with a number of marketing agencies to conduct activation campaigns at schools, colleges and universities nationwide. The marketing partners used a variety of game-based learning activities to explain different aspects of the service. For example, students/participants were asked to provide the right short code for the mobile service, name different sub-levels of the IVR menu and SMS keywords to activate the service. Those who answered correctly were awarded with BBC Janala gadgets, such as branded t-shirts, caps and backpacks.

A general rule for successful face-to-face events, in all phases of the customer journey, is to convey the value of the service when farmers need information most. Scheduling focused trial campaigns to coincide with the phases of the agricultural cycle makes them more effective. Before harvest, for example, 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 usage.

The use of automated channels such as SMS and OBD for communication campaigns has proved effective, especially at trial stage. As mentioned above, these channels have limitations for customer acquisition, but after registration farmers are already aware of the service and should be educated about it. These types of campaigns can help drive usage with registered farmers, but to be effective they must be able to demonstrate the value of the service. In most cases, SMS and OBD campaigns simply state the name of the service, offer information on how to access it and provide only generic information on the content (e.g. for agronomy information dial #123). Showing users how the service could be useful to them through storytelling increases the chances of them becoming invested in the value proposition.

EXAMPLE

To convince farmers to use Agri VAS providing weather forecasts, seasonal SMS/OBD-targeted marketing should be timed before the rainy season and, ideally, present a success story on how a farmer can benefit from accessing the information.

Step 25: Defining pricing models

As mentioned in part 2, when service providers intend to generate revenue from Agri VAS, they need to identify how much farmers are willing to pay and the most efficient pricing model. Defining the right pricing model can be challenging when targeting BoP users. Service providers that have adopted a direct revenue model have introduced paid components within the Agri VAS offering, for example, by charging users only for certain parts of the service (e.g. helpline, USSD channel). In some cases, Agri VAS have been only made available to paid subscribers.

Although Agri VAS subscribers are less likely to be below the national poverty line than the wider population, our evidence from existing services suggests the charges are often too high for most information seekers. The most common pricing-related bottlenecks include concerns about the cost of services, which affect user behaviour and uptake of services and a lack of awareness and understanding of the pricing model of each service, which hinders repeat usage.

EXAMPLES

Before text channels were offered free of charge, 90 per cent of **Tigo Kilimo** users in Tanzania found the cost of market price SMS too high. Users expressed fears that once they registered they would continue to be charged for the service without an option to cancel at a later date.

In Kenya, charges of KSh 3 (USD 0.03) per SMS were found to represent a hindrance to the uptake of **Airtel Kilimo** by a majority (about 75 per cent) of participants, most of whom preferred to pay Ksh 1–1.5. Airtel Kilimo users also reportedly avoided topping up their Airtel balance due to concerns it would be consumed by the costs of Airtel Kilimo messages.

To exploit pricing models to boost usage, Agri VAS providers should consider:

- Conveying clear price points for each service in marketing campaigns;

- Offering a clear mechanism to unsubscribe and resubscribe to the service;

- Offering a free period or freemium content for users interested in a service trial; and

- Providing both package subscriptions and PAYG options to cater to the needs of various users.

Providing 'freemium' services, whereby users can access certain content without charge or access the whole package with no charge for a limited period, has proved effective in alleviating cost-related concerns. Freemium models allow customers time to experience the service and understand its benefits. The Agri VAS provider delivers content with sufficient value to attract users at no direct cost, but with well-defined and achievable objectives (e.g. greater customer loyalty, customer acquisitions). This would accelerate uptake of the service, with a view to upgrade customers to paid services once they are familiar with the service and understand the value of the service for their lives.
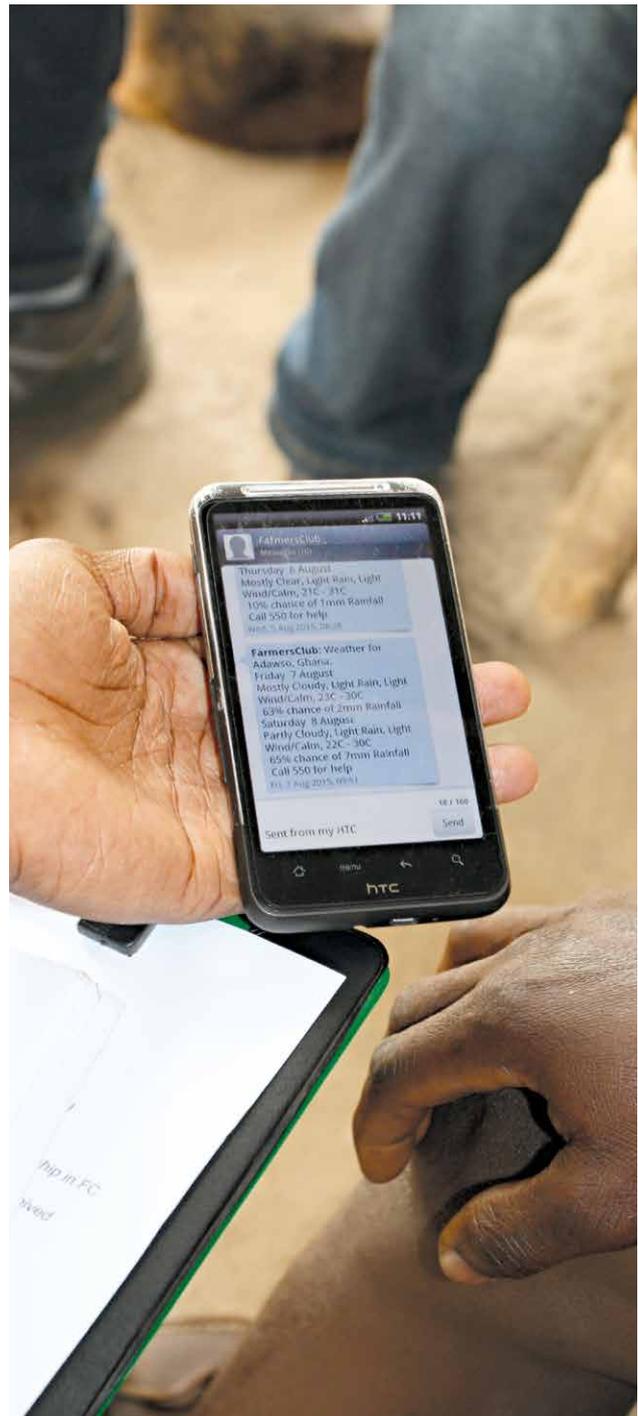
EXAMPLE

Vodafone Turkey has successfully adopted a freemium model for its Farmers' Club. The service offers contract plans for a monthly fee, in addition to an entry level Farmers' Club package consisting of free occasional text updates on farming subsidies, local fairs and trade shows and sector news. By adopting a freemium model and keeping the service offering broad, Vodafone has been able to grow its membership base to over one million users.

Offering both package subscriptions and PAYG options can cater to the preferences of various users. Users seeking to resolve an immediate problem on their farm may prefer a PAYG model, while subscriptions may be a feasible alternative for those who want to learn new farming and marketing techniques and improve their practices on a more regular basis. These potential repeat users may be more inclined to pay for packages, which provide better value for money than a PAYG option. However, service providers must tread carefully. Multiple pricing options could in fact deter access to the service if placed as an obstacle to reaching the information.

Step 26: Service bundling

In addition to offering the traditional Agri VAS content bundle (agronomic information, marketplace services, weather forecasts), MNOs are uniquely positioned to bundle Agri VAS with other services, such as core network services (farmer voice and data plans) and other VAS (e.g. mHealth, mEducation). To implement an effective bundling strategy, service providers must assess which customer relationships are already established (e.g. farmer already subscribes to voice and SMS plan) and how these relationships can be used to stimulate the uptake of Agri VAS. Bundling allows MNOs to create further cross-selling opportunities and to build a large user base by offering integrated solutions to the rural market that address some of the additional barriers farmers face besides a lack of information.

In mobile money markets there is a growing opportunity to develop a holistic value proposition for farmers through digital payments for agricultural inputs, credit and savings product, or micro-insurance for crops and livestock. Bundling agriculture-focused content with core network services and financial services for rural customers who lack access to traditional banking channels enables MNOs to create additional value for end users, stimulate uptake and usage and drive brand awareness and loyalty in the rural base.

EXAMPLES

The **Connected Farmer Alliance (CFA)** is an enterprise platform provided by Vodafone in partnership with TechnoServe in Kenya, Tanzania and Mozambique. The platform leverages both the Agri VAS channels and Vodafone's M-Pesa mobile money to facilitate communication between agribusinesses and their smallholder suppliers and to enable loans and payments to farmers by agribusinesses.

As shown by the experience of **EcoFarmer** in Zimbabwe, a first step towards developing a holistic bundle for smallholder farmers is bundling weather forecasts with agronomic advice, marketplace services,[63] and weather index insurance. Moving forward, there is an opportunity for MNOs to evolve the value proposition to more compelling packages and offer holistic bundles that integrate weather adaptive agronomic advice and potentially climate-smart advice, with a range of financial and marketplace services for unbanked farmers.

5.5 Outcomes

The activities described in this chapter should help service providers to:

- Implement a marketing strategy that integrates ATL and BTL techniques that will best meet the needs of the target market;

- Identify the most appropriate marketing initiatives at each stage of the customer journey, from raising awareness to boosting adoption and usage;

- Select marketing partners with established and trustworthy relationships with farming communities;

- Develop a plan to recruit, train and create incentives for marketing and sales agents;

- Identify how much farmers are willing to pay for the service and the most efficient pricing model; and

- Define how existing customer relationships can be used to stimulate Agri VAS with a bundling strategy.

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63.   Services matching buyers and suppliers of agricultural products.

Conclusions

The activities described in this toolkit should allow service providers to launch information services aimed at the rural market with the best potential to scale. Our experience working with MNOs and VAS providers in emerging markets has consistently shown that user centric, co-creative design is crucial to successful deployments. Only by understanding the needs, priorities and aspirations of smallholder farmers and their families will it be possible to develop content that is relevant and actionable.

Throughout this toolkit we have shown how MNOs and VAS providers should always maintain overall visibility and ownership of their services while leveraging the knowledge and expertise of their technical, content and marketing partners. In order to maintain visibility and ownership of their services it is fundamental for service providers to be able to develop internal expertise. They can do so only by deploying cross-functional, agile project teams, from product and UX design to marketing and sales, that can gather knowledge, share assumptions and ensure that farmers' voices and the dynamics of their ecosystem are integrated into the service.

In order for project teams to deploy the required resources and include the user in the design process, C-level engagement and support is critical. The importance of C-level understanding of the strategic value of the service cannot be overstated. For some of the most successful deployments, it has been only though strong C-level commitment that project teams have been allowed the necessary flexibility and time to iterate services and develop the value proposition over time.

While Agri VAS projects require strong focus and commitment, evidence shows that beyond the positive socioeconomic impact that Agri VAS generate, such as increased productivity and income for farmers, there are significant business gains for service providers that are ready to embark on these initiatives. Over time we have seen service providers benefiting in many different ways from Agri VAS. Depending on the market context, Agri VAS have proved to generate a range of indirect business benefits for MNOs, including increased market share and rural acquisitions; higher usage of SIM cards for core services, data usage, or other VAS usage; customer loyalty; and related churn reduction and brand awareness.

Moving forward, service providers that are prepared to invest time and resources in understanding the rural segment by embracing Agri VAS early on, will also be best placed to exploit new emerging opportunities. Two major opportunities have emerged. On the one hand, the growing smartphone penetration in emerging markets offers potential to transition Agri VAS to rich media services and drive data uptake for MNOs. It will be those MNOs that have experimented with non-core communication services and that have been able to drive data adoption in the rural segment within a legacy environment (voice and SMS-based services) that will be best placed to transition customers to rich media services.

On the other hand, the growth of mobile money services in rural areas offers scope to extend the value proposition for the rural segment from information services to mobile financial services, such as payments, transactions and derivative services (agricultural credit, savings and insurance). MNOs with an Agri VAS offering will be best placed to leverage the interplay between information and financial services and develop a truly holistic value proposition for the rural segment.

Glossary

Agricultural input dealer	Organisation producing and/or distributing agricultural inputs (fertilisers, seeds, pesticides, agricultural equipment, etc.)
Agribusiness	A business dealing with the production, processing and distribution of agricultural products.
Agricultural cycle	The annual cycle of activities related to the growth and harvest of a crop, including tilling the soil, seeding, transplanting seedlings, watering and harvesting, among others.
Agricultural VAS	Agricultural Value-added Services
Agriculture extension organisation	Organisation responsible for developing and delivering agricultural extension services
Agriculture extension	The dissemination of expert agricultural knowledge and practice
ARPU	Average revenue per user
ATL	Above-the-line (marketing)
ATP	Ability to pay
B2B	Business-to-business
B2C	Business-to-consumer
BoP	Bottom of the pyramid
BTL	Below-the-line (marketing)

CMS	Content management system
CRM	Customer relationship management
CSR	Corporate social responsibility
GTM	Go-to-market
IVR	Interactive voice response
KPI	Key performance indicator
LAC	Location area code
LBS	Location-based software
M4D	Mobile for development
mAgri	Mobile agriculture
MEL	Monitoring, evaluation and learning
mFarmer initiative	GSMA Development Fund initiative to stimulate the development of high-scale, high-impact Agri VAS.
MFS	Mobile financial services
mHealth	Mobile health
MNO	Mobile network operator
mNutrition initiative	GSMA and DFID partnership to develop and scale-up the delivery of nutrition messages through GSMA Mobile for Development (M4D) mAgri and mHealth platforms

MSISDN	Mobile station international subscriber directory number
MVP	Minimum viable product
NGO	Non-governmental organisation
OBD	Outbound voice dialling
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
SDN	Software-defined networks
SMS	Short message service
TOMA	Top-of-mind awareness
USSD	Unstructured supplementary service data
UX	User experience
VAS	Value-added service
WTP	Willingness to pay

For more information please visit the GSMA website at www.gsma.com