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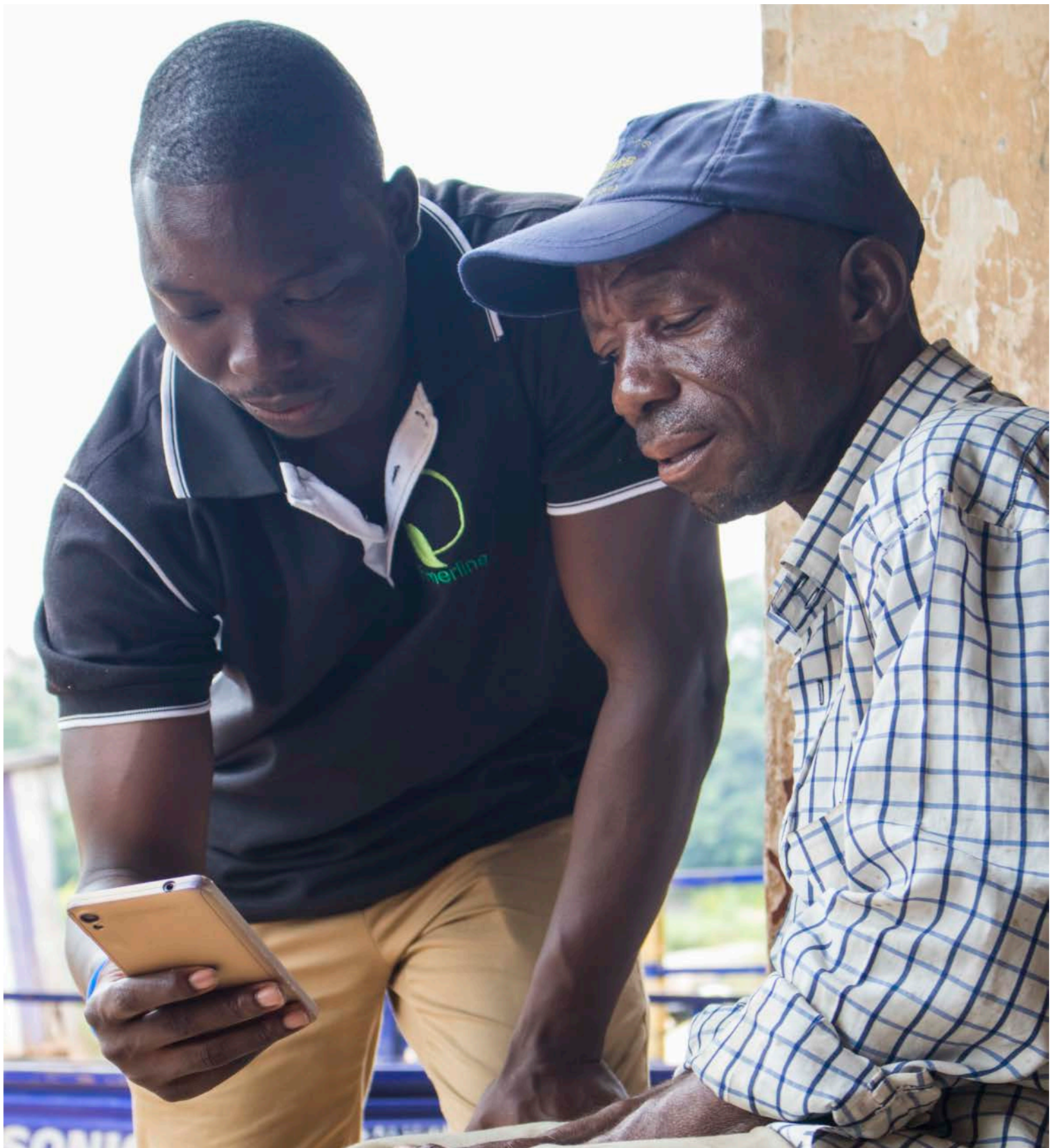
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Farmerline and Beyond

Scaling Beneficiary-Focused Innovation

By Ben Lampe and Marisa Rudolph

Introduction



Farmerline is a technology based social enterprise in Ghana transforming smallholder farmers into successful entrepreneurs. The enterprise has developed a reputation as a prolific innovator as its voice-messaging platform has expanded to a variety of services, broadening its reach to become a leader in agricultural services in West Africa. Farmerline's key business partnerships have allowed the enterprise to reach new geographies and sectors, while it creatively builds communication infrastructure based upon its in-depth understanding of its beneficiaries. This has allowed Farmerline to reach hundreds of thousands of farmers in the five years it has been operating.

Maintaining the trust and understanding of its beneficiaries while continuing to expand into new industries and unfamiliar geographies is key to Farmerline's success. Organizational structures, such as the farmer services team, allow Farmerline to maintain its focus on smallholder farmers as the enterprise continues to grow. The motivation for such dedication to farmers is fueled by co-founder Alloysius Attah's upbringing.

When he was five years old, Alloysius moved from the city to rural Ghana to live with his aunt. For fifteen years, he accompanied his aunt to her 2-acre farm and learned, first hand, the challenges smallholder farmers face. Alloysius gained

Key Points

- Farmerline is a central node in West African agricultural innovation
- Direct beneficiary connection allows Farmerline to create a platform with inherent value
- Rapid innovation and piloting gives Farmerline's services board and ever-expanding appeal.

admission to Kwame Nkrumah University of Science and Technology (KNUST) in Kumasi, where he learned to use a computer and started his first business—an online student photography company called Alloyworld. In his final year of university, Alloysius decided to shift his entrepreneurial focus from students to smallholder farmers like his aunt, generating the idea for Farmerline LTD. with fellow student Emmanuel O Addai.

Inspired by his years of experience in his aunt's fields, Alloysius decided to tackle the challenges faced by smallholder farmers in Ghana.

This unique blend of agricultural and technological experience allowed Alloysius and the Farmerline team to develop technological solutions aimed at transforming smallholder farmers into successful entrepreneurs by increasing their productivity through access to information, inputs, and resources. Over the past five years Farmerline has grown tremendously with Alloysius leading the charge, landing himself on Forbes Africa's 30 under 30 list. Farmerline has been recognized with numerous social entrepreneurship awards, including the SEED Award for innovation by locally led sustainable development enterprises.



Farmerline's beneficiary focus, stemming from Alloysius' own experiences, positions it as a central node within West Africa's evolving agribusiness sector. Because almost fifty percent of the Ghanaian economy stems from agriculture, the sheer size of the agricultural economy provides opportunities to leverage Farmerline's intimate knowledge of farmer's needs, creating monetary and social value for farmers and other partners.

Serving Farmers

Farmerline's main connection to its beneficiaries is the farmer services team, which visits rural communities near its Kumasi headquarters at least twice per week. Using existing community-based agents as their main points of contact, the farmer services team sets up community meetings to talk with farmers, inform them of Farmerline's services, and pilot the numerous programs Farmerline is developing at any given time. By maintaining a consistent presence among the communities it serves, Farmerline is able to accurately assess the needs and values of its beneficiaries. This mutual understanding guides Farmerline in reducing the

burden of technological adoption on the farmers while equipping them with the tools to become successful entrepreneurs. In addition to feedback on current offerings, the attention farmer services pays to smallholder farmers has guided Farmerline in the development of a variety of innovations. Each new innovation leverages simple technologies to offer farmers previously unobtainable resources. By improving the quality of farmers' raw products through education and innovation, Farmerline drives progress through the entire supply chain.

Paytime Loans

Farmerline created the Paytime loan service to make financial resources more readily available to farmers. Farmers are provided fungicides and herbicides during the growing season and begin repayment 2-4 months later, after harvesting. The Paytime app tracks loan repayment, and integrates biometrics like voice and fingerprint recognition to increase credibility and remove the literacy-related issues surrounding contracts. This combination of a harvest-based timeline and biometric accountability provides valuable financial resources where they were previously unavailable.

In an effort to extend capital to farmers, Farmerline created a Paytime loan application that allows them to track the input loans Farmerline distributes to its

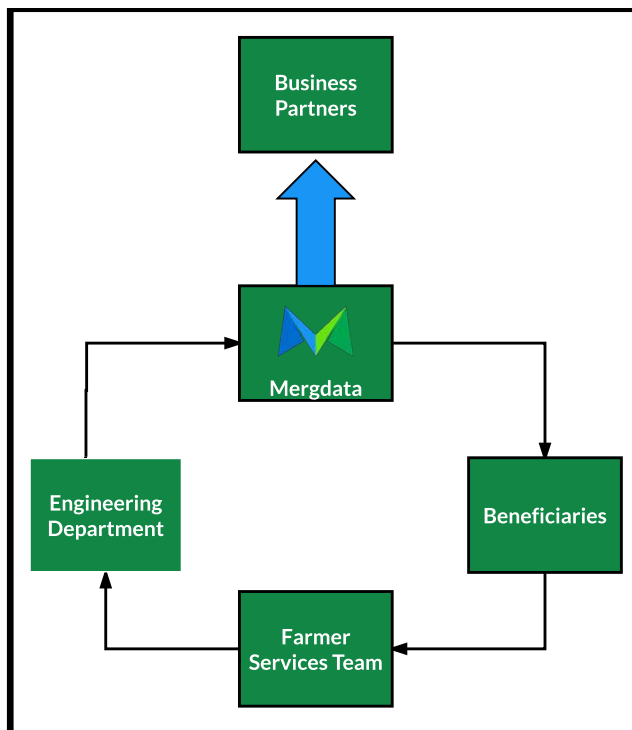


Figure 1: Close beneficiary connections directs Farmerline's development, creating a platform that partners value and help expand

partner communities. This enables the widespread availability of microcredit for economically disenfranchised individuals. The farmer services team runs pilots like the input loan program in Farmerline's partner communities to ensure financial viability and validate impact. Additionally, the pilots allow the farmer services team to gather farmer feedback to improve and guide the development of these new applications. This feedback is relayed to the software development and business development teams who run the results past the relevant partners. Once these teams and their clients are satisfied with the results, the pilot is scaled up to reach all of Farmerline's beneficiaries.

The trust Farmerline builds with smallholder farmers through the presence of its farmer services team enables the company to introduce new technologies, conduct pilots, and find success serving what is commonly considered a low-tech market. Farmerline is disrupting the current form of agricultural extension, allowing agribusinesses and farmers to benefit from the improved market.

Guiding Innovation

Farmerline is intentional about ensuring this attitude of beneficiary-focused innovation is not exclusive to the farmer services team. Every Farmerline employee, whether they are a software engineer or a corporate business associate, goes into the field at least once to connect with the farmers. In this way,



the whole company maintains an awareness of the end beneficiary and is able to communicate the impact to his or her client partners. This ensures beneficiary connection is just as important in Mergdata operations as it is within farmer services operations. Additionally, the company makes sure the information gleaned by farmer services does not remain within the farmer services group. In the afternoon, farmer services team members return from a day in the field, grab some lunch, and sit down to their desks interspersed between the desks of the engineering and business development teams. Desks are a mix of employees from each sector of the business, spread out across the Kumasi office in no particular order, and any new insights from the field are disseminated throughout the company through both formal and informal channels.

One of the more structured methods for inter-departmental communication is the weekly farmer services meetings. They are meant to track team-specific progress, but representatives from other departments, like engineering, are also in attendance to improve their own understanding of farmer needs. They share the details of the latest technology they have been working on, and both groups collaborate to guide the continued development of those new products and services. The end result is continuous cross-department

communication that focuses new development around beneficiary needs and matching solutions to partners who can effectively leverage their impact.

With farmer services providing a guiding compass, the engineering team continuously generates innovative solutions that can be incorporated into the product offering. Many ideas come from the latest technology trends, as engineers work with drones, machine learning, satellite imaging, GIS mapping, and more to find unique ways to provide value to both its farmers and partners. On a regular basis, these engineers present their latest efforts to the entire company. This provides another opportunity for input and guidance from the farmer services team, as well as feedback from other engineers and employees. They work as a group to brainstorm useful applications for farmers, their business partners, and their own internal use. The end result is a portfolio of innovative technologies and successful pilots.

The extent of Farmerline's portfolio seems to raise its own questions of sustainability: how can a small company with a single-digit number of engineers deploy, manage, and operate such a broad and diverse array of technologies? The answer lies in its primary

software offering, Mergdata. Mergdata is the flexible, modular platform that houses Farmerline's services, from voice messaging to cloud-based surveying and GIS mapping. Each of these new services is designed as a module within Mergdata, incorporating mass amounts of data and functionalities into a single flexible and extensible technology platform used by both Farmerline and its business

Drones and Machine Learning

By flying video-equipped drones over fields, Farmerline wants to use machine learning and image processing to determine crop health and manage resources like fertilizers, insecticides, and irrigation. Farmerline has been collaborating with other organizations to use the same techniques on satellite imagery in order to provide regular updates to farmers across entire regions.

partners. When engineers begin work on a new offering, the project gets its own module that can be developed and tested. If the offering is found to be useful, it is quickly and easily incorporated into the Mergdata platform. If a partner tests an offering and finds that it does not match what they need, the engineers can easily go into the module and edit or change the functionality. This eases the burden on the engineers by creating a single platform that is both flexible and extensible in its capabilities, and it allows for scalability through licensing to business partners.

Partners for Scale

Thanks to Farmerline's technological savvy and beneficiary empathy, it has been able to create a software platform useful for a variety of agribusinesses. By licensing its software to agribusinesses, NGOs, and the Ghanaian government, Farmerline dramatically increases its impact, reaching over 200,000 farmers to date, either directly or indirectly. The companies that use the Mergdata platform choose Farmerline because of its in-depth knowledge of the

agricultural ecosystem in developing countries. The platform, created and continually modified with the input of the farmer services team, is tailored to operate in an agribusiness context with the beneficiaries at the focal point. Such a service is a huge asset for international partners such as the Hershey's Company who are a step removed from day to day farm operations.

Farmerline's consistent attention to its beneficiary-focused platform – one that is useful for businesses to increase supply chain management and traceability – merges its social impact with a viable business model. There is unexplored potential to leverage the Mergdata platform for services beyond agribusinesses such as healthcare, education, and financing. Farmerline will begin to explore this new territory as it recently licensed Mergdata to the John Snow Institute (JSI), a Boston-based international public health research and training institute. JSI will use the surveying platform to connect patients with HIV directly to counseling services. While the partnership will initially launch in Ghana, JSI has hopes of scaling it to operations in other countries. While JSI is not an agribusiness, it has similar goals in mind: improving the livelihoods of underserved individuals. That is a language Farmerline speaks with fluency. The majority of Farmerline's business partners value impact creation. By demonstrating specific impact, Farmerline can adapt and extend its alignment of interest across a variety of development fields.

Linking up with Hershey's

Cocoalink is an Android application created by Farmerline in partnership with The Hershey's Company. It is an informational application targeted at cocoa farmers to promote best practices and reinforce the training required for sustainability certifications. Progress and knowledge retention can be tracked through quizzes that operate on a point system, adding a competitive incentive for continued use. The CocoaLink app is not proprietary to Hershey, making sustainable farming knowledge usable by any farmer with a plot of land and a cocoa tree.

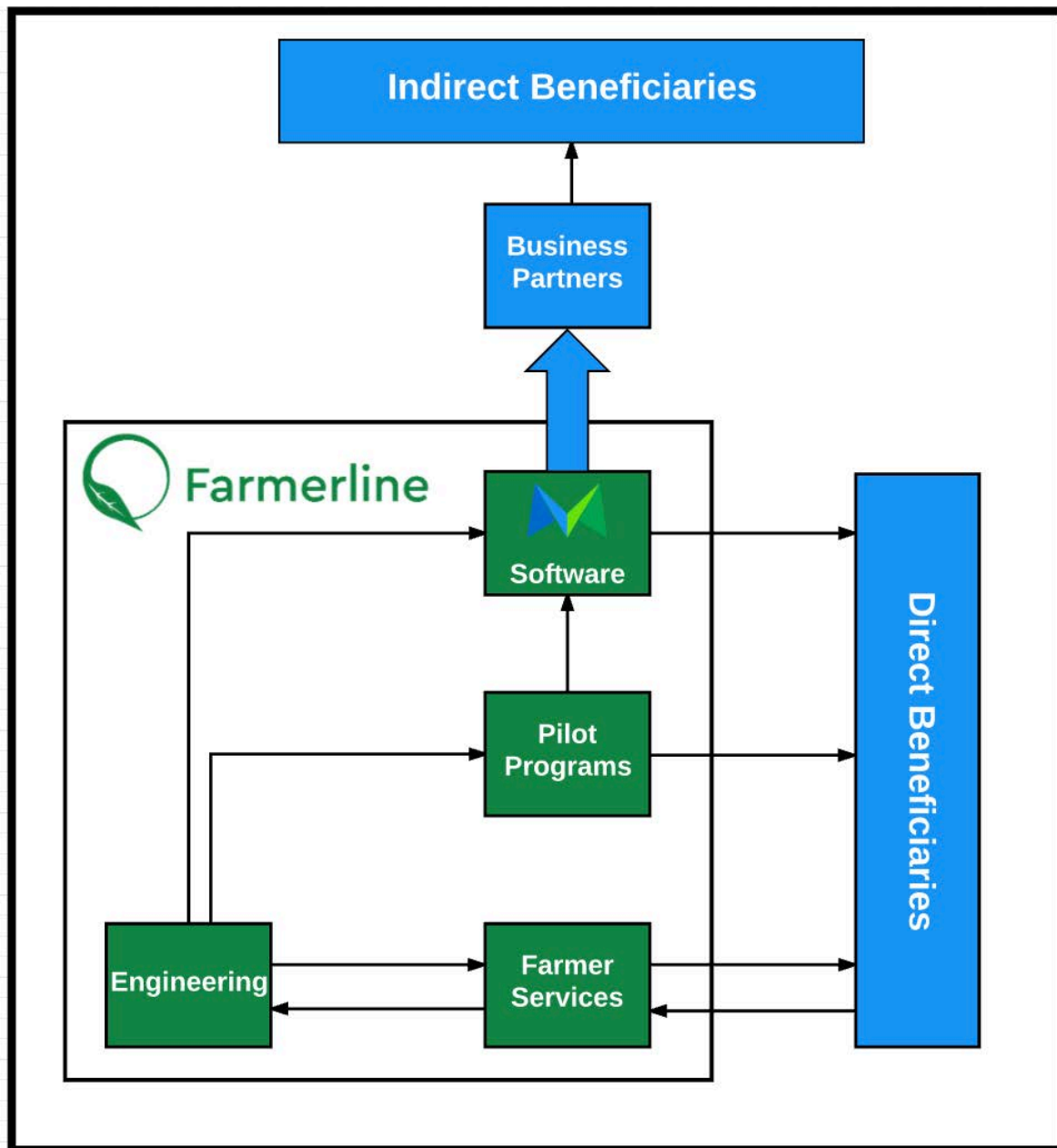


Figure 2: All of Farmerline's internal operations add value to their platform for the beneficiaries and partners using it

Moving Forward

Farmerline has been able to orchestrate rapid scaling and innovation while remaining focused on its end beneficiaries. The result is a portfolio of unique technologies and services that display significant value for both farmers and business partners. The social capital Farmerline creates through farmer services permeates its operations and allows the enterprise to carry out its mission on an ever-expanding scale. Farmerline's impact is expanded by enabling other businesses to achieve their own social goals, generating thousands of indirect beneficiaries.

As it moves into new industries and sectors, Farmerline will need to continue seeking validation for the value of its products. As Farmerline grows beyond farming into new areas of development such as health and finance, farmer services will need to do likewise, maintaining the beneficiary connection -- the root of its value creating capacity. New opportunities will require new social capital. The foundation it has built around farming has evolved into processes and structures that Farmerline can continue to apply to guide its efforts moving forward as it continues to empower emerging entrepreneurs.



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