



# Progressing innovations towards scale-up: From learning to action

**Authors: Robert Berlin & Simon Winter**

August 2021

**syngenta** foundation  
for sustainable  
agriculture

# Introduction

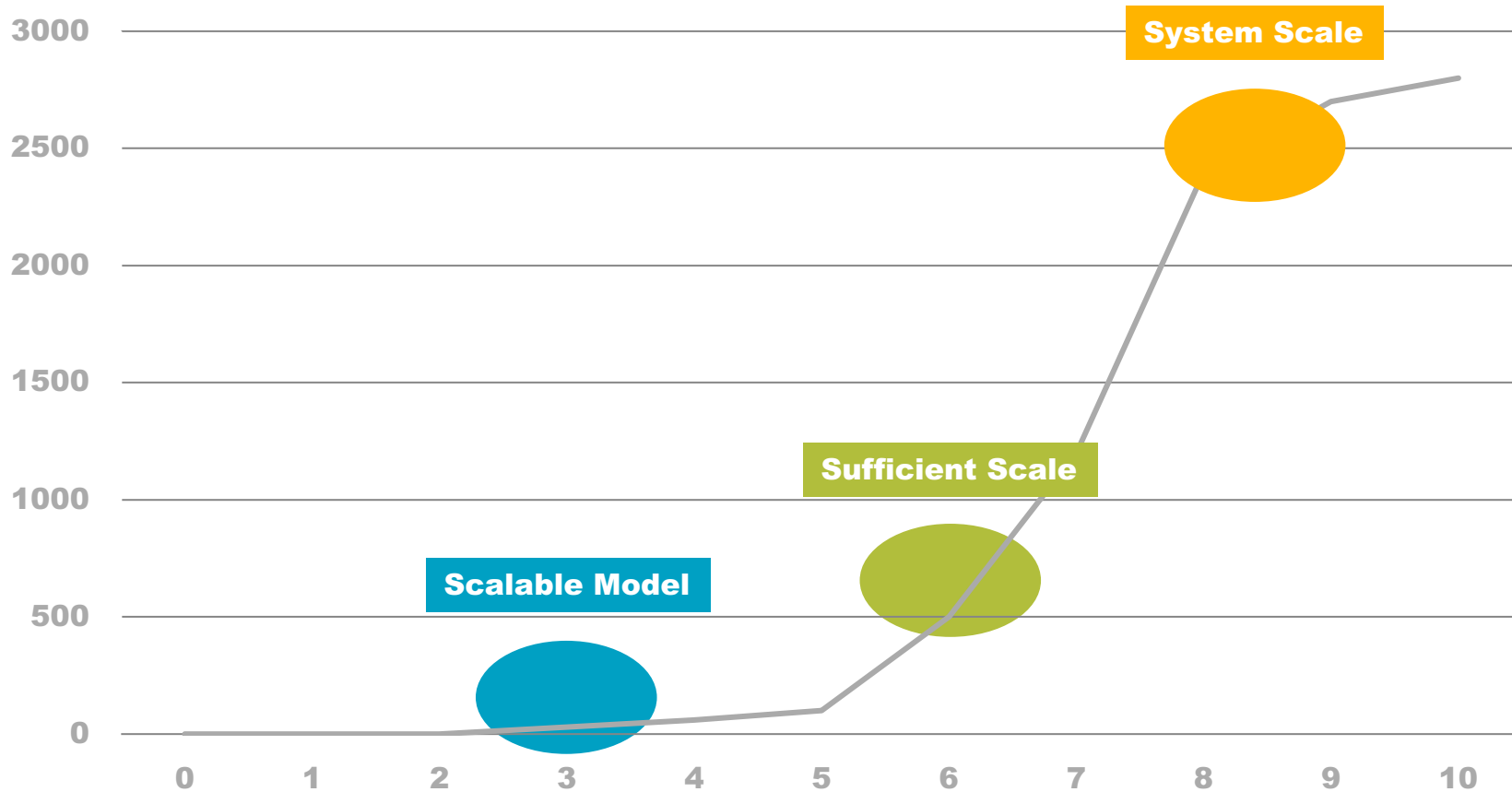
---

**The food-price crisis of 2007/08** stimulated efforts to transform agriculture and food systems. Outside China, however, only a small percentage of low-income smallholders has benefited. Furthermore, climate change is already reducing agricultural yields and productivity, raising food prices, and increasing farmers' exposure to volatile weather, droughts, and floods. All this increases the importance of agricultural innovations and the imperative for their adoption to be scaled-up. Many impact-driven organizations are showing increasing commitment to strengthening their scaling of innovations. However, the innovations to which market actors have explicitly committed delivery and scaling among low-income smallholders remain relatively few in number. The success of scaling in smallholder agriculture is limited.

This is why Syngenta Foundation for Sustainable Agriculture (SFSA)'s work in this area is important. For SFSA, successful scaling means significantly improving and sustaining the incomes and resilience of large numbers of smallholders. Based on its experience, SFSA endeavors to go beyond identifying and developing technological innovations to ensuring they have viable business and delivery models, engaging with or co-creating private sector and multistakeholder organizations to scale them up.

Scaling is an implicit requirement for comprehensive system change that itself is required to tackle the persistent challenges of rural poverty, hunger, and undernutrition, as well as climate change and urban migration. SFSA supports players developing and delivering innovations, as well as smallholders, to achieve positive returns on their investments through a 'scalable model'. Once the model's mutual benefits are proven, the next context-specific milestone is achieving a critical mass of adoption, after which the scaling of an innovation through markets is more likely. This critical mass is the inflection point between the early adopters and the majority of adopters (see Figure 1 below). As this 'sufficient scale' is achieved, businesses, investors and/or governments recognize that the innovation brings benefits and is worth investing in to achieve further growth. Reaching sufficient scale is enabled by many business decisions, including: needs and demand assessments, market segmentation, technology investments, product releases and upgrades, demand creation, and experimentation with delivery models. Further scaling towards system change then happens as industry players accelerate investment, backed by a supportive enabling environment.

## INNOVATION REVENUE – S CURVE (CONCEPTUAL)



- Scalable Model**  
Proof that innovation can make money for smallholders and businesses; positive ROI for innovator
- Sufficient Scale**  
Reach critical mass in meeting addressable market; market players continue to invest; positive ROI for market players including commercialising smallholders
- System Scale**  
Industry players see smallholder potential, accelerate investment into smallholder-relevant innovations with more appropriate business models and supportive enabling environment

Figure 1.  
Delivering Impact at Scale





As a company-supported Foundation, SFSA has some unique features that are building blocks for its role in scaling. They include:

- A thematic focus on seeds, insurance and agriservices requiring a diverse set of partners, business, and implementation models, for its interventions. There is a further possibility for offering various 'bundles' of solutions working across our portfolio, and with partners.
- The Foundation's desired results are wide-ranging – some of them are commercially oriented (market adoption of innovations, increasing farmer incomes), while others focus on diversity and the inclusion of young people, or adaptation to climate change. This creates some additional opportunity to embrace the complexity of scaling.
- SFSA works across Asia and Africa, with around 200 staff working in more than 10 countries. While there are common approaches and organizational structures, processes along the scaling pathway can be adjusted to local context and dynamics.
- SFSA is unusual in spanning the entire innovation-to-scaling cycle. It focuses on transitioning inventions and research into use but does not always take innovations through each stage. If there are market partners ready to take over and serve SFSA's target smallholders, then hand-off can happen at any stage in the cycle.
- SFSA itself lacks the resources to scale. It needs to form partnerships in order to achieve sufficient scale to enable handover to individual businesses or other public, private and other stakeholders.

# Transitioning from pilot to system scale: experiences from SFSA

**SFSA was established in 2001** but its origin goes back some 40 years. Its vision is a bright future for smallholder farming, in which farming is profitable, productive, and resilient to climate change and other environmental threats. Innovations in many forms play a crucial role, and the Foundation’s aim is to make these available, and more rapidly, to many more farmers. Working with a wide range of partners, SFSA takes a science-driven approach to develop sustainable solutions specific to local conditions.

SFSA can draw on some experience in scaling. Our modest successes include seed potato commercialization in Kenya, where one company expanded its yearly production from zero to 2000 tons in four years, benefiting more than 10,000 smallholders. AAA Maize, a locally produced, drought-tolerant, low-cost hybrid, appears to be on a similar trajectory in India. In five years, our Farmers’ Hub model in Bangladesh has progressed from zero to 290 Hubs. These now productively serve 90,000 smallholders. In all three cases, there is considerable scope for further growth. Other examples of scaling efforts are presented in Table 1:

Scaling up pathways		Examples from SFSA	Insights and take away
Using existing market players	<b>RADIO STATIONS</b>	<b>Radio work in Kenya:</b> in collaboration between local governments and local private radio stations. Their agriculture advice reaches thousands of previously under-served farmers.	→ By focusing on an under-served market segment, advice has reached many farmers. Achieving sustainability and scale would necessitate building capacity and a revenue model (e.g. sponsorship).
	<b>SEEDS COMPANIES</b>	<b>Seeds AAA Maize:</b> Handover of new varieties to Indian seed suppliers has led to relatively rapid uptake, from 900 farmers in 2018, to 8000 in 2020.	→ Reaching sufficient scale requires long term commitment from breeding to sales, and strong marketing support.
	<b>NGOS, SOCIAL ENTERPRISES</b>	<b>NGOs</b> operating as hybrid social enterprises, include working with: BRAC, One Acre Fund and MyAgro as distribution channel for seeds and insurance products.	→ By focusing on an under-served market segment, advice has reached many farmers. Achieving sustainability and scale would necessitate building capacity and a revenue model (e.g. sponsorship).

Scaling up pathways		Examples from SFSA	Insights and take away
Partnering with single organisations	<b>PUBLIC RESEARCH INSTITUTIONS</b>	<b>Cinzana Research Station Mali<sup>1</sup>:</b> Large numbers of smallholders still benefit from varieties of millet, sorghum, etc. developed there since the 1980s. <b>BeCA research facility in Kenya:</b> but so far with limited results at any scale since SFSA exit.	→ Reaching scale and sustainability requires long- term commitment and long-term resourcing models from public, private, and philanthropic partners.
Partnering with single business	<b>DIGITAL COMPANY</b>	<b>Farmforce:</b> launched in 2012 with Swiss government co-funding and handed over to an existing company in 2017. Since then, Farmforce has raised additional equity and quintupled the number of farmers served to 600,000 by 2021.	→ Developing the product and reaching sufficient scale before handing over to a company was management intensive for SFSA. Developing a comprehensive business case for investors was a complex process. Patient and purpose-driven private investors have set the company on a scaling pathway.
	<b>FOOD FRANCHISE BUSINESS</b>	<b>Vegetable smallholder supply chain program Qorichacra:</b> launched in Peru with Arcos Dorados. Limited scale due to limited demand for high quality fresh vegetables sourced locally, and impact of economic crisis.	→ Reaching sufficient scale proved difficult given the market size. It needed strong business alignment and patient commitment from partner to generate demand and build a growth business, which was elusive in this case.
Developing social franchise	<b>POTATO SEED COMPANY</b>	<b>Partnership with Kisima Farm to support establishment of a new potato seed company:</b> launched in Kenya with local company. Long development phase due to the need to develop full market system (e.g. regulatory, appropriate technology, market development).	→ Reaching sufficient scale requires long term, dedicated efforts and strong commitment from private partners to develop new products and build capabilities and infrastructure. Path for scale includes facilitated replication by other private actors, in different countries and markets. Slow to occur.
	<b>FARMERS' HUBS</b>	<b>The Farmers' Hub model was developed and calibrated in Bangladesh</b> with an initial group of community-based entrepreneurs. After reaching a critical mass of ~50,000 farmers, a franchise model was developed and proposed to local companies (i.e. off-takers and distributors) to manage Hub networks and scale the model commercially.	→ Several loops of calibration required to develop proof of concept and business case for farmers, Farmer's Hub owners and network managers. Path for scale through continuous adaptation, development of new services, and expansion through a variety of network managers in various settings.
Developing single business licenses	<b>INSURANCE INTERMEDIARY</b>	<b>ACRE Africa:</b> created as a commercial/social enterprise with impact investors, from the Kilimo Salama project. Already benefited nearly 2 million African smallholders with insurance products. Renewal rates and actively insured numbers are much lower.	→ Establishing and initially growing such entities involved a huge management effort for SFSA. Benefited from commercial experience of impact co-investors. Takes time to bring in strategic partners and scaling investors to a specialized business in a sector that is still not well established. SFSA role shifting to large scale pilots and system strengthening.

Table 1. Examples of scaling efforts at SFSA

<sup>1</sup> Established by the Ciba-Geigy Foundation in the 1980', a precursor of the Syngenta Foundation for Sustainable Agriculture

Table 1 shows that SFSA has tried various scaling approaches to transition innovation adoption from pilot to system scale. Overall, we recognize that to scale technical innovations, it is critical to develop viable business and delivery models that can reach low-income smallholders and be placed into the hands of others with the drive and resources to do the scaling. Another insight from SFSA's cases is the challenge of relying on only one scaling entity. Particularly when supporting smallholders, it is typically easiest to proof the concept with those farmers who are better connected and served by existing market players, have better access to infrastructure, and are closer to cities and markets. As sufficient scale is sought, all these enablers become scarcer, and so the importance of continuing to reduce costs and improve efficiencies, as well as embracing adaptation, diversity, and inclusion, increases, as does engaging with systems.

For this reason, reaching sufficient scale often requires partnering with an array of scaling organizations and/or multi-stakeholder platforms (MSPs) to convene the necessary public and private stakeholders and thus tackle challenges across the entire value chain and market systems. This is an ongoing area of research and experimentation for SFSA, as we continue to develop and explore scaling 'catalytic intermediaries' and partnerships, including through philanthropic collaborative programs, philanthropically funded implementers, and/or social enterprises and social impact funds. Overall, our assessment is that as a Foundation we are best placed to support scaling through partnership-based structures, based on strongly aligned purpose and complementary skills, capabilities, and resources (versus 'going it alone'). A good example of how SFSA is doing this is the Agri-Entrepreneur Growth Foundation in India (see Box 1). It focuses on 'last mile' delivery models and robust business cases for farmers, technology innovators, value-chain actors, and investors. As a Foundation, we are continuously evaluating the best pathways for scaling each specific innovation in each particular context

## **AGRI-ENTREPRENEUR GROWTH FOUNDATION INDIA**

*A Syngenta Foundation, Tata Trust and IDH initiative*

The Syngenta Foundation has been developing Agri-Entrepreneurs (AE) in India since 2014. The concept is based on hyperlocal service delivery models to enable access to inputs, technology, knowledge, and markets for smallholder farmers in India. The AE scalable model was developed over a period of three years, through several iterations. Scalability of the model was proven by demonstrating value addition for smallholders and an attractive business proposition for young rural entrepreneurs. Unemployed rural youth are identified, trained, and mentored to help small farmers. Large cohorts of AEs can create transformational impact at scale.

Support from state governments in India, as well as other philanthropic organizations, is contributing to the achievement of scale sufficiency. Showing that the model could be a viable option to service low-income smallholders through hyper local AEs has garnered support from input suppliers and off takers seeking to grow their business. Demand created for more AEs from market players has stimulated the creation of the **Agri-Entrepreneur Growth Foundation (AEGF)** – an entity dedicated to incubating new AEs across India.

With around 1,000 AEs established, this initiative has been recognized by many public and private stakeholders in India as being one of the most successful and scalable initiatives in this space. As a result, Syngenta Foundation India and Tata Trusts, together with IDH, incorporated the AEGF as an independent not-for-profit organization, aiming at achieving system scale. Its vision is to "foster agriculture development through AEs" and the mission is to "launch 100,000 AEs and directly engage 20 million smallholder farmers" in India. Since then, AEGF has been able to collaborate with partners such as Google, Samunnati, and many others, enabling continuous improvement and growth. As of mid-2021, 5,000 AEs are working with a network of around 500,000 low-income smallholders. If demand and support keep growing, scaling can happen across India.

*Box 1. Example of scaling through partnership structure*

# Key learnings and implications for SFSA

Some lessons from SFSA's evolving experience of scaling

1

**Put scale  
as a  
guiding  
principle**

- **Focus early on the scale-up potential.** The necessary forecasting is not easy and requires excellent market assessments, technical, cost and user data, analytical and other special skills to anticipate different growth paths.
- **Understand the policy and regulatory framework,** as well as farmers' awareness, and look to strengthen both, especially when scaling agricultural insurance products and seeds.
- **System change will be important; learn about it by doing.** As indicated above, it is important to embrace systems to be fully inclusive; however, we believe it is also important to be immersed in the systems to understand them rather than being held back by 'analysis paralysis.'
- **Support the private sector to invest commercially,** including with public subsidies. Assessment of feasibility for longer-term private investment, i.e. a pathway from dependence on subsidies, is needed, as private sector partners may not see potential in serving low-income smallholders. Multi-stakeholder platforms can help prove business and economic benefits to change mindsets.



# 2

## Engage scaling organizations

- **Assess investments against scalability** at a very early stage, identifying the route to scale and the role that SFSA needs to play, alongside other needed organizations, at each stage.
- **Be ready to stop initiatives.** Organizations need to make such decisions regularly and manage innovations more efficiently (see proposed stage-gate framework below).
- **Understand which scaling path to choose for certain technologies and services.** The choice will depend chiefly on the likely routes to commercial success, and the extent to which the public as well as private sector needs to be involved (e.g. the need for, role, and type of catalytic intermediaries versus direct hand-off to private companies or government). The strong preference is to work with existing market players, or independent start-ups, rather than have SFSA creating new businesses.

# 3

## Establish the bases for sustainability and long-term impact

- **Generating and designing innovations** requires clear understanding of the problems to be solved. The diverse nature of user groups means consideration must be given to inclusiveness criteria and suitability.
- **Proofs of concept are critical but not enough** to assess performance of interventions at scale. The inclusiveness of different approaches needs to be well understood – for example across age-groups, gender, and income levels. Insights here help to ensure equitable access to agricultural technology and benefit-sharing throughout low-income and marginal farming communities.
- **“Digital” deserves special attention as a scaling enabler.** Digitization uses a range of technologies, channels, and analytic capabilities to help farmers make better production decisions, increase their sales, and lower transaction costs. The use of digital platforms can help scale the delivery of products, services, and market access to smallholders.
- **Catalytic intermediaries and multi-stakeholder partnerships need a commercial base** to manage resource allocation and ensure scaling up continues into the long term, even after the intervention of organizations such as SFSA.

# Shifting SFSA's focus to scaling up

**SFSA's approach to scaling** is evolving and follows the S-curve pattern of Innovation described in the introduction. The objective is to define a standardized approach for scaling SFSA's supported innovations to better achieve its scaling objectives and create significantly more impact. The proposed approach spans four phases: Innovation, Proof of Concept, Development and Scaling Up and is summarized in Figure 2 below. The first two phases correspond to developing the 'scalable model' outlined in Figure 1 above. The latter two correspond to achieving Sufficient Scale and handing off to others to achieve System Scale. The innovation-to-scale process is unlikely to be simple and linear. Feedback loops may mean innovations are reworked at various phases as evidence is gathered.

## ENSURING SCALABILITY OF THE MODEL THROUGH INNOVATION AND PROOF OF CONCEPT

The Innovation phase starts with a clear problem statement. The purpose of this is to confirm the innovation's plausibility as a response to the problem, strategic fit, and intended value for all stakeholders. It should lead to the formal approval of a limited investment to conduct the Proof of Concept.

The topics to be covered (see Box 1) will help to guide the design of the scaling process.

### INITIAL TOPICS TO BE COVERED INCLUDE:

- Generate and define innovation/basic idea
- Issues to address, including initial hypothesis about needs/demand
- Social, environmental, and economic benefit for potential adopters and value-chain players
- Ease and costs with which the innovation can be tried, accessed, and implemented
- Public sector enabling in place; understanding of the political economy
- Innovation project charter – gets updated throughout the scaling cycle

*Box 2. Initial aspects to be covered in scaling up*

The purpose here is to provide a qualitative appraisal of an innovation's scalability. Innovations have intrinsic features that will influence their scalability, and most of the factors affecting scaling potential must be assessed against the characteristics of potential future users in each social, environmental, and economic context. Answers to these topics will support the design and business case for a scalable innovation to solve an identified problem for the selected smallholders. Key activities include: definition of the problem; market research and segmentation; the development of product and service requirements; identification of the innovation through research and/or scouting; the application of human-centered design principles to adapt the innovation to context; a rough estimation of potential costs and benefits for potential adopters and potential delivery partners/market actors; assessment of sustainability aspects (re climate, soil, water, environment, etc.); and, assessment of the state of the enabling environment. Standardized agriculture scalability and/or sustainability assessment tools, such as the Agricultural Scalability Assessment tool (Kohl and Foy, 2018), will be used for this part of the process, to help identify constraints and opportunities for scale.

Following the innovation phase, a proof of concept needs to be conducted. The purpose of the proof of concept is to test the technical, economic, and environmental feasibility and impact in the specific context for scale up (district, state, country), check that the innovation benefits both smallholders and the (prospective) businesses involved and assess the scalability of the models. Questions at this stage include: who benefits from the innovation in action/as adopted and to what extent? What are the best approaches to, and costs of supporting and facilitating, the scaling? How well does innovation 'X' fit into the local enabling (or hindering) environment of policies, regulations,

infrastructure, knowledge, etc. and what if anything may need changing? Key activities involve ascertaining the innovation's specifications, as well as testing and validation of its feasibility in action. Market potential and business models are assessed and tested in relation to needed and interested stakeholders. Value creation and delivery mechanisms are evaluated, and scale-up requirements and necessary resources determined. Estimates are made of the innovation's likely social and sustainability impact. The innovation team identifies prospective partners for future scaling up. Overall, this phase should confirm scalability, draw attention to any need to de-risk the business models and investment, and affirm how best to engage local businesses and partners.





# REACHING SUFFICIENT SCALE THROUGH DEVELOPING END-TO-END SOLUTIONS AND DEFINING PATHWAYS FOR SCALING UP

The phase of development is to confirm scalability, de-risk business models, and engage local partners and businesses. During this phase, SFSA works consistently and gradually to develop a sustainable scaling approach for each innovation to ensure the business case for delivery and prepare for eventual hand-off. Scale-up partners are engaged for delivery and support of the innovations. They are typically private players such as insurance companies, seed companies, input distributors, and output aggregators. A range of contractual mechanisms are used to engage them, including licensing, joint ventures, or open access to the underlying intellectual property. This phase requires solutions to financing questions regarding both the delivery of the innovations as well as the funding of the scaling process. Support must be provided to cross what is often known as ‘the Valley of Death’ (the point where grant and initial project support ends and before critical mass is achieved).

Where targeted smallholders are under-served by existing players, SFSA Agriservices delivery models can play an important role to help innovators, distributors, off-takers, financial institutions, and other parties reach the ‘last mile’ into underserved communities and enhance the potential viability and

scale of smallholder engagement and impact. Government support may well be needed in the form of catalytic subsidies and linkages to extension and training services. In some circumstances, scaling players cannot be found and new forms of public-private or multi-stakeholder partnerships are needed to catalyze and demonstrate the pathway to scaling, until private players become confident to take on the scaling themselves.

SFSA seeks to remain directly engaged until a critical mass of evidence, i.e. sufficient scale, is achieved. From then, it is expected that scaling up becomes mostly driven by market actors. The Foundation has identified three scaling pathways:

1

The first is **using existing market players**, if they have, or are prepared to invest, in delivery channels to low-income smallholders (this is relatively rare).

2

The second is **developing and strengthening last mile/first mile delivery** agri-enterprises, when no functional delivery system exists. We do this through aggregation models that can realize economies of scope and scale.

3

The third option is **developing or partnering with businesses and organizations through multi-stakeholder scaling platforms**, to address market gaps and foster stronger inclusive market systems.

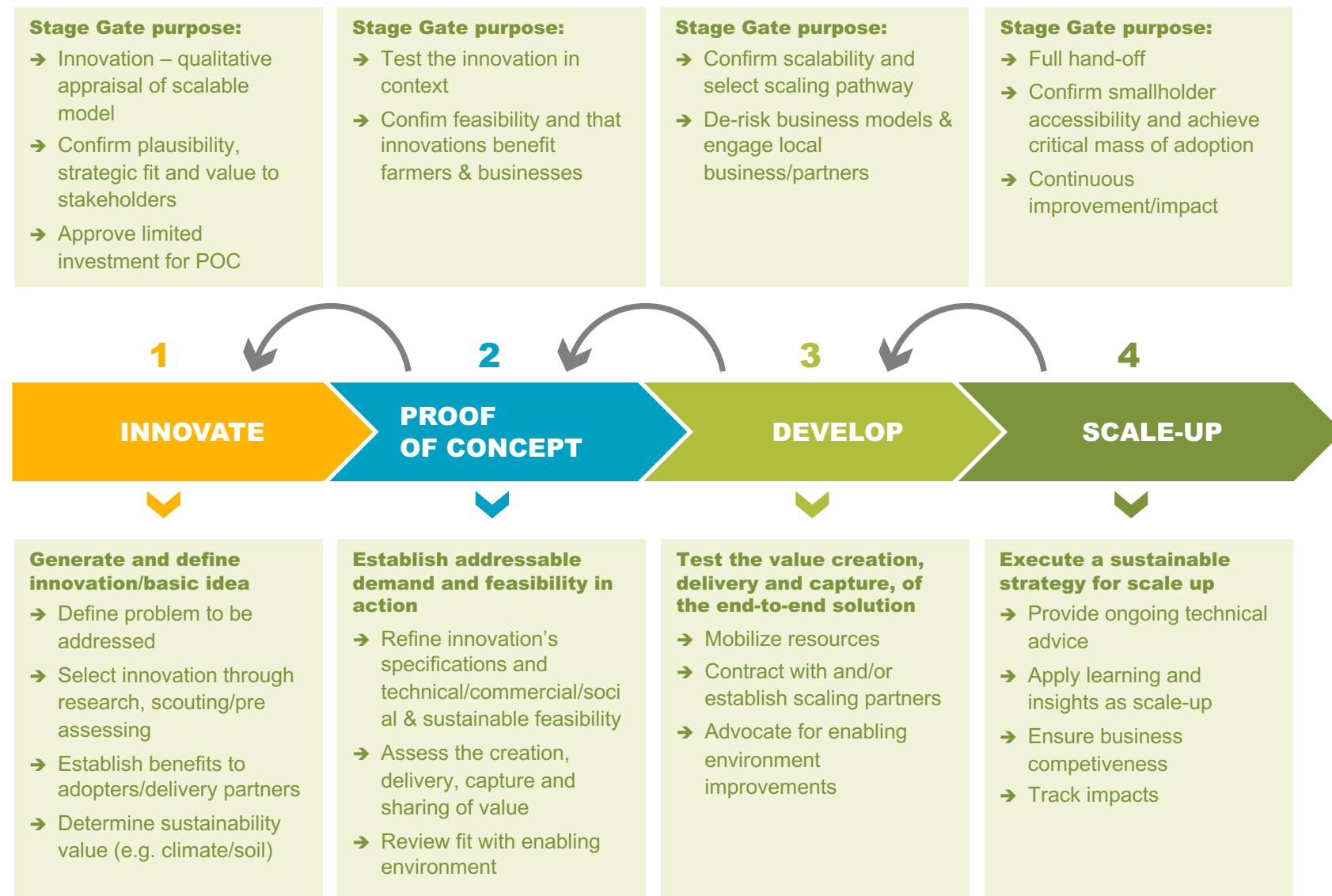


Existing businesses likely focus on the more affluent and better-connected smallholders. To reach the lower income and more remote may require activating pathways 2 and 3 as well. SFSA has categorized a class of organizations that enable pathways 2 and 3 as 'catalytic intermediaries.' These can assist in strengthening market systems and market players to eventually be the scaling agents. Supporting those entities, and ultimately creating them when they do not exist, will be a focus for SFSA. They include MSPs, social enterprises, NGOs, and public organizations. Depending on context and availability, SFSA helps initiate them or joins and supports suitable ones created by others.

In practice, a combination of such options is needed and are worked on under Phase 4 of SFSA's scaling framework. During this phase, SFSA engages/develops scaling partners and prepares for hand-off, while sufficient scale is being achieved.

# ACHIEVING SYSTEM SCALE THROUGH SOUND EXECUTION OF EXIT STRATEGIES

Given that poorer smallholders are often excluded as the private sector crowds in, and catalytic intermediaries are needed, SFSA's hand over rarely happens at a single moment in time for all market segments in a particular geography. As SFSA hands off and seeks to exit as an active partner, it moves to providing arms-length advice and monitoring progress and impact as scaling proceeds, typically through a range of governance, advisory, and data-sharing arrangements. SFSA helps ensure sustainable social, environmental, and economic impacts are achieved during the scaling phase, by helping scaling partners apply learning and insights, as well as supporting improvements in business competitiveness over time.





# Conclusions and future research areas

---

**With the UN Food Systems Summit** happening in late 2021, there is increasing global focus on not just scaling individual technologies and services, but in looking at how to encourage broader system change. SFSA is supporting a number of discussions and partnerships that can enable system change, including through MSPs. It is an area where SFSA will continue to focus and look to strengthen its contributions by researching, convening, participating, and strengthening existing MSPs and catalyzing new ones. We look forward to continuing to interact with partners with similar interests and ambitions.<sup>2</sup>

SFSA is aware that even if successes have been limited, there is already a strong body of accumulated experience. Yet, there is still much to learn. Going forward, we will give attention to the following areas:

→ **Assessing performance of innovations at scale.** Pilot projects in agricultural development rarely provide all the information needed to assess performance of interventions at scale (Woltering et al. 2019). At the same time, the inclusiveness of different approaches needs to be well understood – for example, across age-groups and gender. Insights here help to ensure equitable access to agricultural technology and benefit-sharing throughout low-income and marginal farming communities.

→ **Appropriate scaling paths.** SFSA's experience suggests a need to improve our understanding of which scaling path to choose for certain technologies and services. This includes the role and type of scaling partners, and how and when to hand-off to private companies or government. SFSA will continue refining its scaling approach and exchange with like-minded organizations, to enable more learning opportunities and improve chances of success.

→ **Role of Multi-Stakeholder Platforms.** Unless there are already well-established market channels to low-income smallholder communities, it is very challenging to work only with existing players when scaling. To achieve a critical mass of adoption that will convince existing players, MSPs or other forms of catalytic intermediaries will be needed. This requires more understanding on the motivation, structure, and effectiveness of various types of MSPs. It also requires better differentiation between the MSP participants: funders (e.g. multilateral, bilateral, foundations), catalytic operating organizations (e.g. SFSA, IDH, AGRA, WFP, some digital players) and businesses taking a social impact route to long-term commercial viability (e.g. OCP, Mastercard, Rabo Partnerships).

<sup>2</sup> This includes the Scaling Community of Practice, see: [www.scalingcommunityofpractice.com](http://www.scalingcommunityofpractice.com)



Additionally, continuous lessons learned will be drawn from several of SFSA's flagship scaling programs. They include:

- In India, [Agri-Entrepreneur Growth Foundation \(AEGF\)](#) cited above. An important building block was creating the AEGF as an independent MSP with Tata Trusts and IDH. We welcome more core partners in the future. For scaling purposes, AEGF cements strong partnerships with users of the platform including local governments as sponsors, businesses to manage networks of AEs, and educational institutions to build their capabilities. Work continues on exploring the additional services and value-adding that AEGF can provide (for example, as a platform for testing and scaling diverse technology and service innovations) and its own commercial sustainability.
- In Africa, the Seeds2B program helps commercialize publicly bred seed varieties, under which the [Seeds for Impact program \(SIP\)](#) seeks to strengthen selected African seed companies. To scale beyond what SFSA

can achieve alone, it is looking to establish Seeds2B Africa as an MSP with additional partners, so that it can support seeds for commercialization at an increasing rate, with seed companies benefiting large numbers of smallholders.

- In Bangladesh, our [insurance initiative, itself a MSP](#), is ready to achieve the critical mass of policies sold to smallholders necessary to attract investment and crowding in the private sector. Digital solutions will play an important role in enabling the scaling process. By doing so, farmers will more likely have access to insurance products, thus mitigating the risks inherent to agriculture in this country.

This document demonstrates SFSA's progress towards a disciplined pathway to scaling. Based on its experiences so far, the four-phase approach described above has been developed to help SFSA and similar organizations to manage innovations more efficiently. We welcome feedback. In addition, the above flagships are moving forward as MSPs, and additional partners are welcome.



# Acknowledgements

---

Syngenta Foundation for Sustainable Agriculture wrote this paper. The authors thank reviewers Julie Howard, Richard Kohl, Johannes Linn, and Larry Cooley for their suggestions and feedback. All remaining faults are the responsibility of the Foundation.

## GLOSSARY OF TERMS

The definitions given here are intended to give readers a quick idea of SFSA's understanding of the terms in question, not to be the final reference source on the topic.

**Catalytic intermediaries** – For SFSA, catalytic intermediaries can be NGOs, social enterprises, public institutions, foundations, and multi-stakeholder platforms (MSPs) used in the dissemination of innovation.

**Innovation** – For SFSA, an innovation is a feasible relevant offering such as a product, service, process, or experience with a viable business model that is perceived as new and creates value for smallholders.

**Scalable Model** – For SFSA, it is the proof that an innovation can make money for smallholders and businesses involved.

**Scaling up** – for SFSA, successful scaling means significantly improving and sustaining the incomes and resilience of large numbers of smallholders.

**Sufficient scale** – For SFSA, it means reaching critical mass in an addressable smallholder market, which is necessary to ensure players will continue to invest.

**System scale** – For SFSA, it means that industry players see smallholder potential, and accelerate investment into smallholder-relevant innovations with more appropriate business models and a supportive enabling environment.

## REFERENCES AND FURTHER READING

Cooley L. (2019) Summary and recommendations, Scale up conference; Purdue University:  
<https://docs.lib.purdue.edu/cgi/viewcontent.cgi?article=1012&context=scaleup>

Gerard, J. Ubels and L. Cooley (2019). "Scaling – from “reaching many” to sustainable systems change at scale: A critical shift in mindset." Agricultural Systems **176**: 102652.

Hartmann, Arntraud & Linn, Johannes. (2008). Scaling Up: A Framework and Lessons for Development Effectiveness from Literature and Practice. SSRN Electronic Journal. 10.2139/ssrn.1301625.

Kohl and Foy (2018). Guide to the Agricultural Scalability Assessment Tool for Assessing and Improving Scaling Potential of Agricultural Technologies. USAID (2018)

IFAD, 2017. “IFAD’s Support to Scaling Up of Results. Evaluation Synthesis.” Report No. 4407

Schut, M., C. Leeuwis and G. Thiele (2020). "Science of Scaling: Understanding and guiding the scaling of innovation for societal outcomes." Agricultural Systems **184**: 102908.

Shilomboleni H., Owaygen M., De Plaen R., Manchur W., Husak L. (2019). Scaling up innovations in smallholder agriculture: Lessons from the Canadian international food security research fund. Agricultural Systems **175** (2019) 58-65

World Bank. 2004. “Reducing Poverty, Sustaining Growth: Scaling Up Poverty Reduction. Case Summaries,” A Global Learning Process and Conferences in Shanghai, May 25-27, 2004.

Woltering L. et al. (2019). Scaling – from “reaching many” to sustainable systems change at scale: A critical shift in mindset. Agricultural Systems **176**: 102652