

IDS Bulletin

Transforming Development Knowledge

Volume 53 | Number 1 | February 2022

THEORY-BASED EVALUATION OF INCLUSIVE BUSINESS PROGRAMMES

Issue Editors **Giel Ton and Sietze Vellema**



Notes on Contributors	iii
Introduction: Contribution, Causality, Context, and Contingency when Evaluating Inclusive Business Programmes Giel Ton and Sietze Vellema	1
Systems, Sapiens, and Systemic Change in Markets: The Adopt-Adapt-Expand-Respond Framework Ben Taylor and Jake Lomax	21
Using Theory-Based Evaluation to Evaluate Systemic Change in a Market Systems Programme in Nepal Edward Hedley and Gordon Freer	43
Assessing the Contribution to Market System Change of the Private Enterprise Programme Ethiopia Giel Ton, Ben Taylor and Andrew Koleros	63
The Search for Real-Time Impact Monitoring for Private Sector Support Programmes Fédes van Rijn, Haki Pamuk, Just Dengerink and Giel Ton	87
Monitoring Systemic Change in Inclusive Agribusiness Sietze Vellema, Greetje Schouten and Marijn Faling	103
Assessing Contributions Collaboratively: Using Process Tracing to Capture Crowding In Marijn Faling	123
Understanding Behaviour Change in Theory-Based Evaluation of Market Systems Development Programmes Jodie Thorpe	141
Glossary	165

Systems, Sapiens, and Systemic Change in Markets: The Adopt-Adapt-Expand-Respond Framework*

Ben Taylor¹ and Jake Lomax²

Abstract Systemic change is universally desirable and poorly defined. This article seeks to refine a practitioner-developed framework – Adopt-Adapt-Expand-Respond (AAER) – for conceptualising systemic change, and offers case studies to demonstrate its utility in planning for and measuring such change. To do so, the article firstly seeks to define the nature of a system and the components of change within that system. It also discusses the relevance of behaviour change among both actors and institutions in conceptualising systemic change. Finally, in exploring the utility of AAER throughout the implementation of development interventions, it examines the role of the framework in adaptive management: utilising data on observed changes to alter programme intervention tactics.

Keywords systemic change, market systems development, sustainability, adaptive management, monitoring, M4P, feedback loops, institutional economics.

1 Introduction

Considering something as 'systemic' sometimes seems to be shorthand for politicians, academics, or practitioners to refer to something 'important', without necessarily understanding what it is or how it came about. Talk of systemic change abounds in the area of market system development, but clarity in understanding is needed. The opposite of systemic change seems to be consistently considered as undesirable – change that is temporary, superficial, or tokenistic. It seems logical, then, that systemic change should be something we seek – and to do so, we need to be able to plan for it and measure whether or not it has happened.

This article further develops the Adopt-Adapt-Expand-Respond (AAER) framework, introduced by Nippard, Hitchins and Elliott (2014)

© 2022 The Authors. *IDS Bulletin* © Institute of Development Studies | DOI: 10.19088/1968-2022.103



This is an Open Access article distributed under the terms of the Creative Commons Attribution Non Commercial 4.0 International licence (CC BY-NC), which permits use, distribution and reproduction in any medium, provided the original authors and source are credited, any modifications or adaptations are indicated, and the work is not used for commercial purposes.

The *IDS Bulletin* is published by Institute of Development Studies, Library Road, Brighton BN1 9RE, UK
This article is part of *IDS Bulletin* Vol. 53 No. 1 February 2022 'Theory-Based Evaluation of Inclusive Business Programmes'; the Introduction is also recommended reading.

in the world of implementers of market systems development (MSD) programmes. It highlights the utility of the framework to a research and evaluation audience in planning for and measuring systemic change. To do so, the article utilises and clarifies some key concepts for understanding the market system as an interconnected set of transactions within an institutional environment, where interventions look to address market failure. It highlights how behaviour change is a key outcome of MSD interventions, both in changing the role of direct value chain actors and in supporting functions and institutions. Ultimately, this article wants to present AAER as a tool to plan for and measure systemic change in markets.

The article builds on practitioner-led literature on Making Markets Work for the Poor (M4P) (stemming from Springfield Centre 2008), which in turn builds on academic work in new institutional economics (North 1990; Williamson 2000). In establishing the desire for systemic change in development, a general awareness of the critiques of aid (Easterly 2002; Moyo 2010) is useful. To comprehend the difficulties of delivering on and measuring systemic change, an understanding of complexity in development is also useful (Ramalingham and Jones with Reba and Young 2008; Taylor 2014).

The AAER framework itself emerged from the practice of the Katalyst programme in Bangladesh in 2014 (Nippard *et al.* 2014) but the confusion about its concepts has led to continued attempts to clarify its usage and prevent inconsistent application in programmes (Taylor 2016; Lomax 2020). These various attempts may even have increased the confusion for practitioners, with their emphasis on unmeasurable notions of change using the lens of complex adaptive systems (Cunningham and Jenal 2016). Others have conflated aid-led private sector partnerships or interventions with the more complex innovation and system-level changes in markets (FSD Kenya 2016). This article represents an attempt to capture learning to date, refine the framework, and showcase its use by employing stylised case studies with two intervention arms that illustrate the breadth of MSD interventions. Further, the article discusses the framework's dual purpose in both planning for and measuring systemic change that results from MSD programmes.

The article is structured as follows: Section 2 presents the boundaries of the market system as commonly used in MSD programmes, and clarifies the system components and interactions that MSD interventions seek to change and monitor. Section 3 then serves to define the AAER framework and its components. Section 4 uses illustrative examples to demonstrate how AAER can be used to develop a vision of where activities need to focus, and how it helps to identify indicators that can capture (early signs of) systemic change. Section 5 then concludes with an agenda for further application of the framework.

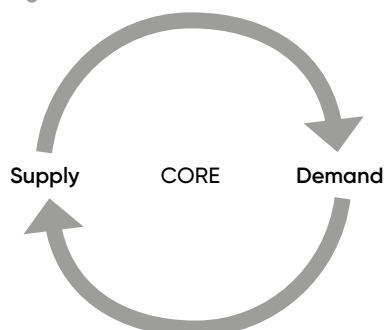
2 Market systems

MSD is a practitioner-derived approach to development interventions based on new institutional and transaction cost economics. It aims to provide an analytical framework and some guidance on interventions geared towards large-scale, sustainable social change. Over the years, discourse within new institutional economics has engaged in debate about how different levels and scales can be combined to analyse the institutional arrangements in markets, including the categorisation of organisations and institutions within this ambiguity. Add to this the considerations of varying economic rationality among individuals and you get a confusing picture of individuals, organisations, and institutions, all with relative autonomy and agency but all constrained by social structures (Agora Global 2019).

These structures and institutions provide the mental orientation or resources for individuals to act, but at the same time these individuals may act to change, tweak, or evade it (Coase 1992; Cheung 1983; Ménard 2004; North 1990). For example, a law might traditionally be considered as a 'solid' institution from the point of view of an individual, but unpacked, that institution would reveal several organisations comprised of several individuals, each with a role to play in developing, changing, or enforcing that rule (Ramström 2018). Further, many firms look for ways to avoid the costs and capitalise on the benefits of that law, not only when paying taxes but in other forms of patronage which capitalise on related individual, organisational, or social characteristics.

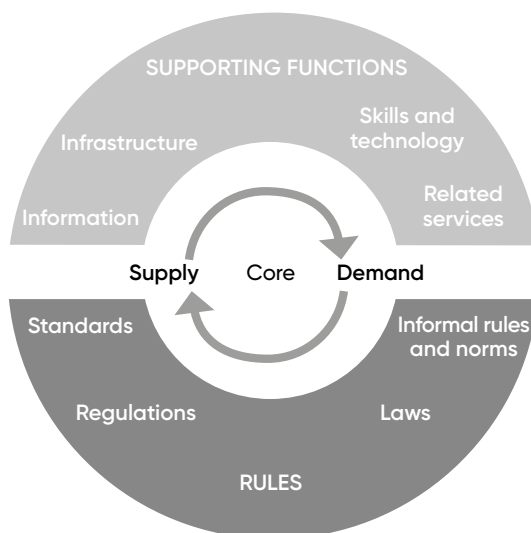
Markets and institutions do not change their behaviour; people change their behaviour. Without behaviour change among at least some of the actors who make up the institutions in the market system, no systemic change takes place. Here, most analytical frameworks of MSD have been lacking – simplistic and focused only on those actors who have a direct engagement with an intervention and ignoring (or taking for granted) the actors who have an indirect influence on the transaction in the market.

Figure 1 Core transactions



Source Springfield Centre (2008), reproduced with permission.

Figure 2 Market system diagram



Source Springfield Centre (2008), reproduced with permission.

MSD has a relatively straightforward way in which systems are conceptualised and depicted. MSD, as an approach that is designed to facilitate intervention for social change, applies specific boundaries to the system that is being analysed. In this market system, the 'actors' at the core (Figure 1) of the system diagram (Figure 2) are the target group – those whom the development actor wishes to benefit from an intervention. Every other component of the institutional web of the market is incorporated only when it has a function in the delivery of the core transaction.

2.1 Core transactions

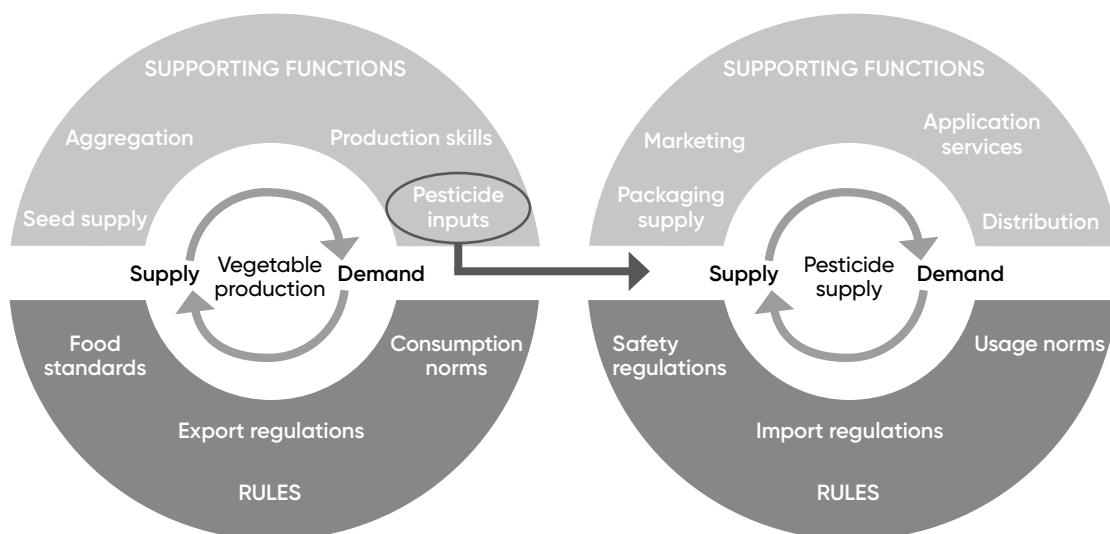
Market systems are composed of transactions. One party supplies – goods, services, labour, employment, or rights – and another party receives. This does not necessarily imply direct communication between both parties. Linking supply with demand is the core function of markets.

Who plays each of these roles varies according to the nature of the transaction. However, in market system development, the target group – the poor or disadvantaged – should always play the role of either supply or demand in this central transaction.

2.2 Supporting functions and rules

This core transaction is enabled or inhibited by a range of functions and formal and informal rules. These can be divided into the supporting functions and rules that affect supply, the supporting functions and rules that affect demand, and the supporting functions and rules that affect exchange (Figure 2).

Figure 3 Principal and supporting markets



Source Adapted from Springfield Centre (2008).

Take, for example, agricultural production. The supporting functions and rules affecting supply include input supply, labour availability, and agricultural information. For demand, relevant supporting functions and rules might include marketing and informal norms around consumption behaviours; while for exchange, important supporting functions and rules might include infrastructure provision, market information, and export regulations.

2.3 Nested and interlinked systems

Every one of the supporting functions or rules – whether related to supply, demand, or exchange – can be placed at the core of a nested market system diagram and each forms part of its own supply, demand, and exchange transaction. This is, in turn, enabled or inhibited by its own supporting functions and rules. As such, it can be conceptualised as a network of market system ‘doughnuts’, or even as a ‘galaxy’ of interlinked and nested system objects (Figure 3).

In the example here, where the core transaction relates to agricultural producers selling to consumers, the conditions of the input supply will influence the price, quality, and quantity of the agricultural produce in the core transaction. Examples of supporting functions of the input supply support system might include, on the supply side, finance or skills required to develop new products, or on the demand side, the distribution to get inputs to rural areas or the marketing required to increase the quantity of demand. Rules might include licences that increase

the price of exchange or norms around use of chemicals which affect demand.

This represents a stylised version of what an interlinked system looks like. The diagram imposes a notion of order on the complexity and messiness of the markets in the real world. In order to stimulate a change in a system, or at least observe how change is happening, one must understand the core transaction and how the outcomes of it are influenced by the supporting functions and rules which surround it. Understanding these functions and rules, the interactions between them, and how they affect outcomes in a core transaction allows for a vision of how they might work differently to improve these outcomes.

This conceptual framework for understanding market systems means that the boundaries of the system of interlinked market systems are, potentially, indefinite. Even in a simple system, one might conceive of a market system of a processor, a producer, and an input supplier. For example, there might be a relevant market system of research that might produce the basic seeds for propagators that delivers to a market of input suppliers. The boundaries of the system, therefore, are a key part of market system analyses; they are often pragmatically defined (and redrawn) based on expert judgement and influenced by factors such as the exact definition of the development challenge that is addressed, the potential to influence certain actors or components, and the likelihood and speed or scale of the envisaged impact.

Importantly, the conceptual framework is flexible, pragmatic, and intuitive, and is designed to help understand a market in order to reach an outcome for a target group. It is **not** designed to reflect how the system **should** work – governance and institutional change programmes are most often normative about what the institution should look like (e.g. the nature of a rule, which actor should perform which function, which functions **need** to be performed). In MSD, the object of study (and eventually intervention) is the observed realities of the market as it works for the target group. Instead of being normative about market structure or the type of actor who **should** perform certain functions, the main normative aspects of MSD are the definition of the target group and the outcome of interest that a programme might seek to achieve. A desirable outcome is placed at its core and the analysis is about enablers and barriers to its realisation.

3 Capturing the systemic change with the AAER framework

As documented above, intervening to affect systemic change is about altering functions and rules, or 'structures'. It is not aimed simply at the technological uptake of a new product or service if that does not alter the way the system operates for the benefit of the target group. It can be referred to as an innovation in the way the system operates, with an innovation being defined as:

A change in the way that one or more supporting functions and rules of a principal or support system operate(s) that confers a benefit to the target group in the principal system. This will consist of one or more actors changing their behaviour in one or more ways.

Based on the goals of sustainability (Mosley and Taylor 2014) and scale of impact at this system level, the changes in the performance of supporting functions and rules identified above must demonstrate:

- uptake, ownership, and investment by relevant actors within the system, in the absence of external involvement;
- increased impact over time, creating more benefits for more people in the target group;
- changes in other supporting functions and rules to stabilise or augment the impact of the innovation (Taylor 2016).

Market systems development needs to be evidence-based rather than normative in the choice of support interventions. This is in contrast to many approaches to private sector development that utilise predefined instruments such as matching grants, credit guarantees, or capacity building. This means that there is significant discretion for implementers as to which instruments to deploy. They need to continually monitor and adapt their intervention depending on the degree to which it is achieving progress towards systemic change. However, in order not to lose sight of the various intended pathways of change, it requires a way of systematically monitoring what they hope to achieve.

A useful heuristic for achieving these objectives is the Adopt-Adapt-Expand-Respond (AAER) framework, also called the **Systemic Change Framework**. As defined in the Merriam-Webster dictionary, a heuristic is an 'aid to learning, discovery, or problem-solving by experimental and especially trial-and-error methods... [they] utilise self-educating techniques... to improve performance' (Merriam-Webster 2021). While uptake has been broad in the professional field by implementers of MSD programmes (Jenal and Gray 2019; DCED 2017; Samarth-NMDP 2015; Kosoris 2018), like many heuristics that have evolved from practice, the framework's theoretical foundations are unclear and its use pluralistic. The four key components of the AAER framework are explained below.

3.1 Adopt

In the first instance, the role of an agent external to a system, such as an MSD programme, is to identify what change is needed – which of the supporting functions and rules within a system are underperforming, how might they perform better, and what actions should be taken to bring that change about. This assumes that the system is not generating this solution of its own accord and so programme interventions to instigate an innovation are necessary.

Adopt is a process where an innovation in the operation of one or more supporting functions or rules of the market system is introduced, and ownership over it is gradually institutionalised or adopted by the relevant actors in the system. This will involve action by different actors that perform different roles in the systems. In Adopt, for example, a programme could be testing a technology or refining a product or service in partnership with one or more firms whose incentives are expected to be similarly aligned should the innovation be successful. It may be the case that multiple models of innovation fail at Adopt – constraints may be too strong and intractable, or the barriers to seize the opportunities are too high (e.g. costs), to warrant further programme investment.

There are two main criteria against which innovations generally fail in Adopt. Firstly, even with programme support, various actors who are needed for the innovation may not see the benefit of the change in their practice and may stop that behaviour. Potential reasons for the failure here are numerous. Incentives may not be sufficient to sustain the behaviour change, personal circumstances or the wider social or economic environment may shift, or it may be as simple as personalities being un conducive to continuing the new relationships.

The second criterion is whether the model actually leads to the intended outcomes. Development programmes have a pro-poor objective in mind. Because the programme aims to improve the scope for the target group to realise improved outcomes, when an innovation fails to impact upon them, it cannot be considered as being a systemic change within that system.

In the example above, a programme might want to change the way in which farmers access inputs, changing the performance of the input supply function. In the support market, the innovation may be a new way for input supply companies to use rural distribution networks. Considering both the core market and the linked-support market systems, it will be clear that the adoption of any innovation requires several behaviour changes by various actors. The input suppliers may need to seek access to information on new inputs, source a supplier, decide to spend the necessary money to acquire the inputs, instruct staff to promote them and so on.

Meanwhile, farmers need either to seek or otherwise receive information on the availability and use of these inputs, decide to spend and then proceed to spend the money on them, invest in ground preparation, allocate time to tend to the crops and so on.

In most cases, there will also be several further changes needed in the practices of other actors for the innovation to have an impact. The department of trade might need to proactively permit the import of new products or introduce quality control

on the imported seeds or veterinary products that farmers cannot easily observe themselves, in order to close the door to harmful behaviour of opportunistic input sellers. And, when the goal is about income change rather than simply yield, there are several actors on the demand side whose behaviour will need to change to ensure that they buy the right quality of produce at the right prices to sustain the farmer's new practice and to ensure that the theory of change holds. Mapping – and continually adapting this mapping – of these market actors and the behaviour changes necessary helps programmes to determine where an intervention is and is not working and why, as part of adaptive management.

3.2 Adapt

As a component of the systemic change framework, **Adapt** refers to sustained behaviour change by relevant actors. The actors involved in the innovation – both those who were supported by the programme and those who weren't – must have adopted new behaviour for the model to work. They need to incorporate this into their 'normal' operations, without the need of programme resources, with their own investment of time, money, and other resources. Evidence of institutionalisation is often seen not so much in the continuation of the initial adopting practices (particularly if that behaviour was the result of external stimulus), but is evidenced by continued refinement and alteration of these practices to the dynamic realities of each actor (Glover *et al.* 2019).

In response to different conditions, this adaptation process can vary a lot between different actors, such as groups of farmers, and can result in different pathways that might even create the need to identify and map a different subsystem, such as organic producers for export versus smallholder production to local markets. Moreover, the process of institutionalising the changed behaviour – moving from Adopt to Adapt – will happen at the system level only when there is an appropriate configuration of supporting functions. Many of the supporting actors involved in the innovation will start to experience the results of the innovation and adjust their behaviour for their own purposes. For example, after a successful adoption of a seedling provisioning programme with programme support, the same provisioning system might, with other crops, become reliant on bank loans instead of project funding. In the Adapt phase, the initial arrangements between the market actors are fine-tuned through experiential learning and in response to changing market dynamics.

3.3 Expand

Expand is about pushing the boundaries of the innovation – scaling the process in order to have more benefits for more people. Expand is not the repetition of a support intervention or partnership but an expansion of the change process in the market system, including both scaling and deepening, with various mechanisms that underpin these processes (Table 1).

Table 1 Components and mechanisms of Expand

Change		Mechanisms
Scaling	Deepening	
<ul style="list-style-type: none"> ● New geographies ● New segments of target group ● Income groups ● Inclusion of marginalised segments – women, minorities, etc. 	<ul style="list-style-type: none"> ● Lower costs ● Higher incomes from products ● Greater health or wellbeing benefits ● Better resilience and protection of future incomes through disease resistance or genetic diversity 	<ul style="list-style-type: none"> ● Imitation of practices of the original beneficiaries ● Strengthening of existing actors ● Roll-out at scale ● Involvement of new actors ● Expansion to new geographies ● Increased competition ● Lower transaction costs ● Further innovation

Source Authors' own.

Imitation of functions or products and increased competition between firms to serve the changed market are often early signs of sustainability. If others are not imitating or emulating innovations, this can be indicative of more fundamental problems in the way the system operates, including information transmission blockages or high entrance costs. As a result, a programme might want to re-engage in order to include new actors or new areas.

Once an innovation has proven its worth, the risk for other 'imitating' actors will be lower. It may also be that the programme initially targeted easier-to-reach areas and so heavier programme involvement is required in order to push impact into more marginal areas. Different partners also have different needs determined by their capacities, and so the type of programme support might also differ from that in the initial innovation.

The obvious group to look at for a change in behaviour that enables the innovation process to expand and scale are the actors who play similar roles in the system – often competing companies or, for changes in rules or sector policies, different government departments. If these new actors change their behaviour, adopting relevant aspects of the innovation – such as ways of packaging, seedling distribution models, certification systems – the systemic change triggered by the pilot innovation will expand and affect more people. Using the previous example on distribution and marketing of agricultural inputs, the new model may have been successful in that the marketing firms, input suppliers, agricultural extension agents, and farmers may all have changed their behaviour in the required way.

However, the impact of this change in model may still be limited, for example, to only certain geographical areas or to certain segments of the population such as male farmers. In such cases, it may be necessary to partner with other actors. For example, women's cooperatives, which have a closer engagement with segments of the target group, could be supported to provide the supporting function instead of a more distant private company. These modifications and extensions of the model may result in an expansion of the impact of the innovation – more benefits to more people.

3.4 Respond

Respond, as a component of the systemic change matrix, looks at whether supporting functions and rules other than those explicitly targeted within the innovation's core objective are changing in response to the innovation. It assesses the other changes that are happening in supporting functions or institutions, and the degree to which they are supportive of or obstructive to the desired impact. In order for an innovation to reach sustainability and scale of impact, it is essential to monitor the role of those not directly involved in the original innovation and outside the boundary of the targeted core market system – actors whose role is in delivering support functions and rules in support markets. These behaviours are often difficult to anticipate at the start of an innovation process. For example, it may be that service providers involved in the innovation start marketing their services in totally different markets, or that government institutions use the new organisational model of stakeholder consultation in other sectors.

Where the components Adopt, Adapt, and Expand target changes in the operation of one or more initial supporting functions or rules which are part of a programme's vision for how a sector might work better to improve outcomes for the target group, **Respond** addresses the changes in other supporting functions or rules that may reinforce and enhance the changes from the initial innovation.

4 Example: AAER as a planning and monitoring tool

The AAER framework is applied following a market systems diagnostic process, mapping supporting functions, rules, and transaction modalities in a system. This is necessary to understand the causes of underperformance within a system and to find an opportunity to address a constraint that may yield a better outcome for the target group. However, it is always the actors' behaviour in performing these functions and implementing these rules which are generally the entry point and levers for systemic change and, therefore, the main units of analysis for intervention development in MSD.

As a tool, AAER helps to plan for and reflect on changes in the system. When considering all four components of the AAER framework, it is obvious that multiple actors will have to change

several of their behaviours simultaneously for the objective of systemic change to be reached. The four components are not different phases but focus on processes that may happen simultaneously. As discussed throughout, the AAER framework helps to identify several points at which changes in supporting functions or rules are needed, and it helps for learning and adaptive management of the MSD programme. Building on the work of Lomax (2020), we use feedback loops to show how AAER informs further programme decisions about where to intervene and when to withdraw (see Figure 4). We illustrate these feedback loops with experience from several MSD programmes in horticulture.

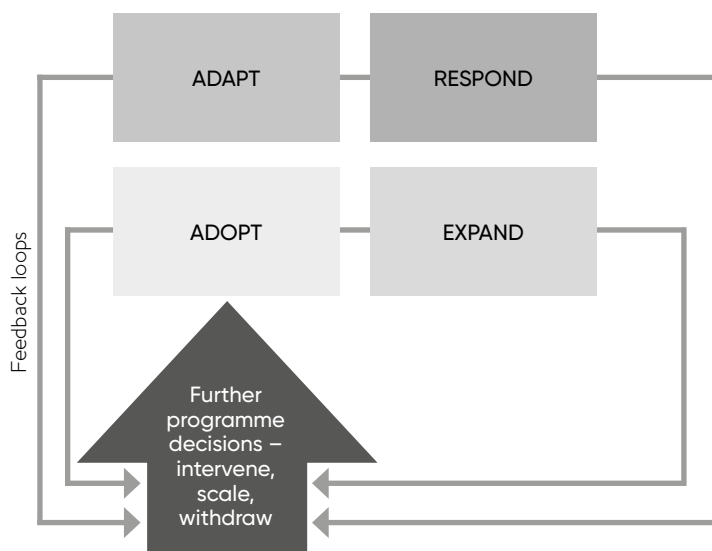
4.1 AAER in planning for change

Many MSD programmes in the vegetable sector seek to increase the incomes of smallholder vegetable producers as their central aim. We combine real-world insights from horticulture MSD programmes in Bangladesh, Ethiopia, and Fiji in this somewhat stylised example. One of the support markets that was seen as a cause of this underperformance was seed supply. Within this support market system, several constraints were framed as root causes.

- Farmers were not aware of the potential commercial returns to planting improved seeds. Some farmers simply were not aware these seeds existed as they were not available through their usual supply channels.
- Some farmers who had attempted planting improved seed had not employed good agricultural practices and so yield was low.
- Some farmers had experienced adulteration or counterfeit seed and no longer trusted the products sufficiently to invest.
- Further, many farmers could not afford to invest in these new technologies – or rather viewed the risk as too high – in the way they were currently marketed.

The MSD programme identified the need for a pilot to target a change in the way the **marketing** and **distribution** functions around seed provisioning worked. The vision at this stage was relatively simple; seed companies would trial a range of marketing techniques that would build (and rebuild) consumer confidence in their products, in tandem with a strategy to get these products closer to potential consumers with innovative distribution techniques.

At this stage, in terms of **Adapt**, **Expand**, and **Respond**, the rationale was also straightforward. Market analysis had demonstrated that sufficient market potential existed, and the private companies who were piloting the new marketing techniques had sufficient incentive to embrace the model.

Figure 4 Adopt-Adapt-Expand-Respond with feedback loops

Source Authors' own, adapted from Lomax (2020).

The clear yield and market potential for new varieties would give farmers sufficient incentives to institutionalise the necessary behaviour change. Considering the market potential, there were also very clear pathways to the refinement of the products themselves, such as offering other seeds suited to the local conditions in these markets.

If the innovation and pilot experimentation were successful, the mechanisms for expansion were clear. The mechanisms of expansion were located both within partner firms and through more competitive seed markets that would attract new firms and farmers. This competition would also likely drive down prices and, in doing so, the benefits to each farmer would increase over time. Finally, the programme anticipated potential for positive change in other supporting functions and rules as a result of the innovation. If the distribution system began to work, then these could become 'hubs' or channels for agricultural extension and the provisioning of other services to farmers.

The programme then had to refine, with and through partners, exactly what these new marketing and distribution strategies would be. In MSD, the critical part of the analysis here is around the capabilities and incentives of those actors in the system who could play an ongoing role in the delivery of the intervention.

Adopt: Initially, the ideas for behaviour change by the seedling producers were straightforward. In seed marketing, it was envisaged that demonstration plots would overcome the trust barriers to uptake, while in distribution, the programme saw the

potential of a low-cost mobile seed vendor model incorporating bicycle distribution which was more trusted and formalised than other distribution systems.

Adapt: At this stage, the key to institutionalising change was ensuring that the model became aligned with the incentives of relevant actors. From the outset, therefore, the programme partnered simultaneously with different types of organisation. Firstly, the programme reached an agreement with a market leader who could achieve scale quickly when the model proved successful, providing this firm with market research and information. Simultaneously, the programme partnered with a start-up, providing it with an innovation grant and technical assistance.

Feedback loop: having identified the market actors who would need to change their behaviour in order to institutionalise change, the interventions recognised that their incentives were not sufficient to incorporate the activities as part of their normal business. The reason was that the government needed to allow this new model of seed distribution and it became clear that a combination of power dynamics meant that this did not happen. Therefore, the interventions needed to be refined by revisiting the Adopt strategy, including support interventions to trigger behaviour change in the local government and the agricultural department in the geographies where the new model was to be trialled.

Expand: There was an inherent consideration of scaling in the design of the interventions. These were not demonstration plots run by an NGO with replication dependent on this NGO's continued existence; instead, these were demonstration plots within the seed companies' established practices so that they would take the model to scale within normal market conditions. The demonstration plots were not farmer-led, considering that attending a demonstration has been shown to be as effective as running the demonstration plot itself for adoption of practices (Duflo, Kremer and Robinson 2007; Khan *et al.* 2009). Moreover, the fact that the demonstration plots were managed internally by seed producers also assured that the quality of the seeds could be controlled more easily.

Feedback loop: while achieving impact at scale had been considered in the intervention design, at this planning stage, it became clear that certain key assumptions were unlikely to hold. The demonstration plots needed to be complemented with better distribution systems; no scale can be achieved if farmers cannot buy the seeds that are being demonstrated. Market analysis revealed that informal mobile seed vendors (MSVs) bridged this gap for seeds of other crops. However, these seed vendors lacked quality control and had limited agronomic knowledge. The programme tried to overcome these challenges by revisiting the intervention design, formalising the model of MSVs and incorporating them into the business model of seed companies.

Respond: In developing this innovation, the programme acknowledged that there was potential for other actors in the wider market systems to respond, which could have positive (and negative) consequences for the programme objectives.

Feedback loop: at the actor level, then, the programme began to plan for, observe, and respond to these broader market system changes with deliberate tactics. It monitored, for example, whether government extension policies could respond to the new modalities. As such, regular meetings were held from the outset with the relevant ministry to assess their capacities and incentives for change. Exogenous shifts in some support markets also had an impact on the intervention tactics. For example, new products in crop protection and crop nutrition became available and were incorporated in the adoption pilot – this greatly influenced the success of this seed system intervention.

4.2 AAER in monitoring change

The programme used a three-step process for monitoring actor-level change in relation to broader system-level change and adaptive programming:

- 1 Define the behaviour change and from whom you expect to see that change.
- 2 Establish whether that behaviour change has taken place, and to what extent.
- 3 Decide on course corrections/additional intervention tactics depending on the outcome.

These steps are represented for the seed case in Tables 2–5, illustrating how the behaviour changes are monitored and measured. It should be noted that more behaviour changes would be covered here when fully implementing the framework, as this example is for illustration purposes only. The examples are drawn from routine programme monitoring data unless otherwise indicated.

An important side note is warranted here on the methodologies that might be included in these programme-monitoring systems in order to operationalise this framework for adaptive management. Monitoring of adoption is well established, utilising conventional methodologies – field observations of the number of people who attended training or the sales of partner firms, for example. Given the intention of MSD interventions, programmes need to ensure that this evaluation of impact goes as far as capturing the intended development outcomes – that is, not only measuring sales of seeds, but tracking this through to the sales of the produce of those seeds and incomes for the farmers. This need not all be primary data, and aspects can be based on explicit assumptions. In addition, having mapped the relevant actors and behaviours, it is important to include data capture of

Table 2 Adopt

Behaviour change process	Evidence	Course correction
Partner seed companies establish demo plots in the target location.	All partner seed companies successfully established demo plots.	
Partner seed companies distribute seeds through MSVs.	All partner seed companies piloted MSV distribution models.	
Farmers attend demo plots.	Variation was perceived between attendance at the different sites.	Share learning from successful sites to modify other pilots in awareness raising.
Farmers buy the improved seed.	Purchase was closely linked to attendance. Repeat purchases were dependent on the proximity of sale i.e. people needed both marketing and distribution exposure to benefit.	Shift focus from knowledge to access.
Farmers plant improved seed.	Attending the demo plot was more successful than purchasing the seed from MSV alone, in terms of yields.	Analyse constraints to MSV sales (customer research).
Farmers sell vegetables and increase income.	The market is robust. Farmers demonstrate increased sales and income.	

Source Authors' own.

perceptions and behaviours beyond programme partners. For these observations, it may be necessary to incorporate formalised recording of qualitative observations from the field or key informant interviews with relevant actors.

For assessing adaptation, it is important to include an element of *ex post* data collection in a monitoring system. Methods will likely be similar to those deployed in the measurement of adoption but will assess the degree to which relevant actors have institutionalised a behaviour. This means that data collection must occur substantively after the end of programme support to partners – 12 months later, for example – and also that it must attempt to observe any changes in the nature of an innovation, such as being applied to different elements of the organisation.

Measurement of expansion needs to include observations within partner organisations (have sales continued to increase?) as well as measurement of the broader market, such as competing companies. For the latter, it is useful to maintain ongoing relationships with selected experts – for example, in business membership organisations, relevant government departments, or research organisations – who keep track of behaviour changes across the sector. Similar insights may be available through interviews with suppliers. Interviews with competing firms are often

Table 3 Adapt

Behaviour change process	Evidence	Course correction
Partner seed companies invest in new distribution and MSV model.	Three of the five partner companies continued the innovation, with the other two dropping out due to the financial and time investment required.	When examining scale-up and the introduction of new partnerships, the programme sought modifications to the model, which required less intensive up-front engagement by seed companies.
Farmers continue to buy and plant seed and sell produce.	Sales for all partner seed companies had increased, showing that farmers were buying. Farmer surveys showed increased incomes from sales by the vast majority of adopters.	
Seed companies continue to adapt model including price changes, product variation, and further development of marketing strategy.	Further investment is evidenced by the inclusion of additional complementary marketing techniques, including signboards and flyers.	
Some farmers refuse to buy seed owing to a lack of trust and consistency in seed supply.	Even farmers receiving promotional material and with access to seed purchased lower than expected amounts of seed, and surveys showed that the distrust related to the intrinsic quality of the seeds.	The programme began to examine the potential for national and independent seed certification processes. This resulted in supplementary intervention providing technical assistance to the Ministry of Agriculture [Respond].

Source Authors' own.

useful although access can be a problem when the programme does not have a relationship with these firms. Findings may be triangulated with demand-side studies to assess **who** is receiving the intended benefit to assess whether any progress is being made towards the deepening of impact.

Finally, measurement of market response will likely involve a less formalised process of monitoring changes in a market. In some cases, this can come in the form of repeated market system assessments to understand whether changes in supporting functions and rules are happening. (These principally take the form of secondary data analysis and key informant interviews with actors involved on the supply and demand sides as well as those involved in the performance of supporting functions and rules.) In other cases, it might involve more targeted data collection around specific functions where the programme implementers suspect a change might be happening, such as a survey of business development service providers to assess whether they have started to offer services to seed companies to improve their marketing strategies.

Table 4 Expand

Behaviour change process	Evidence	Course correction
Non-partner seed companies adopt new marketing tactics and formal MSV model.	Market surveys revealed that MSVs have become the norm across seed companies. Uptake of new marketing techniques has been lower with only three non-partner seed companies adopting the model.	Low uptake of marketing techniques indicates issues with the nature of the tactics used. While MSVs alone likely mean improved access to seeds, pilots showed that uptake, especially among low-income farmers, remained low. As such, this feedback allowed the programmes to design new interventions attempting alternative marketing strategies.
Farmers who are not customers of partners buy and plant seeds, and sell produce.	Performance naturally varied but on average farmers buying the improved seeds from MSVs and having attended demo plots continued to report higher incomes than before.	
Partner seed companies expand offering to new geographies and products.	The geographical spread was not as anticipated as seed companies continued to focus on other more remunerative markets.	Supplementary programme interventions were necessary in order to de-risk investment into areas with a smaller and more unproven market.
Seed companies reduce prices of seeds.	While there was an initial and slight increase in prices after the pilot period, when more farmers wanted to procure seeds, later, in areas where several companies operated the same model, prices did fall.	Ensure mechanisms for competition are in place. Supporting additional pilots with new partners even where the model existed was considered valid, although not a priority.
Seed companies offer increased variety of products available to farmers.	While the pilot started with a handful of high-value vegetables, across seed companies, after some years, more than 100 varieties were on offer through formalised MSVs.	

Source Authors' own.

The use of AAER as a planning tool should help to construct a measurement system for its use as a measurement tool. Using the seed example, Tables 2–5 demonstrate this link by looking at the expected behaviour changes from different actors underpinning an innovation, the evidence the programme looked for in determining whether that change had taken place, and the course correction as a result of what they found.

5 Conclusion

There are few who would argue that sustainability and scale of impact are desirable outcomes of development intervention and, in recent years, these qualities have become intertwined in the discourse around 'systemic change' (Taylor and Donovan 2016). That discourse is, however, messy. While everyone seems to

Table 5 Respond

Behaviour change and group	Evidence	Course correction
Policymakers seek information on results of new distribution mechanisms.	Little engagement was seen from policymakers, who continued to favour distribution through public channels or distributors with links to them.	The programme diversified the government engagement strategy, working both with different departments but also different individuals with a view to achieving buy-in.
Seed companies invest in research and development on this specific market segment or geography.	The larger seed companies had a greater capacity to invest in R&D and so began to invest in product development. They found a way to reduce the cost by reducing packaging size and embedding alternative financing models.	The programme both supported these innovating firms to scale the innovation more quickly and also introduced new related innovations concerning the financing aspect of the innovation, partnering with financial institutions to underwrite new financing products.
Ministry of agriculture implements new seed certification law.	Law is passed by parliament.	
Ministry of agriculture establishes new seed certification body.	Staff are recruited and organisational structures are put in place.	
Farmers trust new seed certification system and begin to purchase additional certified seed.	Sales of seeds to farmers increase in similar areas and using similar marketing and distribution techniques as in the pilot. Farmers report greater trust in the seeds they buy.	Supplementary intervention developed at earlier stage in these new markets to improve trust in the seed system.

Source Authors' own.

agree that a nebulous concept of systemic change is important, there is an absence of a clear conceptual framework to help plan for it and measure whether it has happened. This article has attempted to contribute to this discussion by restating and clarifying a commonly used conceptual framework in market systems development, the AAER model. In this framework, **the market system** is conceptualised as a transaction embedded in supporting functions and rules, and as part of a network of nested and interlinking systems. The most important objective of the article is to show how the AAER framework can be used to dissect and design support components that increase the likelihood of achieving systemic change.

There are two roles of the AAER framework. Firstly, it is a grammar to articulate the programme's vision. If a programme aims to bring about systemic change, and the AAER framework helps to articulate what this could look like, then a programme should be better able to design support activities that could leverage systemic change. However, systems are dynamic and

complex, and initial plans for MSD support are rarely borne out in reality – and rightly so. Therefore, a second and perhaps even more important function of the AAER matrix is as a heuristic for monitoring, reflection, and adaptive management during the implementation of an MSD programme. The article presented a way that this was operationalised in a horticultural programme.

However, as is always the case with approaches and recipes, 'the proof is in the pudding'. And there is clearly a need for more empirical contributions, with experiences in other sectors, employing this framework and evaluating its usefulness for adaptive programming. These may yield other practical examples of how and when the different components of the framework can be operationalised according to the ambitions, the scale, and the length of programmes, and, of course, the budgets available for monitoring, evaluation, and learning. While this article has had to dedicate considerable attention to clarifying a number of interrelated concepts, further refinement is needed to allow learning from cross-case comparisons.

Notes

- * This article draws extracts from unpublished work by the authors (Taylor 2016; Lomax 2020). The article also benefited significantly from inputs from Giel Ton, to whom the authors are incredibly grateful.
- 1 Ben Taylor, CEO, Agora Global, UK.
- 2 Jake Lomax, Director, 3sd Research, UK.

References

- Agora Global (2019) *Firmo Economicus: How Late Capitalism Loses the Motivations of the People that Comprise Capital*, Agora Global blog, 24 April (accessed 27 August 2021)
- Cheung, S.N.S. (1983) 'The Contractual Nature of the Firm', *Journal of Law and Economics* 26.1: 1–21
- Coase, R.H. (1992) 'The Institutional Structure of Production', *American Economic Review* 82.4: 713–19
- Cunningham, S. and Jenal, M. (2016) 'Rethinking Systemic Change: Economic Evolution and Institution', *Building Effective and Accessible Markets (BEAM) Exchange Policy Brief*, London: BEAM Exchange (accessed 27 August 2021)
- DCED (2017) *The DCED Standard for Measuring Results in Private Sector Development: Control Points and Compliance Criteria*, Donor Committee for Enterprise Development (accessed 8 September 2021)
- Duflo, E.; Kremer, M. and Robinson, J. (2007) *Understanding Technology Adoption: Fertilizer in Western Kenya*, Innovations for Poverty Action (accessed 8 September 2021)
- Easterly, W. (2002) 'The Cartel of Good Intentions: The Problem of Bureaucracy in Foreign Aid', *Journal of Economic Policy Reform* 5.4: 223–50, DOI: 10.1080/1384128032000096823 (accessed 8 September 2021)

- FSD Kenya (2016) **Formalising Informality: Savings Groups, Community Finance, and the Role of FSD Kenya**, Nairobi: FSD Africa (accessed 8 September 2021)
- Glover, D.; Sumberg, J.; Ton, G.; Andersson, J. and Badstue, L. (2019) 'Rethinking Technological Change in Smallholder Agriculture', *Outlook on Agriculture* 48.3: 169–80, DOI: 10.1177/0030727019864978 (accessed 8 September 2021)
- Jenal, M. and Gray, J. (2019) **Measuring Systemic Change in Market Systems Development – A Stock Taking**, Tegucigalpa: United States Agency for International Development/Honduras (accessed 27 August 2021)
- Khan, A.; Pervaiz, U.; Khan, N.M.; Ahmad, S. and Nigar, S. (2009) 'Effectiveness of Demonstration Plots as Extension Method Adopted by AKRSP for Agricultural Technology Dissemination in District Chitral', *Sarhad Journal of Agriculture* 25.2: 313–19 (accessed 5 October 2021)
- Kosoris, J. (2018) **The Benefit of Hindsight: How Market Systems Theory Could Have Predicted Aflasafe Uptake in Nigeria**, BEAM Exchange blog, 17 December (accessed 8 September 2021)
- Lomax, J. (2020) **AAER Revisited: From Systemic Change Narrative to Systemic Change Analysis**, 3rd Research Briefing Paper 6, Falmouth: 3sd Research (accessed 8 September 2021)
- Ménard, C. (2004) 'The Economics of Hybrid Organizations', *Journal of Institutional and Theoretical Economics* 160.3: 345–76
- Merriam-Webster (2021) **Heuristic** (accessed 16 September 2021)
- Mosley, P. and Taylor, B. (2014) 'Who Wants to Give Forever? Giving Meaning to Sustainability in Development', *Journal of International Development* 26.8: 1181–96
- Moyo, D. (2010) **Dead Aid: Why Aid is Not Working and How There is Another Way for Africa**, London: Penguin
- Nippard, D.; Hitchins, R. and Elliott, D. (2014) **Adopt-Adapt-Expand-Respond: A Framework for Managing and Measuring Systemic Change Processes**, Springfield Centre Briefing Paper, Durham: Springfield Centre (accessed 9 September 2021)
- North, D.C. (1990) **Institutions, Institutional Change and Economic Performance**, Cambridge: Cambridge University Press
- Ramalingham, B. and Jones, H. with Reba, T. and Young, J. (2008) **Exploring the Science of Complexity: Ideas and Implications for Development and Humanitarian Efforts**, ODI Working Paper 285, London: Overseas Development Institute (accessed 8 September 2021)
- Ramström, G. (2018) 'The Analytical Micro-Macro Relationship in Social Science and Its Implications for the Individualism-Holism Debate', *Philosophy of the Social Sciences* 48.5: 474–500
- Samarth-NMDP (2015) **Results Measurement System: User Manual Version 2.0**, Lalitpur: Samarth-Nepal Market Development Programme
- Springfield Centre (2008) **The Operational Guide for the Making Markets Work for the Poor (M4P) Approach**, report commissioned by Swiss Agency for Development and Cooperation and Department for International Development

- Taylor, B. (2016) ***Systems and Systemic Change: Clarity in Concept***, Springfield Centre Working Paper, Durham: Springfield Centre (accessed 27 August 2021)
- Taylor, B. (2014) 'In Vogue and at Odds: Systemic Change and New Public Management in Development', *Enterprise Development and Microfinance* 25.4: 271–87
- Taylor, B. and Donovan, J. (2016) 'New Approaches to Old Problems: Systemic Change as a Unifying Objective', *Enterprise Development and Microfinance* 27.1: 1–4
- Williamson, O.E. (2000) 'The New Institutional Economics: Taking Stock, Looking Ahead', *Journal of Economic Literature* 38.3: 595–613