

AAER Revisited: from systemic change *narrative* to systemic change *analysis*

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1. INTRODUCTION

AAER (Adopt-Adapt-Expand-Respond) is a commonly used framework in market systems development (MSD) programming. It originated from work between the Springfield Centre and the Katalyst programme in Bangladesh, and was written up in a paper by Nippard et al (2014) and in the second edition of the operational guide (Springfield 2015). It is used frequently in MSD training, in case studies, monitoring, evaluation and strategy setting. It is integrated into DCED and BEAM Exchange guidance.³ It is almost as much a part of the furniture of MSD as the market system ‘doughnut’ diagram.

The initial paper introducing the framework described it as a tool for defining and assessing systemic change (Nippard et al, 2014). But the level of detail specified in the framework renders it more suited to narrative description of process stages often observed in systemic change. And in practice, as the clearest, most basic representation of how systemic change happens, it is used mostly in narrative form, describing key stages in a process by which change happens in systems.

This paper will set out the key problems inherent in having the main tool used for assessing and representing systemic change limited to narrative framing. It will argue that with some relatively minor reframing of the concepts underlying AAER, the framework can be used effectively as an analytical tool that goes beyond storytelling to help us understand *why* systemic change happens.⁴

2. AAER

First, a quick overview of the AAER framework. There are four process stages described in the framework. **Adopt** is where intervention partners take up a change with support from the programme. **Adapt** is where they further invest in this change, without support from the programme. **Expand** is where other actors in the same function⁵ take up the change, and **Respond** is where actors in other functions change their behaviour in response to the original change, and in a way that supports that change.

The piloting and crowding in phases (see Figure 1) are intuitively sequential, and Adopt and Adapt are logically sequential. However, importantly, the overall process is specified as being non-sequential, and Adopt may be followed by Respond or Expand prior to Adapt.

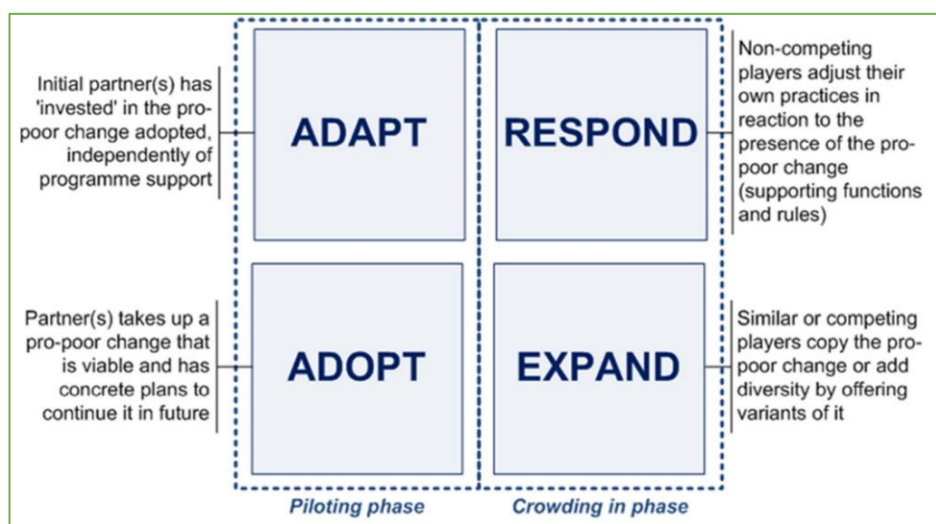


Figure 1: AAER: The original representation (Source: Nippard et al, 2014)

³ For example, AAER is prominent in the DCED guidance on how to assess systemic change (Kessler, 2014)

⁴ Systemic change is defined here as being simply ‘sustainable behaviour change at scale’.

⁵ I assume familiarity with MSD concepts here. A function includes a set of actors who are grouped together by the nature of the actions they perform, such as ‘vegetable farmers’, or ‘vegetable exporters’, or ‘vegetable export regulators’. Actors in the ‘core’ or ‘rules’, are included in ‘functions’. See Lomax (2020) for more information.

There are two common representations of AAER, which differ in terms of the labelling of axes. The first is the original representation and that used in the Operational Guide (see Figure 1) which describes two distinct phases, piloting (AA), and crowding in (ER). This version, although it is described as a two-by-two matrix, does not label the Y axis, and the X axis is not conventionally specified.

A second, more recent, version of AAER labels the axes, with 'scale' on the X axis, and 'sustainability' on the Y axis (see Figure 2). This version has been used by Springfield, as well as various programmes and evaluations⁶. This version dispenses with the dividing line between AA and ER, and relatedly dispenses with reference to piloting and crowding in. It moves AAER to the conventional form of a two by two matrix.

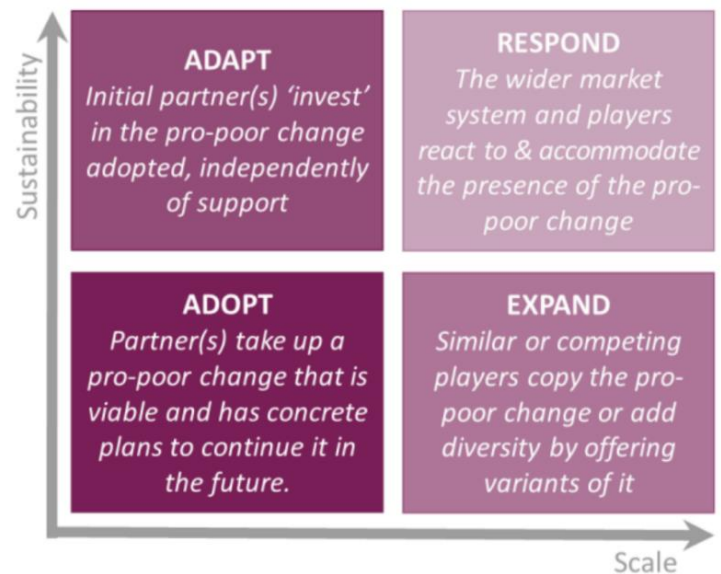


Figure 2: AAER: An adapted representation (Source: Gisin et al, 2018)

However, the labelling of the axes in this way highlights that AAER is not in fact the two by two matrix it purports to be, and the relationship with scale and sustainability is problematic. Based on practical experience of system change we may think of a few examples:

1. Expand often inherently improves sustainability by diversifying the set of actors performing the improved function and reducing reliance on any one actor.
2. Adapt often inherently improves scale through further investment in scaling up the change by the partner.
3. An effective route to scale is often through 'one big actor' (Davies, 2016), which is not encapsulated in the definition of Expand in AAER.
4. Just because we observe some instance of Respond does not necessarily tell us that either scale or sustainability have been attained. Similarly, Adapt is not a sufficient condition for sustainability, nor Expand a sufficient condition for scale.
5. Expand may be sustainable without the need for Respond if other required functions are already operating effectively.

AAER appears at first glance to be a straightforward tool for explaining systemic change, with short summaries presented in each box that are readily comprehensible and familiar and describe some important aspects of systemic change. But the framework is deceptively simple. We have seen from the difficulties in labelling the axes that there are some problems in the matrix.

The reason for this is that AAER is not built around two parameters, as we might expect of a two by two matrix. The definitions of the process stages of the AAER framework make reference to at least five parameters: the nature of the actor's relationship to the programme; who the actor is; the nature of the behaviour change; the cause of behaviour change; and the 'phase'. Each of these parameters has two or four associated options, which are summarised in the table below:

⁶ Example of Springfield use of alternative AAER in Gisin et al (2019); Examples of programme use include Samarth NMDP (Samarth NMDP, 2015) and AgResults (Kosoris, 2018); Example of evaluation use ITAD (ND).

Parameter	Framework Options
Actor relationship to programme	<ul style="list-style-type: none"> • <i>Partner</i> • <i>Non-partner</i>
What actor	<ul style="list-style-type: none"> • <i>Actors in the function of interest</i> • <i>Actors in other functions</i>
What behaviour change	<ul style="list-style-type: none"> • <i>The behaviour change of interest</i> • <i>Other behaviour changes that support this behaviour change</i>
Cause of change	<ul style="list-style-type: none"> • <i>Programme support</i> • <i>Actor's own initiative (following programme support)</i> • <i>Actors copying others' behaviour change</i> • <i>Actors reacting to others' behaviour change</i>
Phase	<ul style="list-style-type: none"> • <i>Piloting</i> • <i>Crowding in</i>

The document describing AAER includes still more parameters that need to be considered within the framework. These are mostly around intentions of market actors. For instance, in 'Adopt', whether or not the partner plans to continue a change, and, in 'Respond', whether the system "wants to support pro-poor innovations to emerge and grow" (Nippard et al, 2014: p8). Further, behaviour changes of actors in other functions – especially the target group – are often incorporated into in Expand, which overburdens the matrix still further.

3. POSSIBLE WEAKNESSES IN NARRATIVE AAER

The number of parameters and detailed articulation of an intervention-led change sequence enables a clearly articulated process of change to be set out that has a familiarity for many intervention managers. This has contributed to the framework's importance in presenting a clear narrative of key process stages in systemic change that can be understood by practitioners and donors. But the great strength of AAER in presenting a simple, easily-understood narrative of systemic change processes is also a source of four possible weaknesses. Namely, AAER:

1. is inconsistent about change in the wider system;
2. contains a little knowledge (which we know is a dangerous thing) on mechanisms of system change;
3. doesn't consider change originating outside our own intervention; and
4. leads us to a tick box approach to assessing systemic change.

We'll now look at each of these in more detail.

First, AAER may cause people to think that change actually happens in a relatively simplistic and linear way, particularly with respect to *autonomous* Expand and Respond. The intervention is explicitly represented in the piloting phase, but it is not explicitly represented elsewhere. It is easy to understand how this leads some to believe Expand and Respond are supposed to happen without the involvement of the programme. Just get a partner to Adopt a change, check that they Adapt, then sit back and watch while Expand and Respond unfold. The two by two matrix is a powerful visual, and we naturally expect things to be mutually exclusive. No matter how much we insist that Adopt and Adapt are also key components *within* both Expand and Respond, it's not surprising that this message is hard to get across as it is seemingly contradicted by the visual representation.

Second, this problem is compounded by the framework's incomplete contribution on the subject of how change happens in the wider system beyond partners, through 'copying' (in Expand) and 'reacting' (in Respond). This tends to suggest the framework is providing guidance on the mechanisms through which systemic change happens, and that these mechanisms are a key part of the framework. But the mechanisms of change in a system are inevitably more complex than AAER's somewhat simplistic representation, something not necessarily noted by programmes that often rely too heavily on the demonstration effect, and, when that fails, fall back on repeating the same intervention with each competitor in turn. That is not to say AAER ought to incorporate more on mechanisms – there are already too many parameters – just that the partial treatment is problematic.

Third, AAER fails to effectively capture change led by sources of change beyond the intervention itself. No matter the variation in process sequence that we might allow, all change in AAER ultimately stems from the intervention. This is understandable, as we want to analyse the systemic impact of our own interventions. But in reality we often face tasks such as establishing what portion of observed system change may be attributed to the programme. A robust tool for understanding systemic change ought to incorporate the possibility of that change originating from sources other than our own development programme, or else our understanding of scale and sustainability will often be incomplete.

Fourth, the intervention-centric, discrete process stages support the tendency for the four boxes to be used as systemic change tick boxes. If you have repeated your intervention with various competitors, with perhaps the barest sniff of autonomous copying, this gives you a tick in Expand. A regulator pays some preliminary attention to the innovation and that's a tick in Respond. Systemic change complete! The *extent* of scale and sustainability is key, but this is not something that AAER naturally directs us towards, despite the axes labels that suggest it will. There is no connection between AAER and a visual representation of the whole system that could support understanding of how widespread changes are.

It is important to state that these possible weaknesses stemming from the narrative emphasis does not mean that AAER as it stands cannot be used analytically. It can be, and it is. But the sheer number of parameters and overlapping concepts render it unwieldy and inconsistent when used for detailed analysis. We can end up glossing over important details of systemic change because it is not clear where they fit in the framework. The art of writing case studies structured around AAER (see for example Lomax & Taylor 2016) tends to involve a struggle over where to draw an arbitrary line between Adopt and Expand, and trying to find something convincing to put in Respond, rather than tackling in detail the more interesting question of the extent of scale and sustainability of change, and what caused this.

To address these possible weaknesses, it would be useful if we had a version of AAER that is focused squarely on analysis. The next section sets out a suggestion for what this version might look like. This is not intended to replace existing narrative representations of AAER, but rather to have a clear representation of AAER for analysis of systemic change. This analytical version of AAER will be referred to as AA|ER to emphasise the most visible change – the decoupling of the two by two matrix. Importantly, this analytical version is broadly consistent with the narrative version of AAER and sticks as closely as possible to the original formulation for ease of use.

4. AA|ER AS AN ANALYTICAL TOOL

This section describes AA|ER, an interpretation of AAER that seeks to maximise the analytical potential of the framework. AA|ER is a tool for analysis of key aspects of scale and sustainability of a specific behaviour change. This is a narrower conception than some other interpretations of AAER: AA|ER doesn't give you an overview of the whole system and its change over time. It does not serve to define systemic change, but it can help you to understand it.

4.1 INTRODUCING CHANGE RESOURCES

AA|ER will rely on the concept of 'Change Resources' to frame the cause of behaviour change (Lomax & Shah 2020). Some kind of resource will be required to support a behaviour change: if no additional resource were required, the behaviour change would have already happened.⁷ A shift in underlying rationale for changing behaviour will have no impact without information about that shift. The concept of change resources, which may be produced by any actor in, as well as external to the system, helps to remove the intervention-centric viewpoint of AAER.

Because change resources are what makes behaviour change happen, how these change resources are produced and diffused (i.e. spread) around the system is of central importance to understanding systemic change.⁸ Behaviour changes in the system are not only an end in themselves, they are also the means by which new change resources are produced. It is through such knock-on effects that behaviour change at scale happens, and sustainability becomes possible. Production and diffusion of change resources will be represented simplistically here by a big orange arrow. A few examples follow of what might be inside that arrow:



Figure 3: The big orange arrow of change resources

- MSD and other development practitioners may find it familiar to think of change resources as whatever it is that their development programme is providing to programme partners in order to drive behaviour change. This might be information (for example about how to do something, or about the possible benefits of behaviour change, or that you will pay for any losses incurred as a result) or it might be financial resources, or any of the various other tools used by development programmes. Programmes produce these resources, then pass them to partners. This is the intervention at the heart of the narrative version of AAER.
- Change resources in MSD are also often seen in new change resources produced and passed on by intervention partners to intermediaries (such as information about how to use a particular type of seed), and passed on in turn from intermediaries to the target group.
- Beyond development programming, firms' marketing of products serves to provide potential customers with information that will make them want to buy the product. The media serves to produce and diffuse new information (including product marketing).
- Governments play multiple roles in producing and diffusing change resources. Through the Covid-19 pandemic the public health research and information function has been especially prominent in driving behaviour change. Governments also set tax policies, provide innovation grants, fund research, and so on.

⁷ This paper avoids the question of how to establish what change resources are needed. For information on how to do so see Lomax & Shah (2020).

⁸ Change resources are not always positive or beneficial, but as our main focus is on development programming that seeks to introduce positive change, they are treated as such here.

- Governments and associated agencies also produce new laws that provide new information about what the consequences will be of certain behaviours. Similarly, new informal rules may be produced by various social groups (national or regional groupings, employees of a firm, friendship groups, families, and so on) about what is acceptable behaviour, and what any social sanction might be.
- Actors often also produce change resources to support their own behaviour change. For example, when a firm researches the effectiveness its own advertising campaign, or when a student takes on a part-time job so they can afford to enrol at university.

4.2 WHAT'S NEW IN AA|ER?

For those who use AAER analytically, AA|ER will not be unfamiliar: the aim here is to iron out inconsistencies rather than reinvent the wheel. But there are certainly some differences relative to how AAER has been described in earlier papers. The visual representation re-establishes emphasis on the original distinction of actor-level analysis in AA and system-level analysis in ER. And AA|ER goes further in decoupling of the two by two matrix by explicitly stating that the actor-level Adopt sits clearly *within* system-level Expand.⁹

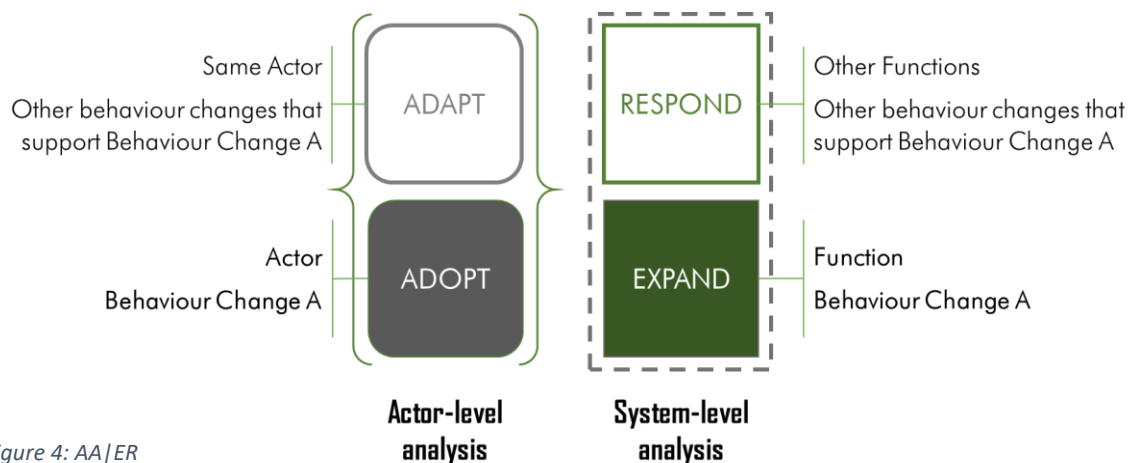


Figure 4: AA|ER

In order to streamline the framework and get to its conceptual core, in AA|ER we have retained only two of the five AAER parameters: 'what actor', and 'what behaviour change'.¹⁰

- For 'what actor' we only need to distinguish between actors in the function we're looking at, and actors in other functions. Importantly, AA|ER is broader in application than AAER and may be used to understand scale and sustainability of behaviour change within any function, including the target group function.
- There are two options for 'what behaviour change': (1) a specific behaviour change of interest, which for clarity we'll call Behaviour Change A, and (2) other behaviour changes that support Behaviour Change A. With these two parameters we can define the boxes.

Adopt comprises any individual actor adopting Behaviour Change A. At the actor level the focus is on *whether* Behaviour Change A happens.

⁹ System level behaviour changes are an aggregation of the behaviour changes of the actors in the system.

¹⁰ 'Cause of change' has been simplified and sent off into the orange arrow, which will also explain the 'relationship to programme'. Phase has been dropped completely.

Adapt comprises any other behaviour changes, made by that same actor, that support their own adoption of Behaviour Change A.¹¹

Expand aggregates Adopt to the function level, where the focus is on *how much* of the Behaviour Change A is happening. It should be emphasised that Expand *is* Adopt, just seen in the context of the wider function rather than any one individual actor.

Respond: like Adapt, comprises any other behaviour changes that support Behaviour Change A. At the system level the focus is on behaviour changes by actors in other functions. We are not interested in what caused those changes, only that they produce change resources that support Adopt.

AAER is often used to help spot changes in the system and categorise them into boxes. The redefined boxes in AA|ER, combined with the focus on a single behaviour change, reduces conceptual ambiguity as to which change goes in which box. But, more importantly, it supports analysis of what these behaviour changes mean for the prospects of sustainable change at scale through their impact on the production and diffusion of change resources.

4.3 USING AA|ER TO ANALYSE SYSTEMIC CHANGE

A firm, government or development programme seeking to intervene to promote ‘systemic’ adoption of Behaviour Change A may have two ambitions: first is to get some scale in the adoption, and second to make that adoption sustainable. We may define scale and sustainability in AA|ER terms as follows.

- **Scale:** the extent of Adopt, as reflected in Expand.¹²
- **Sustainability:** the extent that Adopt depends on change resources that are reliably accessed on an ongoing basis from the actor themselves (Adapt) or the wider system (Respond) rather than from actors external to the system.

In order to understand the processes by which scale and sustainability is attained, we need to look at how Adopt, Adapt, Expand and Respond behaviour changes contribute to further instances of Adopt. These instances of Adopt may include the same actor repeating the changed behaviour, more actors adopting the behaviour change, actors scaling up the behaviour change, and actors continuing to do so into the future.

FEEDBACK LOOPS

A central issue in sustainability is that certain change resources are often provided in the first instance, directly or indirectly, by a firm, government or development programme seeking to promote Behaviour Change A, and they do not intend (or are not able) to provide these on an ongoing basis into the future. This issue with development programmes particularly, with their donor

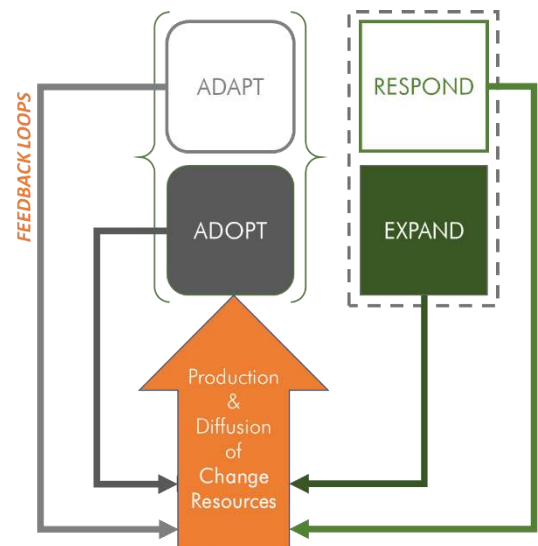


Figure 5: Feedback loops through production and diffusion of change resources

¹¹ ‘Behaviour Change A’ is only in Adopt. This is in line with the spirit of AAER but not the letter, which describes the same behaviour change happening in both Adopt and Adapt.

¹² It should be noted that scale here is only within the function. For impact on other functions, perhaps including the target group, then this will be a different behaviour change in a different AA|ER.

dependence and often transient presence, is the underlying concern that stimulated the creation of the MSD approach.¹³

This brings us back to the big orange arrow (see Figure 5). We know that external interventions bring change resources into a system. That much is already represented in the existing narrative representation of AAER. But these change resources are also produced by actors within the system, and this is central to scale and sustainability of behaviour change. Adopt, Adapt, Expand and Respond represent four important ‘feedback loops’ by which actors within the system contribute to the production and diffusion of change resources.

In the case of Adapt and Respond, this feedback loop is their *raison d’etre*: behaviour changes are included in Adapt and Respond only because they provide these change resources. But in the case of Adopt and Expand, the feedback loop is a secondary effect to the adoption of behaviour change itself.

Figure 6 below shows these same feedback loops in a bit more detail, with an orange arrow for each of the three types of providers of change resources: the actor themselves; other system actors; and external intervention. More detail is provided in Annex 1.

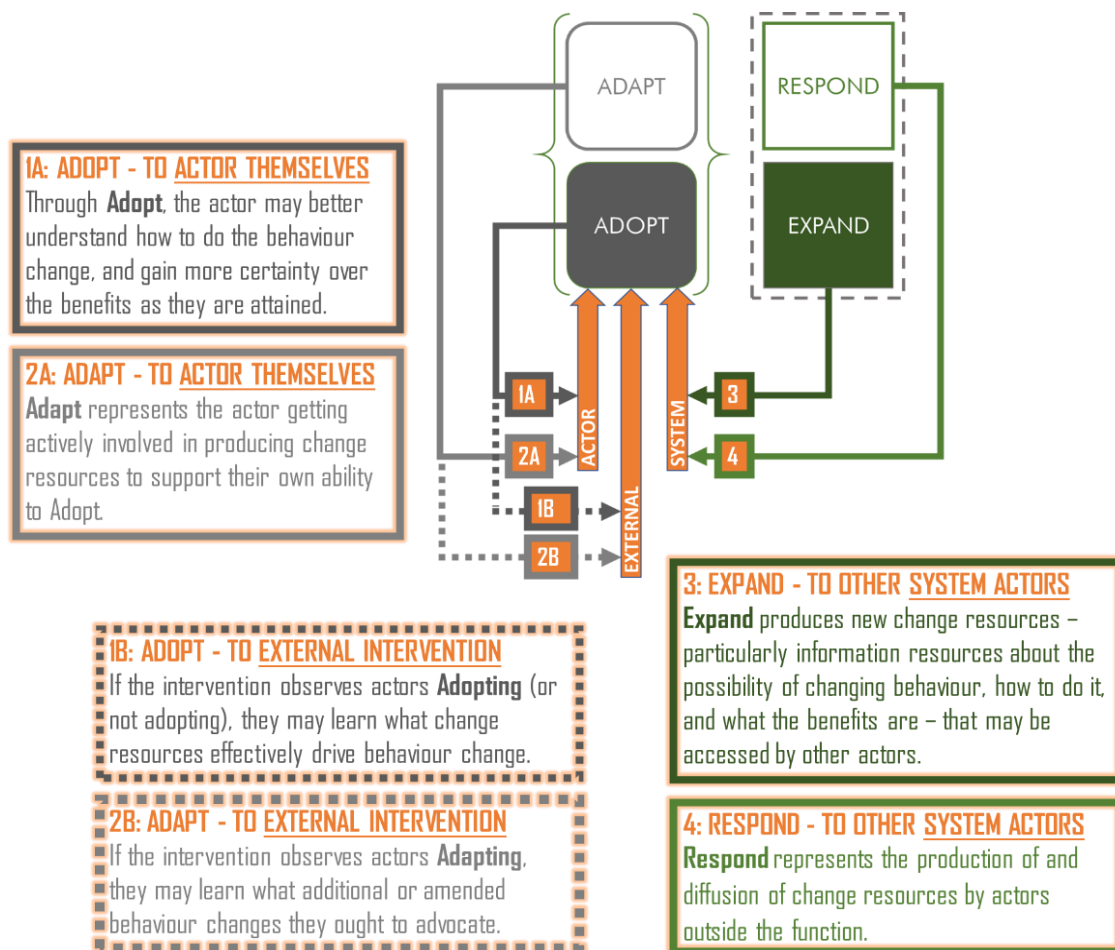


Figure 6: Detailed feedback loops

Figure 6 shows how Adopt and Adapt feedback loops provide change resources for the actor themselves (1A and 2A), while also informing changes by external intervention (1B and 2B). Expand and Respond feedback loops provide change resources to other system actors in the

¹³ For more detail on the topic of sustainability of change resources, see the ‘7Ds of sustainability’ (Lomax 2020)

function we are looking at. A basic indicator of actor-level sustainability of behaviour change is when Adopt and Adapt feedback loops replace externally-provided change resources. And a basic indicator of system-level sustainability of behaviour change is when Expand and Respond feedback loops replace externally-provided change resources.

IMPACT ON OTHER FUNCTIONS

We have seen in Respond how change in other functions impacts back on Behaviour Change A; here we look at how Behaviour Change A effects change in other functions through Expand. Expand represents the extent of adoption of Behaviour Change A, and the corresponding expansion of improved function performance that results from the behaviour change.

Improved function performance means the resource output of the function is improved in terms of quality, quantity, rate or timing (see Lomax 2018). These changed resource outputs may drive behaviour change in the function’s suppliers or buyers. Thus, Expand produces new or different change resources for these functions.

External interventions often intend such knock-on impacts in other functions. For development programmes this is the next step in a theory of change – see Figure 7 below for an example of a basic theory of change built around AA|ER, and see Annex 1 for more detail.

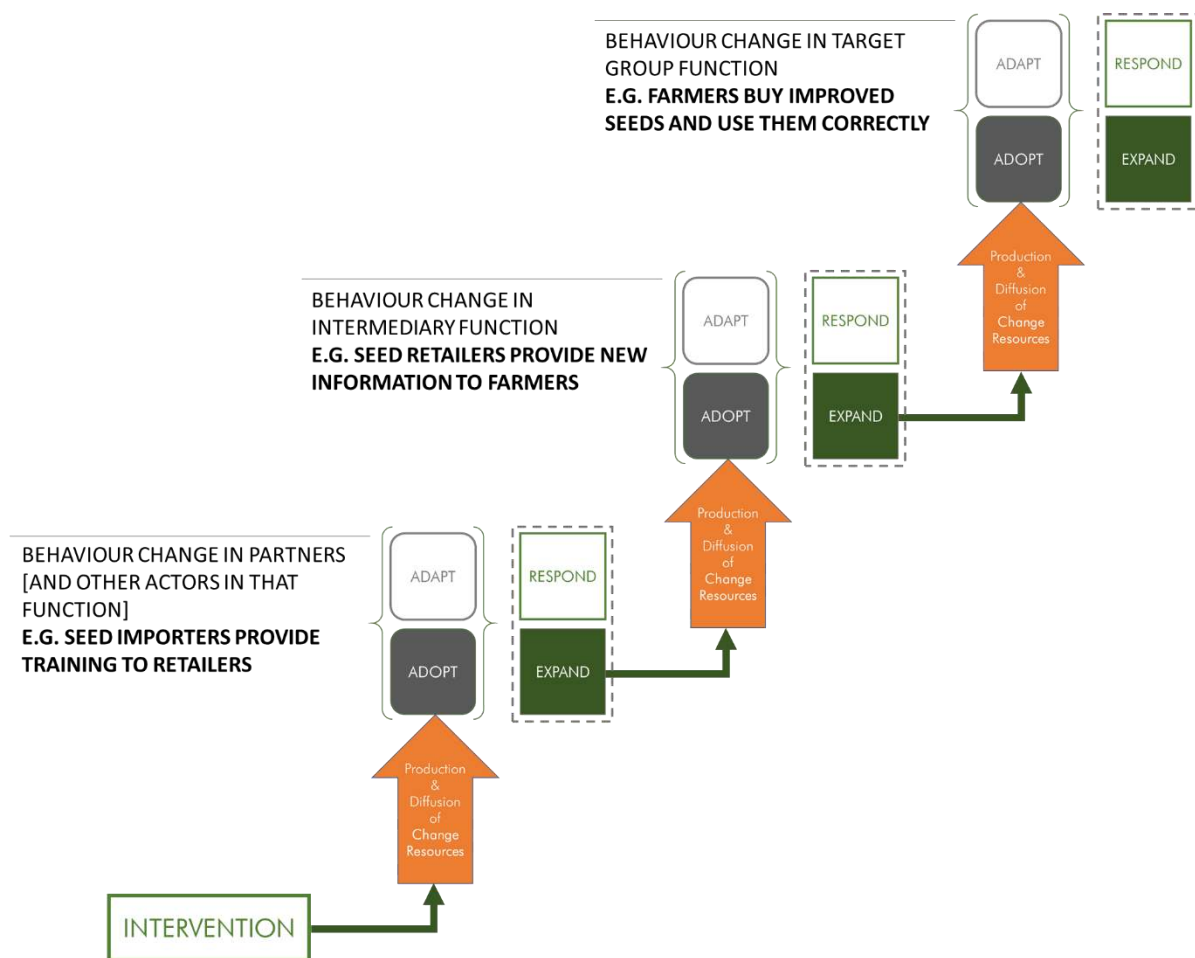


Figure 7: A basic theory of change with AA|ER. While feedback loops are not represented here, they are still present.

Expansion of Behaviour Change A will also provide other new information resources, for example about the prevalence of this new behaviour, that may come to the attention of regulators (or journalists or researchers or industry associations) who feel they need to do something different as a result. There may also be other unintended change resources provided to suppliers and buyers, leading to behaviour changes that were not necessarily expected. The same basic principle applies in these cases in terms of how change in one function affects another.

5. CONCLUSION

This paper has set out an argument that AAER, as currently represented, contains a great deal of detailed description within a deceptively simple two by two matrix. This detail helps AAER to be used as an effective tool for communicating some important basic process stages of systemic change, and for highlighting differences between MSD and traditional development approaches. But the benefit of detail for narrative purposes has a corresponding cost for analytical purposes, and risks the two by two matrix falling over itself when we try to use it analytically for understanding systemic change.

A revised representation of AAER has been presented that simplifies the framework, addresses some conceptual inconsistencies, explicitly separates the two by two matrix, and removes the intervention-centric framing. These amendments allow the framework to be tasked more readily with analysis of system change, especially around the scale and sustainability of specified behaviour changes. This analytical version, referred to as 'AA|ER', can help us understand how change breeds more change in a function through feedback loops, and also permits coherent integration into theories of change between functions.

The intention of this paper is to improve our understanding of AAER as an important tool for understanding and describing systemic change. There is no intention to replace the existing narrative interpretation: narrative AAER describes one set of process steps amongst the many that can be described with analytical AA|ER. But it is important to be cognisant of the limitations of the narrative framework as it has been represented to date, and it may be useful to apply the analytical interpretation when more suited to the task at hand.

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ANNEX 1: DETAIL ON FEEDBACK LOOPS

FEEDBACK LOOPS TO IMPROVE SUPPLY OF CHANGE RESOURCES		
Actor level: feedback to actor themselves, or to an external intervention that provides change resources		
ADOPT	To actor themselves: By doing something, the actor may better understand how to do it, and gain more certainty over the benefits as they are attained. They may realise they will be able to do it more quickly or efficiently the second time, thus reducing costs.	<i>Examples: A firm targets a new client base, and realises that it is more profitable than expected. A farmer who has bought and grown a new type of seed sees the better quality crop that is produced.</i>
	To external intervention: If providers of change resources observe actors adopting or not adopting, they may learn what change resources are effective in driving behaviour change, or if they need to be altered.	<i>Examples: Seeing that its advertising is having little impact in attaining new customers, a firm changes the media through which it advertises.</i>
ADAPT	To themselves: Adapt represents the actor getting actively involved in producing change resources to support their own adoption or continued adoption of the behaviour change.	<i>Examples: A firm reinvests profits from the behaviour change, or starts training employees about the new way of working. A farmer buys pesticide in order to improve yield from the new seeds she has bought.</i>
	To intervention: If providers of change resources observe Adapt, they may learn what additional or amended behaviour changes need to be included in Behaviour Change A, and what the overall cost of change is likely to be. This may also inform interventions in other functions (i.e. Respond).	<i>Examples: A development programme observes a partner initiating internal training on the new way of working. When approaching new partners, they factor in the necessity and cost of this into the overall rationale for the behaviour change, while also considering interventions with external training providers to reduce the cost.</i>
System level: feedback to other actors in the system adopting this behaviour change		
EXPAND	To others: As actors Adopt, this produces new change resources – particularly information resources about the possibility of changing behaviour, how to do it, and what the benefits are. ¹⁴ Other actors may access these resources, which supports prospects of their changing behaviour.	<i>Examples: A firm hears of its competitor using a new model for selling to customers, and how it works. A farmer visits a demonstration plot run by another farmer and sees the benefits. At the farm level, demonstration plots are an example of trying to formalise this mechanism.</i>
RESPOND	To others: Respond represents the production of and dissemination of change resources by actors outside the function. As well as suppliers and buyers of the main function, this includes actors in information functions such as the media and marketing. It also includes producers of formal and informal rules that shape the rationale for behaviour change.	<i>Examples: Customers increasingly buy an innovative new product rather than the old version. This provides more profit to the innovative firm, reduces profit to the others and changes the rationale. Or regulators produce standards related to a previously unregulated new product, which increases certainty around firms' investment decisions.</i>

IMPACT ON SUPPLY OF CHANGE RESOURCES TO OTHER FUNCTIONS		
System level: impact on actors in other functions		
EXPAND	To others: As actors Adopt, this produces the intended benefit of the behaviour change, which delivers new or different resources to suppliers or buyers. Other change resources, especially information-related, may also be delivered to other functions beyond direct suppliers and buyers.	If farmers use better seeds, they may produce better quality crops. On discovering this better quality, Exporters may then buy and export more of these crops.

¹⁴ Adopt and Expand are two lenses for looking at the same behaviour change. This feedback loop to competitors or peers is best analysed at the system level, as the more actors change behaviour, the more such resources are produced