

Sustainable Change of Market Actors' Behaviour at Scale: **Lessons from AIP-Rural**

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Jake Lomax

Introduction

Development impact requires people and organisations to change their behaviour. Development programs seeking large-scale, sustainable impact require this behaviour change to spread, and to continue after program support ends. When we understand this, we begin to ask fundamental questions. What factors help market actors to sustainably change their behaviour? What factors hinder sustainable behaviour change? What factors help or hinder change from spreading? In this case study we use a new framework, combined with examples from AIP-R, to help answer these questions. We also show how programs can use their answers to improve interventions' chances of achieving sustainability and scale.

Market Systems Development (MSD) program guidance suggests that we start to answer the above questions by understanding market actors' *incentives* and *capacity* to change behaviour. Whilst MSD practitioners find this guidance useful, incentives and capacity are often assessed incorrectly. Typically this happens when practitioners overlook market actors' non-monetary incentives and barriers to changing behaviour. When this happens, the risk of an intervention failing to achieve scale and sustainability is much higher. Factors discouraging or preventing market actors from adopting and spreading behaviour change go ignored in intervention design, so barriers may remain.

A recent paper helps practitioners to avoid this mistake, detailing a wide range of 'Actor Behaviour Change' (ABC) factors that frequently shape market actors' incentives and capacity.¹ It should be emphasised that these ABC factors were not used in a structured way by AIP-R in designing their interventions. Rather they capture the

¹ Lomax & Shah (2018) Ease of Behaviour Change: a tool to help design for intervention success. Springfield Centre Briefing Paper. Available at <https://www.springfieldcentre.com/unpacking-incentives-and-capacities-factors-affecting-actor-behaviour-change/>

'Scale' here refers to an intervention benefiting a large number of women and men in its target group (e.g. smallholder farming households).

'Sustainability' refers to situations where the target group continues to benefit from changes triggered by the intervention, long after program support for those changes ends.

Australia-Indonesia Partnership for Rural Economic Development (AIP-R) is a suite of market development programs funded by the Australian Department of Foreign Affairs and Trade (DFAT) and supported by the Government of Indonesia, that aims to improve smallholder farmer's competitiveness and access to new markets, better inputs, know-how and technology. It works to achieve a sustainable increase in the net income of smallholder farmer households in eastern Indonesia, operating in East Java, West Nusa Tenggara (NTB), East Nusa Tenggara (NTT), Papua and West Papua.

AIP-R includes the PRISMA, TIRTA, SAFIRA and ARISA programs, working in agricultural value chains, tertiary irrigation, agricultural finance, and research and innovation respectively.

AIP-R aims to increase the incomes of poor women and men in rural Indonesia. To achieve this, AIP-R uses an M4P approach, facilitating changes in business models and government service delivery to grow markets for the crops smallholder farmers cultivate. Funded by Australia's Department of Foreign Affairs and Trade (DFAT), AIP-R began in November 2013. Its first phase has an AU\$77 million budget, and is implemented by Palladium and Swisscontact.

tacit understanding of AIP-R staff as to why some of their interventions achieved sustainability and scale, and others did not.

As well as offering explanations, this case study offers guidance. From AIP-R's experience, we draw out lessons on how MSD programs can improve their interventions' scale and sustainability, through widespread, lasting behaviour change.

The next section introduces the ABC framework. Sections 3-5 use the framework to explain scale and sustainability in AIP-R interventions across four sectors– Pigs in East Nusa Tenggara (NTT), Maize in NTT, Maize in Madura, and Tertiary Irrigation in East Java. Section 6 provides recommendations that readers can apply in their own programs, to make their interventions likelier to achieve sustainability and scale.

Understanding the likelihood of attaining scale and sustainability

When writing this case study, the authors asked AIP-R's leadership and intervention staff why certain interventions had achieved scale and sustainability, and others had not. Their responses suggested that good *prospects of behaviour change* were key. So what then are 'prospects of behaviour change'? There are three key components, explained below.

Selected Actor Behaviour Change factors relevant to AIP-R interventions

Capacities		Incentives		Factors affecting incentives	
1	Financial cost	4	Financial benefit (activity)	8	Risk to benefit
2	Skills/knowledge	5	Financial benefit (overall)	9	Time to benefit
3	Physical resources	6	Social benefit	10	Uncertainty of benefit
		7	Time savings benefit	11	Visibility of benefit
				12	Familiarity of activity
				13	Difficulty (time and effort)
				14	Opportunity cost
				15	Actor attitudes & priorities

- **How attractive and easy the behaviour change is for market actors.** The table shows the factors AIP-R found to affect the attractiveness and ease of market actors adopting a particular behaviour change². The factors relate either to types of capacity needed by market actors to adopt the desired behaviour change, types of incentive, or to factors that determine incentives. Each factor may be classified as a 'blocker' or 'enabler', depending on whether they make behaviour change more or less attractive
- **What market actors need in order to overcome the blockers to behaviour change.** Partners' ABC blockers are addressed by the program in the form of an offer of support. The resulting partner behaviour change may trigger the output of additional resources that drive behaviour change amongst wider market actors, upon whom the potential for scale and sustainability also depends.
- **How support and resources get to the actors facing blockers to behaviour change.** Widespread diffusion of the innovation depends on support (or resources 'triggered' by that support) being spread to relevant market system actors. The program needs to transfer its support effectively to partners, but for scale and sustainability to occur there is a need for diffusion mechanisms within the system that can efficiently push the resources needed for behaviour change through to competitors, market intermediaries, the target group, and other significant actors.



² For more information on the composition of these factors and the underlying concepts, see Lomax & Shah (2018).

Getting to easy behaviour change – Pigs NTT

Farmers:

Around 85% of farming households in NTT keep pigs, mostly for savings and use in social occasions, so pigs hold significant cultural importance. Yet pork yields are low. To raise yields, AIP-R's intervention initially focused on promoting households' acquisition of improved pig breeds.

Several factors made the new breed of pigs unpopular. Familiarity was one. The new breeds were large and of various colours; customers were used to rearing small black local pigs. Up-front financial cost was another. Improved breeds cost more to buy than the more familiar breed. Thirdly households had to spend more money on feeding the new breeds and keeping them healthy, and spend time learning how to rear them. This made for an expensive and risky behaviour change for farmers, even if the potential benefits were considerable with average daily gain in weight double that of local breeds. While some success was attained, this was primarily in urban and peri-urban areas where richer farmers were willing to take on the considerable investment and risk involved

AIP-R promoted a second innovation to raise pork yields: the commercial sale of pig feed more nutritious than the feed farmers were using. Here, the behaviour change was easier. Farmers could test a small feed pack at low cost and see visible benefits in pig weight gain in a matter of days. In contrast to hybrid breeds, buying improved feed also saved time. Women in particular had spent up to five hours a day preparing less nutritious feed used previously, which was now reduced to 45 minutes. Men started getting more involved in the care of pigs, and it was increasingly viewed as a business opportunity.

Box 1: System-wide scale and sustainability through an actor lens

Many programs, AIP-R included, use the Adopt-Adapt-Expand-Respond (AAER) framework to understand systemic change. AAER helps programs to understand stages of progress towards an intervention attaining scale and sustainability. The actor behaviour change analytical tool used here has a different, complimentary objective – to provide guidance on how to achieve scale and sustainability through deepening our understanding of why change does or does not happen.

In other words, analysing the ABC factors at an actor level can help us understand why we aren't seeing one or more of the stages of change in AAER at a system level. Why, for example, is a partner not adopting our recommendations? Why aren't competitors taking on the innovation or 'crowding in'? Why are regulators not responding to emergent change? The answers to these questions can be explained by the three components of 'prospects of behaviour change' outlined above.

It is important to emphasise that an actor lens is not just about partners. It is about all actors in the system who we need to change behaviour, from partners' competitors to beneficiaries, value chain intermediaries and 'respond' function actors.

Actor behaviour change: Rural farmers start using: (1) new breed; (2) commercial pig feed		
ABC FACTOR	Ease of BC rating: 1.BREED	Ease of BC rating: 2.FEED
Financial cost	✗	✓
Skills/knowledge	✗	✓
Financial benefit (activity)	●	✓
Time savings benefit	●	✓
Risk to benefit	●	✓
Time to benefit	●	✓
Visibility of benefit	✓	✓
Familiarity of activity	✗	●
Uncertainty of benefit	●	●

EASE OF BC - RATINGS	
✓	enabler of behaviour change
●	neutral factor
✗	blocker of behaviour change

This shift to an easier behaviour change allowed for a shift in targeting of the intervention towards poorer, rural farmers that form the vast majority of the pig-keeping population. And as uptake in these areas increased, the benefits were visible not only to those farmers who started using improved feed, but also to their neighbours. The change became familiar, outcomes became more certain, and by December 2018 nearly 102,942 households in NTT had started using commercial feed as a result of AIP-R's interventions.

Input supply & retail:

Why had feed producers not sold pig feed in rural NTT before AIP-R's intervention? For pig feed producers, two up-front costs had made the market unattractive. Pig feed producers would need to invest in creating demand for their feed through market promotion in rural areas, while also having to build connections with rural retailers to stock it. Meanwhile, the financial benefits were uncertain; demand was new, doubted, and customers unfamiliar.

As such the behaviour change was difficult to justify for feed companies. However, the program understood the strength of incentives for behaviour change amongst farmers and local actors. They set about leveraging these to increase certainty and to reduce the difficulty and cost of change through building the local supply chains directly.

Following village feed promotion events, existing small retailers were persuaded to stock a product that AIP-R was undertaking to promote locally. The persuasion to undertake this activity was performed directly by AIP-R's co-implementer, and took approximately an hour or so per firm. As the retail network was built, the behaviour change required of companies was considerably reduced – rather than having to go out and make contacts using their own field agents, they had simply to link up with a nascent network established by AIP-R.

The program has since partnered with seven feed producers who have entered the market in NTT. In principle, certain ABC blockers should diminish over time, especially uncertainty and knowledge; as firms observe others successfully entering the market, the uncertainty of benefit reduces. This seems to have happened, as the time taken for AIP-R to persuade firms to enter into a partnership to enter the market has reduced from up to 18 months of negotiation for early market entrants to a few weeks for those who have entered more recently. And four firms have entered the market without AIP-R partnership. Despite the diminished blockers, AIP-R has offered the same level of financial support (cost sharing of marketing efforts) to later entrants – even those who would have entered autonomously. This is because each entrant's marketing increases the number of farmers familiar with improved feed and aware of its financial and time-saving benefits, speeding up adoption of the innovation among farmers. It is to this issue of support and 'triggered' innovation resources we turn in the next case.

Actor behaviour change: Feed companies invest to start distributing feed in NTT

ABC FACTOR	Ease of BC rating: 1.BREED	Ease of BC rating: 2.FEED
Financial cost	✗	✓
Financial benefit (activity)	●	✓
Difficulty	✗	✓
Uncertainty of benefit	✗	✓



Tailoring and improving program support to promote behaviour change – Maize Madura



How can programs trigger behaviour changes that continue even after the program stops supporting the change? First, you identify the constraints (ABC blockers) preventing market actors from changing behaviour. Next, you assess if the constraints can be overcome with one-time investments, or will keep recurring after program support ends. If one-time investments are all that programs require to create sustainable change, programs can support market actors to change behaviour sustainably. Finally, when deciding how to support behaviour change, programs should adapt the support to addressing market actors' main constraints to behaviour change. For instance, if you can demonstrate to a company that there is a market for their products you may convince them to invest their own money in promoting products in that region.

Actor behaviour change: Multinational seed companies invest in distribution and marketing in Madura			
ABC FACTOR	Ease of BC rating		Support & Resources
Skills/ knowledge	×	◀	Information about location of farmers using hybrid seeds. Information about consumer preferences of farmers in the region. Gendered information about household decision making to support marketing efforts.
Difficulty	×	◀	Acted as a trusted 'sounding board' for discussion of ideas in entering the market.
Risk to benefit	●	◀	Connections to government provided to aid public-private coordination of seed distributions.
Uncertainty of benefit	●	◀	Embedded finance provision for farmers to increase adoption rates and increase certainty of firms' profitability in entering the market.

In the NTT pig feed market case above, companies were unsure how much demand there was for the product. In the case of companies selling hybrid maize seeds in Madura Island, the main constraints to behaviour change were slightly different. Seed companies were aware of the potential demand and indeed some had spent years trying to crack the market, but with limited success. Despite the financial benefits from adopting hybrid maize seeds, seed companies were unsure how to persuade farmers in Madura – which is culturally quite distinct from mainland East Java – to buy them.

AIP-R's initial experience with one of the main maize seed companies in Madura illustrates the importance of programs adapting their offer to fit market actors' specific constraints to behaviour change. The company initially refused to partner with AIP-R because managers thought AIP-R was a "conventional NGO" that would offer nothing other than finance, which was not a constraint.

AIP-R chose to intervene using information rather than money. Staff conducted a market assessment and, later, a gender analysis of the maize market in Madura. These studies gave AIP-R market information that seed companies valued, as the information filled skills and knowledge gaps these firms faced in marketing. By offering information about the constraints seed companies faced, AIP-R was able to influence them, helping them to improve their marketing investments.

Using their understanding of the context, where maize has been grown primarily for domestic consumption, AIP-R also worked with an early partner to improve its product offering. AIP-R encouraged the company to promote a maize seed variety with a kernel size and colour similar to the locally-grown maize, rather than the more yellow, larger kernels they had been promoting. Introducing a product that looks familiar to farmers removed one blocker of ABC at the farmer level and contributed to the company increasing its sales from less than 5,000kg to almost 50,000kg in one year.

One risk factor for firms investing in the region was government distribution of free hybrid maize seeds to farmers. Farmers who receive free seeds or think they will receive them are less likely to buy seeds from retailers, deterring seed companies from investing in selling to farmers via retailers. AIP-R used its understanding of the market to build good relationships with regional government, and facilitated coordination meetings between government and its partners in order that free maize distributions could be targeted at farmers in areas where nascent commercial provision was absent. Persuading the government was not difficult – it was in their interest to distribute the free maize in this way, but they were lacking the information to target effectively.



From these connections, the idea emerged to create an embedded finance model, which has proved a particularly effective mode of improving hybrid maize outreach. AIP-R linked up finance providers to enable those farmers constrained by lack of working capital to access the more expensive inputs required for hybrid cultivation.

In short, over time AIP-R strengthened the support by improving the information they had at their disposal to share with market actors and the quality of connections they were able to offer. This improved their reputation and ability to influence, helping the formation of partnerships with four companies as well as the ability to influence at an increasingly senior level within several of these partnerships. It also created an environment where firms and government could contribute to innovation themselves, which altogether by September 2018 had delivered an average 253% increase in maize income to nearly 45,603 Madurese farmers switching from local seed to hybrid.

Improving & capitalising on the diffusion of innovation – Tertiary Irrigation East Java and Maize NTT



Behaviour change spreads amongst market actors in two ways. Occasionally significant behaviour changes amongst early adopters may ‘change the game’ for other market actors, by massively changing their incentives to adopt the same new behaviour. More often, new information, inputs or other resources spreads to other market actors through the supply chain or other networks, improving their capacity to adopt a behaviour change or their awareness of its benefits. The focus here is on the latter – the diffusion of innovation.

How effectively this happens depends crucially on the quality of the innovation itself.³ It also depends on the communication channels and networks available for diffusion, and the incentives market actors have to share or

³ E.g. information about seeds that increase yields by 50% will spread amongst farmers more quickly than those with a 5% increase.

hide information about the innovation. Classic MSD examples, from Katalyst for example⁴, diffuse innovation by finding a *scale agent* – a business with the networks, influence and incentives to diffuse innovations.

One lesson from these classic examples might be to choose to intervene in subsectors where scale agents are present - as AIP-R found in Maize Madura – or, failing that, build networks for them – as AIP-R did with Pigs NTT. Where you can work with a large manufacturer with massive outreach through a retail network, then one actor (the manufacturer) changing behaviour can benefit tens or even hundreds of thousands of people. But sometimes we work in markets that lack a regional, let alone national scale agent. And we work with behaviour changes where information required is detailed and complex, and certainly cannot be communicated through packaging or point of sale posters for associated products. Getting to scale in such contexts is inevitably more difficult.

AIP-R's work in the NTT maize sector and tertiary irrigation in East Java are examples of this. They involved working with maize nurseries and irrigation service providers (ISPs) respectively, both of which are non-competing small firms serving geographically distinct markets. The behaviour changes sought at partner level were complex, relatively expensive in terms of financial investment, and had uncertain outcomes⁵. The focus here though is on the 'how to' information needed by the nurseries and ISPs to change behaviour, and AIP-R's different experiences in diffusion of this information.

Slogging to scale despite static and weak diffusion of innovation

In NTT province, AIP-R support local plant nurseries producing open pollinated varieties (OPV) of maize seed. AIP-R encourages them to scale up, improve quality, and sell direct to farmers as well as to government. These small, often family-run nurseries generally sell maize seeds to the government to supply mass distribution programs. Selling to the private sector is new and unfamiliar. A great deal of capacity building is needed to get nurseries to feel comfortable managing promotion as well as to overcome all the risk, time costs and skills gaps to get them to scale up their business to the point where selling to the private sector is profitable. This, combined with the seasonal timeframe for incremental scale-up means that AIP-R has had to support maize seed nurseries more intensively than most partners in order to achieve behaviour change.

Unlike in the NTT pig feed market, there is limited opportunity to use large-scale input suppliers or retail networks to diffuse innovations. Large seed companies are neither involved nor interested in growing OPV maize seed in NTT. It is nurseries that employ marketing agents to encourage farmers to buy the OPV. And it is nurseries that find new seed out-growers to scale up and share best practice information to improve the quality of seeds. This has led to something of a constraint to growth in scale and sustainability of the intervention: busy local nursery owners with many business interests outside OPV maize have responsibility to transform not only their own business and seed out-grower network but also build the demand side amongst farmers, almost from scratch.

Therefore, at present it is AIP-R alone that can play a role in diffusing innovation amongst other nurseries. There is no association of nurseries that would allow for ready sharing of information on the opportunity and how to make the requisite changes. Even if other nurseries were enthusiastic to crowd in, no actor other than AIP-R has been identified that is willing and capable of giving other nurseries the knowledge this would require.

There has been no real reduction in the substantial cost of support required from AIP-R to persuade nurseries to market OPV maize seeds to farmers. The type of support AIP-R gave also remained the same. The time required by the intervention team to diffuse the innovation has meant they were only able to partner with four nurseries in the first two years of intervention, and low ease of BC has resulted in two of these abandoning efforts to sell to the open market.⁶

4 See, for instance, Gibson, A. (2005). Bringing Knowledge to Vegetable Farmers: Improving embedded information in the distribution system. Katalyst Case Study Number 1. <http://www.springfieldcentre.com/wp-content/uploads/2012/10/sp0502.pdf>

5 They were also somewhat different in emphasis than government policy in those areas, which removed local and national government as a partner in scaling the innovation.

6 Nurseries have however made some small changes to enable them to diffuse innovations more efficiently to out growers, for example taking on only out grower seed suppliers in concentrated rather than scattered geographic areas so they can share skills information with more suppliers in less time, thus allowing them to expand their supply base while maintaining quality improvements. However there have been no fundamental changes to the model.

Dynamism in diffusion of innovation

In the tertiary irrigation sector, AIP-R promotes greater efficiency amongst private irrigation service providers (ISPs). This enables ISPs to improve profitability and therefore expand their provision to more farmers without access to irrigation. AIP-R's approach was initially similar to that in NTT nurseries – support was resource intensive and provided directly to ISPs by the program. AIP-R staff were busy performing all aspects of analysing what investment in infrastructure was needed, liaising directly with multiple partners to persuade them to make investments, and coaching them through the changes.

Actor behaviour change: Nurseries invest to be able to sell to the open market				
ABC FACTOR	Ease of BC rating		Support & Resources	Innovation Diffusion
Skills/knowledge	x	◀	Information about how to manage and grow a maize seed business that sells direct to farmers	▶ Ongoing transfer from AIP-R to nurseries

AIP-R became satisfied they had demonstrated this set of ISP behaviour changes could effectively deliver efficiency gains, and established a clearer understanding of the informational support needed to drive these changes. This achieved, AIP-R shifted its approach. They supported a pump retailer, Mesindo, to deliver the consulting service AIP-R had been providing. This shift was key to scaling up. AIP-R were now able to focus more on diffusion – seeking out these new ISPs while Mesindo delivered technical support. From four ISP partners over two years of direct support, in the following 12 months AIP-R successfully connected 14 ISPs to the consulting service provided by Mesindo. Recently, Mesindo has sought out new clients themselves, and has now delivered a commercial consulting service to an additional four clients without any need for AIP-R involvement. (See the accompanying case for more detail on AIP-R's work in the tertiary irrigation sector).

Actor behaviour change: Nurseries invest to be able to sell to the open market				
ABC FACTOR	Ease of BC rating		Support & Resources	Innovation Diffusion
Skills/knowledge	x	◀	Informational support on how to drive efficiency in irrigation provision.	▶ First, diffusion through AIP-R. Second, diffusion through Mesindo, AIP-R finds ISPs. Third, diffusion through Mesindo alone.



Recommendations for getting to scale and sustainability by improving prospects of behaviour change



Assess the ease of behaviour change among all relevant categories of market actor. ABC factors determine the likelihood of interventions achieving scale and sustainability, and they should be understood in depth. This includes assessing the ease of behaviour change among intermediary actors between partners and the target group, non-partners that you want to crowd in later, and among the target group itself.

A focus on ease of behaviour change **does not imply we should shy away from difficult or time-consuming changes** where necessary, especially in supporting functions. But we should go into such situations with eyes open. And on the target group particularly, there should be a realistic hope of getting to easy behaviour change. As we saw with Pigs-NTT, it is much easier to get to scale when behaviour change is easy for the target group.

Changing behaviour depends on more than money – even for profit-oriented companies. It is well understood that financial benefits from change are important for interventions to reach scale⁷. However, this case study, using the ABC factors, illustrates the wider range of incentives and capacities that AIP-R found to be important in shaping intervention success.



Tailor program support to address market actors' specific constraints to behaviour change, and continue to invest in improving the support. As well as making your support more effective in stimulating their change in behaviour over time, offering support that addresses market actors' genuine needs will build the program's reputation and ability to influence. As we saw with Maize Madura, as a starting point, a detailed understanding of ABC blockers for various segments of the target group will be valuable information for firms and government actors you may wish to partner with.



Adapt program support in response to improved understanding of the changing market. New or adapted interventions may be needed that target ABC blockers that were previously overlooked, or blockers that have emerged as the behaviour change has taken hold. For example, as firms invested more in the maize market in Madura, coordination with the government subsidy program became more of an issue. The program responded by providing linkages between firms and government to overcome this.

Behaviour changes are more likely to spread and achieve scale when the support or resources required to deliver those changes cost little to share. In some cases, where behaviour change is easy to explain and attractive to adopt, market actors may raise awareness of it without needing a direct financial benefit. This was the case among pig farmers in NTT; many recommended to their neighbours the improved pig feed they had bought. In contrast, behaviour changes that require a lot of explaining or capacity building will cost market actors more to spread. This was the case with maize seed nurseries in NTT province and with irrigation service providers – the innovations could not spread by word of mouth.



Where diffusing an innovation is costly, look for market actors who benefit more from diffusing the innovation than it costs them. For example, pump manufacturer Mesindo benefited from raising irrigation service providers' awareness of innovations by selling its knowledge to them as consultancy services. Mesindo also offered its knowledge as a "free" service to some irrigation service providers, to strengthen its relationships with them as potential customers.

Too much direct involvement in diffusion on the part of programs can stymie creativity. Much time may be invested in pushing reluctant or ill-equipped partners towards behaviour change. When adoption of behaviour

⁷ See, for example, Davies, G. (2016). *Getting to Scale: Lessons in reaching scale in Private Sector Development programmes*. Adam Smith International.

change by one or more large firm or government body would benefit vast numbers of your target group, it may be tempting to keep on slogging. However, as the case of hybrid maize seed in Madura shows, you may achieve scale-up faster and more sustainably by spending your time improving the innovation's ease of BC and addressing partners' specific behaviour change constraints.





AIP-Rural

Australia-Indonesia Partnership
for Rural Economic Development

**Jl. Margorejo Indah I Blok A-535
Surabaya 60238, Indonesia**

P. +62 31 842 0473

F. +62 31 842 0461

www.aip-prisma.or.id