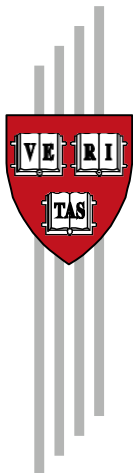# Learning to Target for Economic Diversification: PDIA in Sri Lanka

Matt Andrews, Duminda Ariyasinghe, Thamari Batuwanthudawa, Shivanthika Darmasiri, Nilupul de Silva, Peter Harrington, Prasanna Jayasinghe, Upul Jayasinghe, Gamini Jayathilake, Jayani Karunaratne, Lalith Katugampala, Jeewani Liyanapathirane, Champika Malalgoda, Tim McNaught, Anisha Poobalan, Sanjeewa Ratnasekera, Priyanka Samaraweera, Erangani Saumya, Daniel Stock, Upali Senerath, Ranjan Sibera, Indira Walpita, and Shamalie Wijesinghe

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Learning to Target for Economic Diversification
PDIA in action in Sri Lanka

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Abstract

Many countries, like Sri Lanka, are trying to diversify their economies but often lack the capabilities to lead diversification programs. One of these capabilities relates to targeting new sectors to promote and pursue through a diversification policy: countries know they are 'doomed to choose' sectors to target,[1] but lack effective capabilities to do the targeting. This paper narrates a recent (and ongoing) initiative to establish this kind of capability in Sri Lanka. The initiative adopted a Problem Driven Iterative Adaptation (PDIA) process, where a team of Sri Lankan officials worked with Harvard Center for International Development (CID) facilitators to build capabilities. The paper tells the story of this process, providing documented evidence of the progress over time and describing the thinking behind the PDIA process. It shows how a reliable targeting mechanism can emerge in a reasonably limited period, when a committed team of public officials are effectively authorized and engaged. The paper will be of particular interest to those thinking about targeting for diversification and to those interested in processes (like PDIA) which are focused on building state capability and fostering policy implementation in public contexts.

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[1] The term here comes from Hausmann, R. and Rodrik, D. 2006. Doomed to Choose: Industrial Policy as Predicament. Draft. http://drodrik.scholar.harvard.edu/files/dani-rodrik/files/doomed-to-choose.pdf

Introduction

Sri Lanka's economy needs to diversify. It has produced a small, stable basket of primary exports for over two decades, but these exports are stagnating or in decline. The entrenched production profile also fails to provide jobs for the country's new workforce, many of whom demand higher wages than they did a generation ago, but also have higher skills to employ.

The economy has not diversified organically, as happens in some other contexts (where structures constantly adapt in response to changing conditions, and innovate to yield new opportunities). There are a few new—but relatively small—service areas (in IT, especially) and some low volume new export products, but such marginal innovation will not create a new growth highway for the country.

A policy intervention is thus needed, to catalyze innovation quickly and in a sustainable way. One can think of the needed intervention as helping to establish and nurture adaptive capabilities that the economy currently lacks. Drawing on the new literature on economic complexity and complex adaptive systems, these capabilities promote the dynamic emergence of novelty, which is the engine of growth and diversification.[2]

But does government have the capabilities it needs to lead such interventions? One way to think about this involves reflecting on the kind of policies relevant to different parts of what complexity theorists call the 'adaptive cycle'.[3] Government policies in Sri Lanka facilitated an effective 'exploitation' phase in the 1980s and 1990s ("a phase of growth due to readily accessible resources in the ecosystem"[4] including tea, rubber, and labor to staff a garments sector). Policies have done well to promote what these theorists call 'conservation' since that time (where policies help existing industries consolidate and thrive, but where, "as resource potentials are increasingly utilized, the system becomes more interconnected, less flexible, and vulnerable to outside shocks" like the challenges of competition from lower income countries). Government policies have not proven capable (yet) at fostering the 'creative destruction' or 'reorganization' needed to create conditions "where novelty can emerge, especially through unexpected associations in the system."

Put more succinctly, government agencies have become adept at supporting existing industries, but have not promoted large-scale entrepreneurial 'emergence' for over a generation. When

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[2] Economic complexity is a growing field of work, and includes recent work like Hidalgo, C. and Hausmann, R. (2009). "The Building Block of Economic Complexity". *PNAS*. 106(26), 10570–10575. A core idea is that economies are complex systems that evolve over time to foster growth. Specific capabilities are seen to foster such evolution, through processes that facilitate the emergence of novelty. The idea of policy interventions actually promoting this emergence comes from (among other sources) the leadership work of Uhl-Bien, Marion and McKelvey, and Lichtenstein and Plowman (Uhl-Bien, M., Marion, R. and McKelvey, B. (2007). Complexity leadership theory: Shifting leadership from the industrial age to the information era, *The Leadership Quarterly* 18, 298–318; Lichtenstein, B. and Plowman, D. (2009). "The leadership of emergence: A complex systems leadership theory of emergence at successive organizational levels" M*anagement Department Faculty Publications*. Paper 63. http://digitalcommons.unl.edu/managementfacpub/63). These authors argue that leadership interventions (and associated policy constructs) can foster the conditions needed to promote emergence of novelty.

[3] For more reading on the adaptive cycle, see the following: Gunderson, L., & Holling, C. S. (Eds.). 2001. *Panarchy: Understanding Transformations in Human and Natural Systems*. Washington, DC: Island Press.; Holling, C. S. 2001. Understanding the complexity of economic, ecological, and social systems. *Ecosystems*, 4: 390-405.

[4] Quotations are from page 4 of Lichtenstein, B., Haigh, N., and Herman, E. (2014). What is the process by which social innovations emerge? A study of initiatives to restore Millers Creek. EGOS Conference, Netherlands.

outside agencies, academics and consultants have offered advice on the issue, often under the guise of 'diversification', the advice has largely stayed on paper or on the shelf.

Working with Harvard Center for International Development (CID) academics in August 2016, a group of Sri Lankan government officials identified a list of four missing or poorly formed policy capabilities limiting government's ability to do more in this space. These missing capabilities relate to the following problems government agencies face in thinking about promoting new economic activities in their country:[5]

- "We have limited resources, and would need to target specific products or sectors, but do not know what targets to choose or how to do targeting or focus policies on targeted sectors."
- "We do not know how to engage potential investors in new sectors, where we have no experience and investors also have no knowledge of Sri Lanka."
- "We do not know how to support the 'marginal' efforts by new entrepreneurs to promote new exports, and ensure that the country's export regime is conducive to the unexpected innovation of these agents."
- "We do not know how to create a responsive and attractive climate for potential investors with as yet unknown needs and concerns."

These problems became the focal point of a work program to facilitate the emergence of new capabilities in various government teams,[6] between September 2016 and March 2017. The program has been taking place under the auspices of the Board of Investment (BOI) and Export Development Board (EDB), and is facilitated by Harvard University's Center for International Development (CID). The program has adopted a Problem Driven Iterative Adaptation (PDIA) process developed by CID to address complex challenges in governments,[7] whereby local officials work iteratively in teams to find their own solutions to pressing problems, learning as they progress and releasing new or latent capabilities in the process.

This paper focuses on progress in addressing the first problem listed; the lack of targets and of knowledge about how to identify targets and focus government policies around targeted sectors.

The paper is being written half-way through the PDIA process (in December 2016) after about three to four months of work. It intends to show how the PDIA process works, and to showcase the targeting capabilities that are emerging in Sri Lanka through this process.

The paper offers a qualitative, case narrative[8] of the PDIA engagement (which shares many characteristics of an action research initiative).[9] The narrative is based on a sequential

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[5] These are paraphrased versions of comments by government officials when CID academics visited to Sri Lanka.
[6] There were five teams in total, with four working on the problems listed here and an additional team working on a tourism project that essentially combined all these problems.
[7] The PDIA methodology has emerged over the past five years, and is actively used by the Building State Capability program (BSC) at CID. See the BSC website: https://bsc.cid.harvard.edu Also see the initial work on PDIA: Andrews, M., Pritchett, L., & Woolcock, M. 2013. "Escaping Capability Traps Through Problem Driven Iterative Adaptation (PDIA)." *World Development* 51(2013): 234 – 244.
[8] This is a linear story of the PDIA work process in this team (the case), as written by those involved in the process.
[9] The PDIA process is designed in much the same way as an action research initiative, where external facilitators work with teams to iteratively solve problems, learning all the while about the kinds of capabilities they lack and need to develop—and actively developing those capabilities.

presentation of documentary evidence produced every two weeks over the short period covered. Referenced documents included regular (bi-monthly) progress updates by a team of government officials working on the focal problem, and regular (monthly) participant observation reports by facilitators from Harvard's CID. These materials were combined into the narrative provided here, written primarily by the CID team members; but the overall story was reviewed by all parties involved (to provide a control on individual interpretive bias and ensure the narrative captured multiple views on the story[10]). The paper notes instances where individuals participating in the work had a different view on the story-line offered, or its interpretation. Given the inclusive process of doing this work, and writing this paper, the co-authors include everyone involved—as authorizers, team members, and facilitators—who also had a hand in writing or improving or commenting on the final piece.[11]

Brief background

This is not the first paper to note the need for diversification in Sri Lanka. Economists in the country have been raising the issue for over a decade, and government itself has been fixed on the diversification challenge for a while. As Professor Sirimevan Colombage noted in 2016, "Economic transformation and export diversification are subjects that have been discussed extensively in Sri Lanka as well as in other developing countries over the last so many decades, and there are numerous empirical studies on the subject."[12]

A number of the studies calling for diversification also focus on the need for targeting, recognizing that government must focus policies aggressively if it is to establish sectors needed to diversify. Recent papers by outside organizations have gone beyond noting the need for targeting, and actually provide lists of potential targets.[13] These lists have been provided to different parts of the Sri Lankan government. For instance, one donor targets were prepared for the Export Development Board (EDB) and another donor's targets were prepared for the Board of Investment (BOI). The target lists are also commonly generated without any direct engagement by Sri Lankan officials, and provided by external experts without any transfer of the targeting methodology to Sri Lankans.

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[10] Case narratives are often not considered serious research, especially in 'hard' social sciences. They are seen to lack rigorous data collection and are also considered susceptible to various other research limits (especially related to the many difficulties involved in collecting evidence about 'the story' and of managing bias in interpreting evidence that is collected). This paper attempts to ensure a high level of reliability in the narrative by: (i) reporting on a recent, short process (that is still in progress, and is hence subject to limited bias because of memory concerns); (ii) drawing on regularly developed, procedural documents (that were designed to ensure a constant and consistent source of evidence about progress); (iii) engaging all individuals involved in the process to either write primary documents used as evidence, or gather these together for the final paper, or review and comment on this paper.

[11] This multi-author approach is common in the sciences, where many researchers participating in an experiment are credited with the final published article. This is also the approach taken when publishing results of randomized control trials (RCTs), which are also presented as experiments. One could consider the current case paper as a non-random, non-controlled, trial (or organizational action research experiment) involving all those credited as authors.

[12] http://www.sundaytimes.lk/160124/business-times/harvards-ricardo-hausmann-has-no-fresh-message-for-crisis-ridden-sl-economy-180119.html. See also http://www.dailymirror.lk/62893/need-to-diversify-export-items-and-destinations. See also a 2013 blog on the topic by the Pathfounder Foundation: http://pathfinderfoundation.org/pf-projects/on-going/economic-flash/178-export-expansion-and-diversification-in-sri-lanka-towards-a-new-paradigm.

[13] See http://thecommonwealth.org/media/press-release/commonwealth-helps-sri-lanka-diversify-exports

While these targeting products arguably have some value for Sri Lanka in its current state, it is less than optimal to have (i) different target lists, (ii) produced for different entities, (iii) with no domestic knowledge of how the targets were identified, and (iv) with no domestic capability to evaluate the targets or assess alternative potential targets or update target lists in future.

In short, having a fragmented set of opaque, externally generated targets, is not the same as having the internal capability to generate robust, transparent and generally agreed targets.

PDIA to build an internal targeting capability

Realizing the limits of external targeting advice, government leaders (especially in the Ministry of Development Strategies and International Trade (MODSIT), and the Board of Investment (BOI), and the Export Development Board (EDB)), decided to establish internal targeting capability in August 2016.

These officials started by asking a team from Harvard University's Center for International Development (CID) for a 'best practice' targeting methodology. This, the CID group explained, did not really exist. Countries that did targeting usually had their own mechanisms and these were often kept under-wraps and out of sight.

Further, the CID team argued that targeting mechanisms are often different across countries, given different reasons for targeting and diversifying. Some countries look for skill-intensive employment through diversification, for instance, whereas others look for export-intensive production, and more. There are also different contextual factors that impact targeting (where some countries have geographic advantages when they target, for instance, and others have resource advantages, and more).

Given this, the government officials agreed to appoint a team to work on establishing a domestic targeting mechanism and list of targets for Sri Lanka. This team was nominated to participate with four other teams also working on addressing problems related to Sri Lanka's growth challenge. The teams would work with a CID team in a multi-month Problem Driven Iterative Adaptation (PDIA) workshop.

The PDIA workshop employs an approach to building state capability that involves local teams identifying, addressing, and solving pressing problems through a process of repeated iteration. Teams work consistently for a six or seven-month period, stopping every two weeks to assess progress and determine next steps. The goal is to both resolve the problem and build capabilities to ensure the problem can be more organically resolved in the future.

In pursuing such novelty, the PDIA process engages agents in a purposeful set of actions designed to foster quick lessons and new engagement and interactions. This action learning and interaction is intended to promote what complexity theorists call 'emergence', defined as follows by the sociologist Herbert Mead: "When things get together, there then arises something that was not there before, and that character is something that cannot be stated in terms of the elements which go to make up the combination."[14] As described, there is obviously an element of serendipity in the PDIA process; it yields something new that could not be foreseen or pre-

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[14] This is a quote from page 30 of Mihata, K. (1997). The Persistence of 'Emergence' in Eve, R. Horsfall, S, and Lee, M. (Eds) *Chaos, Complexity & Sociology: Myths, Models & Theories*. Thousand Oaks, Ca: Sage. pp. 30-38.

planned or pre-programmed. In a sense, then, PDIA is about 'creating luck' to promote novelty.[15]

An initial PDIA workshop

Members of the targeting team were identified by senior leadership in the Board of Investment and Export Development Board (BOI and EDB). The authorization of this leadership is crucial for all PDIA-type work, given that the teams often engage in new and even speculative activities, and need both cover and support from decision-makers.[16] Team members were drawn from research and policy advocacy, promotion department, investment appraisal, project implementation and environment departments in the BOI and two officials from EDB (to ensure some degree of common engagement). They met for the first time in early September, 2016, in a workshop facilitated by Harvard's CID. This workshop introduced the team to PDIA, which was presented as a policy development and implementation process CID uses to help governments address complicated and complex challenges (where complicated challenges involve many parts, often requiring significant coordination, and where complex challenges are additionally fraught with uncertainty and risk—where policymakers and/or implementers do not know what the solution is, or how to implement such, and thus face risks in even pursuing the challenge[17]).

In this first workshop, the team was initially challenged with constructing the problem: identifying what the targeting problem was, why it mattered, who it mattered to, and who it needed to matter to more (in order to become a serious policy issue worthy of political and bureaucratic support). Problem construction is a key starting point in PDIA, given the rationale that change occurs when the status quo is disrupted, and enough agents care sufficiently about this disruption to work on finding a solution.[18] Well constructed problems can promote disruption and mobilization, and hence facilitate a change-inducing context.[19] Such problems can also ensure a clear purpose for action—a reason 'why' work is being done—which is crucial for building and maintaining intrinsic motivation in change processes (given that intrinsic motivation is more powerful than extrinsic motivation and that methods of extrinsic motivation are not always available in the public sector).[20] In reflecting on these problem construction questions, the team noted that

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[15] The CID team regularly characterizes PDIA as a process where agents work aggressively to prepare themselves for emergent opportunities, reflecting the oft-cited comment attributed to the Roman philosopher Seneca that, "luck is what happens when preparation meets opportunity."

[16] For more reading on the importance of authorization in building state capability, see See Andrews, M., Pritchett, L., and Woolcock, M. 2016. Managing your authorizing environment in a PDIA process. Harvard Center for International Development Working Paper 312.

[17] A large literature has emerged to describe differences between complex and complicated problems. See, for instance, Snowdon, D., and Boone, M. 2007. A Leader's Framework for Decision Making. *Harvard Business Review*. November. (Available at https://hbr.org/2007/11/a-leaders-framework-for-decision-making).

[18] Many literatures emphasize the importance of disruption as a facilitator of change, including new institutional theory and complexity theory (which speaks of the importance of a 'dis-equilibirum state' for fostering change). See, for instance, Lichtenstein and Plowman (2009); Greenwood, R., Suddaby, R., and Hinings, C. R. (2002). Theorising Change: The Role of Professional Associations in the Transformation of Institutional Fields. *Academy of Management Journal* 45(1), 58–80; and Andrews, M. (2013). The *Limits of Institutional Reform in Development*. Cambridge: New York.

[19] For a longer discussion on the role of problems in fostering change, see Andrews, M., Pritchett, L., and Woolcock, M. 2015. Doing Problem Drive Work. Harvard Center for International Development Working Paper 307. See also Lichtenstein et al (2014, as cited, page 4) who argues that [in complex systems] "emergence starts when individuals or groups identify a problem or opportunity, and begin to actively pursue it, initiating a phase of disequilibrium."

[20] The idea that problems fuel a sense of purpose is embedded in a long literature, represented in popular syntheses (Sinek, S.2009. Start with Why. New York: Penguin; Pink, Daniel. 2011. Drive. New York: Riverhead Books).

Sri Lanka had "failed to identify the potential dynamic products and services capable of attracting FDI and enhancing exports at national level" which matters because it "affects BOP (Balance of Payments)", "regional development", "employment generation", and "New tech and know- how" (as shown in Figure 1).

With the focus on more than just 'targeting'—but also on actually attracting FDI—the team noted that the problem's impacts mattered to broad groups across government and the private sector. They also indicated that many affected parties were less aware of the problem than they needed to be—which was one reason many entities inside and outside government did not coordinate their activities sufficiently to address the problem.

The team agreed that it needed data to show the deficient FDI performance, and to communicate these data to a variety of groups who would need to work together in solving the problem.

This discussion led to a second set of PDIA questions, focused on problem deconstruction (breaking the problem down to identify potential entry points for action). The questions centered on 'why' the problem persisted (what was causing the problem). The idea was to conduct a rapid root cause analysis, where the team would identify the factors that underlay this problem.

Figure 1. The team's initial problem statement

In answering 'why' the problem persisted, the team ended up identifying a significant number of causes, in a comprehensive Ishikawa (or Fishbone) diagram. They noted that Sri Lanka failed to attract FDI because of failures to identify sectors where FDI and exports should be supported, policy inconsistencies (in land, tax, labor, etc.), overlapping and obsolete laws, the lack of an international policy, and more (see Figure 2).

Figure 2. The team's initial problem deconstruction

The team did not explore all of the

causal strands, as the process pushed them to rapidly move beyond this stage to identify where they could take action (given that PDIA has a bias towards promoting immediate action, which creates opportunities for experiential learning, the basis of building new capabilities in PDIA[21]).
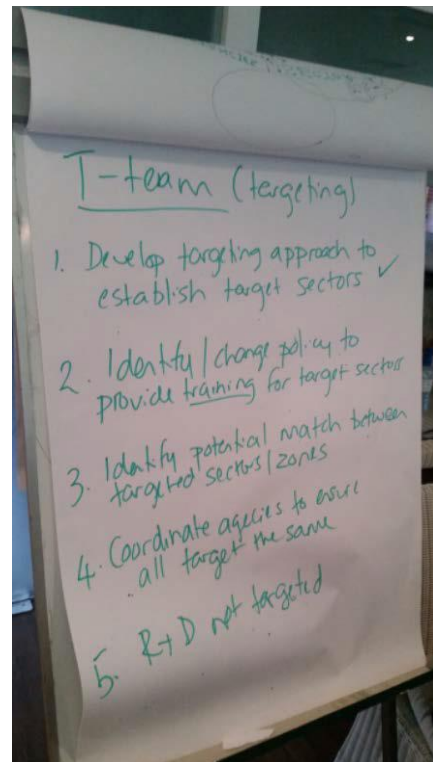
In pushing towards action, the team members were asked to identify the criticality and accessibility of each strand. 'Criticality' focused on the importance of the cause to the problem (where 1 is low importance and 10 is high importance). 'Accessibility' focused on whether the team felt they could do something to actually address the problem in the short run (where 1 implies that they cannot act in the short run, and 10 implies that they can act in the short run).[22]

Figure 3. The team's five entry point 'problems'

Figure 2 shows that all areas were considered critical, but a number were not seen as 'accessible' (including 'policy inconsistencies' and 'overlapping/obsolete laws'). A number of areas were seen as both critical and accessible, however, and this analysis led the now-named 'T-team' to identify five areas where they should and could start acting (see Figure 3): 1. The lack of agreed sector targets; 2. The lack of targeted sector training; 3. The lack of targeted access to industrial land (especially in zones); 4. Weak coordination across government agencies; and 5. The lack of effective targeting for Research and Development.

The team was then asked to identify the action it could take to start addressing each of the selected 'entry points', as well as what they hoped to achieve in two months and then in six months in each area (where the 6-month objective is always defined as 'what would the problem look like solved, in this period' in the PDIA method).

The PDIA focus is always on being practical, and ensuring that the 'next steps' identified are small enough to be possible (so that the teams feel empowered to act) but also provide enough action through which to learn and to create space for the 'next steps' thereafter. In promoting such practicality, and given that they worked in government, the team was encouraged to think about who would authorize their work and how they would reach out to their authorizers to gain

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[21] There is a definite trade-off between moving to action quickly and ensuring a water-tight deconstruction of the problem, or determination of a plan of action. The CID team has observed that the bias in organizational consulting and international development tends to be towards spending more time on diagnosis and planning, often by experts (to ensure the 'expertise' quotient of the work is well considered). The CID team does not question whether expertise matters, but often observes that the bias towards planning and 'expertise' comes at the expense of getting those who are not experts readily engaged and learning. This is a key observation in the action learning literature emerging particularly from work by Reg Revans, which also has a bias against the role of already-established 'experts' in dominating a learning process, and promotes a move to action instead of spending excessive time in planning and programming (unless, of course, these are the 'actions' in which learning is required).

[22] The two dimensions are a simplification of the 'change space' or 'triple A' method CID employs to assess the accessibility of causal areas for change. See Andrews, M., Pritchett, L., and Woolcock, M. 2015. Doing Problem Driven Work. Harvard Center for International Development Working Paper 307.
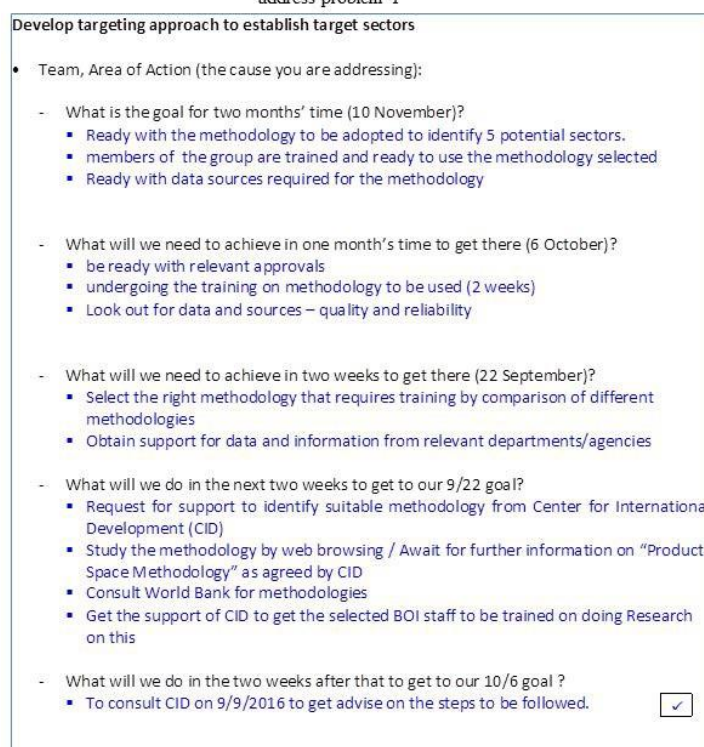
necessary support as a first order of business. Beyond this, they were also asked to consider specific activities they could take to explore four potential domains where 'ideas' are often found when solutions are unknown: (i) examining current practices to see if there are opportunities for improvement (what are called 'Kaizen' ideas in the PDIA method);[23] (ii) reflecting on ways to promote new practice, by pressuring incumbent actors to use existing capabilities in new and more aggressive ways ('Latent' ideas in PDIA);[24] (iii) searching for instances where the problems being addressed have been solved in the local context, and attempting to describe and diffuse the practices observed ('Positive Deviance' in the PDIA method);[25] and (iv) identifying practices that have solved the problems in places other than the context in question, and describing and adopting such ('External Best Practice' in PDIA).[26]

Some team members were surprised that they were being pressed into this kind of action, and so quickly. They indicated that most workshops or externally supported activities were designed to yield discussion and then direct the external group's work—or to shape a project or activity that would emerge gradually over years. A focus on immediate next steps ('what are you doing in the next months, month, two weeks, and even week') was quite new.

With this realization, the team decided to focus on three causal strands for action (which they called their 'problems'). The first centered on the lack of a targeting approach in government.

In reflecting on this 'problem', the team identified the two-month goal of having a targeting methodology ready for use, with trained analysts, and needed data to do the analysis (see Figure 4). To get to such goal, they identified a set of goals for a month away (getting approvals to do the work,

Figure 4. The team's short-term action strategy to address problem 1

Develop targeting approach to establish target sectors

- Team, Area of Action (the cause you are addressing):

  - What is the goal for two months' time (10 November)?
    - Ready with the methodology to be adopted to identify 5 potential sectors.
    - members of the group are trained and ready to use the methodology selected
    - Ready with data sources required for the methodology

  - What will we need to achieve in one month's time to get there (6 October)?
    - be ready with relevant approvals
    - undergoing the training on methodology to be used (2 weeks)
    - Look out for data and sources – quality and reliability

  - What will we need to achieve in two weeks to get there (22 September)?
    - Select the right methodology that requires training by comparison of different methodologies
    - Obtain support for data and information from relevant departments/agencies

  - What will we do in the next two weeks to get to our 9/22 goal?
    - Request for support to identify suitable methodology from Center for International Development (CID)
    - Study the methodology by web browsing / Await for further information on "Product Space Methodology" as agreed by CID
    - Consult World Bank for methodologies
    - Get the support of CID to get the selected BOI staff to be trained on doing Research on this

  - What will we do in the two weeks after that to get to our 10/6 goal ?
    - To consult CID on 9/9/2016 to get advise on the steps to be followed. ✓

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[23] Where Kaizen is a Japanese philosophy of constant process improvement. See a definition and explanation of the approach at the Kaizen Institute (https://www.kaizen.com/about-us/definition-of-kaizen.html).

[24] The CID team often employs tools similar to those used in the 'rapid results' process to foster the emergence of latent ideas and capabilities. These are discussed at the Rapid Results Institute web site (http://www.rapidresults.org) and in Matta, N., and Morgan, P. (2011). *Local Empowerment through Rapid Results. Stanford Social Innovation Review* (Summer), 51–55.

[25] The idea of positive deviance draws on an established literature. For example, read Marsh, D.R., Schroeder, D.G., Dearden, K.A., Sternin, J. and Sternin, M., 2004. The power of positive deviance. *BMJ: British Medical Journal*, *329*(7475), p.1177.

[26] External best practice is an important source of ideas, and policy ideas need to transfer better between governments. However, the process of policy transfer is a difficult one and governments should be careful in choosing what external best practice they choose to work with and how they learn from the experiences underlying the adoption of such practice. For a discussion, see Andrews, M. (2012). The Logical Limits of Best Practice Administrative Solutions in Developing Countries. *Public Administration and Development*, 32 (2), 137-153.

having group members in training, and being in the active process of identifying and collecting data). To get to this one-month goal, they identified a two-week goal as selecting their targeting method and obtaining support for data and information access from relevant departments and agencies. The first steps to get to this two-week goal were then identified—focused on a search process (where they would reach out to two external sources for help—the World Bank and Harvard's CID—and conduct their own search (mostly online)).

These steps may seem small and mundane, but experience in doing PDIA indicates that small and mundane steps are the way in which big and surprising products emerge. This is especially the case when each 'next step' yields learning (with new information, and experiential lessons) and expands engagement (with new agents, ideas, and more). This is because the problems being addressed are either complicated or complex, and are addressed by expanding engagement and reach (which opens opportunities for coordination needed to confront complicated problems, and for interaction vital to tame complexity) and fostering learning (which is crucial in the face of the uncertainty and unknowns that typify complex problems). In keeping with complexity theory already discussed, the principle idea is that action leading to novel learning and engagement and interaction fosters emergence, which is the key to finding and fitting solutions to complex problems. Further in keeping with theory, the idea here is that any action can foster learning, and it is thus more important to get a team to act in small ways quickly than to hold them away from action until they can identify a big enough (or important enough) next step.

In keeping with this thinking, the team also identified two-month, one-month and two-week goals, as well as immediate 'next steps' for their two other 'problems' (see Figures 5 and 6).

Problem No.2

Identify potential match between targeted sectors/zones

- What is the goal for two months' time (10 November)?
  - Identify the <u>potential areas</u> (including Hambantota) for establishing zones, for selected sectors

- What will we need to achieve in one month's time to get there (6 October)?
  - Identify the methodology to select suitable lands / lands already identified or partially developed for the purpose of establishing zones in consultation with World Bank and CID
  - Identify the requirements to overcome shortcomings at Hambantota or any other area identified to promote as a potential destination for selected sectors

- What will we need to achieve in two weeks to get there (22 September)?
  - Comparison of identifying new areas vs. Hambantota based on selected sectors based on strengths of the areas.
  - Drawbacks in promoting Hambantota as a potential destination for target sectors

- What will we do in the next two weeks to get to our 9/22 goal?
  - Identify present status of existing industrial zones to accommodate potential sectors
  - Readings and web browsing on essential requirements need for a zone, water, waste water treatment and disposal, solid waste including hazardous waste management, infrastructure (utilities), availability of resources
  - Identifying the requirements of target sectors to be located in a Zone

- What will we do in the two weeks after that to get to our 10/6 goal ?
  - collection of data on available Zones / lands
  - discussion with relevant ministries –SLPA/UDA/ Ministry of Industries/Provincial Councils

Problem No.3

Identify the training needs and policy change to provide training /skills development for target sectors

- Team, area of Action (the cause you are addressing):

  - What is the goal for two months' time (10 November)?
    - Ready to analyse the current status of manpower/skills availability, its geographical distribution and demand for skills
    - Identify training requirement to fill the skill gaps

  - What will we need to achieve in one month's time to get there (6 October)?
    - Select a methodology to identify available skills in consultation with World Bank and CID

  - What will we need to achieve in two weeks to get there (22 September)?
    - Compile the data on available skills and training programme – browse for selecting a suitable methodology
    - annual output of skills development from designated agencies

  - What will we do in the next two weeks to get to our 9/22 goal?
    - Collect and read material related to skills development, training etc.
    - Look for the skills availability sectors, and ongoing training programmes
    - Identify the available current training programs, University curriculum, skills output(stakeholders/agencies)
    - Discussions with vocational training institutes

  - What will we do in the two weeks after that to get to our 10/6 goal ?

Figure 5. The team's short-term action strategy to address problem 2	Figure 6. The team's short-term action strategy to address problem 3

A first PDIA check-in

Beyond the first framing workshop, the PDIA process involves a set of action iterations where teams go away and take the action they identify, agreeing to meet again at a set date and time to

'check-in' on progress. Each iteration is called a 'push period' in which team members push themselves and others to take action and make progress they otherwise would not.[27] The team then reassembles, with the PDIA facilitators, at the 'check-in' date—and reflects on three questions: 'What was done? What was learned? What is next?' (a fourth question, sometimes employed, also asks 'What are your concerns?').

When considered as one full iteration, the blend of programmed action with check-in questions and reflection is intended to foster action learning and promote progress in solving the nominated problems.[28] The combination of learning while producing results (through solving problems) is key to building new capability and even institutions (where the PDIA approach builds on the belief that the experience of finding how to be successful should lead the identification and establishment of institutions assumed to bring success, not the other way around).

The first T-team check-in occurred two weeks after the framing workshop. It was held by Skype, where the full team engaged with a CID facilitator in Boston, and started with a reflection on the actions taken since the framing workshop (which were provided in written form before the meeting). These included: (i) having an initial team meeting to discuss the way forward; (ii) revising the sequence of problem identification (to emphasize coordination failures as the 'third problem' (in place of training and skills development)); (iii) obtaining authorization from the Director General of the Board of Investment to proceed in addressing the identified problems; (iv) deciding on a regular time and venue for team meetings; (v) collecting reference documents from various sources to start learning how to identify priority sectors; (vi) engaging with the Harvard CID fellows about targeting methods they use; (vii) meeting with the World Bank team and requesting information on how this team thinks about targeting; and (viii) setting up the arrangements for the two-week check-in.

These actions are a mix of substantive steps (finding out about methods and collecting data) and procedural steps (organizing the basis of team operations). The team identified lessons in both areas as well. Substantive lessons included the fact that both the World Bank and CID had targeting methods to share, with the former giving the team a document on economic targeting in Vietnam to learn from, and the latter sharing information on economic complexity. The fact that they could 'ask and receive' so quickly was its own lesson, but the team also reflected on the fact

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[27] The Scrum version of agile project management processes have similar time-bound iterations, called Sprints, which are described as 'time-boxed' efforts (see http://scrummethodology.com/scrum-sprint/). The CID team refers to 'push-periods' instead of Sprints, partly to reflect the real challenges of doing this in governments (where CID focuses its PDIA work). Team members are pushing themselves to go beyond themselves in these exercises, and the name recognizes such.

[28] This approach builds on PDIA experience in places as diverse as Mozambique and Albania and South Africa, which has attempted to operationalize the action learning ideas of Reg Revans (1980) and recent studies by Marquardt et al. (2009). These combined efforts identify learning as the product of programmed learning (which everyone has), questioning, and reflection (L=P+Q+R), which the PDIA process attempts to foster in the structure of each iteration (with action to foster experience, a check-in with simple questions about such experience, and an opportunity for reflection—facilitated by an external 'coach' figure). The questions asked in the PDIA check-in are much more abbreviated than those suggested by Revans and others, largely because experience with this work in busy governments suggests that there are major limits to the time and patience of officials, and asking more questions can be counter-productive (and lead to non-participation in the reflection process). The three questions posed to teams are thus used to open opportunities for additional questions: like 'who needed to be engaged and was not?' or 'why did you not do what you said you would?' or 'what is the main obstacle facing your team now?' As the team progresses through iterations, they start to ask these more specified questions themselves, and come into the check-in reflection session with such questions in their own minds.

that it would be "difficult to identify the most suitable [target] methodology out of different methodologies available" (posing a different challenge to what the team had anticipated, with prior expectations that there would be one dominant model or no models). The team also learned that they would need to rely on secondary data sources available in their own organizations (as efforts to contact other organizations were not fruitful).

Procedural lessons included the observation that, "It is difficult to meet all members of the team in a single day, due to day-to-day work" of team members. This is a common lesson in PDIA work, where officials' time is one of the most common constraints to innovation, policy change, or reform. All team members are government officials working within existing structures and on existing day-to-day tasks. While all the officials have been designated as members of the T-team, it is rare that this designation comes with a reduction of workload in other dimensions of their jobs. The CID facilitators are constantly on the lookout for this kind of procedural problem, which can undermine the PDIA process. When such problems are identified, the CID team determines facilitator assistance it can offer to help the situation. In this case, time management mechanisms were developed for the teams to start experimenting with—to identify constraints on time management and accessible strategies to better manage time.

Even with such time limits, the team identified a series of next steps for their work. These included discussing the changes they had decided upon with the CID facilitators, and reviewing existing sector focal points in the Board of Investment (BOI) and suggested by the CID Growth Lab (a part of CID focused on growth issues) to select 10 to 12 'practice' sectors to use in crafting a targeting methodology. (These practice sectors would be used to experiment with different targeting mechanisms). They also planned on identifying the format of this methodology within a week of the check-in, to distribute to team members at the following full check-in (two weeks hence). Finally, given the importance of authorization in the PDIA process, they planned to inform the Chairman and Director General of the BOI on the team's progress (these being the key 'authorizers' of the work stream, where such authority matters a great deal in any public sector bureaucracy and thus in any PDIA initiative to build state capability).[29]

A second PDIA check-in

The PDIA check-in at the four or five-week point is usually more involved than the mid-month check-in. A team first meets with CID facilitators for a discussion centered on the same prompt questions ('What was done? What was learned? What is next? What are your concerns?') and then—a day or two later—the team will participate in a PDIA workshop with other teams (usually four or five other teams) and show their progress (using the same questions to structure brief 10-15 minute presentations. The closed session with CID facilitators allows for intra-team discussion and learning, and the open session with other teams (and CID facilitators) creates opportunities for cross- (or inter-) team learning. The open session is also designed to create some friendly competition across teams, where all attendees vote for the team with most progress and a small prize is given to members of the selected team.

Outside observers of these meetings sometimes ask about how 'progress' is assessed. This is an important question, because it is very hard to produce 'results' in many cases (especially so early on). Most teams that CID works with in the PDIA process are addressing complex or

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[29] For more reading on the importance of authorization in building state capability, see See Andrews, M., Pritchett, L., and Woolcock, M. 2016. Managing your authorizing environment in a PDIA process. Harvard Center for International Development Working Paper 312.

complicated tasks (where they do not know 'solutions' to stated problems and/or where there are wicked hard coordination problems that are fraught with uncertainty that makes solutions extremely difficult to employ). Drawing from the literature on complexity, the PDIA process focuses on ensuring all teams are moving ahead by learning new things and engaging with new partners—assuming that solutions to complex problems emerge with new lessons and new and dynamic interactions between agents.[30] When combined, new lessons and interaction are assumed to lead to a new 'recombination' of latent capabilities in a system, and the emergence of new properties (including 'solutions' to problems and capabilities to implement and sustain these solutions). As such, progress is assessed by reflecting on the way a team is learning and engaging and interacting (assuming that this will lead, in time, to some kind of 'serendipitous' or 'lucky' moment (or moments) and the emergence of a new and surprising capability and/or solution).[31]

Figure 7. The basic targeting template emerging in October

The 'push period' preceding this second check-in led to such a 'moment' for the T-team. Members spent this period asking various resource people 'how to target'. In so doing, they identified a variety of ideas on the topic, with one simple rubric coming from the World Bank (which had been offering ideas on targets to the government but were not asked about the targeting methodology they used before the T-team came asking).

World Bank officials shared the rubric with the T-team (as shown in Figure 7). The team found the shared approach sensible and practical; it had five sections of questions to ask in respect

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[30] The concept of 'Emergence' has already been introduced in this paper. The idea that emergence is facilitated by engaging agents in action learning and by promoting new interactions in extant or new networks is discussed in, amongst others: Dickens, Peter Martin, "Facilitating Emergence: Complex, Adaptive Systems Theory and the Shape of Change" (2012). Dissertations & Theses. Paper 114.http://aura.antioch.edu/etds/114 ; Lichtenstein, B. and Plowman, D. 2009. "The leadership of emergence: A complex systems leadership theory of emergence at successive organizational levels" *The Leadership Quarterly* 20(4), 617–630

[31] Lichtenstein et al. (2014 as cited, page 4) refer to these moments as 'critical thresholds' that can occur when "disequilibrium and experimentation continue".

of potential sector targets: (i) Will growth in this sector have a significant impact? (ii) Are there attractive market opportunities in this sector? (iii) Does Sri Lanka have underline assets to be competitive? (iv) Are there good investor prospects in this sector? (v) Are the barriers to growth in this sector relatively easy (to overcome)?

Given this finding, the team had a lot to report on when describing 'What was done?' in this push period. The team noted that it had 'formulated a template to select priority sectors [based on the World Bank criteria].' They identified more specific questions in each area of this template (shown in Figure 7, where 'impact' focused on 'jobs and incomes' for instance). They then identified some 'practice' sectors to analyze, using the template, and 'distributed the template among the members' to do brief 'targeting assessments' of 14 sectors. Initial analysis had already been done using this template to analyze 9 'practice' sectors, and similar analysis was underway for an additional 5. Additional progress had also been made in respect of the other two 'problems' the team was addressing.

This was significant action by the team. The action had involved everyone in the work and created the basis for a 'thick' check-in, where much learning could take place. As with all check-ins, the discussion focused explicitly on this learning (based on a slide prepared by the team, and shown in Figure 8). General lessons included, "understanding the problem is easy when broken down into smaller segments to identify the root cause", and "need for rational and out the box thinking and sharing ideas as a team." Specific lessons related to the targeting problem included: "Learnt to apply the model suggested by the World Bank to the sectors selected by the team," "Realized that it [the World Bank model] needs further improvements to validate the methodology," "[It is] hard to give rankings with the limited information available for sectors," and "Limited time available for the team members with day-to-day work, is a constraint to do a detail[ed] study."

Figure 8. Lessons learnt by the team after its 2nd push period
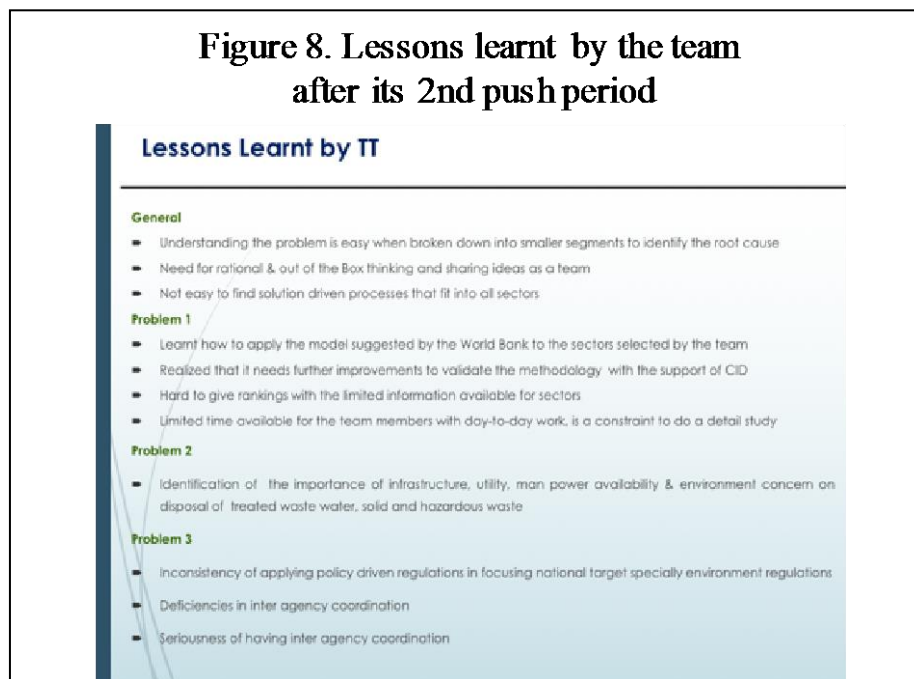
Facilitated face-to-face discussion on these lessons allowed for much more detailed investigation in each. For instance, the CID team could ask "what kinds of improvements are needed to the model" This led the team to identify even more detailed questions that needed answering in each area of the template (asking 'what kinds of jobs' Sri L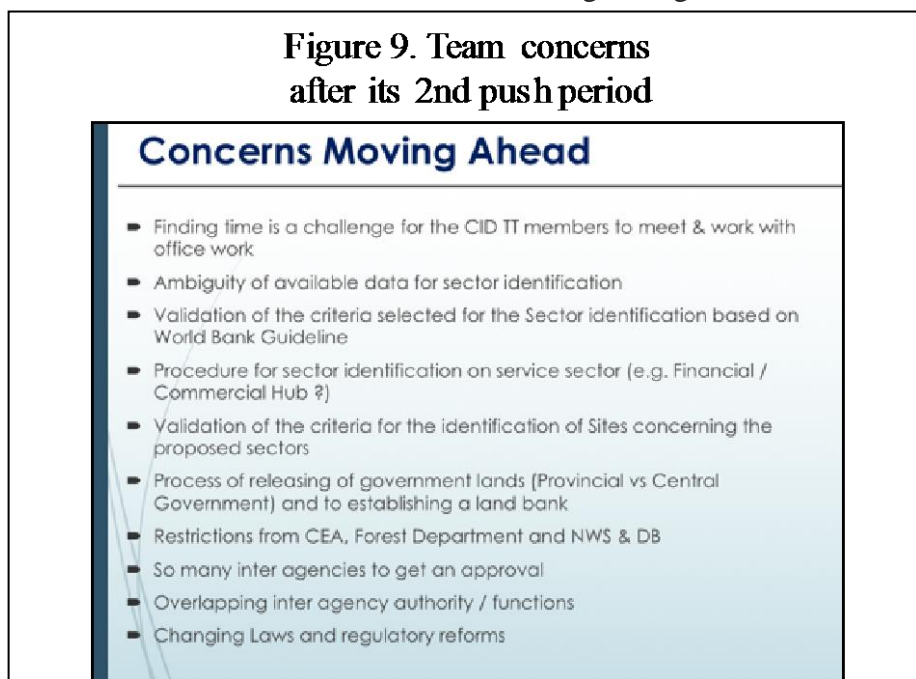anka needed, for instance—skilled, unskilled, on the east coast or west, etc.). Crucially, this new level of detail would allow the team to make quantitative comparisons between the sectors, rather than purely qualitative judgments. One team member

later remarked that they had not conducted a "scientific" comparison of sectors since the 1990s. Team members could have this discussion because of the activity they had undertaken—and because all had some new experience using the tool they were discussing. The conversation was thus a thick, group-centered learning exercise (rather than an external, consultant driven or narrow set of interactions).

The T-Team was obviously motivated at this check-in, with momentum in their work because of the apparent identification of a potential 'solution' to their problem. Their progress was thus also significant, suggesting that the identification of the World Bank template was, in many ways, a 'lucky moment' that led to the emergence of accelerated action and learning. This moment had emerged because of learning through engagement, especially about the existence of the useful rubric (and how asking for the rubric actually led to receiving such). The moment also emerged because the team learned of data availability across government and through the Harvard CID team. They found that data were being collected in all the areas where questions were asked in the targeting rubric, by a variety of agencies in government (from customs to trade agencies, and pertaining to skills, jobs, and much more). The awareness of these data sources would not have occurred if the team members were not engaging in new ways with government counterparts; likewise, the team now realized the amount of data they would need to assemble in order to build their own analytical capability.

The momentum yielded its own challenges, reflected in a list of concerns the team had in moving ahead (shown in Figure 9). These focused, as in the first check-in, on substantive and procedural difficulties. Substantively, they worried about the ambiguity of data used in the analyses, and how they could validate the World Bank template (to ensure it was seen as a legitimate way to do targeting), and if they could use the template to target services as well as products. Their procedural concerns were once again centered primarily on the lack of time for team members to work, but also reflected on overlapping authority of agencies and other entities in government (especially as this related to the coordination problem that the team was working on).

Robust discussion of these concerns contributes to the action learning emergent in PDIA. This learning is key to every check-in, where discussion fosters reflection of both individuals and teams. The learning and reflection is always focused on identifying 'next steps', however, where lessons can be applied rapidly. The rapid application of lessons brings such to life, and empowers the team as agents of change (with the message that intractable problems

Figure 9. Team concerns after its 2nd push period

Concerns Moving Ahead

- Finding time is a challenge for the CID TT members to meet & work with office work
- Ambiguity of available data for sector identification
- Validation of the criteria selected for the Sector identification based on World Bank Guideline
- Procedure for sector identification on service sector (e.g. Financial / Commercial Hub ?)
- Validation of the criteria for the identification of Sites concerning the proposed sectors
- Process of releasing of government lands (Provincial vs Central Government) and to establishing a land bank
- Restrictions from CEA, Forest Department and NWS & DB
- So many inter agencies to get an approval
- Overlapping inter agency authority / functions
- Changing Laws and regulatory reforms

can be made tractable with action-oriented learning, where action yields lessons which yield automatic ideas to act upon again, which yield more lessons, and more ideas, and so forth).

In this spirit, the team identified a set of practical next steps at the end of this check-in, focused on ensuring progress in the coming two-week 'push period' (See Figure 10). They would add questions to the template, and attempt to complete such for 14 sectors. Additionally, they would 'extend' [and adapt] the methodology to fit a service sector analysis, draft such template, and share it amongst team members. They also planned next steps for other targeting problems: Creating a plan to select zones, listing stakeholders with the rationale for selection, and staging in-team discussions to share ideas about stakeholder engagement strategies.

Figure 10. The team's 'next steps' for its 3rd push period

Next steps by October 26

1) Methodology improvement for Manufacturing Sector

Improve the template with additional questions to justify the selection further, and complete the templates for 14 sectors

For Services Sector

- extend the methodology with required changes to suit services sector; select 8 sub sectors

- draft template and distribute among members

2) Discuss the procedure / and Action Plan for selection of zones and finalise a methodology.

3) Completion of stakeholder list with all relevant information and rational for the selection

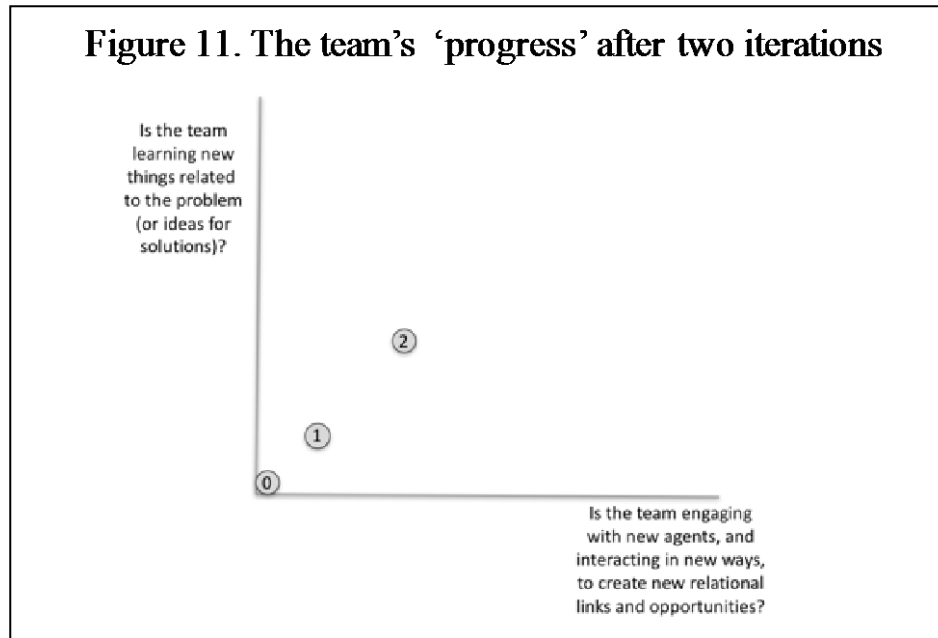4) Discussions with other Group member to get inputs and share the information

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In addition to these next steps, all team members agreed to try weekly time management experiments designed to foster learning about how to find and protect time to achieve the tasks identified.[32]

The Harvard CID team finds that observers can be disparaging about these kinds of 'next steps'; critiquing such for being 'too small' or 'not ambitious enough'. Observers also prefer having longer-term goals (as many development projects do) to 'sell' what the work is doing. The PDIA approach is used where medium and long term goals are extremely difficult to set, because teams lack knowledge about what is possible. In such situations, teams need to focus on short-term 'doing' to find out what is possible, with regular reflection points to ensure that the teams do find out what is possible (these are the learning points). This approach calls for smaller (and more do-able) action steps over shorter periods, which guarantee that agents take the action and are close enough to the work to learn about what worked, why, and what they could do differently.

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[32] The experiment was intentionally action-oriented and short-term. Each individual would start by identifying (on a Sunday night) how much time they planned to work on what action during the week. They would then reflect (on Friday afternoon) about how much time they actually spent on the actions, as well as what challenges they had in spending time on the actions and what lessons they learned about protecting time for this work. Each individual submitted these thoughts to the CID team, to collate lessons.

Figure 11. The team's 'progress' after two iterations

Is the team learning new things related to the problem (or ideas for solutions)?

Is the team engaging with new agents, and interacting in new ways, to create new relational links and opportunities?

This is not to say that progress does not matter in PDIA, but the progress that matters is that which adds to capabilities in the face of complex problems (measured through the degree of new learning and engagement/ interaction by the team involved in the work). While the CID facilitation team does not use this tool directly, such progress can be shown graphically on a basic two-dimensional chart in which learning and engagement gains are actively registered (as in Figure 11). Periods of greater progress in recording such gains reflect 'moments' that have the potential to foster emergence of new capabilities and solutions. This is what the second push period progress looked like for this T- team. The goal is always for next steps to ensure that each push period keeps such progress going. The PDIA process focuses on building such step-by-step progress into emergence of bigger solutions and capabilities (given the view that all big things are really just the accumulation of many small things, as all long journeys are just the progressive addition of small steps).

A third PDIA check-in

By the third week of October, the T-team had deconstructed the five sections in the manufacturing targeting template into over 20 questions, and identified specific questions pertaining to the services targeting template. This exercise had yielded 35 variables the team sought to investigate in assessing any product or service for targeting. They had tried to do such empirical investigation, in the trainings, but found that they did not have all the data at hand—or did not know how to analyze a number of the variables.

This was an important lesson, about the team's own analytical limits. It raised the question about (i) accessing additional data for the work, and (ii) getting additional training for the team members. In response to this, the team decided on specific next steps; the team would identify specific responsibilities to access variables for analysis, and plan to have a series of workshops where members would learn (together) how to work with different variables.

The team built on some of the emergent lessons about time management (from their individual activities) in planning for these workshop sessions, deciding to have the training in their usual meeting room (given that individuals found they could manage time better when they did not have to decamp to other locations) and deciding to meet in late afternoons and on Saturdays (given that the learned it was difficult to protect multi-hour periods during normal work hours). The team also decided to invite additional members to the training, from among the technicians actually

responsible for doing policy work in government (whose training would foster sustainability). A CID representative from the Growth Lab (Daniel Stock) agreed to facilitate the workshops, and take a role in accessing some data for presentation to the team.

The initial Saturday meeting began with a brainstorming session about the questions the team thought were the most pertinent in the different areas of the World Bank mechanism. They then discussed possible variables they could refer to in trying to quantify answers to the questions they had about sectors. Team members would name not only the questions (e.g. "what kinds of jobs does a sector bring"), but also how they could go about measuring the answers to these questions (e.g. comparing wages using Labour Force Survey data from the Sri Lankan Department of Census and Statistics). This exercise resulted in an ambitious list of datasets to collect and analyze.

They allocated tasks to each member—including CID's Daniel Stock. First, team members decided who was responsible for the collection and preparation of different variables. Many variables were already familiar to individual team members (like statistics on investor applications at the BOI, or export performance indices at the EDB). For other variables, the team pulled in specialists, such as BOI staffer researching trade agreements. The team then requested CID's assistance preparing the remaining variables.

Once prepared, the variables would then be presented to the team for use in their analysis. The team created a schedule of 'trainings', in which they would explain why they thought the data were relevant, and teach the rest of the team about using specific variables. Different variables were thus added in different trainings, allowing the full targeting mechanism to emerge over time. Between trainings, team members would complete the 'homework' of using the new data to profile their own sector of interest. Thus, at the end of the trainings, they would have a complete profile for their sector, with data points for each of the variables.

Figure 12. **What the team had done in its 4ᵗʰ push period**

A fourth PDIA check-in

The team's next push period ended on November 9, with a monthly check-in (where it reported progress alongside other teams). The team had a lot to reflect on at this point (shown in Figure 12). They had expanded the number of sectors to use as 'practice' sectors in targeting (to 17, with 12 manufacturing and 5 services sectors). They had also developed the template fully, with 28 variables, conducted three team training sessions (where a shared

database was being developed), and had team members use the new data to conduct initial assessments of a number of the 'practice' sectors.

These assessments helped the team learn about the difficulties, challenges, and nuances of using new variables to assess the questions they were asking in the template. They also started to see the importance of understanding each sector (given that data showed variations in sectoral impacts on Sri Lanka, etc.).

The targeting template was emerging in full form at this stage, with the 'general' questions form the initial World Bank model now replaced by specific questions pertinent to Sri Lanka (see Figure 13). For instance, where the initial template focused in section 1 on whether growth in the sector would have a significant impact, the T-team had broken down what 'impact' actually means (into four areas, related to growth and balance of trade implications, jobs and incomes, sectoral and regional diversification, and the environment).

The team deconstructed the analysis even more, focusing in on even more particular concerns in these four areas (in respect of sectoral and regional diversification, for instance, they asked whether the product or industry was not currently exported from Sri Lanka, could potentially be present in high-need regions outside of Colombo and the Western Province, and if it could improve competitiveness of other sectors).

Beyond this, the team had identified additional variables needed for analysis, and again allocated responsibilities to prepare the variables across different team members' organizations (including the BOI, EDB, and CID itself). Interestingly, the team decided at this time to drop the fifth area of the World Bank template (related to the mutability of barriers to entry), partly because they felt that questions in other areas of the template covered this issue sufficiently.

Figure 13. How T-team was adapting the template

List of scoring questions			Prepared by
1	**Will growth in this product / industry have a significant impact?**		
1.1 Growth and balance of trade (foreign exchange earnings or savings)	(a) is the product a top import in Sri Lanka? (b) what are trends in its current exports and domestic production?	SL imports / exports (percentage share and growth rate)	CID
1.2 Jobs and incomes	Is this industry associated with: (a) high overall employment? (b) jobs for low- & medium skilled workers? (c) jobs for underemployed skilled workers? (d) high income jobs? (e) indirect employment in other industries?	national accounts + labor force survey - labor intensity (very aggregate only)	CID
		from other countries (UNIDO) - no. of jobs (labor intensity). Manufacturing only.	CID
		labor force survey - average wage, education level;	CID
		from other countries (US data) - no of workers with college education (skills intensity) (NEED TO CONVERT TO ISIC CODES)	CID
		(SL input-output - NEED DATA) - indirect employment under current economic structure	CID
		from other countries (US input-output - NEED DATA) - indirect employment (future potential)	CID
1.3 Sectoral and regional diversification	Is this product or industry: (a) not currently exported from Sri Lanka? (b) potentially present in high-need regions (outside of the Western Province)? (c) improving competitiveness of other sectors (inter-industry / forward / backward linkages)?	comparative advantage measures (RCA)	CID (EDB?)
		BOI Companies in operation, by ISIC code (done: number of companies, % outside west; remaining: est. amount of investment)	BOI / CID
		Economic Census listing data - employment and firm location by district	CID
		(SL input-output - NEED DATA) - current forward and backward linkages in SL	CID
		Annual Survey of Industries - share of inputs sourced locally	CID
		Atlas - opportunity gain, from correlations between firms ("proximities")	CID
1.4 The environment (negative scoring)	(a) is it banned from Sri Lanka?	List of banned sectors due to environmental impact (discuss with Champika)	BOI
2	**Are there attractive market opportunities in this sector?**		
2.1 Growing market opportunities	Are demand and prices growing: (a) in the domestic market? (b) in the regional market? (c) in the global market?	SL imports (percentage share & growth rate)	CID (EDB?)
		domestic consumption and growth rate (CBSL-National accounts data)	CID
		Trademap / Atlas: India & China imports (total, intensity, growth)	CID (EDB?)
		Trademap / Atlas: total world market, growth rate and change for each product	CID (EDB?)
2.2 Future market opportunities	Do current or future FTAs create opportunities in key products? (a) for accessing key markets (b) for countries and investors interesting in accessing regional markets via Sri Lanka	Share of products (by HS chapter) receiving preferences under current India FTA	BOI
		Share of products (by HS chapter) that are excluded from Japan-India FTA, but included in Sri Lanka-India FTA	BOI
		By HS chapter, China's share of Indian imports; share of products receiving preferences under current India FTA. (Also (UNCTAD) Outward FDI by sector (data from China, Japan, others?)	BOI
		(UNCTAD) Outward FDI by sector (data from China, Japan, others?)	BOI
		Trademap / Atlas: what % of India's imports come from SL, China, Japan, Korea, & other FDI countries? (bilateral exports)	CID (EDB?)
3	**Are there already good investor prospects in this sector?**		
3.1 Direct activity	(a) are there already successful investors and exporters present? (b) are there inquiries and signs of experimentation?	Customs Data - No. of successful exporters in operation for a longer period; number of new / unsuccessful exporters	CID (EDB?)
		MIS - No. of companies by sector, for different application stages. For example: (i) application submitted, (ii) going through approvals / setting up, (iii) in commercial	BOI / CID
		OSS inquiry database - No. of inquiries by sector	BOI
3.2 Indirect activity and prospects	(a) are successful exporters active in related products, key markets, or key FDI sources? (b) are comparator countries exporting or receiving FDI in the sector? (c) are global FDI flows in the sector increasing in general?	Exports in related products (high correlation) - Product Space density	CID (EDB?)
		Exports / mkt share from peer countries	CID (EDB?)
		UNCTAD (Japan and China?): FDI flows by destination (to peer countries)	BOI
		fDi Markets dataset: FDI to peer countries, globally	CID
4	**Does Sri Lanka have the assets to be competitive in this sector?** - Supply: What assets are available in Sri Lanka? - Demand: What assets are required by the sector?		
4.1 Physical assets	Does Sri Lanka have the sector's required: (a) land and environmental conditions? (b) infrastructure (transport, energy, water, waste, other sector-specific)?	Which industries are high-polluting: Schedule A/B/C, EPL - banned list for	BOI
		How many Acres available in zones with waste water treatment or in-house treatment, hazardous waste management, related services (today, vs. in 5 to 10 years)	BOI
		list of energy requirement by sector (BOI Technical Services Dept)	BOI
		estimated energy requirement by manufacturing sector (UNIDO)	CID
		Electricity availability in Sri Lanka, CEB uninterrupted electricity supply (quality)	BOI
		does sector needs to be located near Airport/Ports including dry ports	BOI or EDB?
		availability and price of land near ports	BOI?
		does sector need internet bandwidth (SOURCE?)	BOI or EDB?
		telecommunications services availability / cost (quality, bandwidth, speed)	BOI?
4.2 Soft assets	Does Sri Lanka have the sector's required: (a) skills, workforce, technology? (b) regulation and legislation? (c) political and social conditions?	Skills - USA data on college education by	CID
		Skills - Labor Force Survey - number of skilled Sri Lankans by province	CID
		Technology - (Atlas) product complexity index, compare to Economic Complexity Index (-0.59 for SL)	CID
		right regulation in place or not	BOI or EDB?
		dummy variable for politically sensitive	BOI or EDB?
4.3 Industrial ecosystem	Does Sri Lanka have the sector's required: (a) inputs (locally available or easy to import)? (b) supporting services and industries?	By HS chapter, % of domestic value addition possible (compared to 35%	BOI
		Annual Survey of Industries - value addition by sector; share from local vs. imported	CID
		Summarise duties & paratariffs, by HS	BOI or EDB?
		difficulty of license needed to import	BOI?
		backward and forward integration: choose related sectors for each sector and see if available eg. testing for pharmaceuticals, welding for boats, or logistics	CID

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This kind of decision shows the level of empowerment that was emerging in this team. It could make decisions about a product that a month before seemed completely beyond its reach and capability.

The team was also making progress addressing the other two problems it was concerned about—the availability of land for targeted sectors and the coordination problems in Sri Lanka (which they thought would undermine any real targeting approach). They had produced a draft report on site selection criteria (where they knew that land would be a key issue for any targeted investor, and any decision to target a sector would need to be informed by clear knowledge on the sites available for activities in the sector (for instance, a focus on pharmaceuticals would require a site with access to very good wastewater treatment facilities)). They had also engaged other agencies with control over these lands, to learn about available properties (given that the team had learned there was no central data repository on available land). The team also built on the list of line agencies it needed to work with, adding direct contact details in each agency and outlining the relevant responsibilities

Figure 14. How the T-team was starting to reflect on agencies needed in a 'coordinated' solution	
Agencies/Departments granting entry level clearances/approvals, guidelines	
Entity name (removed for privacy) Address: (removed for privacy) Phone: (removed for privacy) Personal contact: (removed for privacy)	**Environmental approvals/clearances, Concurrences, Licenses** Environmental approval is required to obtain from the _____ prior to commencement of the prescribed projects under the EIA regulation. The projects are mainly divided into three (03) categories according to its magnitude and pollution nature as follows. 1. Prescribed projects under EIA Regulations. 2. Highly polluting type of industries 3. Low polluting type of industries Three different procedures are adopted by the ___ to grant Environmental clearances for above three categories of projects. All major development projects (Prescribed projects) are required to undergo Initial Environmental Examination (IEE)/Environment Impact Assessment (EIA) prior to implementation. The prescribed projects are given in the gazette dated 24/06/1993. Environmental approval for prescribed projects under the EIA regulation is issued by the ___ to the investor. The ___ issues concurrence to the ___ to grant environment approval for high polluting and low polluting type of industries. Once concurrence is received from the ___, environmental conditions are sent to the ___ to incorporate environmental conditions in the letter of site approval.

of each agency in fostering a whole-of-government targeted approach (see example below, in Figure 14, where organizational and individual names have been removed for privacy).

As with the prior month, the combination of learning and engagement had led to significant progress for the T-team in the two October push-periods. The lessons they had learned were directly related to action taken in the period, and communicated clearly by the team (see Figure 15).

A positive lesson centered on the

Figure 15. Lessons learnt after the 4th push period

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way sophisticated analysis had been made possible by working with others to obtain diffused data (and to combine such data into a central database). Other lessons were sobering realizations about the difficult 'next steps' in targeting: ensuring that sectors are not missed, and thinking about what to do with the findings after the analysis, to ensure it would be used. The latter concern was very real for the team members, who all felt invested in the work and wanted to see it develop as an influential part of the country's economic policy regime. They were aware that political support would be needed for this technical product, however, and had learned that this political support would need to be cultivated in order for the work to sustain.

Beyond these lessons, the team had also developed a new awareness of the complexities of the 'land' and 'coordination' issues they identified as problem 2 and problem 3. They realized that the 'land' challenge was not just about finding vacant plots, for instance, but that details of available land mattered a great deal when working with targeted sectors (which led to reflection on additional conditions like 'infrastructure, utility, man power availability and environment concern on disposal of treated waste water, solid and hazardous waste'). Further, by identifying the over 60 agencies needed in effective implementation of a targeting strategy, the team developed a new and sobering view on how seriousness the coordination problem was, how many coordination deficiencies existed, and how many policy inconsistencies existed because of these deficiencies.

These lessons emerged because of the work of the team, which ensured a tangible experiential learning as opposed to a book-learning experience (or the common experience where an external consultant provides lessons in writing or in a lecture, but with no experiential transfer).

The combination of action and lessons led to concerns in the team (see Figure 16). These centered—as before—on the difficulty of finding time to do the work, but also the 'next step' challenge of validating criteria in the template, finalizing the service sector template (given the lack of import/export data for these services), and a variety of challenges related to accessing lands and engaging with other entities in government. As in prior check-in periods, these concerns became the basis of practical next steps—rather than excuses for failure.

Figure 16. T-team concerns and next steps for 5th iteration

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The next steps (also shown in Figure 16) included reaching a major objective in the month following this reflection—finalizing the manufacturing and service sector templates (and all training associated with this) as well as the analysis of 17 sectors using such templates. Beyond this, the team also committed to getting responses about available land from relevant agencies, and conducting a preliminary screening of these sites, using stakeholder analysis tools to assess the influence and interest of stakeholders, and actually having meetings with the 10 most important agencies in the stakeholder list.

As with check-ins, these next steps did not provide solutions to the problems identified in September, but built on consistent progress (in learning and engagement) and promised more such progress (with real action steps that had major potential for learning, and plans to interact with new agents or with old agents in new ways).

A fifth PDIA check-in

The team worked on these next steps until the 22nd of November, when they again met with a CID facilitator in a check-in session. The team was moving ahead well with its dedicated steps (shown in Figure 17), having continued with the training sessions, completed more sections of the targeting template, and started engaging with stakeholders (with permission of the Director General).

Figure 17. 'What was done' by the T-team in the 5th push period

- •! Now identified 18 manufacturing and 5 services sectors
- •! Had four training sessions
- •! Completed 3 sections of template for the 18 manufacturing sectors
- •! Awaiting to complete section 4
- •! Letter to be sent to stakeholder institutions (should have been signed by DG 11/24)
- •! 6 categories of stakeholders have been identified and prioritized stakeholders have been placed in quadrants of influence/interest

In their training sessions, the team had also collected and analyzed over half of their planned variables, covering each sector's impact, market opportunities, and investor interest. For the final section of the template, the team held a brainstorming session to think of all the requirements that sectors might have – every input or factor that firms in the sector would need to be competitive. The resulting list of requirements was grouped into two categories: 'hard assets' (transport and ICT infrastructure, land, energy, water, and waste management) and 'soft assets' (employment and skills, and research and intellectual property).

The team then brainstormed how to measure such requirements. For example, the BOI had already constructed a survey of the wastewater, solid waste and hazardous waste associated with each industry; this survey could be used to construct variables measuring each sector's waste management requirements. For other requirements, CID was tasked with collecting variables based on outside research, such as a UNIDO study of energy intensity in manufacturing sectors.

Likewise, the team also used their expertise to measure how well Sri Lanka could meet these requirements. Team members volunteered to collect price points, e.g. comparing the cost of solid waste collection in Sri Lanka to similar services in competitor countries (such as Thailand,

Malaysia and India). Once this data could be collected and analyzed, the team would have all the data they needed to pick their top sectors.

The team had also completed its stakeholder analysis for the leading ten agencies it saw as being vital to implementing a targeted agenda, identifying the influence and interest of all. This was an important learning experience for the team members, who got to see that stakeholders were not only important but had interests and influence as well. This exercise initiated a conversation about strategies to use in engaging stakeholders, with general realization that different strategies are needed for agencies in different 'quadrants'. This kind of lesson is regularly taught in classrooms (and stakeholder management sessions), but an experiential lesson is much more effective.

Building on the high levels of learning and engagement, the team could develop a very structured action plan to move forward at this stage. This involved ramped up activity in the remaining weeks of November and—as planned in advance—for December. The activity included finalizing the targeting template and using the template to actually identify 8 target sectors for the government, completing meetings with the 10 stakeholders they had started engaging (for which a questionnaire was being developed), and the screening of sites for new zones.

The team was still concerned about how it would complete the template for the services sector, as their work had shown that services subsectors are not as clear as they are in manufacturing. They gave CID the task of collecting data on international trade in services, and planned to make a similar request to donor groups providing technical assistance.

A related concern centered on the sustainability of the team's growing data needs. They now knew that a targeting capability was extremely data intensive, and there would be lots of data demands moving forward, which they could not meet alone. The data were located, in many situations, in the stakeholder organizations the team were identifying to solve the 'coordination problem'. It was apparent that the team would need to improve coordination across government to secure sustainable access to data. This coordination problem would not be easy to solve, however, as it required both engagement at a high level (with political support to the work) and at a mid-level (with technical buy-in to the process). The team agreed to start thinking about ideas to solve this engagement challenge.

A sixth PDIA check-in

The team worked on these actions until December 7, and then met for a sixth check-in (three months into the PDIA work-stream). Progress was significant at this point, with the team having completed its targeting template as part of its activity to address 'problem 1' (see Figure 18). The template now had 25 variables and 72 sub-variables, mostly gathered together in a single database, and being used to assess the potential of about 20 goods and services (as potential targets for the country). The team also turned the two months' worth of thinking about screening lands into a basic template to use in such activity (see Figure 19). This template is what the team planned to use in vetting land for potential investors, and focused on examining locational attributes, access, infrastructure, environmental and social impacts, and quality of life indicators. The team had not found a similar mechanism available in government, which revealed a major capability gap.

The team had also been active in formalizing and focusing its engagement strategy on the ten agencies it considered most important. The team had applied lessons learned from a stakeholder

management session with CID in October to locate the influence and interest positions of key stakeholders (Figure 20). Team members were then allotted to work with different agencies in this list of key stakeholders, building on the initial contact made in October and discussing specific issues pertaining to a targeted economic strategy (see Figure 21). For instance, three team members attended meetings with a particular agency to discuss land availability and land sold for investment purposes. Another two members met with an agency to discuss tourism plans and areas under the agency's jurisdiction that might be available for investors. Another two members met an agency to discuss future access to data, especially in a soft form (as data they were working with had been accessed in hard copy, which was obviously harder to work with).

Figure 18. Progress in establishing the targeting template after 3 months of work
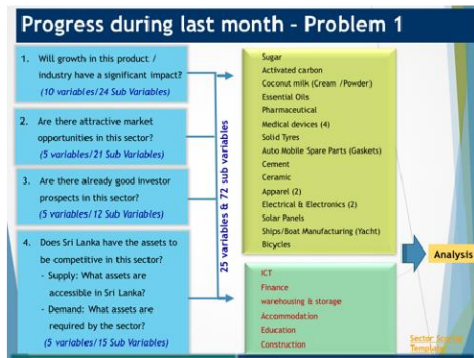
Figure 19. Progress in establishing the land screening template after 3 months of work

Figure 20. How the T-team was reflecting on the Influence/interest profiles of key stakeholders

Figure 21. How the T-team were engaging with key stakeholders

The action that had gone into these products yielded significant opportunities for learning, and the team was certainly vocal about lessons that had been learned. They were surprised at how much work could be covered in a short period of time, for instance, and also at how much they could learn when allocating specific time to such. They were also learning about the way in which inter-organizational connections could be created, where such did not exist before. On matters of substance, they were very clear about having learned a great deal about how to target, and also about how to think about the land issue for investors. In respect of this land issue, they had also learnt that practical tools were not as readily available as they could be in Sri Lanka (including some kind of 'land bank' showing possible investment properties).

As with every other iteration, their experiential learning also yielded concerns moving ahead (see

Figure 22). The team was worried about how it would complete the sector analyses, especially employing weights with the variables to rank the different sectors (allowing some prioritization in the targeting exercise). They were also concerned about extending their analysis beyond the 'practice' sectors, which raised some technical questions (what level of detail should they look at when identifying and analyzing a 'sector', for instance).

In respect of the 'problem 1' targeting work, the team was also worried about the political and organizational challenge of

Figure 22. T-team concerns moving into the 7th push period

ensuring sustainability in the work. A donor organization had introduced its own list of targets to government during the week of the sixth PDIA check-in. This agency had been able to present its list of targets to high-level government leaders (including Ministers and even the Prime Minister), whereas the T-Team's work was still far off the radar of such decision-makers. The T-Team members worried that their work would die if it was not brought to the attention of decision-makers. They worried further that government might decide to accept the targets of the donor agency before seeing the internal list of target priorities (even though the donor study did not employ any quantitative data, and examined a narrow list of less than seven sectors).

Beyond the targeting activity, the team was also concerned about the land and coordination issues it had unearthed in prior months' work. They had expected to find better data on available lands and were worried that it would be prohibitively difficult to identify requisite land for investors without a land bank (or a clear approach to accessing government lands). They were also appropriately cautious about the coordination challenge, given the number of agencies they needed to engage with, overlaps in authority, and policy inconsistencies.

These concerns were not seen as a cause for stopping, however, but rather ensured that everyone in the team had a clear and sober view of the context in which they were working. With such perspective, the team felt it was in a position to identify its goals for late March and early April (having some view on what was needed and also less uncertainty about their own abilities than they had had three months earlier). They focused on having full identification of priority sectors for targeting, recommendations for sites where zones could be developed to accommodate potential investors in these targeted sectors, well identified reforms to create an appropriate environment for targeted investors, and requirements to ensure sustainability of the sectors identified (see Figure 23). They also identified the need to integrate team findings into the National Development Plan and to ensure the targeting methodology would be adopted continually in government.

They also identified a series of next steps (working backwards, for the three upcoming push-

periods ending 19 January, 4-6 January, and 20-23 December). The steps included finalizing the targeting template (and working out how to introduce weights into the analysis) and extending analysis beyond the practice sectors. Their goal was to produce a list of 'targeted sectors' that could be shared with political leaders by the end of December (which would also advance their cause in bringing the work to prominence). They also decided to focus on developing a team strategy to address the apparent lack of a land bank, and scheduled a team meeting to determine this next step. Finally, they agreed to complete the stakeholder analysis for all the 60-plus stakeholders they had identified. The team was also committed to engage its authorizers to ensure continuation and expansion of its engagement work.

A seventh PDIA check-in

The final check-in to be covered in this paper occurred on December 22, with CID coaches joining the team by Skype. It was a very engaged check-in that followed an extremely busy period that included another 'lucky moment'.

Figure 23. The T-team 'next steps' between December and April

Action Plan

(a) Where do we want to go **by early April**?
  1) To be agreed on the Following;
     i. Priority Sectors
     ii. Recommend sites for zone development
     iii. Reforms needed for amending/introducing regulation & legislations
     iv. Requirements to ensure sustainability of the sectors identified

  2) Integrate team findings to National Development Plan
  3) Use the methodology adopted for "sector prioritization", nationally on continuous basis

(b) Where we need to be **by 19 January**?
  Problem 1
    – Finalize the priority sectors and announce them to the policy makers
  Problem 2
    – Finalize the land selection for new zones
  Problem 3
    – Finalize the policy, regulatory and administrative changes required
    – Intimate the policy makers about the reforms needed
    – Forward the findings to the policy makers through Harvard Team

(c) What actions must we take;
  1) **Up to 4-6 January**
    Problem 1
      – Complete the analysis on templates
      – Have discussions with other teams regarding the priority sectors, to get their inputs
    Problem 2
      – Based on the response received by the stakeholders, preliminary screening will be done to identify sites for zones.
    Problem 3
      – Continuation of stakeholder meetings
      – Identification of remedial measures for regulatory and administrative barriers
      – Identify policy changes required
  2) **Up to 20-23 December**
    Problem 1
      – Fine tune template and commence the analysis to prioritize the sectors
    Problem 2
      – Discussions with the Chairman/ DG BOI, to get the authorization to have meetings with the land related stakeholders to identify lands for site selection to establish zones.
    Problem 3
      – Complete the quadrant with full list of stakeholders.
      – Have meetings with key stakeholders (10) as per the schedule prepared by the team.

This moment came shortly after the sixth check-in, when the Minister of Development Strategies and International Trade asked for an update on the team's work (and the other teams engaged in PDIA activities). He wanted to see what the T-team's targets proposed, so that he could share their ideas with the Prime Minister. The 'catch' was that he wanted an update within days, not weeks. This kind of time-sensitive request is common in governments, and in many cases officials do not have work on hand to respond to their ministers' wishes. But in this case the team was able to respond. This was primarily the result of its high level of preparation and engagement. However, this was also a point where the CID research staff was able to chip in, offering just-in-time technical assistance behind the scenes.

Up to this point, the T-team was working with quantitative variables in several different industry and product classifications. But to produce one comprehensive product, they needed a mechanism with which to merge data from the various classifications. This was a technical step that the team could have learned with adequate time, but given the time-sensitive request of the minister, the CID representative embedded in the T-team drew upon two researchers in the Growth Lab in Cambridge with experience to complete the step quickly. The Growth Lab fellows engaged in this type of "back office" support at a few points during the team's work, mainly by cleaning datasets (including translating one from Japanese) and assisting with minor technical tasks that were new to the team. In all cases, CID's back office work was
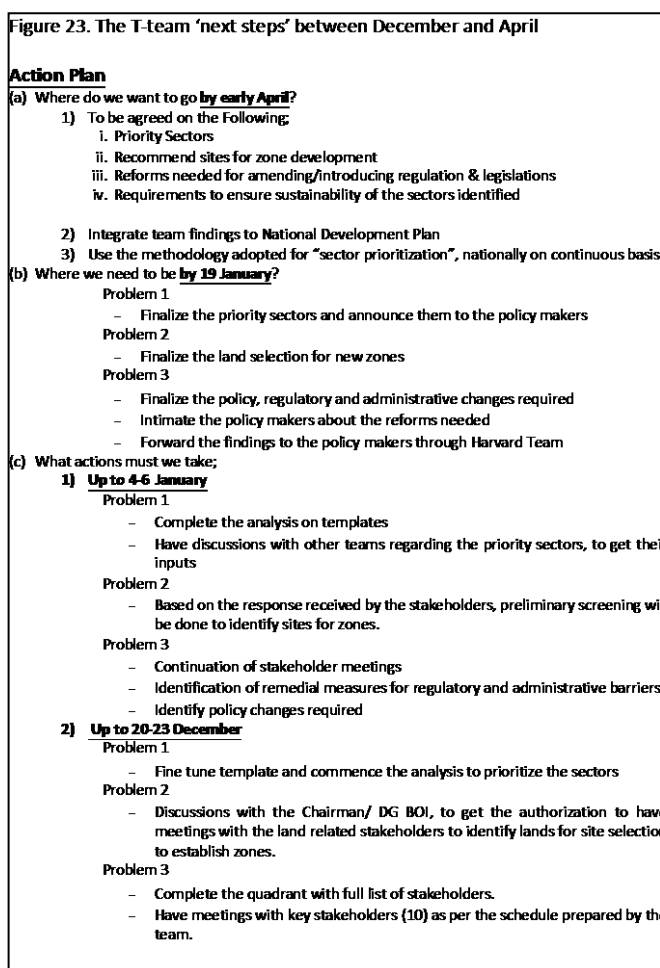
'demand-driven' – that is, the trainings resulted in requests for specific tasks and deliverables to feed into the team's ongoing work.

Having merged the datasets together, the team then faced the task of combining and comparing the variables. They adopted a weighted average approach. The variables were first standardized,[33] and then given weights based on how important the team considered them. For example, the teams decided that variables covering overall job creation (labor intensity) should carry more weight than variables covering employment creation for particular groups (women, youth, and regions outside the Western province). Having all their data assembled together made it easy for the team to see the effect of changing these weights, giving them the flexibility to alter their priorities in the future.

In their current template, variables were grouped into four broad criteria groups: (1) will growth in the sector have significant impact? (2) are there attractive market opportunities in the sector? (3) are there already good investor prospects in this sector? and (4) does Sri Lanka have the assets required to be competitive in the sector? Inspired by other sector targeting exercises, the team wanted to distill their analysis into two indices, in order to easily divide sectors into quadrants along two dimensions. The first index covered the "Impact for Sri Lanka" criteria, including job creation, incomes, linkages and foreign exchange savings. The second dimension combined the next two criteria, resulting in the "Market Opportunity and Investor Interest" index. The team did not include the fourth criteria group (assets needed for competitiveness), as it was less straightforward to construct a single index, and since competitiveness could be considered on a case-by-case basis once the team determined their priority sectors.

Figure 24. The T-team targeting methodology as adapted, December 2016

Methodology - Data collection:

Data on exports, imports, Investment, employment, hard & soft assets, market access and other competitiveness indicators covering global, peer country and Sri Lanka.

Key Data Sources

- AT Kearney Global Services Location Index
- BOI Management Information System
- DCS Annual Survey of Industry 2012
- DCS National Accounts and Economic Census
- Department of Census & Statistics- Economic Census
- Department of Census & Statistics- Labor Force Surveys 2013-14,
- Environment Department, BOI
- fDi Markets (Financial Times)
- Japanese External Trade Organization (JETRO)
- OECD research
- Project Implementation Department, BOI
- Research & Policy Advocacy Department/BOI
- SL Customs export declarations
- Technical Services/ BOI
- UK Office for National Statistics
- UN COMTRADE
- UN COMTRADE, via CEPII
- UNIDO Indstat 2013
- UNIDO research
- US Bureau of Economic Analysis NIIPA tables, via Palacios (2013)
- US Bureau of Labor Statistics
- World Bank (Doing Business Indicators)
- World Bank (World Development Indicators, Enterprise Surveys),
- World Economic Forum (Global Competitiveness Index)

Methodology - Data Analysis

3 criteria considered;

– Strength in Sri Lanka today

[Export value, export intensity (RCA-population), Employees, % with TVET, Indian imports from SL, consistent exporters (>10m, >1m, >100k), BOI firms in operation, Exports in related products (density)]

– Market opportunities / investor interest

[India (imports, import intensity (RCA-population), import change, indo-lanka FTA duty free products (%)), China (import value, import intensity (RCA-population)), World: trade value, trade change), India: % imports from (SL, China, Japan, Korea), firms exporting (>100k, >100k, 10k in any year vs. 100k consistently), No. of BOI applications (in past 5 years), Exports in related products (density), export intensity - RCA-population (Malaysia, Vietnam, Thailand, India & China)]

– Impact for Sri Lankan economy

[import value, import intensity (RCA-population), import change, labor intensity (Sri Lanka, peer countries, US), Wage (in Sri Lanka, peer countries, US), % of employees (under 30, female), BOI section 17 projects (No. of projects, employees outside Western Province), new linkages (Opportunity Gain index)]

Each variable was then weighted based on the importance

The team had also collected variables that measured each sector's current performance in Sri Lanka. These variables were less relevant to their goal of identifying new sectors for investment, but formed a useful benchmark; thus, they were collected into a third index, 'Strength in Sri Lanka today'. Figure 24 shows which data sources and variables were used to construct the three indices, while

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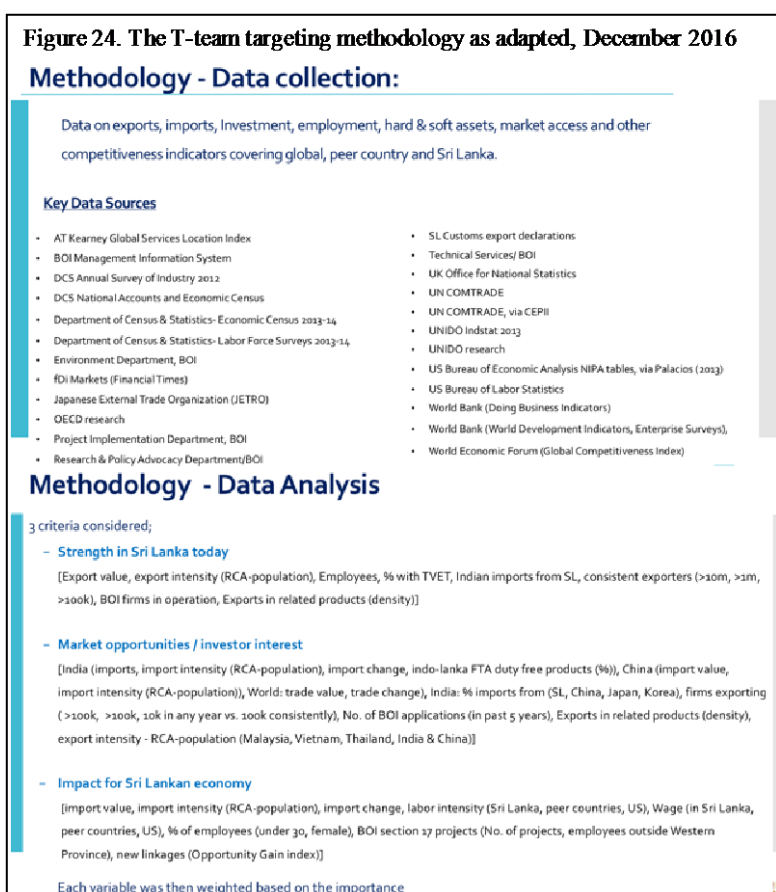
[33] Standardization is a statistical transformation, in which the average value is scored as zero (0), and a variable performing a standard deviation above or below the average score one (1) or negative one (-1), respectively. This approach let the team compare between variables with different units (e.g. a sector's average wage vs. a sector's growth in imports): the scores represent each sector's performance vis a vis the other sectors studied.

Figure 25 maps them into the four quadrants (using the Strength in Sri Lanka Today index to give the circle sizes).

The T-team was able to present the updated targeting mechanism to the Minister, showing the analytical method and data collection effort that went into such. The methodology itself proved impressive for the Minister (and more advanced than any approach he had seen). The exhaustive list of data sources was also impressive, and showed how much effort the team had taken in its work and the coordination demands involved in such work.

The team could answer the Minister's questions at this point as well. For instance, the Minister asked whether the team had considered market access in developing these targets (particularly whether they had looked at local or international accessibility). The team members could point to their efforts to factor in implications of trade deals and many other factors influencing this issue (things that were not considered in the template they started working on in October, and had hence been products of their learning since then).

The team was also able to present initial findings for the sectors it had been looking at, showing the Minister how different sectors scored on the three different criteria. Given the empirical nature of its analysis, it could show how sectors ranked differently depending on how much weight was given to the different criteria. If one weighted 'Strength in Sri Lanka today' even at 25% of the combined score, the result was a list of target sectors in which the country was already present (like garments). These, the team argued, were the established sectors in which the country was already doing well, and while they offered some opportunity for growth they were not going to add significantly to diversification in the economy. As a result, the team explained, the appropriate targeting method would allocate more weight to 'impact for Sri Lankan economy' and 'market opportunities/investor interest' (growing global sectors that would have impacts on the economy that Sri Lanka was looking for—higher exports, jobs, and more). Sectors scoring high on these criteria were likely to be harder to reach, but also offer more in terms of diversification.

Figure 25. T-team sector analysis, December 2016

The team had learned about the importance of being explicit about different criteria, and the implications of such for diversification, by doing actual analysis (not in a classroom or a textbook or through an advisory note from a donor). It was thus a tangible lesson they had all captured. They were able to convey this lesson to the Minister as well, and show him how the sectors they had been examining varied in terms of the two key criteria they had decided to focus on (see Figure 25). The team had re-worked data to analyze the practice sectors (called 'special sectors' in the analysis,).

The analysis showed how far the team's work
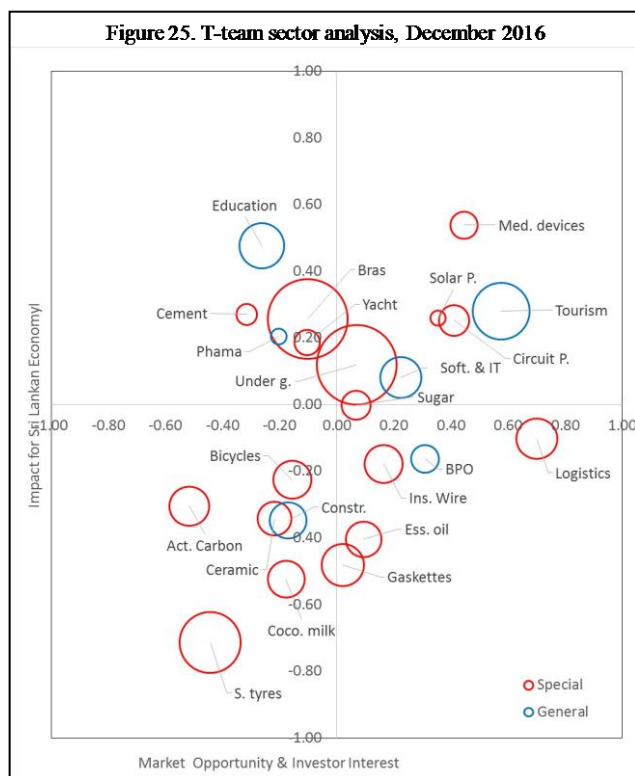
work had progressed. Here was a chart in which the team could point to potential target sectors and communicate the reasons why it might make sense to target some sectors over others—given evidence about market opportunity and impact for Sri Lanka. The team could not communicate such even a month earlier.

The value of this approach was immediately obvious to the Minister and his team, who showed quick interest in the chart. His team members were naturally focused on the quadrant where impact and investor interest were both high, but also asked about the sectors with high impact but low investor interest, noting that these needed particular attention (focused on building interest). Through this discussion, the team (and its authorizers) were starting to use the targeting mechanism (determining strategy for sectors based on evidence in the different criteria). This was the kind of attention the team had been hoping its work would receive, and the kind of attention they know is vital for the work to truly influence policymaking.

The team was also able to discuss its work in respect of land access and coordination, which had advanced since the sixth check in.

In respect of the land issue, the team could ask the Minister for his approval to write letters to the relevant stakeholders asking for details on the availability of land. This request opened an interesting discussion about the importance of identifying the kinds of land needed for the different targeted sectors. With the Minister, the team was able to reflect on the challenges of specifying land needs in different sectors (as reflected in its emerging screening tool). Once again, this discussion reflected the progress in learning in the team.

Figure 26. T-team stakeholder analysis, December 2016
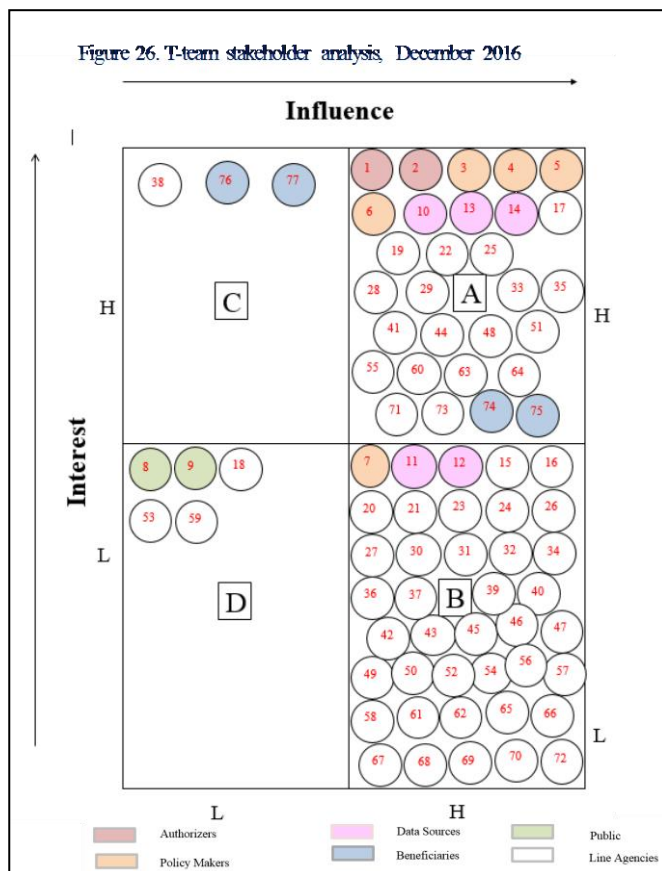
The Minister was clearly surprised at the number of stakeholders (77) the team had identified (see Figure 26). This led to an interesting discussion about coordination challenges amongst the Minister's team of advisors and the T-team. Various officials pointed out that the complexity shown in the figure was accurate in showing the scale of the coordination challenge in government. The T-team explained who they engaged with and why (identifying authorizers, policy-makers, data sources, beneficiaries, the public, and line agencies involved in the economic policy space). The Minister's advisers were especially impressed with the use of stakeholder analysis for this work, and noted that stakeholders in quadrant B could easily obstruct any work the team produced. The T-team agreed, and noted that this was one of their concerns moving ahead. They also noted that many of the B quadrant stakeholders are line agencies, and needed to be managed effectively as work progressed.

The team concluded with a description of its 'next steps', with the Minister showing interest in receiving future updates. The next steps were like those identified at the end of the prior check- in, but concluded with the positive goal, "Pave way for investors to have strategic reasons to invest in Sri Lanka." This had become the focal point of the team, which was not focused on developing a targeting mechanism as its product—instead seeing this as a tool to be used in the challenging process required to help diversify its economy.

The T-Team targeting mechanism, as at December 2016

The team has not completed its work. Indeed, it is only half-way through the PDIA process. However, it has already developed a comprehensive—though still draft and emergent—targeting methodology, adapted for the Sri Lankan economy. This methodology is advanced enough to be used in assessing different sectors to see which make the most sense as 'targets'. It is more rigorous than any other mechanism used in Sri Lanka in over a generation (or more) and is undoubtedly seen as a product that emerged from and is owned and operated by officials in the Sri Lankan government. Figure 27 decomposes the full targeting mechanism as it stands in December 2016. It shows specific questions the T-team has decided are most appropriate to ask in the four sections of interest it ultimately decided to focus on.

Figure 27. The summarized targeting mechanism, December 2016

1	Will growth in this product / industry have a significant impact?	
1.1	Growth and balance of trade (foreign exchange earnings or savings)	(a) is the product a top import in Sri Lanka? (b) what are trends in its current exports and domestic production?
1.2	Jobs and incomes	Is this industry associated with: (a) high overall employment? (b) jobs for low- & medium-skill workers? (c) jobs for underemployed skilled workers? (d) high-income jobs? (e) indirect employment in other industries?
1.3	Sectoral and regional diversification	Is this product or industry: (a) not currently exported from Sri Lanka? (b) potentially present in high-need regions (outside of the Western Province)? (c) improving competitiveness of other sectors (inter-industry / forward / backward linkages)?
2	Are there attractive market opportunities in this sector?	
2.1	Growing market opportunities	Are demand and prices growing: (a) in the domestic market? (b) in the regional market? (c) in the global market?
2.2	Future market opportunities	Do current or future FTAs create opportunities in key products? (a) for accessing key markets (b) for countries and investors interested in accessing regional markets via Sri Lanka
3	Are there already good investor prospects in this sector?	
3.1	Direct activity	(a) are there already successful investors and exporters present? (b) are there inquiries and signs of experimentation?
3.2	Indirect activity and prospects	(a) are successful exporters active in related products? (b) are neighboring countries exporting in the sector, or receiving FDI in the sector?(c) are key FDI sources sending FDI in the sector?
4	Does Sri Lanka have the assets needed to be competitive in this sector? - Sector requirements: What assets are required by the sector? - Sri Lanka's competitiveness: What assets are affordable or accessible in Sri Lanka?	
4.1	Physical assets	What are the sector's physical asset requirements, and how competitive is Sri Lanka at providing the assets? (a) land (industrial, commercial) (b) energy (electricity, fuel / gas)? (c) water supply and waste management (waste water, non-hazardous solid waste, hazmat)? (d) transportation infrastructure (e) ICT infrastructure
4.2	Soft assets	What are the sector's soft asset requirements, and how competitive is Sri Lanka at providing the assets?(a) skills and workforce? (b) research, technology and standards? (c) political conditions (including regulation and legislation)?
4.3	Inputs and linkages	Does Sri Lanka have the sector's required: (a) inputs (locally available or easy to import)? (b) linkages? (including supporting services and industries)

The team also has a full database in which it has collated over 70 data points for over 70 sectors (manufactured products and some sectors). This database brings data together from over twenty

different sources, as a product of the learning and engagement of the T-team (where they learned about data needed and where to find it and then engaged with entities to access the data).

The team has also built the capability to analyze these data, and show how different ways of thinking about targeting yield different lists of targets. They have learned that targeting results can differ when one moves from a 'one sector at a time' (OSAAT) approach—most commonly used in the mechanisms presented to Sri Lanka to date, where researchers nominate sectors for analysis and focus only on these sectors—to an 'all sectors at once' (ASAO) approach. With OSAAT, the team found they could pick subsectors they were most interested in, and learn each week about how the subsector performed in respect of specific variables (introduced for analysis by specific team members). It also allowed for the inclusion of highly disaggregated sectors of interest (like 'coconut milk' rather than the more highly aggregated 'coconut products' or 'processed foods'), which gave members a more personalized way of engaging with data (they could look at products they were particularly interested in, which promoted buy-in to the process). The team also learned that OSAAT has its limits, however, because it is biased to sectors that are known (given that one has to nominate the sectors for study ex ante). This is dangerous, since a focus on diversification requires paying attention to sectors one does not know (where one may not be aware of opportunities).

Given that the team had data covering all sectors (at least every manufacturing sector), it was possible to experiment with an ASAO approach in conjunction with the OSAAT approach. This combined approach led to a hybrid solution, with the final targeting product allowing the analysis of specific subsectors of interest (which the team called 'special sectors') *and* general sectors (all economic activities covered under the International Standard Industrial Classification of All Economic Activities (ISIC), combined into 44 categories).[34] The team learned that it was important to separate the sub-sectors and general sectors when communicating findings (and even when scoring). This was because subsectors compared poorly to sectors, given the level of aggregation in data (e.g. comparing solar panels to the entire electronics sector).

The team has also learned (through the analysis) that different target lists emerge when weighting criteria differently. When giving some weight to a sector's presence in Sri Lanka, the team identified a list of targets the economy was already heavily invested in (like apparel) and where efforts were already underway to establish activity (like yachts) (see Figure 28 and Figure 29 for more complete analysis across 70 sectors).

Figure 28. Targets, 25% weight to current activity, 25% investor interest, 50% potential impact

	General sector		General sector
1	Wearing apparel	9	Industrial machinery and equipment
2	Brassieres and parts thereof	10	Textiles
3	Accommodation and food service activities	11	Personal, cultural and recreational services
4	Women's undergarments	12	Circuit protection products
5	Medical devices	13	Storage & warehousing
6	Food products	14	Fabricated metal products
7	Education	15	Computer, electronic and optical products
8	Cement, ceramics, glass, other mineral products	16	Transport equipment (motor vehicles, trailers)

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[34] There was a small overlap in the approaches, given that the team decided that five or six of their sectors of interest could be reclassified as general sectors, since they were relatively high-level (corresponding with a 2-digit ISIC code or higher). These included tourism, education and pharmaceuticals. The rest were disaggregated enough to be considered separately as subsectors, also known as 'special sectors' (corresponding with 3-or 4-digit ISIC code).

Figure 29. Analysis, 25% weight to current activity, 25% investor interest, 50% potential impact

Sector	Strength in Sri Lanka today	Market opportunity and investor interest	Impact for Sri Lankan economy	Average
Wearing apparel	2.78	0.47	0.07	0.85
Brassieres and parts thereof	1.57	-0.10	0.26	0.50
Accommodation and food service activities	0.84	0.58	0.28	0.49
Women's undergarments	1.58	0.07	0.12	0.47
Medical devices	-0.29	0.45	0.54	0.31
Food products	0.98	0.40	-0.10	0.30
Education	0.43	-0.26	0.48	0.28
Cement, ceramics, glass, and other mineral products	0.00	-0.05	0.49	0.24
Industrial machinery and equipment	-0.59	0.34	0.57	0.22
Textiles	0.25	0.01	0.31	0.22
Personal, cultural and recreational services	0.56	-0.26	0.28	0.21
Circuit protection products	-0.14	0.41	0.25	0.19
Storage & warehousing	0.27	0.70	-0.10	0.19
Fabricated metal products	-0.29	0.26	0.38	0.18
Computer, electronic and optical products	-0.54	0.61	0.32	0.18
Transport equipment (motor vehicles, trailers)	-0.65	0.35	0.50	0.18
Financial and insurance activities	0.31	0.00	0.19	0.17
Software and IT services	0.29	0.22	0.08	0.17
Chemicals and chemical products	-0.16	0.30	0.26	0.16
Rubber and plastics products	0.48	0.25	-0.05	0.16
Electrical equipment	-0.20	0.33	0.24	0.15
Other manufacturing	0.19	0.18	0.11	0.15
Logistics (transportation and storage)	0.50	0.20	-0.12	0.11
Wholesale, retail trade; repair of motor vehicles	0.56	0.00	-0.07	0.11
Transport equipment (ships, motorcycles/bicycles, other)	-0.57	-0.22	0.55	0.08
Agriculture and related	0.79	0.22	-0.40	0.05
Professional, scientific and technical activities	0.35	-0.01	-0.14	0.01
Electricity, gas, steam and air conditioning supply	-0.15	0.04	0.07	0.01
Solar panels	-0.85	0.36	0.26	0.01
Insulated wires	0.15	0.16	-0.18	-0.01
Yachts building	-0.36	-0.10	0.19	-0.02
Mining and quarrying	-0.18	0.26	-0.09	-0.02
Sugar	-0.19	0.07	0.00	-0.03
Publishing and media activities	-0.11	-0.02	-0.01	-0.04
Paper and paper products	-0.48	-0.19	0.23	-0.05
Employment, rental, security, facilities support	0.08	-0.02	-0.15	-0.06
Business administrative and support activities	-0.24	0.31	-0.16	-0.06
Water supply; sewerage and waste management	-0.25	-0.02	0.01	-0.07
Cement	-0.56	-0.32	0.27	-0.08
Basic metals	-0.71	0.09	0.14	-0.09
Furniture	-0.18	-0.04	-0.09	-0.10
Bicycles	0.17	-0.16	-0.23	-0.11
Travel and tour planning activities	-0.19	-0.02	-0.12	-0.11
Basic pharmaceutical products	-0.80	-0.20	0.20	-0.15
Rubber auto parts	0.32	0.02	-0.48	-0.15
Essential oils	0.06	0.09	-0.40	-0.16
Footwear, leather, travel goods and related	-0.34	0.01	-0.17	-0.17
Construction	0.11	-0.17	-0.35	-0.19
Telecommunications	-0.08	-0.52	-0.09	-0.20
Real estate activities	-0.13	-0.02	-0.35	-0.22
Solid Tyres	0.98	-0.44	-0.71	-0.22
Ceramics	0.01	-0.22	-0.34	-0.22
Activated carbon	0.22	-0.52	-0.30	-0.23
Coke and refined petroleum products	-1.09	0.02	0.08	-0.23
Products of wood, cork, and straw, except furniture	-0.14	-0.32	-0.30	-0.26
Coconut milk	0.12	-0.18	-0.52	-0.28
Forestry and logging	-0.16	-0.40	-0.46	-0.37
Printing and rerecorded media	-0.54	-0.69	-0.26	-0.44
Beverages	-0.50	-0.56	-0.44	-0.49
Fishing and aquaculture	0.13	-0.63	-0.80	-0.52
Tobacco products	-0.35	-0.85	-1.13	-0.86

In the literature on emergence, these sectors could be described as a mix of existing and 'emergent' (where the existing sectors are those in which the economy is already engaged, and has been for decades). There may still be opportunities in the existing sectors, but further activity in such sectors will not yield novelty and hence diversification for the economy. They offer close targets for the economy (given that they build on strong existing capabilities but do not take the economy very far into the future). The diversification will come, however, if the economy builds on some of the 'emergent' sectors in which there is some—but not much—activity in Sri Lanka (like solar panels and yachts). These sectors constitute medium targets for the economy (given that there is already some—but not much—capability to produce the product, and the product will offer real novelty

and variation to the country's production).

A different list emerges when the team changes its weighting, and focuses predominantly on the impact a sector will have on Sri Lanka's economy (67% weighting) and the global investor interest in the sector (33% weighting). Figure 30 shows this list, headlined by industrial machinery and equipment, transport equipment, and computer, electronic and optical products. These are long-term but important targets for the country, as they are hard to pursue (with low levels of current activity in Sri Lanka) but offer a lot of potential impact (and will contribute significantly the economy's diversification). They could be called 'innovative' sectors that Sri Lanka will only reach if it provides a very different environment that attracts novelty.

Figure 30. Top targets with 33% weight to investor interest, and 67% to potential impact

	General Sectors	Special sectors
1	Industrial machinery and equipment	-
2	Transport equipment (motor vehicles, trailers)	-
3	Computer, electronic and optical products	Solar panels, Circuit protection, medical devices
4	Accommodation and food service activities (tourism)	Tourism
5	Fabricated metal products	-
6	Cement, ceramics, glass, and other mineral products	Cement, ceramics
7	Transport equipment (ships, motorcycles/bicycles, other)	Yachts
8	Electrical equipment	-
9	Chemicals and chemical products	-
10	Education	Education

Given that the T-team analysis is built on raw evidence, one can look more deeply into the characteristics of different target sectors. In so doing, it is possible to identify those sectors that offer appeal in terms of diversification and have some basis in Sri Lanka today. As shown in Figure 31, nine sectors are in the 'green' when it comes to the investor interest and impact analysis and 'green' when one also considers 'strength in Sri Lanka today'. These are Accommodation and Food Service Activities, Education, Textiles, Wearing apparel, Other manufacturing, Financial and insurance activities, Software and IT services, Basic metals, and Personal, cultural and recreational services. This analysis indicates that these are important areas to investigate for policy targeting, given that some capabilities already exist in the sectors and they offer a lot to the economy.

The data referenced in this targeting mechanism shows that it is important to tailor targeting strategies for each of these sectors, however. A strategy for attracting investment in respect of 'Accommodation and Food Service Activities' would need to tap into existing global market interest in the sector, for instance, whereas a strategy to promote 'Education' would need to try and cultivate such interest (which seems low globally). These kinds of strategy variations are further informed by the team's deeper data collection, which shows what kinds of inputs are needed to attract a sector (in section 4, which is not included in this analysis but has significant importance when policymakers are short-listing potential targets and thinking about the kind of land, services, skills, and other needs in an industry).

Figure 31. Full analysis with 33% weight to investor interest, and 67% to potential impact

Sector	Strength in Sri Lanka today	Market opportunity and investor interest	Impact for Sri Lankan economy	Average
General sectors				
Industrial machinery and equipment	-0.59	0.34	0.57	0.49
Transport equipment (motor vehicles, trailers)	-0.65	0.35	0.50	0.45
Computer, electronic and optical products	-0.54	0.61	0.32	0.42
Accommodation and food service activities	0.84	0.58	0.28	0.38
Fabricated metal products	-0.29	0.26	0.38	0.34
Cement, ceramics, glass, and other mineral products	0.00	-0.05	0.49	0.32
Transport equipment (ships, motorcycles/bicycles, other)	-0.57	-0.22	0.55	0.30
Electrical equipment	-0.20	0.33	0.24	0.27
Chemicals and chemical products	-0.16	0.30	0.26	0.27
Education	0.43	-0.26	0.48	0.23
Textiles	0.25	0.01	0.31	0.21
Wearing apparel	2.78	0.47	0.07	0.20
Other manufacturing	0.19	0.18	0.11	0.14
Financial and insurance activities	0.31	0.00	0.19	0.13
Software and IT services	0.29	0.22	0.08	0.13
Basic metals	-0.71	0.09	0.14	0.12
Personal, cultural and recreational services	0.56	-0.26	0.28	0.10
Paper and paper products	-0.48	-0.19	0.23	0.09
Basic pharmaceutical products	-0.80	-0.20	0.20	0.07
Food products	0.98	0.40	-0.10	0.07
Electricity, gas, steam and air conditioning supply	-0.15	0.04	0.07	0.06
Coke and refined petroleum products	-1.09	0.02	0.08	0.06
Rubber and plastics products	0.48	0.25	-0.05	0.05
Mining and quarrying	-0.18	0.26	-0.09	0.03
Water supply; sewerage and waste management	-0.25	-0.02	0.01	0.00
Business administrative and support activities	-0.24	0.31	-0.16	-0.01
Publishing and media activities	-0.11	-0.02	-0.01	-0.01
Logistics (transportation and storage)	0.50	0.20	-0.12	-0.02
Wholesale, retail trade; repair of motor vehicles	0.56	0.00	-0.07	-0.05
Furniture	-0.18	-0.04	-0.09	-0.07
Travel and tour planning activities	-0.19	-0.02	-0.12	-0.08
Professional, scientific and technical activities	0.35	-0.01	-0.14	-0.10
Footwear, leather, travel goods and related	-0.34	0.01	-0.17	-0.11
Employment, rental, security, facilities support	0.08	-0.02	-0.15	-0.11
Agriculture and related	0.79	0.22	-0.40	-0.19
Telecommunications	-0.08	-0.52	-0.09	-0.24
Real estate activities	-0.13	-0.02	-0.35	-0.24
Construction	0.11	-0.17	-0.35	-0.29
Products of wood, cork, and straw, except furniture	-0.14	-0.32	-0.30	-0.31
Printing and rerecorded media	-0.54	-0.69	-0.26	-0.40
Forestry and logging	-0.16	-0.40	-0.46	-0.44
Beverages	-0.50	-0.56	-0.44	-0.48
Fishing and aquaculture	0.13	-0.63	-0.80	-0.74
Tobacco products	-0.35	-0.85	-1.13	-1.04
Special sectors (subsectors the team looked at more carefully)				
Medical devices	-0.29	0.45	0.54	0.51
Circuit protection products	-0.14	0.41	0.25	0.30
Solar panels	-0.85	0.36	0.26	0.29
Storage & warehousing	0.27	0.70	-0.10	0.16
Brassieres and parts thereof	1.57	-0.10	0.26	0.14
Women's undergarments	1.58	0.07	0.12	0.10
Yachts building	-0.36	-0.10	0.19	0.09
Cement	-0.56	-0.32	0.27	0.08
Sugar	-0.19	0.07	0.00	0.02
Insulated wires	0.15	0.16	-0.18	-0.06
Bicycles	0.17	-0.16	-0.23	-0.20
Essential oils	0.06	0.09	-0.40	-0.24
Ceramics	0.01	-0.22	-0.34	-0.30
Rubber auto parts	0.32	0.02	-0.48	-0.32
Activated carbon	0.22	-0.52	-0.30	-0.37
Coconut milk	0.12	-0.18	-0.52	-0.41
Solid Tyres	0.98	-0.44	-0.71	-0.62

Capturing team learning after three months of work

It is impressive that Sri Lanka's authorities can generate a list of potential targets shown in Figure 31. It is even more impressive that the government is already building capabilities to use the list effectively—not in a routine manner, but in a nuanced and strategic way. This is a product of the four months of work of one team of authorized and dedicated officials, who have also shown what they can do when effectively focused and empowered.

The team learning was captured in late December, at the seventh check-in, through a brief survey designed to assist self-reflection and provide the basis for a mid-point assessment of the PDIA experience (given that it was the 7th check-in of 14). The first question asked team members if

they had previously done targeting like that which they were now engaged with. Answers were varied, ranging from "No. It is exciting and useful" and "No. I have not done before" to "Yes, but not so much in detail." One member noted that, "This is a very comprehensive study and it is the first time I have been involved in a targeting mechanism like this." Another commented that, "This exercise is a very comprehensive one and both the exports and FDI was considered in the process of targeting. Therefore, this is the first time I have involved in a targeting mechanism like this." A final observation was more organizational: "Never in the history of BOI has it done such a comprehensive study following a scientific approach."

A second question asked the team members what they had learned about doing targeting. One responded, "I have been practicing targeting in my day to day work but not to the extent that was applied in [the PDIA] exercises." Others learned that one "needs a lot of reliable data to carry out this type of exercise" and that one could analyze this data to "identify comparative advantages." One member suggested a degree of positive surprise at the way they managed to do the targeting: "What we thought impossible at the very beginning became possible after few months with the support extended by CID, especially the data collection and formulating a methodology." Another identified lessons about "data collection [and] compilation as well as analysis and assigning sectors into four quadrants." A final response stated that, "This was a very good learning process for me" and pointed to lessons about "working [with] and handling various variables/data at the same time and [performing] econometric modeling to get results." Reflecting on the quality of the work they had done, this team member concluded with a vital lesson about targeting: "Most importantly, since the results were based on a proper targeting mechanism, we can persuade others in a more convincing way."

The mini survey also asked, "What did you learn, about the abilities of your colleagues and about working as a team?" This is an important question to ask, especially in a country like Sri Lanka where coordination is a major challenge (and requires team work within and across related agencies). In answering the question, one team member spoke to the value that is added to one's work when engaging positively with those enjoying different talents, especially when everyone brings an appropriate 'attitude' to the work:

> "I had some gaps in knowledge but was able to fulfill the requirement through the team work and from the knowledge from other members. They are corporative and knowledgeable. I can specially point to the [name deleted for privacy] department head and her officials' knowledge on analysis. Their attitudes were also supreme. Each colleague has special / different skills. Hence it is a great team."

Another team member pointed to a similar synergy in the team, relating this to the selection of team members by the primary authorizer as well as the feeling of empowerment expressed by some team members:

> "The interest and enthusiasm was very high, with a very good selection of members by the Authorizer. The skills and knowledge of members were used to the maximum and some members confessed that this is the first opportunity given to them to make use of their skills. I cannot ignore [the embedded CID team members'] support and commitment too."

An additional response noted that, "The team was very cooperative and could do a good job as a team." A respondent also spoke to the value of the team, and the way 'pooling' talents through this vehicle was key to achieving progress: "The team is great and once their skills pooled together, more meaningful and effective results are obtained (which would have not been

possible if worked in isolation)." A final comment reflected on the way Daniel Stock and Anisha Poobalan from Harvard CID had become a trusted and invaluable part of the team, recognizing both for their "commitment and support". It is important to reflect on the fact that they were not the team leaders, nor the outside experts advising the team. Rather, they were members of the team lauded as much for their 'commitment' as their technical ability.

A related question asked, "What did you learn, about the potential of your organization to produce meaningful products quickly?" Comments focused on procedural lessons (about how to work to solve problems), with a specific focus on the new awareness members had of their potential. One person noted that, "There is need of wise use of potential of the organization as we did in [the PDIA] exercise." Another indicated that, "The potential is there but the organization must create the opportunity. This task can be seen as one of the best examples." Other team members learned about working under pressure and combining skills to produce new products, stating that, "I learnt how to work as team to achieve targets under pressure" and "There are different skills and experiences within the organization itself which we could use during this exercise, enabling us to produce a very good output." A number of team members commented that their organizations had strengths in expertise, but hinted that the organizations struggled in combining expertise and thus facilitating co-creation. They learned that coordination and co-creation were crucial and were already thinking of new connections needed to ensue targets would be used and goals achieved: "The main strength of my organization is the expertise work force it has. There are sector specialists and market specialists. I believe once the targeting is done, we can make use of these experts to put their efforts in achieving the targets."

A final, personal, question inquired of the individuals, "What did you learn, about yourself?" A few comments alluded to the way the process allowed them to use their past experience, ostensibly suggesting that they learned how much they actually knew (as latent knowledge): "There was an opportunity to use my experience and knowledge in the exercise while improving and adopting to the situations"; "I have been in the Promotion Department for the last 25 years. My work involved especially investment promotional activities. However, it has been a new experience that will compliment my current work in the investment promotion department." Another set of comments pointed to new substantive lessons about doing analytical work: "This exercise gave me a very good knowledge in handling a comprehensive data base and analyzing data to targeting sectors for FDI attraction"; "This exercise gave me very good knowledge on targeting for sectors while focusing on various aspects/ strengths of the country."

A final set of personal reflections pertained to work process, and lessons about management. One team member alluded to the fact that work could be motivational, which is an important lesson for many officials who struggle to find purpose in their day-to-day activities: "This exercise gave me a lot of encouragement and knowledge specially about data analysis." Another learned the importance of being attentive to tasks: "We all understood that as a team how important it is to stay focused while being disciplined, responsible, responsive and timely." Other members built on earlier comments about learning related to the importance of empowering work and workers, with one packaging the lesson as an advisory for her/his organization:

> "This exercise provided /enhanced skills, and a window of opportunity for most of the members, which they never got before, thus leading to this very successful outcome."

"Now the organization needs to realize that things will not just happen but we need to make it happen with strong commitment and for that staff should be empowered."

Continuing the progress

The mini survey asked a final question of each team member: "What do you think the next step should be?" Importantly, all the respondents had clear answers—and all the answers related tightly to the next steps identified by the team in its seventh check-in (in all three problem areas):

- "The next step should be to identify potential markets for the sector we target."
- "We should target the specific countries / markets after we complete this exercise of identifying the specific target sectors."
- "We need to wide spread this outcome and for this we need to further fine-tune the results and quickly prepare the sector profiles, a sector –country matrix and a location - sector matrix in order to improve the inward FDI level of Sri Lanka."
- "The next step should be to match the identified sectors with the location ("Sector – Location") and identify potential investors/ countries ("Sector – Country") to attract FDI."
- "Identification of one or two lands soon also an important task ahead of us."
- "We should come up with results with regard to products and services, zones with infrastructure specially with waste water treatment and disposal facility and strategy to obtain necessary approvals within a short period of time."
- "We will be analyzing the stakeholder quadrant further (based on identified sectors and prioritizing the line- agencies) and then list out the issues after stakeholder consultation. Finally we need to come up with an implementable solution. (How fast we can push line agencies to Quadrant A on a priority basis)."

The answers are focused on practical action, which can be acted upon quickly. They are also clearly focused on ensuring progress towards using the targeting approach to attract FDI—not settling with producing a technical tool as is often the case.

The next steps identified here, and in the team's work (see Figure 23) indicate that this is work in progress and has not yet concluded. This is consistent with the idea that complex challenges are not achieved in one big step or in short exercises. Instead, complex problems are solved through tight iterations of action that generates learning and engagement—both fostering the emergence of new capabilities, ideas, and solutions to pressing problems. Figure 32 provides a stylized presentation of the progress made in the push-periods between the seven check-in periods to date, with clear gains in learning and engagement at all times (but more pronounced 'moments' of serendipity leading to the second and seventh check-ins, as discussed in this text).

Readers might ask how this progress compares with 'the counterfactual'? This is a research question that relates to experiment design. It is an important question, however. If this article claims that the PDIA process is promoting a different type and pace of progress (which it is), it is important to answer, 'compared to what?' First, we can compare with the past (as a historical counterfactual): Sri Lankans have been reflecting on the need for diversification—and for targeting to focus a diversification strategy—for a long time. But this is the first time that a serious targeting mechanism has been developed, even after years of hand wringing and policy concern and discussion. So, the PDIA process sparked action that has been lacking in practice. Second, we can compare with a piece of work done contemporaneously to this. A donor agency

began working on a targeting product for Sri Lanka in August/September 2016, and delivered a list of 9 or ten sectors it had analyzed for the government in early December 2016. The analysis was not based on quantitative analysis (and there was no quantitative method or database to go back to in explaining findings). The analysis also could not show the different gains and challenges associated with a specific 'target sector' (which the T-team mechanism could do). Finally, the external analysis had been developed completely outside of government and was delivered to government as a product, with no capability building or local ownership curation in government itself. The T-team product was developed in-house, with expanded in-house capability and engagement and ownership.

Figure 32. Progress in learning how to target for diversification: what will emerge next?
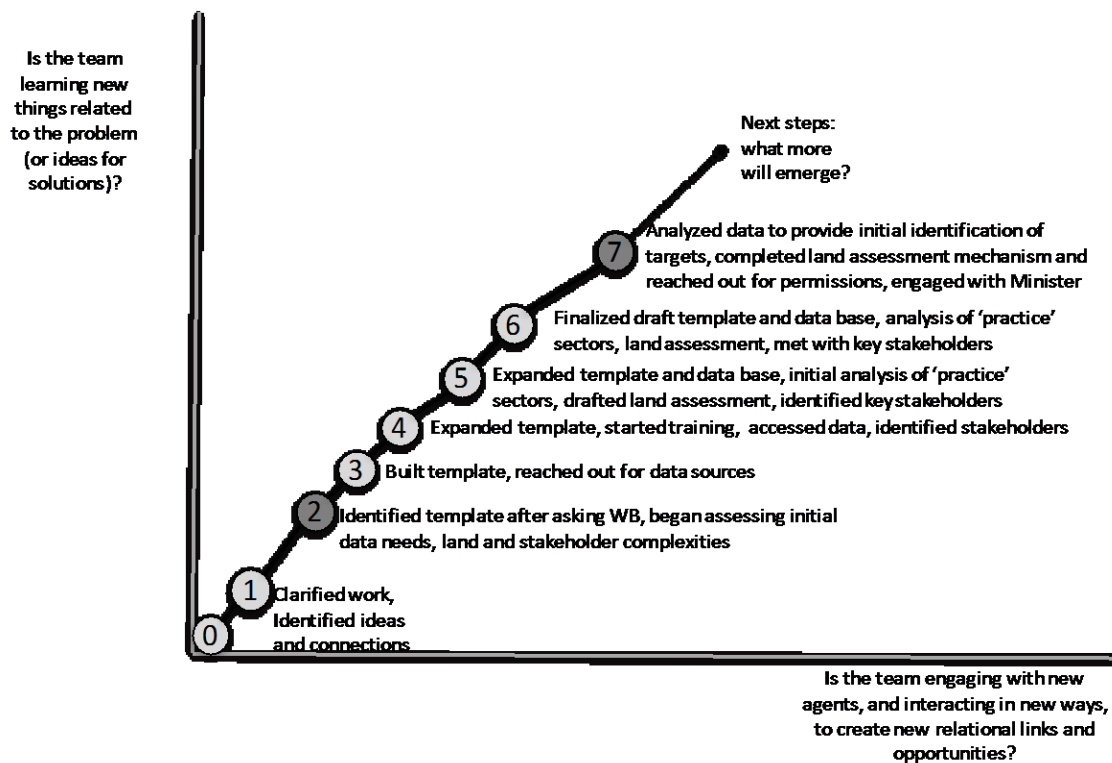
Given such thinking, it is more than possible to say that this experience compares extremely positively to 'the counterfactual'. The experience has not just produced a new product, however; it has begun to facilitate emergence of novelty. This, as introduced, is a key aspect of the PDIA approach, which focuses on promoting emergence of novelty in the face of complex and complicated challenges. In other words, creating luck by structuring aggressive, iterative preparation and generating new opportunities. Figure 32 shows that the T-team has already benefited from its preparation and found itself able to take advantage of surprising opportunities. The challenge is to keep this progress going, and to ensure that the lessons learned about fostering such progress stick in future.

The T-team is already taking this challenge up, in its eighth push-period of the PDIA work. Beyond the PDIA process, however, the challenge will be to take lessons about what made this process work and institutionalize such in other areas of Sri Lanka's policymaking and implementation system. This challenge involves ensuring that government recognize the kind of rules and structures needed to empower its people to facilitate and even lead adaptation in the

economy (needed to achieve diversification goals). From experience to data, various PDIA process structures seem to provide examples of such rules—having facilitated progress with the T-team activities. These include the focus on problems as drivers of action, and the repeated iterative process (involving action with check-in reflections) intended to promote action learning. These procedural rules create conditions for what theorists call a "'self-organizational' process, that is manifest in 'incremental innovation' and 'learning by doing,'" and "approximates weak emergence."[35]

This 'self-organizational' process is what T-team members refer to when mentioning the empowerment they have experienced in this targeting exercise. It is a process that is undeniably fostering progress in targeting for economic diversification in Sri Lanka. It is important to recognize that "none of this takes place in an institutional vacuum,"[36] however; continued progress will depend on the degree to which Sri Lankan leaders recognize process rules that need changing to keep momentum going. In a sense, these leaders should observe that government officials work most effectively when given structured autonomy—organized around a clear problem, given freedom to experiment in action, within a set of regular and constructive reporting and feedback relationships.[37] This kind of structured autonomy has been a hallmark of the T-team process, and has to-date facilitated strong results.

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[35] Foster, J. and J. S. Metcalfe (2011). Economic emergence: An evolutionary economic perspective. *Journal of Economic Behavior and Organization, page 427*.

[36] Foster, J. and J. S. Metcalfe (2011). Economic emergence: An evolutionary economic perspective. *Journal of Economic Behavior and Organization, page 427*.

[37] The importance of autonomy in governance is a theme of recent work by Francis Fukuyama, who argues that 'good governance' is positively related to autonomy of public officials (who use such autonomy to experiment and learn and ensure responsiveness to citizens). See Fukuyama, F. (2013). What is Governance? Center for Global Development Working Paper No. 31.