Measuring Absorptive Capacity (MAC)

A New Framework for Estimating Constraints

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This policy brief describes a new framework for measuring absorptive capacity in international development, peacebuilding, and stabilization efforts. Absorptive capacity is the form and amount of foreign aid and attention that recipient communities, institutions, or societies can receive without suffering significant social, economic, or political disruptions.

Conventional measures of absorptive capacity focus on the degree to which a recipient can spend donor funds according to donor requirements. In more sophisticated conventional approaches, the focus is on recipients' technical capacity to plan and implement programs or projects ("interventions") according to donor standards, sometimes defined in partnership with recipients.

Conventional prescriptions for overcoming the constraints on aid absorption tend to assume the standards, requirements, objectives, or designs of donor-funded interventions are "correct" and that recipients' technical implementation capacity is what needs to be improved.

CSIS has recently completed research on the sources of absorptive capacity, however, and found that absorptive capacity is not an objective feature of recipient societies but a byproduct of particular donor-recipient relationships.[2] More formally, absorptive capacity is an artifact of particular theories of change underlying the design and intent of particular donor-funded interventions.

As such, absorptive capacity cannot be measured in isolation: it exists only in relation to a particular intervention and therefore can be measured only on a model of that intervention. Moreover, improvements to absorptive capacity can be made by adjusting not only the implementation capacity of recipients, but also the delivery capacity of donors and the design or intent of the intervention itself.

The CSIS framework, Measuring Absorptive Capacity (MAC), provides a method to model the donor-recipient relationship in a way that identifies absorptive constraints associated

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[2] See Robert D. Lamb and Kathryn Mixon, *Rethinking Absorptive Capacity: A New Framework, Applied to Afghanistan's Police Training Program,* Managing Absorptive Capacity, vol. 1 (Washington, D.C.: CSIS, forthcoming) and Robert D. Lamb, Kathryn Mixon, and Andrew Halterman, *Absorptive Capacity in the Security and Justice Sectors: Assessing Obstacles to Success in the Donor-Recipient Relationship,* Managing Absorptive Capacity, vol. 2 (Washington, D.C.: CSIS, forthcoming). Parts of both volumes are excerpted here.

with either recipients or donors. This makes it possible to test whether the design and intent of a particular intervention are consistent with social, political, economic, and technical realities on the ground. In other words, it helps answer the question: Can this particular intervention (as currently designed) work in this particular place?

This policy brief describes the MAC framework step by step and explains how CSIS uses it to assess the constraints a proposed or ongoing intervention might face in a particular place. The MAC assessment involves three sets of tasks.

- **Model the intervention.** In the first set of tasks, the assessment team models the theory of change underlying the design and intent of the particular intervention under study. This model is similar to standard results chain or logical framework (logframe) models, but with a crucial difference: MAC explicitly models the assumptions on which the design of the intervention is based, treating those assumptions as "prerequisites" to success. By incorporating the intervention's prerequisite structure into the model, the assessment team can identify potential constraints to success in the next phase.

- **Test the model.** In the second set of tasks, the team tests the model against local conditions, donor capabilities, and historical experience. Field research helps determine whether any prerequisites to success are insufficient or missing from the community, institution, or society receiving the aid. Missing prerequisites can be associated with technical requirements (e.g., resources, capabilities, or knowledge on which the intervention depends are insufficient or unavailable) or the local political economy (e.g., social or organizational change does not happen in the way the intervention assumes it does). Historical research determines the parameters of what is possible based on what has been achieved in the past. And the donor's delivery capacity is assessed to determine the limits to what changes to the intervention can reasonably be recommended.

- **Revise the intervention.** In the final set of tasks, the team analyzes the nature of the missing prerequisites and the parameters of what is achievable to determine how to revise the intervention's design. In cases where missing prerequisites can be provided fairly quickly, the design can be modified to incorporate them. In cases where the missing prerequisites cannot be provided quickly, the intervention will need to be redesigned to bypass them or minimize their number or severity. In extreme cases, where fundamental prerequisites are missing (e.g., the intervention's design is simply not compatible with the local political economy), the intervention might need to be rethought entirely, perhaps with new or different objectives and a completely different design. The MAC framework is designed to be used iteratively. If the recommended revisions are accepted, the revised intervention can be modeled, tested, and revised again, both during planning and to evaluate progress during intervention.

The MAC framework should be considered an add-on module to standard assessment, planning, monitoring, and evaluation tools. It is not intended to be used by itself to design an intervention. It is intended to help test the design of a proposed intervention to determine if that design adequately accounts for constraints on the capacity of the recipient to absorb and make productive use of the proposed intervention's efforts, as well as the donor's capacity to deliver on its promises. As such, it provides a structure through which existing tools, such as technical

assessments or political economy analyses, can be connected to planning and policy. Similarly, MAC is not intended to be used as a standalone evaluation tool for completed or ongoing interventions, but as a supplement to program or impact evaluations, helping identify obstacles the intervention had not adequately accounted for. As CSIS itself carries out absorptive capacity assessments in the field, it will continuously refine the MAC framework it and develop it into a formal assessment tool.

The remainder of this policy brief describes the MAC framework in the form of instructions for implementing an absorptive capacity assessment.

Task 1. Model the Theory of Change

Task 1.1. Develop the Baseline Model

Using any standard theory of change, results chain, value chain, or logframe approach, develop a qualitative (i.e., causal) model of the proposed intervention, identifying the inputs, outputs, and outcomes that are intended. Include as much quantitative information as possible (e.g., how many staff, how much money, how many participants, how much capacity, and so on) as well as qualitative information indicating how good something is expected to be or how well something is expected to be done. This information can be garnered from a review of existing planning documents, needs assessments, technical assessments, and other data as well as from interviews with stakeholders (at headquarters and in the field).

MAC does not technically require that any particular structure be used, only that the causal model of the intervention be accurate and comprehensive. That means the logic connecting each part of the model should be clearly specified, including whether relationships among specific elements are linear (e.g., cause and effect), dynamic (e.g., feedback loops), or complex (e.g., highly interdependent and unpredictable). The following elements are illustrative of what might be included in such a model: [3]

- **Inputs** are the resources, capabilities, and knowledge that are provided as part of the intervention and needed to undertake the activities or create the products of the intervention, including equipment, facilities, materials, money, partners, personnel, research, skills, and technology.

- **Outputs** are the most visible aspects of the intervention, as they include the main activities or tasks that create tangible products, services, or benefits for people in the recipient society. The outputs are what the inputs become as a consequence of the intervention.

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[3] The illustrative structure presented here is derived from the logic model proposed by Ellen Taylor-Powell and Ellen Henert, "Developing a Logic Model: Teaching and Training Guide," University of Wisconsin–Extension, February 2008, http://www.uwex.edu/ces/pdande/evaluation/pdf/lmguidecomplete.pdf.

- *Activities* are the various tasks and actions that field staff, implementers, partners, and other participants do to make the intervention work.

- *Products* are the tangible results of intervention activities: the goods, services, and conditions that are created from all of the required inputs, including those supplied by the intervention and the input prerequisites available from other sources.

- *Participants* include all of the people and organizations who do the activities, create the products, or otherwise affect or are affected by the intervention, such as agencies, beneficiaries, clients, customers, decisionmakers, field staff, implementers, organizations, partners, and the population.

- **Outcomes** are the results of the intervention or the difference between the preintervention conditions and the conditions that prevail once the recipient system interacts with the outputs of the intervention. In the short term, participants learn something. In the medium term, they behave differently as a result of that learning. In the long term, conditions in society change as a result of that change in behavior.

  - *Learning* is usually the most immediate effect that the outputs have on the people affected by the intervention, including their attitudes, aspirations, awareness, capabilities, knowledge, motivations, opinions, and skills.

  - *Action* includes behaviors, decisions, habits, policies, social and cultural practices, and other ways that individuals and groups interact with each other and the system at large. How people behave is obviously affected by far more factors than just the outputs of the intervention.

  - *Impact* includes all of the environmental, cultural, social, political, and economic conditions that are changed as a consequence of the intervention. At this level, so many factors external to the intervention affect conditions that it is usually difficult to measure the actual difference the intervention made.

The baseline model can be described in narrative form, graphic form (e.g., with flow charts), or in software developed for planning, monitoring, or evaluation purposes. What matters is that all program elements and the logic connecting them are fully accounted for, as are the basic assumptions of the model. The text box on the following page offers an example in summary form.

Task 1.2. Identify the Prerequisite Structure

After defining the baseline model, identify the prerequisites on which the success of the intervention depends. In planning documents, prerequisites are sometimes called assumptions, dependencies, risks, external factors, external conditions, or cooperant factors. In the MAC framework, prerequisites are of two types:

- **Input prerequisites** are essentially inputs that (a) are not provided as part of the intervention, but (b) are required to create the outputs. In other words, they are

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Illustrative Baseline Model: Crime Reduction

Theory of change: Hiring more police officers, arming them, and training them will lead to a larger, more effective police force that patrols more areas and arrests more criminals, which deters crime

Objective: reduce crime by 50 percent in four years

Inputs: funding, weapons, skills, etc.

Outputs: recruitment, training, new officers, well armed and trained force

Outcomes: better weapons skills, more patrols and arrests, deterrence

Assumptions: qualified recruits are available and willing to join the force; trainers are qualified and available; funding is available to pay police salaries; police will arrest criminals; arrests are a deterrent in this society; the criminal justice system has the capacity to process more prisoners; criminals will not wage war against higher police presence; police are not the source of crime; etc.

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capabilities, resources, or knowledge that donors do not provide but that the recipient requires to make productive use of the donor's actual inputs. In the assumptions section of the text box on the previous page, the input prerequisites include the availability of qualified recruits and trainers, which are not provided as part of the intervention but are required to grow and train the police force. A well designed intervention is based on the assumption—and preferably the knowledge—that input prerequisites are already available in the recipient system. Absorptive capacity is traditionally understood as a problem of "missing inputs" and the MAC framework captures this understanding here.

- **Output prerequisites** are activities, goods, services, conditions, and people that (a) are not created by or involved in the intervention, but (b) are required in order for the outputs created by the intervention to be used by the recipient society in a way that achieves the intervention's objectives. In other words, they must be present in the recipient system in order for the intervention's outputs to contribute to the desired outcome. The remaining assumptions in the text box are output prerequisites: a well armed and trained police force will not do more patrols if they do not get paid, more patrols and arrests will not reduce crime if the police are not arresting criminals, arrests will not reduce crime if prison is not a deterrent or the justice system cannot process them, and a police presence will not reduce crime if the police themselves are criminals or if other criminals begin to wage war against them.

Most prerequisites have prerequisites themselves. Just as a second-year college course is a prerequisite for some third-year course, that second-year course has its own prerequisite: one or more first-year courses. Understanding the structure of prerequisites in college is the key to understanding how knowledge is acquired in college. Likewise, understanding the structure of prerequisites in aid programs in particular contexts is the key to understanding how the objectives of that program can be achieved in that context.

Collecting detailed technical requirements for the intervention is necessary for modeling the prerequisite structure, but common sense and basic logic are important resources as well. If an intervention is designed to produce a police force with 17,000 troops, then one important input prerequisite is that there must be at least 17,000 people who are available, qualified, and interested in the job. If the goal is to build 100 schools and a program is designed to ensure that all building materials for those schools are locally sourced (possibly to generate local economic activity), then an important prerequisite is that the local market actually has building materials available and some way of getting those materials to the building sites. These seem obvious, but such obvious considerations are often overlooked in practice.

Task 1.3. Validate and Refine the Model

Once the baseline model and the prerequisite structure are in place, interview key stakeholders and experts, individually or in workshops, to determine whether they think this overall model accurately reflects the intervention's design and intent. Make changes to the model as needed.

A participatory process that involves a range of stakeholders and experts in gathering and validating all of the information needed to develop and validate the overall model can be useful, but balance is important: an overly participatory process risks reifying the results, making it difficult to modify the structure later if needed, while an inadequately participatory process risks missing information.

Once the model is validated, make initial recommendations for how to revise the intervention's design based on any obvious shortcomings, such as flaws in logic, impossibilities, or obviously missing prerequisites.

Task 2. Test the Model

Task 2.1. Field Research: Test the Model against Local Conditions

To measure the capacity of the recipient system to absorb and adapt to the intervention, determine whether the input and output prerequisites are present in the recipient system at the needed level. This will normally require field research. Each prerequisite in the model becomes a research question: is it actually present where it needs to be, up to the standards it needs to be, and in the quantity it needs to be? Two aspects of the recipient system are important to study:

- *Implementation capacity* can be estimated from assessments of the technical requirements of the intervention, so various needs, technical, capacity, logistical, supply-chain, and sector-specific assessments are useful inputs, although information about implementers' knowledge, opinions, and attitudes and what they have accomplished in the past are useful as well.

- *Adaptive capacity* has more to do with how change takes place in the specific community, institution, or society partnering in or benefiting from the intervention. If the intervention depends on a ministry that functions according to rules, that prerequisite

would be missing if the ministry is actually headed by a figure who runs it as a patronage network. Political economy analysis, therefore, is a critical input as well.

Task 2.2. Organizational Research: Test the Model against Donor Capacity

Most assessments in the development, peace building, and stabilization fields end with recommendations for what the donor should do differently or what the donor should require the recipient to do differently, without accounting for whether the donor is capable of implementing the recommendation. While there is significant literature on "lessons learned" and "best practices," as well as many project-specific evaluations, some important lessons do not get institutionalized, including the lesson that project and program designs should be adapted to the local needs and capacities of the recipient society.

This longstanding problem suggests that the personnel within these institutions who are "learning" these lessons are not the same people who have authority to make key decisions about how interventions are to be planned and implemented. Either the knowledge is not being transferred from unit to unit within these institutions, or different units have formal processes, informal practices and attitudes, or various incentives that push them away from designing and implementing locally appropriate interventions.

To determine the capacity of donor institutions to adapt their interventions to local conditions, collect information from several key units within the donor institutions. Include information about (a) knowledge, (b) processes, (c) culture, and (d) incentives for the units responsible for the following functions:

- **Personnel.** What are the formal processes for determining the qualifications for hiring and promoting personnel, including personnel in field offices? What are the informal practices: Does everyone get promoted automatically, or is the office more conservative about promotions? What is the management philosophy: does it favor generalists who can manage unfamiliar topics, or specialists who learn an area or an issue in-depth? Are personnel in the field given adequate time to share knowledge and experience with their replacements before being redeployed? Are experimentation and risk-taking rewarded, or is failure always punished?

- **Budgeting.** What are the formal rules about when money has to be spent (e.g., by the end of the fiscal year, use it or lose it), and how much paper work is involved in accounting for it? What are the informal expectations about what counts as legitimate risk-taking with the institution's financial resources? What are the attitudes of budget decisionmakers toward the various offices that have to implement policy?

- **Security.** What are field personnel required and forbidden to do to remain safe? Do the rules make it impossible to interact with the local population? Is security training available? How risk-averse are security decisionmakers when it comes to giving field personnel freedom of movement?

- **Contracting.** How complicated, and how open, is the formal contracting process? What common practices have staff developed to get around complicated requirements? How risk-averse are contract managers in seeking waivers and approving uncommon requests?

- **Planning**. What are the formal processes for capturing and circulating lessons, knowledge, information, techniques, and other forms of knowledge? How much authority do policy and planning personnel have over human resources, budgeting, contracting, and security decisions so that knowledge about what ways of operating do and do not work can be put into place?

- **Leadership.** How much authority do political appointees have over the rules and operations? How much interference is common? What are the common practices for briefing leaders? How commonly is professional policy advice rejected?

This task amounts to a political economy analysis of the donor institution and could well be replaced by applying some other political economy analysis tool to the donor. By understanding the parameters within which the donor is able to operate, the assessment team can determine which back-office functions might prevent the donor from implementing its recommendations (see task 3). When a donor's back-office functions undermine its ability to customize interventions to local conditions, it is helpful to understand the source of that dysfunction.

When budgeting rules require spending all funds by a certain date, the personnel security office refuses to allow field personnel to visit project sites, or the human resources office enforces promotion requirements that are disincentives to field experimentation, try to determine why these offices do those things. Sometimes it is a sick institution, but sometimes there are real dilemmas involved. If field experimentation is important, and a project manager's experiment fails, should the project manager be rewarded for experimenting or punished for failing? A human resources department might not have the capacity to know how to distinguish between responsible and irresponsible experimentation. Likewise, the personnel security department might refuse to allow field staff to visit project sites in dangerous areas because the security manager will be held accountable if field staff are kidnapped or killed.

When such back-office dilemmas are discovered, it becomes a matter for the donor institution's leadership to try to resolve them. Use the MAC framework to bring those dilemmas to the leaders' attention, showing that problems in the donor's delivery capacity are directly linked to its ability to define and implement a theory of change (task 1) consistent with the recipient's technical and adaptive capacities (task 2.1). If leadership cannot find a way to overcome the back-office dilemmas, however, treat them as if they were missing prerequisites when the time comes to make recommendations for overcoming absorptive capacity constraints (see task 3).

Task 2.3. Case Research: Test the Model against History

Supplement research on the recipient (task 2.1) and the donor (task 2.2.) with case research to compare the intervention's performance requirements to the historical record. Have similar interventions succeeded elsewhere? What has the recipient institution accomplished in

past? If the design and intent of the intervention would require the recipient to significantly outperform the historical record (its own or that of others), then that is a signal that its capacity to perform according to the design of the intervention under study might be inadequate.

Task 3. Revise the Intervention

Task 3.1. Recommend Changes

If missing prerequisites are discovered from field research, donor shortcomings are identified through organizational research, or impracticalities are discovered through historical research, three options are available:

- **Modify the intervention** to supply the missing prerequisites (or coordinate with someone else who can supply them). This approach is most practical when the missing prerequisites are simple, technical, and concrete or can be provided fairly quickly. In the example, if it turns out that potential recruits are illiterate and therefore not qualified for training, the intervention can be modified to include literacy as part of the training.

- **Redesign the intervention** iteratively, trying different inputs and outputs to find an approach that bypasses missing prerequisites, minimizes their number or severity, or allows implementers to do this experimentally in the field. This approach is necessary in cases where the missing prerequisites cannot be provided quickly. If, for example, building a formal police force is infeasible because of a longstanding culture of police corruption, but it turns out that society already has "neighborhood watch"-like volunteers, the intervention could be redesigned to build the strength and accountability of those informal institutions instead.

- **Rethink the intervention** entirely, reconsidering whether the objectives are appropriate to the recipient system, whether achieving them would require unprecedented performance, and perhaps whether the missing prerequisites are actually necessary. Finding an approach with new or different objectives and a completely different design is necessary in any case where fundamental prerequisites are missing (e.g., the intervention's design is simply not compatible with the local political economy). For example, has any similar society reduced crime by 50 percent in four years? If so, how? If not, can the objective be changed to reducing crime by 20 percent, or reducing violent crimes only, or increasing the length of the intervention? Is literacy actually needed or can locals and field staff find some pragmatic workaround during training? Is an intervention built around enforcement and deterrence the right approach, or can different, more culturally appropriate mechanisms for mediating conflicts, maintaining order, and disciplining youth be strengthened instead?

Task 3.2. Monitor the Intervention and Adapt

Once the intervention is modified, redesigned, or rethought, start over: model the revised intervention, test the model against local conditions and donor capacities, and revise it again as

needed. This iterative process makes it possible to find an approach with minimal missing prerequisites, customized to local conditions. By continuously monitoring implementation, comparing design to local conditions, and revising the model as needed, this process also makes it possible to identify both new constraints as they are discovered and new opportunities arising from innovation or experimentation in the field.

Considerations for Applying the Framework

The MAC framework is based on an explicit recognition that absorptive capacity is mainly a function of the "fit" between recipient capabilities and donor capabilities. Donors have at times funded or implemented projects, programs, and other interventions without a realistic understanding of the capacity of recipient societies and institutions to absorb and make productive use of financial aid, technical assistance, or political attention in the form provided by outsiders, or an understanding of the indirect effects of external interventions on the recipient society. As a consequence, some donor interventions have cost more, achieved less, and been more disruptive than necessary.

Considering donor factors as well as recipient factors as potential determinants of absorptive capacity makes it possible to answer important questions: If an intervention is failing, is it because the host nation is not living up to the donor's expectations, or because the expectations and design are unsuited to the society or institutions? If the expectations and design are unrealistic and ill-suited, how can they be made more realistic and better suited? Answering these questions is clearly in the interest of policymakers, program designers, and recipient societies alike.

A significant problem with using logical frameworks as planning tools is the impression they can create that interventions are predictable, linear processes and that implementation plans should be inflexible. This misimpression can be reinforced by a planning process that emphasizes a high level of effort to identify inputs, outputs, and outcomes and a comparatively low level of effort to identify and understand the assumptions, risks, and external factors that affect what the intervention can achieve.

The MAC framework redresses that imbalance by focusing attention specifically on those prerequisites. It discourages inflexibility in planning by encouraging the user to modify, redesign, and rethink the intervention model, repeatedly testing it against the prerequisites on which its success would depend until an approach is found that is feasible according to local conditions.