NCSC
National Center for State Courts

Measuring the Impact of Access to Justice Programs:

AN ASSESSMENT TOOL FOR FUNDERS AND POLICYMAKERS

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Purpose of the Analytical Tool

Across the fifty states and the nation, many organizations have implemented a variety of programs to reduce the access-to-justice gap.

Viewed from a high level, these programs collectively look like a semi-random and mostly ad hoc group of solutions that reflect the particular missions, resources, and capabilities of the sponsoring organizations.

The result is a widely varying patchwork of capabilities that provide different services and solutions in very different amounts that do not necessarily or even usually align with the problems that the target populations face.

This paper proposes more of an "engineering" approach by introducing an analytical tool for organizations working on closing the access gap to estimate the potential impact of proposed solutions. The tool can be used to:

1) assess the magnitude of an access problem that could be solved by a specific capability;
2) identify strategic planning about hurdles and barriers that must be surmounted or reduced to achieve program objectives; and
3) prioritize the tasks that must be performed and the capabilities that must be implemented to close the targeted gaps. The sub-equations in the tool can also be used to systematically think through steps to be taken for successful implementation.

Many organizations do not focus their efforts on the barriers that result in the largest access gaps, partly because they do not realize the relative impacts of the various problems people face. It is also common for organizations to prioritize capabilities that will never help more than a small fraction of those unable to access legal services, even if successfully implemented. This kind of mis-prioritization frequently results from a widespread ignorance about the relative impacts of possible capabilities that could be implemented. Use of the tool presented in this paper will help to mitigate these planning shortfalls.

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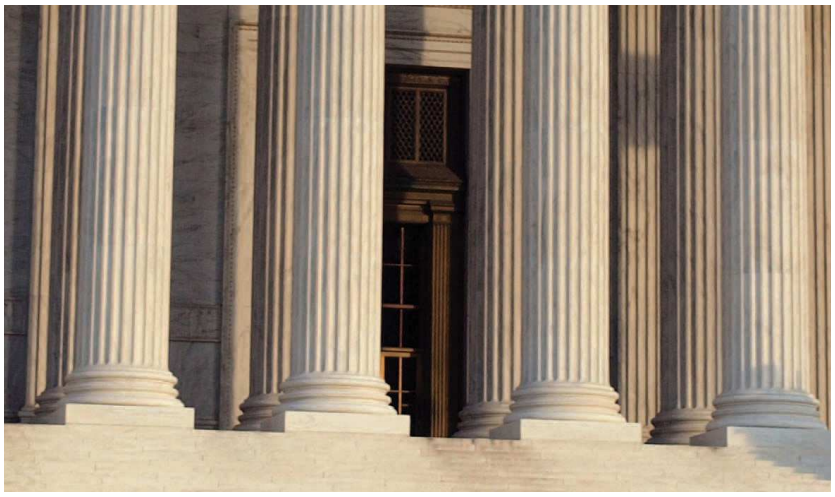


The Historic Problem

Roughly $1 billion is spent each year in the United States on access to justice, yet the justice gap remains stubbornly where it was several decades ago. Studies consistently show that somewhere between 80 percent and 90 percent of people with potential legal problems are unable to successfully access any appropriate legal services.[1]

Most of these people never touch the legal system or the courts in any way. The size of the gap has remained remarkably consistent in spite of the efforts of many court and legal programs intended to solve the problem.

While there is no denying that the current capabilities help people, it is equally clear that the strategies used to date will never solve the problem.[2]

This situation is partly a misallocation problem that arose partly for historical reasons.[3] In the early days the only resources were pro bono services by law firms, legal aid organizations, and court self-help centers. Websites were created by various organizations to provide additional information. That was it.

The range of potential services, providers, and capabilities is much broader now and rapidly increasing in diversity and scale. There are many different kinds of online dispute resolution providers. Several types of litigant portals are available or under development. Online companies offer legal services of surprising breadth. New legal roles are appearing. Traditional law firms often market limited-scope representation.

Adding to the pressure, the monopoly on the provision of legal services by state bars is under assault, causing several states to contemplate what a new

[1] The Legal Services Corporation (LSC) periodically carries out studies on the access gap. Many states independently perform similar studies with similar results. Although there are some issues with the methodology used in these studies, academic research using different approaches have confirmed the magnitude of the gap and its persistence. The history of these studies now goes back thirty years in the United States.

[2] See Benjamin Baron and Stephanos Bibas, *Rebooting Justice: More Technology, Fewer Lawyers, and the Future of Law* (New York: Encounter Books, 2017) for an extensive discussion of why current approaches like legal aid and pro bono services will never meet the demand for legal services. Gillian Hadfield has also written extensively about this aspect of the problem, which is partly a supply problem and partly an affordability problem.

[3] Even if the existing resources were allocated optimally, they would probably still be insufficient to entirely close the access gap. Innovations are needed to dramatically increase the productivity of legal services and reduce their costs to consumers. For those with low incomes, this is an absolute cost barrier. For those with middle-class incomes, it is partly a value problem where the results are not perceived to justify the costs.

approach to regulating legal services might look like. Countries like Great Britain and Australia have shown the way, and several state legislatures are threatening to act on their own if state supreme courts and their bars fail to innovate.

In the contrary direction, both the American Bar Association and the state bars are working hard to protect their monopolies on the practice of law and maintain or gain control of the innovations that are appearing. Examples of this backlash are new, regulated legal roles, like limited lawyers and online document preparers, that are subject to traditional quality-control methods.

In an uneasy neutral ground between these contending forces are a plethora of legal applications. Sophisticated capabilities are being developed at great expense for use by large law firms catering to corporations and handling complex cases. Simple narrow apps are becoming available at the extremely low end of the market for self-represented litigants to perform actions like paying traffic tickets.

When the apps are used only internally by law firms, they effectively escape legal regulation. When they are publicly available, they often skirt the boundary around the unauthorized practice of law and occasionally are shut down for going too far. Nevertheless, these new capabilities using modern technology continue to advance in a way that feels inevitable.

Imagine now that you have funds to invest in reducing the access gap and want to know how to spend them in the most cost-effective way. You are not constrained by any historical commitments to court self-help centers, legal aid organizations, or pro bono providers. Your only goal is to help the most people at the lowest cost while providing adequate quality. How do you decide what to spend your money on?

You need a method for comparing any access-to-justice capability in an apples-to-apples way. The key pieces are:

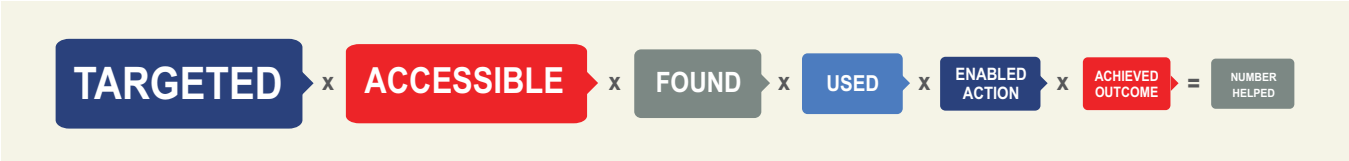
1) how many people are successfully helped;
2) how much it costs; and
3) does the quality equal or exceed relevant benchmarks.

Note that possible choices for capabilities could differ markedly across all of these aspects. One service might offer high quality at a high cost and help only a few people, while another service might help many people at low cost, but at a low-quality level, and so forth.

Imagine now that you have funds to invest in reducing the access gap and want to know how to spend them in the most cost-effective way … How do you decide what to spend your money on?

A Pathbreaking Approach

In 2018 the Florida Justice Technology Center and the Institute for the Advancement of the American Legal System (IAALS) attempted to create an objective equation for comparing any A2J capability.[4] Their equation was:



The first variable, Targeted, is a number. Every other variable is a percentage that reduces the number that was targeted. The result, Number Helped, is also a number. As an example, some capability might target a large number of people, but be found by only a small number. So, the number helped is also small. Alternately, the number targeted and enabled to complete an action might be large, but the outcomes were of low quality, so ultimately few were actually helped.

In effect, the terms in the equation are successive filters that reduce the possible number of people that can and will be helped by a specific capability. Each term independently affects the overall result, but any term that is a strong filter will mostly nullify any highly successful results for subsequent terms. That being the case, it may make sense to focus on the earliest terms in the equation when designing overall programs to maximize the potential impact of particular capabilities before seeking to fine-tune the results.

The same organizations proposed a slightly simpler version of the equation a few months later:

This version essentially combines the Used and Enabled Action terms but is otherwise the same. An attempt was made to modify the Received Benefits term to become the Financial Impact by assigning a dollar value to the benefits. Although a similar modification could be made to include costs and derive a cost-benefit assessment, the authors did not do so.

The second and later version of the equation is simpler and better concentrates attention on results.

[4] Laura Quinn, Joyce Raby, and Rebecca Kourlis, "Measuring Online Legal Resources: A Framework Inspired by the Drake Equation," unpublished paper, February 2018.

Using a capability in some way or enabling and completing an action only matter if that leads to some kind of perceived benefit for the user. The outcome can be characterized as either achieved or not, since we can safely assume that the user is seeking an outcome that is perceived to be positive in some way.

Either form of the equation raises a series of critical issues for practitioners and evaluators. Many of those concerns were identified and discussed by the authors of the paper. A classic debate is about what types of outcomes matter (or should be taken into account). The evaluation framework proposed by Sandefur and Clarke asserts that several types of outcomes should always be assessed—not just one.[5] Further, certain outcome types will consistently be prioritized by certain types of organizations.[6] On the other hand, if the goal is to compare capabilities using objective criteria, then subjective outcomes like perceptions of fairness or a sense of empowerment should be eliminated from consideration.

Another potential problem is how each term in the equation is defined and calculated. The number of people potentially targeted by a specific capability could be determined in many different ways, possibly resulting in a wide range of possible starting numbers. Such calculations implicitly depend on complex assessments of who might benefit from a particular capability and be able to use it in a perfect world. We mostly lack the research to answer these kinds of questions definitively.

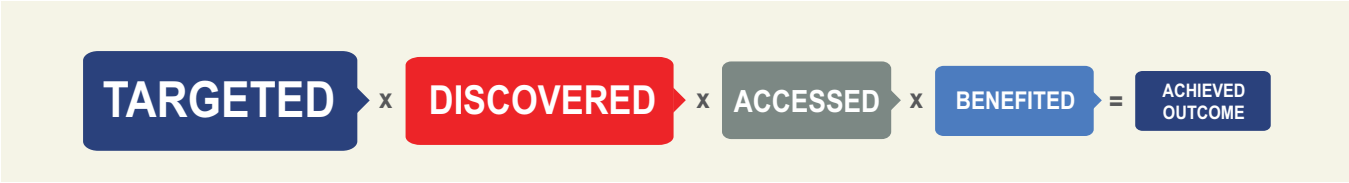
So, the best we can probably do is to define and calculate each term as consistently as possible. That requires us to specify formal sub-equations for each major or top-level term. The discussion that follows will draw heavily upon and extend relevant content from the original paper.

[5] Rebecca Sandefur and Thomas Clarke, "A General and Flexible Framework for Evaluating Legal Services Delivery Programs: The AES Framework," Public Welfare Foundation project report, 2017. The proposed framework includes assessments of appropriateness (face validity), efficacy, and sustainability. Efficacy includes several types of outcomes ranging from usage to legal outcomes to cost or time to procedural satisfaction.

[6] For example, courts appropriately value legal outcomes and due process over cost, time, or procedural satisfaction (although the latter is sometimes related to the former). Small businesses often prioritize timeliness of results, so that they can pursue their business interests with certainty. Organizations concerned with the treatment of litigants with respect may strongly favor outcomes concerning lack of bias.

Revised Tool Equation and Sub-Equations

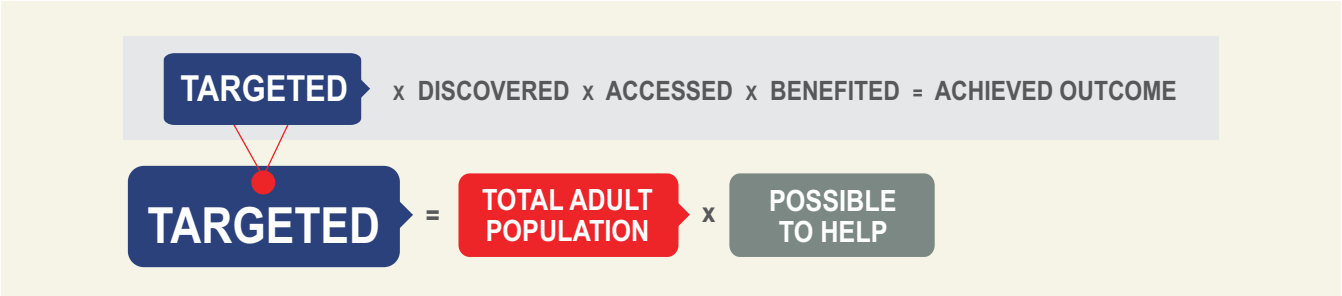
Based on the discussion that precedes and follows this paragraph, the revised equation that we will use is:



The modifications in the equation are relatively small, but important. Found is renamed Discovered, to better align with a large literature about the discovery problem.[7] The Discovered calculation precedes the Accessed calculation, since the latter is logically a subset of the former. Positive Outcome is renamed as Achieved Outcome, because the former is definitionally redundant.

Targeted Sub-Equation

One should always begin with the total adult population in the jurisdiction that operates the capability (or that is permitted to use it). That number should be then be reduced to the subset that has a potential legal problem of the type that the capability can mitigate. At this point in the analysis, there is no need to worry about whether a person conceives of their problem as a legal one or seeks any kind of legal assistance. We are concerned only with how many people could hypothetically be helped in a perfect world by the capability. This approach is used partly to avoid overlapping specifications with other terms in the equation like Accessible and Found. Thus, the sub-equation takes a relatively simple form:

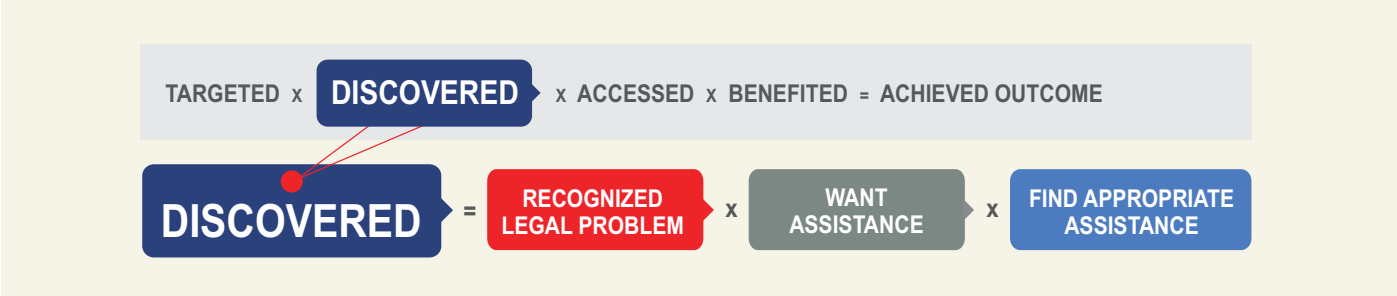


[7] The research of Rebecca Sandefur shows that many people with potential legal problems either do not recognize them as legal issues (fate, acts of God, personal issues) or fail to locate appropriate legal services when they seek them. In the first case, they fail to "discover" that they have a legal problem. In the second case, they fail to "discover" appropriate services.

Assume that the capability being assessed is some kind of court-sponsored assistance. One would need to know the total adult population that resides within the jurisdiction of that court (possibly with some adjustment for others who might end up in that court even though they live outside that jurisdiction). Then you would estimate how many of those people have a potential legal problem of the type that could be mitigated by the particular capability being assessed, without regard for their recognition of the problem as a potential legal one or their inclination to appear in that court.

Discovered Sub-Equation

To discover or find the new capability, a person must first know they have a potential legal problem and then find out that the capability could assist them in solving it. Both of these steps are significant barriers to use right now. Research by Sandefur suggests that a very large percentage of those with potential legal problems do not recognize them as such.[8] The same research found that another large subset of people decided to do nothing about their problems, seeing them as "acts of God" or as fate. Yet another group recognize their problems as legal and want assistance but cannot find the right capabilities at the right price to successfully use them.



This equation illustrates the degree to which different legal-assistance capabilities are related and partially dependent on each other. So context is very important for an assessment that tries to specify these equations with real data. A particular capability might successfully help people negotiate eviction conditions, but it is mostly unused because people think they simply must submit to the eviction as their fate.

Another capability might use trusted community leaders to tell many of these people that they have a legal problem that could be mitigated by appropriate assistance. That would increase the number of people who recognize their problem as a legal one, raising the estimate of how many would want and find assistance. Similarly, the existence of websites, apps, or portals that effectively guide people toward appropriate assistance would improve the numbers who find assistance, apart from the variety and scale of the assistance available.

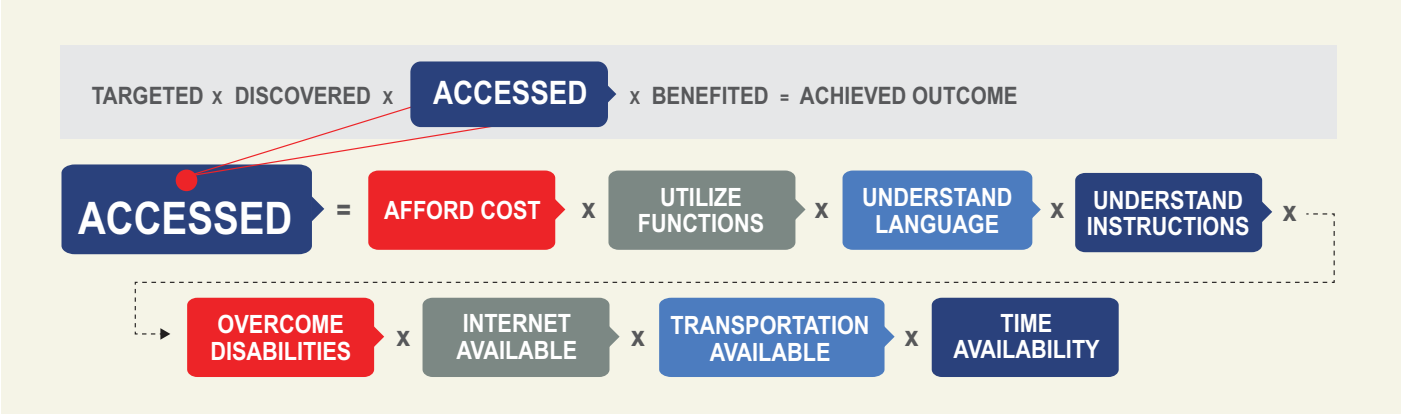
[8] Rebecca Sandefur, "Accessing Justice in the Contemporary USA: Findings from the Community Needs and Services Study 5," 2014.

Accessed Sub-Equation

Assume that someone has recognized their legal problem as such, decided to seek assistance, and located an appropriate form of assistance. The next hurdle is to successfully use that particular capability. That would take the form of completing at least one action that the user desires to take.

There are many potential barriers to successful use of a legal-assistance capability. The 2018 paper identified and listed several of them, but the list of barriers that pertain to a specific capability will depend on the characteristics of that form of assistance. For example, access to the Internet will be a potential barrier for online forms of assistance, but obviously not for other types of assistance. Other possible barriers include bad design, cost, literacy, language, and various disabilities.

The proposed equation includes all of the possible barriers. An assessment of a specific capability would just exclude any term that does not apply.



Barriers like cost, Internet access, transportation access, time availability, language access, and disability access are relatively easy to estimate for specific populations. It is much harder to assess successful use of a design or process. We know from other research that for people who find capabilities online, the numbers are consistent and depressing. For example, it is not at all unusual for only 3 percent to 10 percent of the users of an online resource to complete the required process. This tells us that good design is rare, at least at the present time.

On the other hand, online capabilities can much more easily rectify other barriers like language, cost, transportation, and some disabilities than physical forms of assistance. At the end of the day, there is no magic solution to these issues. One lesson from this conclusion is that capabilities that have a large or scalable hypothetical reach (high Targeted proportion) may squander most of that potential advantage because of bad design or implementation.

Benefited Sub-Equation

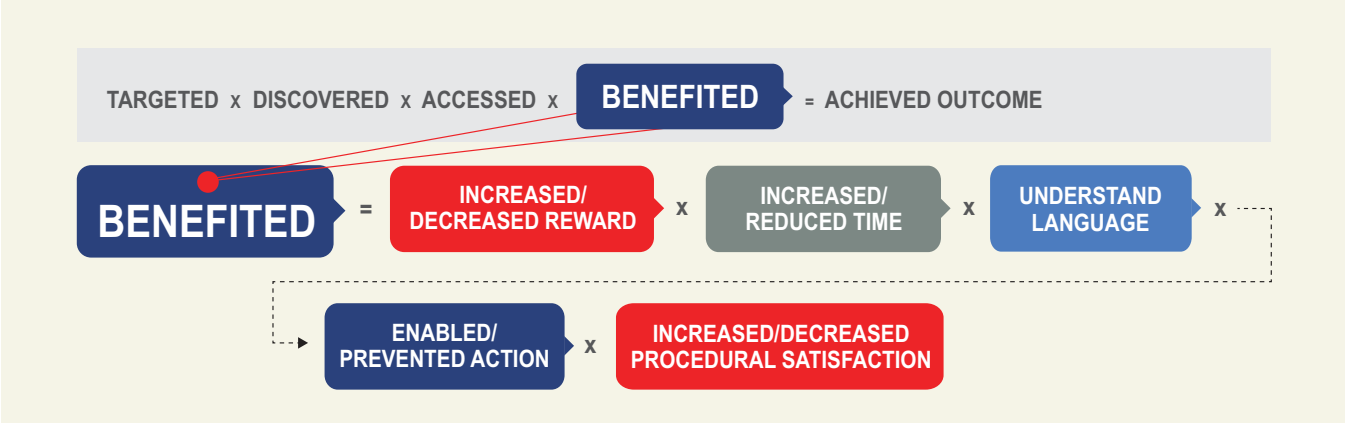
It is one thing to successfully access a capability and another thing for those actions or processes to actually deliver some benefit. As noted above, the types of outcomes that are most valued depends on what kind of organization is doing the assessment. So, we can adopt two very different strategies for specifying this term.

One approach is to identify a short list of outcomes that must always be assessed as a group. The Sandefur and Clarke framework recommends this idea, arguing that all of the significant stakeholders in a project must be happy with the result. On the other hand, it then becomes almost impossible to make consistent, direct comparisons between projects and capabilities. Indeed, just combining the types of outcomes into some sort of aggregate index would be a difficult and controversial task.

A simpler and more objective strategy would be to posit that the user point of view is the only one that matters, so the user outcome that is valued most highly would be assessed and compared. The apparent elegance of this approach is partially lost if groups of users prioritize different types of outcomes. Still, that problem is manageable, and the comparisons can be made directly and consistently.[9]

One can almost have it both ways if a consistent and complete list of possible types of outcomes are specified and only the relevant ones are assessed in a particular evaluation. Any outcome types that are compared will then be consistent at least. One might hope that as studies are done, evaluators will begin to converge on a subset of outcome types that would be used.

Types of outcomes are just abstract categories for more detailed and specific outcomes, so even consistent outcome types will not completely solve the problems of consistency and comparability. Again, it is hoped that evaluators will agree on the more detailed methodologies over time, but that happy result cannot be assumed.



[9] If an organization or group of organizations consistently value one type of outcome, such as time to disposition, then comparisons are straightforward. If a group of organizations prioritize different types of outcomes, they can still be consistently compared within those types. If one desires to assess the extent to which the various outcomes are collectively optimized, it would require the application of a decision theoretic approach that recognizes the different weights that organizations and litigants place on the different types of outcomes. A classic example of this analytic approach is the analytic hierarchy process, or AHP. Low-cost tools that implement AHP are widely available.

Each term is specified as a pair of opposites, since the benefit depends on whether the user is a plaintiff or a defendant. Efficient use of an online dispute resolution capability might enable a pay-day lender to collect more revenue. Efficient use of an online negotiation and settlement capability might enable a defendant to reduce the amount they have to pay on a consumer debt. Use of ODR might enable a small business to decrease the time to a case resolution, thus reducing business uncertainty (regardless of whether they won the case). Time to a divorce, time to a child-custody decision, or time to an eviction might also be increased or reduced. An action enabled or prevented might be an eviction, a change in child-custody conditions, or any number of other legal actions in particular case types.

The last term uniquely addresses a fundamentally subjective outcome: Procedural Satisfaction. It considers only how the user feels about the process—not the actual legal outcome. Some users and some stakeholders care a lot about this outcome type. Others do not care about it at all. Some stakeholders would prefer the term to be characterized as Procedural Justice, but it is not at all clear what that means or how it could be consistently evaluated.

Cost

All of these equations evaluate only the benefits derived from the use of a capability. The cost of providing the capability also matters to both the provider and the user.

A wonderful capability that is too costly to provide to more than a small number of users is not very helpful. The classic example would be full-representation lawyers. An online capability that scales up to millions of users at low cost but delivers inaccurate and unhelpful advice would be equally undesirable. Consumers will also be able to pay varying amounts to use a particular capability, so that will also strongly affect the extent to which it can impact the access-to-justice gap.

One could include a cost-of-service term into the Accessed equation above, but that would confuse benefits and costs. This is true for the Benefited term, which could sometimes treat changes in rewards or penalties as costs. It is probably a better approach to separately evaluate benefits and costs before bringing them together to compare the cost-effectiveness of capabilities. Any basic form of cost-benefit analysis can be used to perform this final assessment.

Hypothetical Example Analyses

It is increasingly obvious that most of the dominant strategies for reducing the access gap will never do so cost-effectively.

Examples of such capabilities include full-service lawyers, the services of legal aid organizations, and pro bono services by law firms. None of these capabilities comes even close to scaling up to the size of the gap for various reasons. The same is true for court self-help centers—not because they are not effective, but because so much of the access gap does not involve courts at all.

This paper will consider two example analyses that both could involve courts and two that compare non-court capabilities. The first court example compares two currently popular technology capabilities. The second court example compares two equally popular non-technology strategies. The equations as proposed can handle all of these widely varying capabilities because of the way it is conceptually

specified. All assessments can only be done for specific jurisdictions. We will somewhat arbitrarily use Washington State for the population estimates in the examples on the next page.

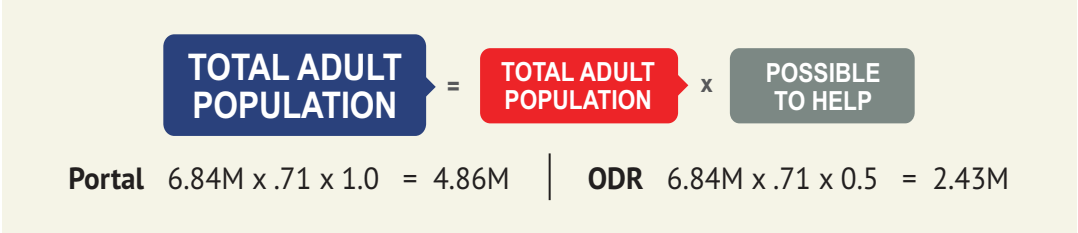
TECHNOLOGY EXAMPLE: PORTAL VS. ONLINE DISPUTE RESOLUTION (ODR)

Internet portals and online dispute resolution (ODR) platforms are two recent technologies being implemented to address the access-to-justice gap. Portals help people locate relevant information about problems using plain language queries, helps them identify solutions to solve those problems, and directs them to appropriate resources to access the solutions. ODR platforms provide an online forum in which people can resolve legal disputes using technology-assisted negotiation tools. Both portals and ODR can be court sponsored, court connected, or completely independent of any court. They can be for profit or nonprofit.

Targeted

Washington State updated its study of the legal-needs gap comprehensively in 2015. According to the Washington study, 71 percent of all households experienced at least one legal problem. A full-service portal could make appropriate referrals for all types of legal problems, but ODR will only be useful for a subset of them. Further, almost none of the ODR capabilities to date can be used for legal problems dealt with in federal or state administrative-law courts operated by executive-branch agencies. Those "courts" are more relevant for several of the most frequently occurring legal problems (health, employment, access to government benefits, education). It would take a lot of detailed analysis to estimate what proportion of all the legal problems might be amenable to ODR, so let us assume roughly 50 percent for this "back of the envelope" analysis.

Consequently, the targeted population for the portal solution is 4.86 million people (6.84 million people x 71% with at least one legal problem x 100% of the problems that the portal can help). In contrast, the targeted population for the ODR solution is 2.43 million people (6.84 million people x 71% with at least one legal problem x 50% of the problems that the ODR solution can help).

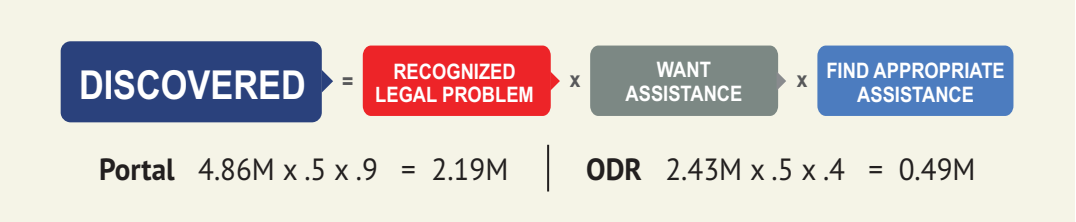


Discovered

For both portals and ODR, the biggest discovery problem is recognition that people have potential legal problems. In both cases one could assume that roughly half would not. For the other half seeking assistance, the results will probably differ. With relatively good marketing and a good strategy for ranking high on Internet searches, it is reasonable to assume that most people would find the portal. It would be branded as a general resource for legal problems. We will use 90 percent success rate as a rough estimate.

ODR is a much more specialized capability. Some people would not be comfortable with that kind of process for their type of problem. Others might simply not know if it was applicable or could not find it (especially if a referral through the portal was not made). If the ODR capability is court-sponsored, and if the court positions it as the default process, then it is likely that most litigants will use it (but only if they go to court). We will use a relatively generous 40 percent as a rough estimate.

Approximately 2.19 million people will ultimately discover the portal solution (4.86 million people targeted x 50% who realize that they have a legal problem x 90% who find the portal) compared to 490,000 people who ultimately find the ODR solution (2.43 million people targeted x 50% who realize that they have a legal problem x 40% who find the ODR solution.

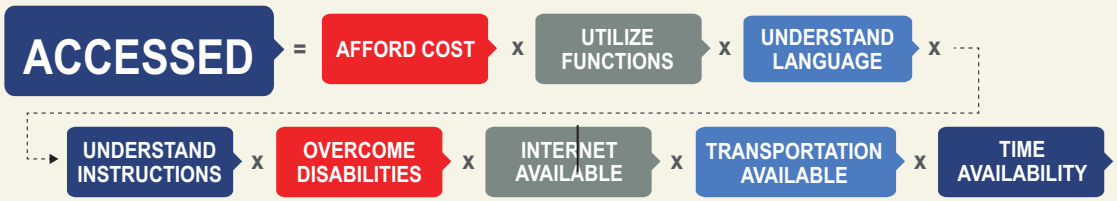


Accessed

Affordability depends partly on the size of the fee charged (if any) and partly on the ability and willingness of users to pay it (income levels and perceived value). It is conceivable that most portals might be free, but ODR capabilities will likely be free only if court-sponsored. We will estimate 95 percent affordability for the portal and 50 percent affordability for ODR. Portals use relatively complex functionality, so we will assume that 30 percent complete the entire process successfully. That cumulates several potential barriers (functionality, language, understanding, and disabilities). ODR will usually be simpler overall and perhaps better designed if done by a for-profit entity. It is also more likely to offer alternative languages and adaptations for disabilities.

Let us assume a completion rate of 80 percent. Both portals and ODR are online capabilities, so we will assume 95 percent connectivity for both. Availability of transportation does not apply in either case.

An estimated 590,000 people will be able to access the portal solution (2.19 million people who discover the portal x 95% who can afford it x 30% who successfully complete the portal process x 95% with sufficient online connectivity). For the ODR solution, only 190,000 people will be able to access it (490,000 people who find the ODR solution x 50% who can affort it x 80% who successfully complete the process x 95% with online connectivity).



Portal 2.19M x .95 x .3 x .95 = 0.59M **ODR** 0.49M x .5 x .8 x .95 = 0.19M

Benefited

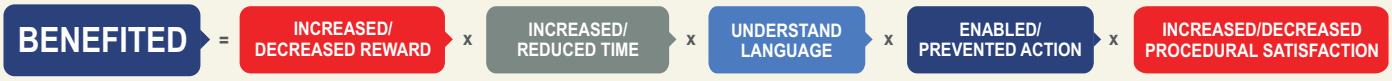
The Washington study found that 24 percent of households got some level of legal help for at least one of their problems. Unfortunately, that legal help did not make a difference 39 percent of the time, and only made somewhat of a difference 44 percent of the time. For the 76 percent that got no legal help, we will assume that both the portal and ODR improve their outcomes 75 percent of the time. Doing better than nothing is a relatively low bar for performance.

For those that got some help, but it was not very helpful, portals might offer better outcomes because of the way they tailor the required actions for the specific problem a user is trying to solve. That avoids much of the complexity and confusion that often defeats people or causes them to poorly use existing legal resources. Let us assume outcomes were improved 50 percent of the time for portals and 70 percent of the time for ODR. The higher assumed rate for ODR is used because many times self-represented litigants can benefit simply from adequate negotiation assistance.

If performing a real assessment, one would need a much more detailed analysis about the specific outcomes that are desired and data on any impacts by the new capabilities.

This formula is somewhat complicated due to the need to account for people who would benefit from either a portal or ODR who would not otherwise have options and by those whose outcomes would be better than the options they had available. In the portal example, first calculate the proportion of people who did not access legal services at all: 590,000 who accessed the portal x 76% who did not access other legal services x 75% obtained an improved outcome = 336,300. Then calculate the proportion of people who did access legal services, but whose outcome would have been better using the portal: 590,000 who accessed the portal x 24% who did not previously access other legal services x 44% with a suboptimal outcome from other legal services x 50% who have better outcomes using the portal = 31,152. Then add the two results together for the total number of people who would benefit from a portal: 336,000 + 31,152 = 367,452 (8% of 4.86 million targeted for the portal).

The ODR equation is similar. First, calculate the proportion of people who did not use other legal services who benefitted from ODR: 190,000 people who accessed ODR x 76% who did not use other legal services x 75% who received a positive outcome from ODR = 108,300. Then calculate the number of people who got a better outcome using ODR than with other legal services: 190,000 who accessed ODR x 24% who also used other legal services x 44% who received a suboptimal outcome with other legal services x 70% that received a better outcome using ODR = 14,045. Then add the two results: 108,300 + 14,045 = 122,345 (5% of 2.43 million people targeted for ODR).



Portal (0.59M x .76 .75) + (0.59M x .24 x .44 x .5) = 0.37M (8% 4.86 M)

ODR (0.19M x .76 x 75) + (0.19M x .24 x .44 x .7) = 0.12M (5% of 2.43M)

Achieved Outcome

We can draw several conclusions from this exercise. First, portals appear to offer roughly three times the impact that ODR does, although that result is completely dependent on several assumptions that would have to be verified. In fact, reasonable changes in the assumptions could result in ODR providing a larger impact. This shows to what extent competent implementation will affect the outcomes.

Another somewhat surprising conclusion is that both capabilities ultimately help a relatively small number of people, even though the capabilities were chosen for their potentially broad ability to help. Data from similar real online projects commonly and consistently find impacts of around 3 percent, which is discouragingly small.[10] In our two examples, the impacts are 8 percent for portals and 5 percent for ODR (results that likely reflect overly optimistic assumptions at some point in our calculations).

We can see now that the equation consists of a set of filters that progressively narrow the number of people who can actually benefit from an implemented capability. The calculations above illustrate the extent to which impacts for any capability depend on solving the front-end problems of discovery and accessibility. If a capability is not used, it will not have an impact, no matter how well designed or how impactful it could be.

It is hard to overemphasize the importance of this insight. Most organizations focus on the efficacy of the outcomes and pay insufficient attention to the barriers that significantly reduce the number of people who can even get to the part of the process where outcomes could be achieved.

NON-TECHNOLOGY EXAMPLE—COURT SELF-HELP CENTER VS. JUDICIAL TRAINING

Much of the legal assistance available now from public entities focuses on cases in state and local courts. Two of the most popular assistance strategies are court self-help centers and training of judicial officers to better help litigants during court hearings. The data from the Washington study does not enable us to precisely estimate what proportion of the total legal problems will end up in a state or local court, but we can make several reasonable order-of-magnitude assumptions.

At most 20 percent of all legal problems touch a court. Given the large number of legal problems that are dealt with in federal or state administrative-law courts (run by executive-branch agencies), the subset of those going to regular courts can be assumed to be no more than 50 percent. On the other hand, there will be few problems with discoverability, and fewer problems with certain types of accessibility in some courts (if they provide adequate support for other languages and disabilities). There will be transportation barriers and also some serious accessibility issues around understanding of processes (which result in very high default rates for some case types).

Self-help centers can provide significant help in reducing the accessibility issues, enabling more

[10] The original Drake Equation project calculated impacts for projects in Maine, Michigan, Illinois, and Florida.

litigants to successfully complete court processes. Let us assume that they increase the accessibility rates from 20 percent to 80 percent. Let's assume that only 50 percent of people who get to a courtroom before a judicial officer have sufficient information and confidence to present their case and receive a positive outcome. Their impact on outcomes comes almost entirely from this improvement in access.

Judicial training does nothing to improve any of the problems litigants might have before they enter the courtroom, but can definitely improve outcomes at that point. Let us assume that 20 percent of all litigants ultimately arrive in a courtroom before a duly trained judicial officer, and outcomes are improved for 50 percent of those who do. That is, 75 percent of litigants improve their outcomes (50% that would have done so without assistance from a trained judicial officer and another 25% who did so with the assistance of a specially trained judge). The equations then look like this:

Court Self-Help Centers			*Judicial Training*			*Court Self-Help and Judicial Training*		
6.84M x .71 x .2 x .5	= 0.49M	**Targeted**	6.84M x .71 x .2 x .5	= 0.49M	**Targeted**	6.84M x .71 x .2 x.5	= 0.49M	**Targeted**
0.49M x 1.0	= 0.49M	**Discovered**	0.49M x 1.0	= 0.49M	**Discovered**	0.49M x 1.0	= 0.49M	**Discovered**
0.49M x (0.8 - 0.2)	= 0.29M	**Accessed**	0.49M x .2	= .10M	**Accessed**	0.49M x .6	= 0.29M	**Accessed**
0.29M x .5	= 0.15M	**Benefited**	0.10M x (.5+.25)	= .07M	**Benefited**	0.29M x .75	= 0.22M	**Benefited**
	(30% of 0.49M)			(15% of 0.49M)			(45% of 0.49M)	

For both programs, the population that is targeted and that discovers the court system to address their legal problems is 490,000 people. Approximately 20 percent of litigants already appear in court before a judicial officer without assistance from a self-help center, so this now increases to 60 percent of litigants based on the improved accessibility from the self-help center. Once in the courtroom, half of them will achieve an improved outcome. Overall, 150,000 people ultimately benefit from the self-help center (30% of the targeted population). If judicial training is the only program undertaken, 20 percent of litigants will still appear in court. Half of these will have improved outcomes without judicial training, but another 25 percent will do so with the assistance of the judicial officer, or 75 percent overall for a total of 72,846 people (15% of 0.49M).

We can draw several conclusions from these calculations. First, the overall impact of both strategies is surprisingly roughly the same as those for the much broader technology capabilities. That is mostly because these non-technology capabilities are very discoverable and effective, even though they reach only a small subset of all people with legal problems.

Another positive feature is that self-help centers and judicial training are complementary strategies that "fix" different problems, so combining them will produce an additive impact on legal access. Implementing both programs decreases the existing gap from 10 percent (0.49 x 0.2 x 0.5) to 45 percent (0.49 x .6 x .75). Although this paper has stressed the use of the tool to compare competing solutions, it could also be used to identify an optimal "mix" of capabilities that complement each other by addressing different problems or target populations (or both) facing different issues and barriers.

NON-COURT TECHNOLOGY EXAMPLE—BAR ONLINE LIMITED SCOPE VS. FOR-PROFIT ONLINE LIMITED SCOPE

These capabilities are deliberately described in broad terms to include a range of legal-assistance capabilities that go from providing simple forms completion assistance to answering a simple single question to providing a fixed number of hours of legal help and various kinds of negotiation or resolution assistance. What they all have in common is that they are online resources and are not provided by full-representation lawyers (although lawyers obviously provide most of the assistance).

These types of non-court assistance can definitely help people overcome accessibility barriers with court cases, but they also provide much broader legal assistance for a wide range of problems that people can potentially resolve with one or two simple actions. They also apply to problems that are stereotypically repetitive or similar in nature, occur in high volume, and have a limited set of possible legal alternatives. That makes these types of assistance both potentially successful and, in theory, affordable, since technology can easily scale up these kinds of assistance.

A couple of characteristics typically differentiate the services provided by state bar associations from those provided by nonprofit or for-profit organizations. The former capabilities tend to be located on state bar websites that are hard to discover, hard to understand, and sometimes hard to use. The latter capabilities tend to be much more discoverable and understandable (and generally accessible), and sometimes are marketed to more specific legal problems (but described in ways that normal people can mostly understand). These differences are stereotypic but real and substantive as the calculations below will show.

In our example calculations, we will assume that bar online assistance is discoverable 10 percent of the time and accessible 10 percent of the time. The benefited rate is 90 percent once these barriers are overcome, since the assistance provided is high quality. For the non-bar providers, the discovery rate is a much better 50 percent, and the accessibility rate is 70 percent. Access would be even greater, but some capabilities are unaffordable for some people. The average quality of the non-bar capabilities is lower, so a benefited rate of 75 percent is assumed. That rate may seem high, but note that most of these problems are relatively simple, and the alternative for most of the users is no help.

Good data are lacking for many of the required estimates, but we will assume that 60 percent of those with legal problems could in theory benefit from these kinds of non-court assistance. Another 10 percent might also benefit from assistance with court-related issues, simply because compliance with court processes is so difficult.

Bar Online Limited Scope

6.84M x .71 x .7	= 3.40M	**Targeted**
3.40M x .1	= 0.34M	**Discovered**
0.34M x .1	= 0.03M	**Accessed**
0.03M x .9	= 0.03M	**Benefited**
	(0.9% of 3.40M)	

Non-Bar Online Limited Scope

6.84M x .71 x .7	= 3.40M	**Targeted**
3.40M x .5	= 1.70M	**Discovered**
1.70M x .7	= 1.19M	**Accessed**
1.19M x .75	= 0.90M	**Benefited**
	(26.2% of 3.4M)	

There are a couple of things to notice here. First, the impact rate for the bar solutions is practically zero. In stark contrast, the impact rate for the non-bar solutions is a whopping 26 percent, dwarfing the impacts from our technology examples above. The differences are entirely due to improved discovery and accessibility. The superior quality of the bar capabilities essentially does not matter, because so few people successfully use their services.

More generally, any capability that can surmount the discovery and accessibility barriers will easily surpass any of the legal-assistance capabilities being provided currently. That is the basic underlying problem that maintains the extremely persistent access gap. The tool helps to highlight the degree to which this is true.

These results are instructive, since courts and legal aid organizations are concentrating their technology strategies on portal and ODR capabilities. It is the for-profit corporations and some nonprofit organizations that are providing the more innovative, online limited-scope capabilities. A possible complementary strategy would be for government organizations to integrate the for-profit limited-scope capabilities into their portals and ODR applications with public/private partnerships.

NON-COURT NON-TECHNOLOGY EXAMPLE—LAW LIBRARY VS. PUBLIC LIBRARY VS. TRUSTED COMMUNITY LEADER

This last example does not feature technology, courts, or the bar. Both public libraries and community leaders involve the largest barrier to access: discoverability. Both approaches to closing the access-to-justice gap cannot fully realize their potential impacts without appropriate supporting capabilities, since they mostly solve only the discovery problem. Law libraries can do more to mitigate accessibility and even provide some benefits in terms of outcome impacts. Properly trained public libraries can provide some accessibility and outcome benefits, but community leaders at best make referrals.

For the example calculation, we will assume all three types of capabilities can target the full range of legal problems. We will also assume that law-library capabilities are discoverable 25 percent of time, public-library resources are 60 percent discoverable, and trusted community leaders are 80 percent discoverable. Accessibility for law libraries is assumed to be 60 percent, but the Benefits rate is 90 percent. Public libraries are accessible 80 percent of the time (partly because they still incur transportation barriers) and offer a benefit rate of 50 percent (because they can only help with very simple tasks and must refer the rest). Community leaders do not improve either access or benefits apart from the discovery improvements. So, their access and benefit rates are comparable to those getting no help, which are assumed to be 20 percent and 20 percent.

Law Libraries		
6.84M x .71	= 4.86M	**Targeted**
4.86M x .25	= 1.22M	**Discovered**
1.22M x .6	= 0.73M	**Accessed**
0.73M x .9	= 0.66M	**Benefited**
(13.6% of 4.86M)		

Public Libraries		
6.84M x .71	= 4.86M	**Targeted**
4.86M x .6	= 2.92M	**Discovered**
2.92M x .8	= 2.33M	**Accessed**
2.33M x .5	= 1.17M	**Benefited**
(24.1% of 4.86M)		

Trusted Community Leaders		
6.84M x .71	= 4.86M	**Targeted**
4.86M x .80	= 3.89M	**Discovered**
3.89M x .2	= 0.78M	**Accessed**
0.78M x .2	= 0.16M	**Benefited**
(3.3% of 4.86M)		

Again, interesting and useful conclusions can be drawn from these calculations (assuming the estimates are roughly correct, of course). First, there is a clear hierarchy in the impact rates, with public-library capabilities clearly exceeding those of law libraries (24 percent vs. 14 percent), which are significantly above those of community leaders (3 percent).

Second, each type of assistance could significantly increase their impact by specific kinds of improvements. If law libraries could achieve discovery rates comparable to public libraries, they would provide impact rates of 32 percent. If public librarians were trained to a level comparable to law librarians for most of the required tasks, then their impact rate would rise to a stunning and almost unbelievable 43 percent. Finally, if community leaders were trained to a level comparable to public librarians, the improvements in access and benefits would increase their access rate to a very significant 32 percent.

All three of these strategies have a potential impact on outcomes that far exceeds any other capability we have considered in our examples, mostly because they have high discovery rates. After that, their impacts depend on the training levels that lead to access and benefits improvements. Those can vary through a very wide range, so establishing best practices for curricula and training for these capabilities should be an important national priority.

Applying the Equations to Create a Strategy

The purpose of these equations is to help funders and providers identify which capabilities will most impact the access-to-justice gap.

Cost analysis can then be used to determine which capabilities will be the most cost-effective.[11] The equations also help funders and providers understand what types of improvements in their capabilities will raise their impact rates the most, so they can focus their development efforts in those areas.

Clearly, capabilities that have impact rates of a few percentage points and cost significant amounts to implement will never reduce the access gap by the necessary extent. Investing in them will only divert scarce resources away from more effective capabilities and maintain the access gap indefinitely. A more rational approach to investment in types of access-to-justice assistance is sorely needed to make progress. These equations provide a framework for carrying out the required analysis to make better investment decisions and improve the performance of investments already made.

Sensitivity Analysis

Sensitivity analysis is a simple technique where assumptions in one or more areas about rates are changed to see what impact they will have on overall effectiveness.[12] We have seen from the examples above that changes in discovery rates have large impacts. In some cases, changes in accessibility rates also resulted in significant improvements. By focusing development on key areas of improvements, capabilities that deliver relatively modest improvements can sometimes be turned into capabilities with major impacts.

One should not forget to use sensitivity analysis on costs as well. For example, improvements in legal outcomes may be costly to achieve, but the magnitude of those costs may be fairly stable. In contrast, the costs of discovery will probably continue to decrease rapidly as technology gets ever better and our knowledge about how best to design programs with trusted community leaders improves.

[11] For example, assume that one capability helps 10,000 people achieve better eviction outcomes while another capability helps 20,000 people. Without considering cost, the second capability appears to be preferable. One can then consider the cost of each capability, using cost per outcome achieved to compare them favorably. The first capability costs $100,000 to operate, so each outcome costs $10. The second program costs $1 million to operate, so each outcome costs $50 or five times as much. To optimize resources, an organization might better spend any incremental funds figuring out how to reach more people with the first capability.

[12] See the Wikipedia article on "Sensitivity Analysis," available at https://en.wikipedia.org/wiki/Sensitivity_analysis, for a clear explanation of the analytic technique.

Pareto Analysis

Pareto analysis is a kind of problem-tree methodology that in this case would rank capabilities by the size of the impact they have on the access gap.[13] If cost is also taken into account to rank capabilities by cost-effectiveness, then a prioritized order of investment results. One funding strategy would be to simply work down the list from the most to the least cost-effective capabilities.

Data Collection and Research Agenda

The variables that make up the main equation and the sub-equations also define the data-collection needs. They collectively define a data-collection program that would also go a long way toward providing additional insights into how best to solve the access problem. As these equations are used, consistent data definitions and data-collection methodologies will further aid valid comparisons of access-to-justice capabilities. Two particular information gaps would benefit greatly from appropriately focused research programs. First, we know very little about what subset of those with potential legal problems could and should be targeted by each type of capability. Right now, we are mostly guessing at those numbers. Second, we have not prioritized or standardized how outcomes are assessed, so that comparisons could more easily be made.

[13] See the Wikipedia article on "Pareto Analysis," available at https://en.wikipedia.org/wiki/Pareto_analysis, for a clear explanation of the analytic technique.

Putting It All Together

So far, we have discussed capabilities as if they were individual decisions and standalone solutions. The equations help us see that different capabilities have strengths and weaknesses in different areas. Some are good at discovery. Others are good at accessibility. Still others deliver higher-quality outcome benefits. Each may apply to a narrow or broad range of legal problems, strongly constraining potential benefits from the start. One could easily imagine a strategy that integrates key capabilities in ways that complement their strengths and mitigate their weaknesses. Planning an overall access-to-justice system in this way could be both very effective and much more cost-effective. While we currently lack the data to implement this strategy rigorously, we do know enough to begin this kind of analysis. Several current national research programs are beginning to close the data gaps, and these equations should help those projects to better focus their data-collection goals. Given the tools these equations provide, it would be unforgivable if the access-to-justice gap remained unchanged a decade from now.

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