Let’s say your school district is wrestling with a common problem: your elementary ELA passing rates are low and projected to get lower with the advent of Common Core or other more rigorous standards. At the same time, your district has faced budget cuts for several years, and next year’s budget will only hold steady. How can you increase student learning with the same dollars?

During your strategic planning process, you decide to use a Return-on-investment (ROI) analysis to identify the most impactful and cost-effective programs related to elementary literacy. Your director of teaching and learning compares the ROI of three reputable professional development programs for teachers and recommends the program that (based on early national results) seems significantly more impactful than the other two despite having similar costs. You are poised to shift precious funds towards that approach.

This seems like a rational and reasonable way to ensure you are getting the most learning from your scarce dollars. But of all the possible ways to improve elementary literacy, is this PD program really the best option? Might the district see exponentially more student achievement-for-the-buck from recruiting and retaining better literacy teachers, empowering stronger principals, changing compensation structures, or intensively remediating the least effective elementary literacy teachers? And at what point in the yearly churn of strategic planning and budgeting would these kinds of strategies be considered—and get input from the many departments involved? You pause before implementing the PD program to consider a wider range of possibilities.

The Promise and Difficulty of ROI in Education Today

Return-On-Investment analysis is a tool for improving resource efficiency—which is to say, improving the impact of your limited resources. Widely used in the business world, it compares the expected gains (returns) per unit of cost (investment) of a variety of potential actions. In recent years,
there has been growing interest in adapting this approach to education—sometimes called educational productivity, or academic-ROI.¹

Education leaders do not seek a monetary return on their investment, like business leaders do; they seek greater student learning, or other outcomes like student citizenship, higher graduation rates, or increased lifetime earnings and career options. They want to use their scarce dollars on what works best for students.

Though districts have made great strides in this direction, most ROI analysis is still missing a big opportunity. Like in the elementary literacy example, districts often use ROI to evaluate programs and initiatives—comparing this PD program to that one, or debating whether to invest in iPads, after-school tutoring, or a new instructional management system. These appear as line items on a budget and are obvious targets in the yearly cycle of funding cuts and additions.

But this process misses some of the biggest cost drivers in the district’s budget and never addresses some of the fundamental resource issues that may actually drive student success. For example, districts rarely analyze the ROI of different aspects of teacher compensation (like paying teachers for advanced degrees), workforce management strategies (like hiring and retention policies), or how schools group teachers with students and organize time in the school day. These strategies don’t appear as line items and often involve input from multiple departments. But changes to these fundamental uses of people, time, and money may affect far more students, more intensively—and deliver the highest ROI.

Many districts’ strategic planning processes are not set up to consider these deeper issues. Planning happens in departmental siloes, often without an opportunity for the academic and finance departments to work together. Moreover, strategic planning often comes after key resource decisions have been made. It is not uncommon for schools to be required to submit their schedules and staffing plans in April while school improvement planning happens in May or August. Any ROI analysis that happens after schools have made their major resource decisions is unhelpful at best, and frustrating at worst.

A Different Approach

To maximize the power of ROI analysis, education leaders need a new approach—one we’re calling System-Strategy ROI. This approach starts with the fundamental student need to be addressed and asks not “Which program is better?” but “What resources will meet this need?” This means considering a wider range of options, including those that:

- **Span departmental boundaries** (i.e., not just focusing on PD, but considering changes to hiring, staffing, or retention policies)
- **Include structural costs and strategies** (i.e., compensation reform, student-teacher assignment policies, funding systems)
- **May not even exist in the district at present**, but are considered promising practices elsewhere
(i.e., new school designs that extend the reach of excellent teachers through teacher teaming or use technology with flexible grouping)

To make this shift, school systems must ensure that their strategic planning process can influence the way big resource decisions are actually made—holding budgeting and planning discussions before scheduling and staffing plans are submitted, for example. School system leaders can help their teams to take a System-Strategy ROI approach by structuring the planning conversation around five key steps:

It is important to note that ROI—in any form—is not a magic formula. It cannot turn weighty and complex decisions into simple ones; any estimate of ROI relies in part on professional judgment and in part on our still imperfect estimates of cost and student achievement impact. However with the recent advent of teaching effectiveness data and improved data systems, our ability to estimate impact and cost objectively and accurately has grown tremendously. ROI is a powerful tool for adding structure, rigor, and data-backed evidence to the difficult decisions a school system must make on behalf of its students. Ultimately, the most important thing that distinguishes System-Strategy ROI from the typical ROI is that it seeks to answer this fundamental question:

“How can we use all our limited resources strategically to improve student achievement and meet our goals?”
SYSTEM-STRATEGY ROI: THE PROCESS

Laying the Foundations

The first requirement for setting up a System-Strategy ROI process is to bring together the right players with the right mandate. The strategic planning process in most school districts is not currently set up to facilitate this. Often the superintendent, chief academic officer, and relevant academic teams work on a strategic plan and then hand it off to the chief financial officer and finance department to figure out how to align it with the budget. At this point, a CFO might use ROI analysis to choose among several investment options.

But with the System-Strategy ROI approach, the entire district leadership must see strategic planning and budgeting as one continuous process. The CAO and the CFO should see themselves as partners, each bringing different expertise and tools to the conversation. The conversation must have a broad enough mandate to include possible re-evaluation of structural investments and a focus on the long-term time horizon—not confined to cost-cutting and adjusting the annual budget. And importantly, it must be timed to happen before de facto resource decisions have been made at the school level.

Secondly, this interdisciplinary team needs a set of structured questions that will enable a system-wide, broad approach to ROI. The five key steps that we explore below serve as a framework for decision-making. At the same time, it’s important to establish a culture of tolerance for imperfection and ambiguity. At the end of the day, no district will have all the data it needs to make a perfect decision. Any ROI analysis will need to combine science, judgment, and professional expertise to make decisions that are based on the best available data. The goal is to empower a research and data-informed decision process that is deliberate, considers the right range of options, asks the right questions, and helps focus resources on key district priorities.

FIVE KEY STEPS

1. **Identify the core need:** What fundamental student performance need are we focused on, and what performance targets or outcome measures will we track?

A good decision-making process always starts with clearly defining the decision at hand. In this case, districts need to identify their most crucial student performance need(s)—for example, elementary literacy, ELL student math performance, the achievement gap between various student groups, or improved graduation rates.

After defining the performance need, districts must next define the performance target and the outcome measures that will define success in meeting that need. For example, if elementary literacy is a student need, our performance target might be 75% proficiency within three years as measured on the ELA portion of the state exam. By clearly identifying the problem and the goal, we can do a better job of identifying a more comprehensive set of the initiatives and policies to address the goal.
It is important to note that districts may have a variety of important goals related to student outcomes. These include improved attendance, higher graduation rates, college and career readiness, student citizenship, and lifelong productivity, among others. Districts may also invest in programs aimed at reducing teacher absences or fostering better communities. But while dropout prevention and improved student learning may both be important district goals, districts should focus on only one goal at a time when using an ROI approach. This is because an ROI approach cannot compare the relative return for initiatives that are aimed at different outcome measures. Any particular ROI analysis must focus only on those district goals that have comparable outcome metrics. For the purpose of this paper, we will focus on student-learning needs, as this is arguably the most important example of a return for which districts can create comparable impact metrics.

### Questions: Fundamental Student Need

- What fundamental student need are we targeting?
- What performance target do we want to reach, and what outcome measures will we use to gauge progress and success?

### 2. Consider a broad range of investment options: What are all the investments we currently make to address this need, and what else could we do?

Given the fundamental student need and performance targets—what potential investments could address them? This is where the district team has the opportunity to step back from the program-evaluation lens and consider a broader range of options that may have an even higher ROI. Leaders should create a theory of action that explains what's driving the need and what would address those causes. For example, struggles with elementary literacy might be rooted in a gap in teacher skills, or perhaps ineffective teacher assignment or class sizes. To address these gaps, district teams using the System-Strategy approach should consider investments that:

- Span departmental boundaries
- Include structural costs and strategies
- May not even exist in the district at present but are considered promising practices elsewhere

If the district team thinks that teacher quality is an issue, it might consider professional development as a potential investment. But it should also consider hiring and retention policies that increase the number of excellent literacy teachers in the district; compensation structures that reward highly effective literacy teachers; or workforce management practices that extend the reach of excellent teachers within teacher teams or to more students. This means teams may consider deeply rooted structural costs that affect all teachers. For example, many districts spend millions of dollars on added pay to teachers who attain master’s degrees, despite evidence that such degrees are not correlated with increased student achievement. It may yield a higher ROI to reallocate that money to another
investment—and a good System-Strategy ROI analysis will highlight that fact. Similarly, districts should consider promising strategies that may not even exist in the district at the moment. In particular, there are many new ways to expand the reach of the most effective teachers or systematically improve the effectiveness of the overall teacher workforce over time. System-Strategy ROI requires looking past the line items on the budget and instead considering the fundamental uses of people, time, and money that contribute to student achievement.

**QUESTIONS**

CURRENT AND ALTERNATIVE OPTIONS

- What is our theory of action for meeting this student need? What seems to cause the need?
- What do we currently invest in this area or toward this end?
- What people, time, and money do we currently invest in programs, instruction, and support targeted at related outcomes?
- Do current investments align with our theory of action, and do we have evidence that they are working?
- Are there things that are not working well? If we stop them, can we redirect those resources toward more productive options?
- What broader alternatives can we imagine that would address the same set of student needs?
- How does what we are currently doing support or interact with the proposed option? Are there dependencies we should be clear about?
- What would have to be true of any new investment for it to be better than what we are currently doing? How likely is that scenario?

3. Define ROI metrics and gather data: What are the relative returns (costs weighed against benefits) to the set of current/potential options?

At this point, district teams are ready to determine the ROI of the various strategies identified in the previous step. At its core ROI is a simple concept, though estimating the components and factoring in data ambiguity can be quite complex. Consider the following approach to ROI described by Nate Levenson, which he calls, “a framework for making the thinking explicit and taking the emotional arguments out of it.”

\[
\text{ROI} = \frac{(\text{Increase in Student Learning}) \times (\# \text{ Students Helped})}{(\$ \text{ Spent})}
\]

We will focus on each piece of the equation in turn, starting with student learning.
a. What is the likely return on student learning? What amount of impact should we expect—and by when?

Student learning-impact estimates are at the heart of ROI analysis, but they are among the most difficult to define and interpret. Luckily, research and data advances in recent years are offering up more and more resources from which to pull information.

Sources of Impact Estimates:

Teaching effectiveness data: One of the most important new sources of impact estimates is teaching effectiveness data. Value-added or quantile growth performance data seek to describe how much a teacher contributed to students’ learning year by year, accounting for other factors. One of the benefits of TE data is that it is specific to each district, representing the real teachers and students at hand. With this data, districts can run simulations to estimate the effect on student learning of different human capital policies, such as:

• Improving the professional growth or hiring practices of underperforming schools
• Improving retention of top-performing teachers or expanding their roles
• Remediating or managing out chronically underperforming teachers
• Assigning teachers strategically to play to their strengths or to address student performance targets

One of the drawbacks is that test-derived teaching effectiveness indicators are inherently imperfect estimates of a teacher’s value and can vary according to many factors; they should be used alongside other measures of teacher quality.

Peer-reviewed research journals: Peer-reviewed journals can provide information about the predicted impact of a variety of potential policies. Peer-reviewed journals sometimes publish studies that include a control group and so can yield a more robust impact estimate. On the other hand, districts may not be able to implement the initiative with the fidelity of a controlled study and so must factor in the uncertainty of attaining the predicted impact. Additionally, there may be several studies which looked at the same strategy and found different effects on student learning. In choosing the right research to rely on, districts must use expert judgment and a conservative lens so as not to bias the result of the ROI analysis.

Impact studies conducted within or without the school system: Districts will often supplement the national literature with their own impact studies of different initiatives. These can yield the most precise estimates of impact in a district context and are often used to expand a seemingly successful program or to cut a program that appears ineffective. While it is important for districts to measure the success of their own initiatives, it is often difficult or impossible to separate out the effect of the initiative being studied from other factors. At any given point, the visible ROI of an initiative may be quite different from its actual ROI or its potential ROI if implemented correctly. Districts must take
care in interpreting the results of impact studies, particularly where there is a small sample size or lack of a control group.

Regardless of source, all impact must be used judiciously and placed in context. There are several factors that district teams should consider:

- **Magnitude and timing**: How long is it estimated to take before there is impact on student learning, and how large is the impact?

- **Applicability**: How similar is the model studied to your district context?

- **Implementation**: How easy is it to replicate a particular strategy with fidelity to the way it was studied, or to scale it up?

- **Comparability of impact estimate**: How easy is it to convert the outcome measure in the study (often standard deviation of test scores) to something useful for the district (i.e., likely impact on passing rates or year of student achievement)?

In order to confidently analyze these many technical factors, it may be necessary for districts to bring in expert support in regressions, data analysis, and research study design. Such an outside eye can ensure the appropriate degree of conservatism in the estimates, urge caution around what the numbers can realistically show, and minimize bias.

### QUESTIONS

**MEASURING OR ESTIMATING IMPACT**

- What kind of data is available on the impact of the various policies, investments, or initiatives we identified? What’s the source?

- How relevant is the data to our particular student performance need? Was the same question studied or an analogous one? How closely does it match our context, capabilities, and planned change?

- How reliable were the observed outcomes? Was there wide variation in results across studies? Were they *gold standard* randomized controlled studies, small local pilots, or anything in between?

- Did fidelity of implementation play a role in outcomes?

- What are the mitigating or enabling factors?

- Does this policy generate a one-time or a multiple-year impact on student learning?

- How does combining various policies affect the expected impact of each on student performance?

- How transferable are the observed outcomes to our context? What are the limitations? Or what could go better?
**b. How many students will this impact?**

This is usually more straightforward than impact estimates, though not always. The first question to ask is what student sub-group(s) will benefit from the investment. District teams should deliberately consider the primary and secondary effects of any intervention. Are there students who are not targeted but will also be affected? For example, if you pay high-performing teachers to move to low-performing schools, many students will benefit, but some may also lose out. District teams should keep the overall impact to the system in mind when determining ROI.

**c. How much will it cost to fully fund? Over what period of time?**

The denominator of our ROI formula is cost. Though cost can also seem simple, district teams need to thoughtfully consider all the elements of cost over time. This includes:

- **Cost types:** How much direct as well as indirect costs are required to achieve the desired outcome? How much will it vary across schools?
- **Magnitude and time frame of costs:** How much one-time or start-up costs are required, and how much to sustain the strategy over time? Are there personnel or compensation costs that need to be considered?
- **Scalability:** What are the fixed costs as well as variable costs, and how easy is it to scale costs?

Scalability is an interesting factor because it varies so widely. Some policies or programs can be scaled at a flat cost per pupil with expectation of a similar performance impact. Other policies have a declining cost per pupil, while others may actually cost more per pupil, just to achieve the same improvement in outcomes. It is important to think through these dynamics when calculating costs.

While it is rarely necessary or possible to be perfectly precise in cost estimates, it is important to clarify the degree of precision, the possible sources of error, and the extent to which different choices seem likely to affect quality of implementation and thus the expected performance impact.

**QUESTIONS**

**COST FACTORS**

**Start-up or transition cost:**
- What are the start-up/one-time costs required to initiate and transition to steady state?
- How long will we need to invest above steady state and at what level to achieve the planned sustained student improvement?

**Ongoing or sustaining cost:**
- What is the annual recurring cost to sustain the initiative at steady state? (e.g., staff, materials, PD, regular updates)
- Is it expected to rise or decline over time?
Indirect cost:
- What else will need to be spent to achieve the desired result?
- Is there infrastructure on which this initiative depends? Will that need to be upgraded?

Note: It is usually most helpful to express cost on a per-impacted-pupil basis, using the number of students impacted from (b) above.

4. Weigh investment options: What other factors do we need to consider, in order to select from among the options?

Now the team needs to narrow in on a course of action: the most attractive combination of expected impact for the cost. Concurrently, you should step back out of the details to make sure you have considered the whole picture. This means putting your ROI analysis in the context of many other factors.

a. Which option(s) have the highest likely return in our district context?

District teams should use the data, intuition, and judgment they have developed to compare their list of options using the ROI formula: return = the increase in student learning x the number of students impacted / the total cost. When precise numbers are not available, it is useful to ballpark the ROI with estimates of low/medium/high, given what the teams do know about likely impact, number of students, and cost. It may be helpful to discount expected return in some way to account for the likelihood that a specific outcome will be achieved in your particular environment (either because the study data was slightly different or because implementation may be a challenge given local capacity).

District teams should create a list of opportunities ranked in order of ROI, including a cost number associated with each option. But ROI is not a magic formula; it cannot choose the best option through math alone. System-Strategy ROI demands that district teams step back from the details and make sure the top options fit in the big picture context. That means considering these questions:

b. How does this choice fit with our other district priorities, performance targets, and constraints?

Even if the district team has identified a high ROI option, it may in fact conflict with other established district priorities or potential new strategies—particularly if the investment spans multiple departments, touches on structural cost or uses of time, or is new to the district. It is important for teams to consider unintended consequences or costs, interactivity of this initiative with other actions in play, and the consistency of the initiative with the district’s overall theory of action. For example, in order to address the elementary literacy challenge, let’s say that your district decides to invest in expert coaches for teacher teams—a potentially high ROI strategy. At the same time, you must ensure that school schedules are structured to allow coaches to meet with teams on a consistent basis. By taking a System-Strategy approach—that is, iteratively considering many strategies as part of the same strategic planning process—the district team can ensure that all big investments fit together.
Additionally, the district teams may want to think about dosage across strategies. One strategy may yield a particularly high ROI when compared with other approaches to address that student need; but will that strategy alone reach the performance target? What combination of strategies must be considered to truly reach the goal? If a particular strategy has a high ROI, but also a high attendant cost, it may be a better use of resources to focus on a different student performance need. What other fundamental student performance need could the district address with those resources?

**Questions**  
**Interactivity and Consistency**

- What could go wrong in our implementation that might affect outcomes? What might drive additional costs?
- Have we considered the potential unintended consequences or “perverse incentives” of this particular course of action?
- How might it impact other students or district priorities? (e.g. equity)
- How does this fit with the district’s overall theory of action?
- Is the cumulative impact of the chosen alternatives sufficient to meet our performance goals? Or do we need to consider additional or alternative investments?

**c. What is likely to happen if we don’t do this now?**

It is important not to forget the last reasonable option: to do nothing or to choose a path of watchful waiting. District teams should consider the risk of doing nothing versus options to learn more and implement over time.

**Questions**  
**Cost/Benefits of No Action**

- What would happen if we took no action? Would we be worse off?
- Could we make a more informed choice by waiting and gathering more data? What data would be most helpful? How would we get it?
- Could we do something in the interim to gather more data or improve our chances of successful implementation?
- Could we stage this investment in a way that would minimize our short-term outlay while providing additional data before we invest fully?
- Could we get 80% of the impact in a more cost effective manner? Would that be a reasonable trade-off?
5. Make investment decisions: How can we free the resources to do what we want to do?

Once the district team has decided on a desired course of action, they must plan how to reallocate resources to support the new initiative. How much will it cost, and how does that compare to the resources available to invest? How much additional would be needed to pursue the top option?

Districts can and often do use ROI analysis to identify programs that can be cut to free resources for new, more promising initiatives. In fact, ROI analysis is designed to identify existing initiatives that have lower ROI than potential new options. But what if the new initiatives cost more than those the district plans to cut?

Districts can often find additional resources to fund priority investments by finding ways to reverse *misalignments*—those accumulated spending patterns based on historical policies and practices that no longer achieve the necessary student impact results nor align with current strategic priorities. These resource misalignments typically fall into four categories as in the chart below.

<table>
<thead>
<tr>
<th>RESOURCE MISALIGNMENTS</th>
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</thead>
<tbody>
<tr>
<td><strong>Piecemeal</strong></td>
</tr>
<tr>
<td>Missing a piece of a complex strategy</td>
</tr>
<tr>
<td><em>For example:</em> Creating collaborative planning time but not providing enough time, student data, or expert support for effective planning</td>
</tr>
<tr>
<td><strong>Under-investment</strong></td>
</tr>
<tr>
<td>Not investing enough in an effective strategy</td>
</tr>
<tr>
<td><em>For example:</em> Spending very little on recruiting and hiring excellent teachers, though that is a crucial way to increase effectiveness of teacher workforce</td>
</tr>
<tr>
<td><strong>Ineffective</strong></td>
</tr>
<tr>
<td>Tying up resources in ineffective strategies</td>
</tr>
<tr>
<td><em>For example:</em> Spending a high percent of teacher compensation dollars on things that are not tied to student improvement, rather than on factors like responsibility and results</td>
</tr>
<tr>
<td><strong>Over-investment</strong></td>
</tr>
<tr>
<td>Applying a promising practice to all, instead of a targeted few</td>
</tr>
<tr>
<td><em>For example:</em> Favoring across-the-board, small class size reductions rather than targeting small classes and extra time to students who are struggling in the fundamentals</td>
</tr>
</tbody>
</table>
After considering whether to cut the lower ROI initiatives from the analysis, districts can ask the following questions: Is the district pursuing high-cost strategies that are not shown in the literature to be effective (e.g., across the board class-size mandates that can’t get classes small enough to have an impact)? Or is the district investing a lot of money, per-pupil, in areas that may not be district goals? For instance, ERS analysis shows that districts often unintentionally create very small high school elective class sizes, even though basic proficiency in core classes may be a district priority.

While it is beyond the scope of this article to provide instructions for how districts can conduct a full map of how their resource and spending patterns align with district priorities, several free resources to help districts identify strategic resource misalignments are available on the ERS website:

**School Budget Hold’em**: A tool to help teams identify trade-offs they can make and the kind of savings that could be redirected to new investments for different types of decisions.

**Resource Check**: A tool designed to help district leaders and others analyze a district’s current resource use and highlight where it aligns (or does not) with best practices.

**Practical Tools for District Transformation**: Detailed resource guides that provide suggestions for analysis and new strategies in a number of key areas: School Funding Systems, Turnaround Schools, School Design, The Teaching Job.4

**Conclusion**

Making strategic investment decisions in school districts can feel daunting. The questions are big, the players are many, and resource allocation and planning processes can be messy and uncertain. But despite all of that uncertainty, applying rigorous logic to the resource allocation process can help leaders make more effective resource decisions. And when districts take the time to consider a System-Strategy perspective, ROI can become an effective part of a comprehensive decision process that helps leaders make the best use of their limited resources.

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**Endnotes**


   Resource Check: http://www.erstrategies.org/library/resourcecheck
   Practical Guides for District Transformation: http://www.erstrategies.org/library/seven_strategies_for_district_transformation
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Getting there

While there is no single path to educational transformation, ERS’ School System 20/20 provides direction, together with tools and publications, to help align school system resources to strategic priorities, so that every school succeeds for every student. *Return on Investment in Education, A “System-Strategy” Approach* is one of many publications designed to guide district leaders toward that goal. Based on experience with school systems across the country, School System 20/20 identifies seven key areas for transformation and documents the specific policy and resource use changes critical to each. The framework includes assessments to help district leaders evaluate performance and track progress toward success for all.

For more information go to www.system2020.org.