

STAYING ON TARGET FOR COLLEGE

HOW INNOVATION CAN IMPROVE THE
PIPELINE TO HIGHER EDUCATION

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Executive Summary

Qualified students with college aspirations face a maze of tasks, deadlines, and paperwork that they must complete to access financial aid and a college education. Though the payoff for postsecondary education is large enough to justify the time and energy it takes to complete these tasks, many qualified students still fail to do so. In addition to procedural roadblocks, prospective students often suffer from common biases and cognitive limitations that can lead them to forgo opportunities to improve their human capital. The result is prospective students who, despite being prepared to do the work, do not complete the hurdles necessary to get to college in the first place.

Students are not entitled to a college education, and the pathway to college is designed to sort students according to their ability to succeed academically. But when procedural hurdles and information problems trip up qualified students, society misses out on the benefits of educated citizens. How can we increase the chances that students will not miss out on purely procedural grounds? We argue that policymakers and entrepreneurs should take a page from other sectors of public policy and the economy, where innovation has lowered transaction costs and empowered consumers to make good choices. In everything from tax filing to buying airline tickets to learning new content and skills, advances in technology and data collection

have made it easier to inform individuals about their options, reduced the labor necessary to sort through those options, and created new opportunities to guide consumers through complicated processes.

Researchers and entrepreneurs have begun to apply this logic to college enrollment. We explore promising innovations that are helping prospective students navigate the web of necessary tasks and summarize existing research on their effectiveness. We also highlight areas where policy reforms are needed to take existing ideas to scale and encourage more of the same kind of innovation.

We identify four areas in which leaders should reduce barriers to problem solving:

1. Collect better data, and make those data available in a format that enables entrepreneurs to build solutions while also respecting privacy.
2. Clarify data privacy policies to encourage responsible use.
3. Streamline the process by which school districts partner with third-party providers.
4. Provide incentives for schools and colleges to leverage innovation in a way that lowers costs and improves affordability.

Staying On Target for College: How Innovation Can Improve the Pipeline to Higher Education

Andrew P. Kelly, KC Deane, and Taryn Hochleitner

Every day, Americans make decisions about their health, finances, and personal well-being that demand a lot: sophisticated information processing, self-control, and the discipline to meet deadlines. To find the right health insurance plan, for example, consumers have to compare costs and benefits while also making predictions about unknown future needs. Likewise, choosing to save for retirement requires not only a choice between various investment opportunities (for example, 401(k), Roth IRA, or savings account), but also a conscious commitment to forgo present consumption in exchange for future resources. Buying a home can offer an individual a chance to build equity, but likewise takes careful planning, a thorough understanding of mortgage terms, and good financial stewardship in subsequent years. In each case, the incentive is there to act “rationally”—to make the choices that will maximize long-term utility, usually by sacrificing time, money, and effort upfront for greater benefits realized down the road. But the cost of obtaining the necessary information and completing the required tasks often serves as an obstacle for even the most educated adults. These obstacles can lead individuals to underinvest in things that would leave them better off—health insurance, savings, and human capital.

College is no different. To enroll in college—not just bachelor’s degree programs, but also two-year degree and vocational certificate programs—qualified prospective students must complete a laundry list of tasks and meet many different deadlines. For most

students, this process must begin long before senior year of high school by developing college-going aspirations, taking the right sequence of courses, and saving for college. Once senior year begins, the list of tasks and deadlines expands: taking standardized tests (SAT or ACT), coming up with a list of potential schools and programs, applying to those schools, choosing which one to attend, and applying for financial aid. Even after they are admitted, students have to register for classes, show up on campus, and take placement tests. At each of these junctures, academically qualified students can fall off the path because they could not complete the obstacle course of required tasks. The result is a waste of potential human capital.

Despite this, researchers have typically focused on the role of academic preparation and financial constraints in explaining who enrolls in college and who does not. These are clearly important concerns. For one thing, far too many students still show up to campus without being prepared for college-level work.¹ And the rising cost of college has started to price out many would-be attendees, with deleterious effects for both the students and the country.

But researchers have also found that qualified students with college aspirations often fail to complete the tasks necessary to make the jump to college. The Consortium on Chicago School Research has found that for every 100 students who aspire to a four-year college, just 41 ever enroll in one. The researchers found the gap was not due simply to a lack of preparation, but also to various “potholes” that students run into along the way—failing to file a Free Application for Federal Student Aid (FAFSA), failing to apply to a suitable college, or simply failing to show up even after they have been accepted.² In a recent book, law professor Joseph

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Fishkin has identified the important role that these obstacles—what he calls “bottlenecks”—play in shaping economic mobility.³ Individuals who fail to make it through the college bottleneck have fewer opportunities to move up the economic ladder.

It is important to distinguish between two different types of bottlenecks. Some of the bottlenecks on the path to postsecondary education sort individuals according to knowledge, skills, and abilities: reaching a college-ready standard, learning necessary content and skills, and passing required courses. But other bottlenecks sort people on more arbitrary grounds: can you fill out a complex government form to apply for financial aid, or did you sign up for classes early enough to get the courses you need to graduate on time? For college degrees to have value, the former set of bottlenecks *must* exist. But the same is not true for the latter. Reducing the bureaucratic hoops that students must jump through—by, for instance, simplifying the federal financial aid application—would help ensure that students who are sufficiently prepared and driven to succeed do not get locked out on procedural grounds while leaving the academic sorting process intact.

To enroll in college, qualified prospective students must complete a laundry list of tasks and meet many different deadlines.

Evidence suggests that some qualified students do not make the leap. To see this, take the number of students who pass Algebra II in high school, considered a key indicator of college-readiness.⁴ Data from the Educational Longitudinal Study, which followed high school sophomores from 2002 to 2012, show that 72 percent of students sampled completed Algebra II while in high school. Out of those students, 78 percent eventually went on to graduate from high school, apply to college, and enroll in a postsecondary institution. In other words, for every 100 students who complete Algebra II and are therefore likely to be college-ready, 22 do not wind up enrolling. If existing research is right, a significant number of them would have succeeded in college.⁵

To be clear: qualified students are not entitled to a college education, particularly if they prove themselves unable to handle important deadlines. And there are certainly reasonable arguments that this complexity winnows out students who are not ready for the demands of college life anyway. However, to the extent these procedural hurdles stop students who would benefit from some kind of postsecondary education, both the students and society miss out on the benefits of increased human capital.

How can we mitigate the chances that students will miss out on purely procedural grounds? Policymakers and entrepreneurs should take a page from other sectors of public policy and the economy, where innovation has lowered transaction costs and empowered consumers to make good choices. In everything from tax filing to buying airline tickets to learning new content and skills, advances in technology and data collection have made it easier to inform individuals about their options, reduced the labor necessary to sort through those options, and created new opportunities to guide them through complicated processes.

Such innovations do not take place in a vacuum, but have often emerged from or been complemented by policy reforms that create space for new approaches. The ability to e-file tax returns created an ecosystem of online tax preparers; testing and accountability mandates in K–12 education made data on the performance of schools more transparent, giving rise to databases like GreatSchools.net; and the federal government’s “blue button” initiative has allowed beneficiaries of federal health programs to download their own health records, thereby enhancing the portability of data across doctors and hospitals. The combination of policy reform and customer-centered innovation reflects the broader trend toward a behavioral philosophy of governance—the notion that small, strategic “nudges” can empower individuals to make better decisions about their well-being.⁶

Researchers and entrepreneurs have begun to apply this logic to college enrollment. Efforts to provide students with small doses of information about college opportunities and financial aid early in high school have been shown to boost college-going aspirations.⁷ Likewise, shipping personalized college guides directly to students improved their chances of applying to a

college that was a good academic match.⁸ And sending text-message reminders helps students stay on the path to college in the summer between senior year and freshman fall—a period of time that can be particularly perilous for college aspirations.⁹ These innovations are not a cure-all for deep-seated problems of college readiness and access, but they can help to harvest some of the low-hanging fruit—students who could benefit from college but fail to successfully navigate the maze of tasks.¹⁰

In this paper, we explore promising innovations that are helping prospective students navigate these obstacles, and we summarize existing research on their effectiveness. We also highlight areas where policy reforms are needed to take existing ideas to scale and to encourage more of this kind of problem solving.

Why Do We Care? The Cost of Wasted Opportunities

Historically, those with a postsecondary degree or certificate have outearned those with a high school diploma by a large amount, and those advantages have grown over time. In light of these returns, economists have asked how it could be that every qualified student does not enroll in college. Even with high tuition costs, the large lifetime returns justify investing money and taking on debt to pay the cost of tuition.¹¹ The so-called “rational” choice is to enroll in college, all other things being equal.

Yet, as we have pointed out, a nontrivial number of qualified students still forgo college altogether. A survey of over 50,000 Chicago Public Schools students’ course-taking patterns found that, of those students who enter senior year with an academic profile that put them on track to attend a somewhat selective college, just one-third took an AP course and only 43 percent took a fourth year of math.¹² Those students who took a fourth year of math or an AP class were almost 20 percent and 10 percent (respectively) more likely to enroll in college.¹³ A study by Stanford University researcher Daniel Klasik found that, while more than 80 percent of students completed a college entrance exam, fewer than 40 percent ultimately enrolled in a four-year college.¹⁴ And a 2005 US Department of Education study

found that low-socioeconomic status (SES) students whose math scores placed them in the top 25 percent of students were actually *less* likely to earn a bachelor’s degree than high-SES students whose scores were in the bottom 25 percent.¹⁵ Clearly more is going on here than just academic preparation. Why are qualified students not investing in human capital?

The so-called “rational” choice is to enroll in college, all other things being equal. Yet a nontrivial number of qualified students still forgo college altogether.

We’re Only Human. Prospective students are like all of us in that they suffer from an assortment of cognitive blind spots that compromise rational decision making. Psychologists and behavioral economists have spent the past 40 years documenting the systematic and predictable ways that humans deviate from economic rationality.¹⁶ The result is not pure randomness and irrationality, per se, but rather recurrent errors in judgment that can lead to suboptimal decisions.

Take, for example, what researchers call “status quo bias,” or the tendency to gravitate toward the status quo, set routines, and familiar surroundings. It takes extra energy and time to choose a different option, so people often opt for the default. In a series of experiments, economists William Samuelson and Richard Zeckhauser have shown how individuals are much more likely to stick with the status quo than they are to make a change, and that the preference for the status quo increased as the number of alternatives did. For example, university professors only rarely changed their health plans or retirement account allocations despite changing life circumstances.¹⁷ Inertia is a powerful force that can lead people to settle for what is familiar.

Then there’s the “planning fallacy,” which describes the tendency of individuals to overweight their current intention to get something done and underestimate the situational factors that can influence the ease of doing it. For instance, psychologists Derek Koehler and Connie Poon examined the correlation between intentions and actual behavior in the future when it came

to decisions like whether to donate blood or participate in a psychological experiment. In each case, they found that current intentions were far more optimistic than actual behavior, concluding that “people tend to be overly certain that the likelihood of their carrying out some future behavior coincides with the strength of their current intentions.”¹⁸ Reversing this tendency requires that people have a concrete understanding of how a decision today can impact future outcomes.

Individuals can also be quickly overwhelmed by too many choices. In a series of studies, Sheena Iyengar and colleagues have found that individuals often make better decisions when they face a smaller choice set because too many options can overwhelm decision makers (“choice overload”). For instance, when shoppers were invited to choose a jam, those facing just 6 options were more likely to make a choice and were more satisfied with their purchase than those who chose from 24 different varieties.¹⁹ Efforts to structure choices and place them in categories can help simplify the process.

Cognitive Limitations Meet a Challenging Market.

These standard cognitive limitations are particularly problematic when they collide with complex decisions and complicated markets. Postsecondary education is a case in point. College is an “experience good,” meaning consumers must experience it to measure its true quality and value.²⁰ And because most students enroll in college only once or twice, they have little opportunity to learn from past choices.

We also expect prospective students to make complicated cost-benefit and expected value calculations, but the postsecondary market is notoriously opaque. Colleges charge different students different prices, meaning students and families often have little idea what it actually costs to attend and tend to overestimate what they will pay out of pocket. Even if out-of-pocket costs were clear, prospective consumers would still be unable to learn a priori what they would get for their money because detailed measures of the returns to particular degrees and programs are exceedingly rare.

Now add to this mixture a heavy dose of paperwork, deadlines, and high-stakes decisions, and you have a recipe for suboptimal decision-making. The college-going process demands not only serious thought, but also action on a tightly choreographed schedule of

events. Miss one step—filing the FAFSA or registering for classes—and you may have to wait until next semester (or next year).

The result: some decide to enroll in low-quality options or to not enroll at all on the basis of bad information, while others who start on the path run headlong into procedural hurdles that can wreck those aspirations. In either case, potential college graduates are derailed by the same kinds of information deficits, psychological biases, and logistical hurdles that make decision-making difficult in a wide array of areas.

What Can We Do?

The standard policy response to these problems is to increase the number of trained professionals who are dedicated to counseling, advising, and mentoring. If every student had a dedicated counselor to inform and guide him through the process, the logic goes, fewer students would fall victim to the problems we have highlighted.

Although extra counseling and advising could certainly help some prospective students avoid these potholes, those services would also be very expensive. In the 2009–10 academic year, the average public school had a student-to-counselor ratio of 407 to 1. These same counselors reported that only 23 percent of their time is spent on college counseling. (Meanwhile, at private schools, 55 percent of a counselor’s time is spent on college counseling.)²¹ Cutting that student-to-counselor ratio in half would require hiring twice as many certified counselors, at an average salary of more than \$50,000 a year (not counting benefits).²²

Not only is the “hire more counselors” approach prohibitively expensive, but it also is not even clear that it would be cost effective. Consider efforts to improve college-going rates among economically disadvantaged students. Federal TRIO programs were designed as a substitute for the kind of college counseling that may be lacking at the high schools of low-income and minority students. But evaluations of programs like Upward Bound, Talent Search, and Gear Up have revealed generally disappointing results.²³ As economists Ron Haskins and Cecilia Rouse summarized in 2013, “Half a century and billions of dollars after these

federal college-preparation programs began, we are left with mostly failed programs interspersed with modest successes. Preparing disadvantaged students for college is still a major challenge, with no well-tested solutions in sight.”²⁴

Luckily, there are alternatives to high-touch, high-cost solutions like hiring additional counselors. Researchers and entrepreneurs have already begun to build an evidence base for new ideas that can help qualified students and their families complete the tasks necessary to enroll. Early research has found that FAFSA filing by a tax preparer can significantly boost college enrollment, that strategically timed text messages can nudge students to matriculate after a summer away from school, and that sending students personalized information about their college options can help them choose a good one.²⁵

Each of these solutions asks how we can use information, communication, and technology to make complicated tasks easier to accomplish. But they also raise questions about scalability and the need for policy reform to promote more of these efforts. Efforts to simplify policy and make data available can create space for entrepreneurs to design inexpensive solutions. But they require just that: effort. In the sections that follow, we explore such solutions and ask how policy reforms could make such successes more common.

The College Pathway: From Aspirations to Retention

College enrollment and retention is the end result of a long series of steps, some of which start as early as middle school. There is no agreed-upon series of steps in the literature on college access. Some focus on academic benchmarks (class enrollment and completion of entrance exams) while others use a more exhaustive list (including the application process itself, for instance).²⁶ From this literature, we derive four phases of the pathway to college:

- College-going aspirations and behaviors.
- Applying to college.

- Applying for financial aid.
- Matriculation and retention through freshman year.

Translating Aspirations into Behavior. Long before students apply to or enroll in college, they develop educational aspirations and expectations and begin to behave in ways that will support those expectations—taking the right courses, studying hard, and preparing for exams. While upward of 90 percent of high school students from low-income families may aspire to attend college, only 54 percent of these students realistically expect they will be able to do so.²⁷ Without a concrete sense that some kind of postsecondary education is a possibility if they choose to apply themselves, even qualified students will be unlikely to behave in ways that set them up for success.

The good news is, research suggests that it is possible to influence aspirations. Take the Georgia HOPE scholarship program, which provides funding for Georgia students to attend a Georgia public college or university so long as they graduate high school with a 3.0 GPA. In their 2002 study, Gary Henry and Ross Rubenstein found that the percentage of high school students earning a GPA of a B or better increased by 2.9 percentage points between when the program began in 1993 and when the class of 1998 graduated.²⁸ Moreover, as University of Michigan economist Susan Dynarski found, “After the introduction of HOPE, the attendance rate of 18–19-year-olds in Georgia rose 7.9 percentage points more than it did in the other southeastern states.”²⁹

Similarly, a study of the Tennessee Education Lottery Scholarship (TELS) program’s HOPE Scholarship, which awards scholarship funds to Tennessee residents who enroll in the state’s postsecondary institutions, found that in the years after TELS was introduced, the number of students scoring at or above the ACT eligibility cutoff (a score of 19) increased by 6.1 percentage points.³⁰ A number of philanthropically supported Promise Programs attempt to influence college-going rates in a similar way: making it clear early that qualified students who work hard will be eligible for scholarships. The first evaluation of the Kalamazoo Promise found that the program improved credit accumulation while

A Cheaper Private Counselor

“Don’t waste time applying to the wrong universities” is the tagline that greets users when they arrive at Admittedly, a college-matching website created by Jess Brondo, a former private college counselor. After almost 10 years working one-on-one with talented students, Brondo grew frustrated that her skills helped only a small subset of students navigate the college admission process. “I absolutely loved the [counseling] industry, but one of the big things I wrestled with was that I was only exacerbating the have and have-not problem,” she said. “Students who could afford private counselors were faring very well, and those who couldn’t afford it were struggling.” The tech-based solution she came up with was Admittedly.

Launched in May 2013, the company helps students build a comprehensive profile of information on their personality and interests, academic résumé, and extracurricular activities. The site then uses the information to help students identify colleges that are in reach, target, and safer categories. While the company currently focuses high school seniors, its intention is to scale up to include bite-sized modules that help all high school students track their progress on the steps necessary to prepare for college and complete the tasks necessary to enroll.

For instance, their forthcoming “college planning curriculum” includes articles, worksheets, and online tools to help guide students through each step of the process: What is the difference between early decision and early action? How do you schedule a college visit? What steps have you completed in the application process? Students who visit the site often (at least once monthly) will benefit from predesigned checklists that help them track progress.

Admittedly’s main challenge: convincing students to use the website once a month or more. The

company is building its client base with a direct-to-students campaign. Without a direct line of communication—offered by a school or district—reaching students can be a challenge. Emily Elliot, community outreach manager, knows this. “We’re trying to be creative in thinking about non-traditional avenues for finding people,” she said. This requires a sophisticated social media outreach effort—including Twitter, Facebook, Tumblr, and Instagram—that reaches students, who then sign up for their own accounts.

But this model has a built-in barrier to entry: relying on students to sign up means that they must seek out the tool on their own and self-select into the group of users. To address this problem, Admittedly is adding a “mentor” option where parents, teachers, or other community members can sign up and refer a student.

Once Admittedly has built a base of users by reaching out to students directly, it will begin working with schools and school districts. Why the delay in school and district partnership? Two reasons. First, school districts move slowly. It might take months—or even an entire school year—for a district to adopt a new product. By beginning with direct outreach to consumers, Admittedly can signal user buy-in and effectiveness to interested districts.

Second, many high schools suffer from understaffed and overworked guidance offices—one of the primary problems that Admittedly hopes to address. Said founder Jess Brondo, “If we were to rely on counselors, who are already completely overworked, to disseminate our product, it would probably take months before it got in front of the students.”

In other words, creating an innovative product does not guarantee success. Putting that product in the hands of the students that can use it just might.

in high school and boosted the GPAs of African American students.³¹ In other words, well-designed programs that inform students about college and aid opportunities early on have a positive effect on students’ decisions to prepare for and ultimately enroll in college.

These are expensive nudges. But sometimes, a simple informational intervention can change a students’ outlook. In a 2012 study, Philip Oreopoulos and Ryan Dunn found that students responded well to a short three-minute video that included information on the

social and economic benefits of postsecondary education. Three weeks later, high school students who watched the video “had higher expectations of their own return to [postsecondary education], were more likely to believe they were eligible for grants, were less likely to believe the main reason students do not go on to [postsecondary education] is because of costs, and were more likely to say they aspired to complete at least a college degree.”³²

Two websites seek to bring such early interventions to students via the Internet. The first, EdReady, focuses on helping students identify whether they are academically prepared for college-level math and then provides a “personalized study path” based on the results. Students first choose a preliminary assessment from a set of options: one is designed to gauge readiness for college-level work, while the others focus on standardized tests or placement exams. After students receive their results from this assessment, they gain access to a customized list of tutorials that can improve performance in areas where they need help.

The second, Admittedly, is an online college counselor that guides high school students through the college search process. In contrast to EdReady, Admittedly’s focus is on the elements a high school guidance counselor typically provides, rather than a specific area of academic preparation. Students can sign up for either of these websites independently. EdReady provides both high schools and colleges with the option to set up an institution-specific site with customizable goals. Admittedly plans to expand into partnerships with schools and school districts directly. (See “A Cheaper Private Counselor” sidebar.)

Applying to College. After developing college-going expectations, qualified prospective students must translate their aspirations and hard work into applications. Here again, some students fail to make the jump. In the Chicago study of public school students discussed previously, researchers found that only 59 percent of Chicago students who had originally aspired to go to college had applied to one by June of their senior year.³³ A similar study compared application patterns of academically qualified students at Boston Public Schools and schools in Boston’s suburbs. In the suburban sample, 100 percent of the students with high

GPA’s applied to a four-year university. Contrast this with Boston Public Schools, where more than 25 percent of those with high grades never submitted a single application to a four-year college.³⁴

Why would aspirants not apply? Some may have decided, based on their academic performance and level of interest in school, that college is not for them. Others may have decided to take a good job or an apprenticeship, a worthwhile route for many students.

It is also possible that some qualified and interested students lack the information and motivation needed to successfully choose an option and apply. Motivation (the drive to complete tasks) and information (knowledge about how to complete them) are both prerequisites and are likely related; students have to be motivated to seek out the information they need, and having access to information might push them to act. But they are distinct issues. Acting in the absence of relevant information may lead to bad decisions, but all the information in the world may not prompt students to act.

Simply making information available is often insufficient to change behavior.

There has been a lot of action on the “information” side of the application process. At the federal level, the last iteration of the Higher Education Act tried (with little success) to compel colleges to provide “disclosures” to prospective students on metrics like the percentage of students with Pell Grants who graduate and how graduates fare in the labor market.³⁵ More recently, in the last five years, the Department of Education has created a financial aid shopping sheet, a model financial aid letter, and a “College Scorecard” and is now embarking on a new set of college ratings. And an increasing number of states have merged postsecondary and wage data in an effort to inform students about the likely return on investment.

But simply making information available is often insufficient to change behavior. One way to help consumers is to simplify the information provided into a handful of key dimensions. Recall that consumers can be paralyzed by too much choice and may be quickly

overwhelmed when asked to compare options on more than a handful of dimensions. Instead, consumer information tools, like the magazine *Consumer Reports*, can help consumers isolate a finite number of dimensions on which to evaluate products. The federal College Scorecard, CollegeMeasures.org, and the *Chronicle of Higher Education's* "College Reality Check" (among others) have all adopted this logic, focusing in on key dimensions: costs, student success rates, and some measures of postgraduation success.

Simplifying is important, but so is proactively putting that simplified information in the hands of consumers. Otherwise, students and families may not seek it out. For instance, a recent Public Agenda survey geared toward adult students found that just 18 percent had used web-based tools to research their options.³⁶ Changes in reported use of institutional Net Price Calculators (NPCs) supports the value of accessible information. In just one year's time—from 2011 to 2012—use of institutional NPCs grew from about 25 percent to 44 percent, an increase of almost 20 percentage points.³⁷

In the largest test of such informational interventions to date, economists Caroline Hoxby and Sarah Turner examined whether personalized, targeted information about college options would change the application behavior of high-achieving, low-income students.³⁸ Using information from the College Board, they identified high-achieving students living in low-income neighborhoods and mailed them a personalized college guide and application fee waivers. The guide contained key pieces of comparable information about both local institutions and more selective campuses. Note that this intervention both focused on a limited number of dimensions and provided information directly (rather than passively hosting it on a website).

The authors found that students who received customized information packets and application fee waivers submitted 19 percent more applications and were admitted to 12 percent more colleges than those who did not.³⁹ The quality of these colleges was higher than among the control group, as well: the median SAT score was 21 points higher, and graduation rates were 10 percent higher. The intervention cost about \$6 per student.

The idea is now being taken to scale by the College Board. Delaware recently announced that as part

of its "Summer Nudge" program, the state was entering a partnership with the College Board to send a packet similar to that used in the Hoxby-Turner study.⁴⁰ The state estimates that it will cost \$25 million to get the project up and running but that yearly maintenance costs will be significantly lower.

Other solutions, both established and new, aim to eliminate obstacles that might sap motivation. This is what economist Amanda Pallais discovered about the impact of ACT's change to the number of institutions where students could send their scores free of charge.⁴¹ Allowing students to send their scores to four schools (instead of the original three) increased the number of schools where students applied, a behavioral change that can boost the chances of enrollment.⁴² This logic has been applied to the application process in other ways, too. In the past, students had to fill out a different application for every school they applied to. Requirements would differ across schools, increasing the amount of time necessary to apply to more than one institution. The Common Application, which was founded in 1975 by 15 private colleges, provides students with a single platform through which they can apply to multiple schools.⁴³ Instead of visiting multiple sites, students submit their information once and then select which schools they would like to send it to. Now, more than 500 institutions accept the Common Application, and in 2012–13, more than 700,000 students submitted more than 3,000,000 college applications.⁴⁴

Students also have to make sure that they send the requisite documents on time. Naviance, a college and career-readiness platform for K–12 schools, and Parchment, a database for education credentials, work with the Common Application website to facilitate the process of submitting necessary documents to colleges. The integration allows students to interface with one central platform for assembling and submitting application materials. Naviance combines its organizational offerings with services that supplement the traditional high school guidance counselor role. Parchment enables students to store and transmit important documents (such as transcripts) from one central location. The cost is lower for institutions, the service is faster, and students' information is more secure than traditional paper mailings. Parchment has since partnered with Michigan to implement the software at schools statewide.⁴⁵

These solutions are a start, but navigating the application process successfully depends on not only students' motivation to fill out applications but also the supply of affordable seats.

Financial Aid Phase. The cost of college is a source of anxiety and misinformation among prospective students and their families. There are three primary pitfalls at this stage. First, many students and families do not recognize that most students do not pay the full sticker price to attend college, but instead pay a net cost that is reduced by available aid. Second, students must apply for financial aid using the FAFSA (and, often, a second form called the CSS Profile), a long and complicated form that requires detailed knowledge of the family's finances. Third, once financial aid offers arrive, they may be difficult to decipher.

Higher education is a bizarre market in that students do not learn what they will actually pay for the good or service until after they have decided they want to buy it and told the provider how much they can pay for it. Though only a portion of students pay the full sticker price, estimates of out-of-pocket costs (or net costs) have not always been easy to find. The result: students often overestimate college costs and underestimate financial aid opportunities, sometimes by as much as 300 percent.⁴⁶ Without realistic estimates of out-of-pocket costs, some students and families will make uninformed decisions. A 2010 survey conducted by the College Board and Art & Science Group LLC found that 6 out of 10 students looked only at sticker price, not net price, when considering a college. Four in 10 students ruled out colleges based on these sticker prices.⁴⁷

To learn what they will pay and what aid they are eligible for, students and their families have to apply for financial aid. The FAFSA, created by Congress and administered by the US Department of Education, is required of every student seeking federal grants or loans, as well as state-based grant aid. At 116 questions, the simplified 2011–12 version of the form was barely shorter than the IRS 1040 form (127 questions), and significantly longer than both the 1040EZ (38) and the 1040A (84).⁴⁸ Officially, the Department of Education suggests that it takes 75 minutes to read the instructions, gather needed materials, and complete the form, but researchers estimate the actual length is closer to

10 hours.⁴⁹ Many top-tier colleges and universities also require that students complete an additional form, the CSS Profile, to access institutional grant aid (a necessity for students hoping to afford the steep tuition costs at private colleges, especially).

Given the potential payoff of applying for financial aid—money to attend college—spending the time to fill out a FAFSA is clearly worth it. But not everybody does so. While the number of students completing the FAFSA has gone up over time, about 40 percent of students in the 2007–08 year had not completed the form. Mark Kantrowitz estimates that about one-quarter of these noncompleters (about 2.3 million students) would have been eligible for a federal grant had they applied.⁵⁰

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to buy it and told the provider how
much they can pay for it.*

Finally, once students apply for financial aid, apply to schools, and get accepted, they have to interpret their financial aid letters, which are jargon-laden, inconsistent, and sometimes border on dishonest. In a 2010 survey of 580,000 college freshman and sophomores and their parents, two-thirds of respondents found financial aid letters easy to interpret, and just half found them easy to compare. Half of the letters did not report an “out-of-pocket cost” that families would have to pay, and only two-fifths reported a detailed breakdown of the cost of attendance.⁵¹

Policymakers have recognized these problems. For instance, colleges are now obligated to create NPCs that provide prospective students with an estimate of what “students like them” pay to attend. Second, policymakers have made progress in simplifying the FAFSA by reducing the number of items, improving skip logic (which allows students to bypass nonapplicable questions on the application), and allowing users to pre-populate some of the questions directly from their

Hands Off Our Net Price Calculator

The 2008 reauthorization of the Higher Education Act required all Title IV–eligible college campuses to create and display a Net Price Calculator (NPC) on their website. Prior to the NPC requirement, students had no idea what they would pay out of pocket at any given campus until after they received their financial aid offer. By Fall 2011, colleges had to offer a calculator that provides basic information (as mandated by the Department of Education).

The push for pricing transparency has been less successful in practice. Some schools hide their NPCs in the depths of their websites, far beyond the Department’s recommended “three clicks” rule. Others erroneously link to the Department’s tool that helps schools design a NPC. And some have yet to comply at all.

When Abigail Seldin and her business partner, Whitney Haring-Smith, first came up with the idea of College Abacus, it seemed straightforward enough: create a website where students can, free of charge, compare estimates from multiple schools’ NPCs. In its year of beta operation, College Abacus heard only positive feedback.

Then, in October 2013, soon after College Abacus launched its full website, Seldin and Haring-Smith noticed something strange. All of the NPCs built by Rezolve Group, a vendor with significant market share, had gone offline. Acting on behalf of its member sites, Rezolve decided to block College Abacus. Officially, their complaints were fourfold: (1) College Abacus is charging for free information; (2) it attempts to sell student data for a profit; (3) the estimates could be inaccurate; and (4) the site encourages students to choose a school by price alone.

College Abacus is a free website that allows students to compare three schools’ net price calculators at the same time, with the option to save the results. “College Abacus has a very strict privacy code, and we don’t sell or share user information with anyone. We aren’t interested in making money that way,” said Seldin. As for accuracy, College Abacus queries each school’s NPC in real time when the student requests it, meaning there is almost no chance that the site will return results that are inconsistent with what you

would get by going directly to the school’s site.

But what about the last criticism: that College Abacus encourages students to choose a college based on price alone? Peter Stace, vice president for enrollment at Fordham University, said as much in an interview about College Abacus with CNN: “I want a chance to put the price in a context.”¹ He is right to be worried; the school’s calculator indicates that a Pell-eligible student could pay upward of \$40,000 out of pocket in his first year.² For many schools, “context” means finding some way to convince them that steep price tags are worth it; that is more difficult to do when students can compare net prices directly (and easily).

College Abacus does not seek to define institutional value, only to clarify for students what they can expect to pay at institutions. “Most students in the US are price sensitive, and they deserve easy access to cost information before deciding where to apply and spending heavily on application fees,” said Seldin, continuing that, “Students shouldn’t start or end their college search with College Abacus, but they need to check the schools on their lists for financial fit—just as they now check for academic fit.”

While a handful of schools have since requested that Rezolve remove the College Abacus block, the majority remain silent. Compelling Rezolve and other vendors to remove the block is difficult, since the vendor has done nothing illegal. “Policymakers that want students to make responsible financial decisions about college need to weigh in on the issue. After all, the net price calculator requirement is tied to Title IV funding,” said Seldin. In fact, it may well come down to pressure from consumers and policymakers for better—and more accessible—transparency.

Notes

1. Kim Clark, “Battle Brewing over Cost Comparison Site for Colleges,” CNN, November 7, 2013, <http://money.cnn.com/2013/11/07/pf/college/collegeabacus-com/>.

2. Based on a dependent student with academic performance in the 50th percentile who resides in a two-parent household with parental income of \$30,000, no homeownership, and one other child in high school. Estimated using Fordham’s NPC Option B.

tax returns. Finally, the Department of Education has urged schools to adopt a “model financial aid letter” and created a “financial aid shopping sheet” designed to help families decode aid letters.

But these solutions are incomplete. The form is still long, and the IRS Data Retrieval Tool does not become available until two or three weeks after the tax return is submitted. Additionally, the tool cannot accommodate families with more complicated tax situations (for example, students whose parents are married but file separately). And the standard financial aid award letter is voluntary, leaving most colleges to their own devices.

Fortunately, researchers and entrepreneurs have begun to test creative solutions to each of these problems. On the information side, a number of web-based applications have emerged to help students shop around with their eyes wide open. College Abacus, an aggregator for NPCs, allows prospective students to compare net prices across campuses, a consumer-friendly innovation that colleges have not exactly embraced. (See “Hands Off My Net Price Calculator” sidebar.) The website guides students through the process of estimating what they will pay at a college, then using an aggregation of schools’ NPCs, provides students with a single page of consistently presented output for multiple schools. Students can then use these estimates to inform their college application decisions and make sense of the financial aid award letters they receive in April.

However, better information and simplification can only go so far; sometimes a more hands-on approach is necessary to change behavior. A team of economists randomly assigned families who used H&R Block to file their taxes to receive one of two treatments: one group received information about the FAFSA and financial aid eligibility, while the second had their FAFSA filed by the tax professional. Students who had their FAFSA completed and filed by the tax professional were more than 25 percent more likely to enroll in college relative to a control group. Families that received personalized aid estimates, a list of tuition prices at local colleges, and an encouragement to file the FAFSA were no more likely to file a FAFSA or enroll in college than the control group.⁵² At a cost of about \$100 per case, the H&R Block intervention has a larger benefit-cost ratio than other approaches to boosting college access.⁵³ (See “What the FAFSA?” sidebar.)

Efforts to simplify students’ interactions with the financial aid system are caught between competing forces. Simplifying the process could make it easier for students to enroll in college, but some critics argue that simplification could encourage students who might not benefit from college to enroll, only to drop out later. Alternatively, a simplified process might not successfully identify when students *do not* need aid, leading us to spend money on students who are not needy. Institutions, eager to know as much about students’ financial situations, want more, not less, information. Furthermore, institutions benefit when students have imperfect information about differences in pricing across colleges. Organizations that want to combat these challenges—through the aggregation of data, or with informational tools—have no choice but to face these obstacles head on.

Matriculation and Retention. The pipeline does not end when students get into college. They still have to show up for classes and, as important, keep showing up. Most college access initiatives help students accomplish tasks early in the process, but, as economist Ben Castleman has argued, “There is no corresponding emphasis on ‘staying late.’”⁵⁴ Unfortunately, though students receive less support once they graduate high school, there is no letup in the list of tasks. In the summer before starting college, students are responsible for significant amounts of paperwork, including receiving and interpreting financial aid letters and tuition bills, filling out housing and insurance forms, choosing courses, and signing up for placement exams. They are no longer connected to their high school, but not yet enrolled in college.⁵⁵

The result is what researchers call “summer melt,” or the tendency of some students who have already been accepted to fail to show up. One 2013 study estimates that nationally, summer attrition rates are between 10 and 20 percent among college-intending students.⁵⁶ As Castleman, Lindsay Page, and Korynn Schooley have postulated, receiving the first tuition bill may trigger students’ fears about their ability to pay.⁵⁷ Without anyone to help them stay on target, these students risk dropping off the college success pathway.

Efforts to reduce summer melt run the gamut from high-touch solutions like one-on-one guidance to small nudges like text messages. Summer access to counselors

What the FAFSA?

Students must tackle two important steps to receive federal financial aid for each year of college. First, there's the form itself: gather the necessary financial information, interpret the questions, and meet the deadline. Then, there are the procedural steps required to maintain eligibility: meet class enrollment deadlines, receive the disbursement, get good enough grades, and remember to complete the form again each spring.

At the extreme, removing the obstacles associated with the FAFSA may require removing the FAFSA altogether. Consider proposals to help students learn of their eligibility earlier, based on their eligibility for federal benefit programs such as free and reduced lunch.¹ Don Heller estimates that of students who received federal benefits in 7th grade, 77 percent were still eligible in 11th grade.² If notified early, these students would enter high school already aware of their federal aid eligibility for college.

But the tedium does not stop once the form is completed. While in college, students must still navigate the procedural hurdles: finding out when they will receive the aid (so that they can pay their bills and buy their books), understanding the penalties associated with enrolling in too few classes, and then reapplying each spring. Staff in financial aid offices can feel overwhelmed, especially during busy times when students' applications come due. One community college in Ohio must process over 30,000 aid applications with only six staff members.³

Here again, technology—social media in particular—can help supplement existing services. Indeed, “the interactional component of social media facilitates person-to-person contact and communication in ways that other technologies are not able to accomplish,” explain Regina Deil-Amen and Cecilia Rios-Aguilar, researchers who focus on the ways that technology can improve hurdles to college access.⁴

In their landmark study of Schools App, a social media-based community for college students, Deil-Amen and Rios-Aguilar found that the site came to act as a source of information about financial aid.

They found that students could get quick answers to simple questions by posting them on Schools App instead of waiting in line at the financial aid office. They argue that social media “can create small-scale efficiencies to enhance communication, information dissemination, and guidance efforts by supplementing or sidestepping inefficient systems.”⁵ Of course, the benefits of Schools App accrued to those students who used the service. But, as with many interventions where students must opt in, campuswide usage is variable and generally quite low.

Schools App does not solve the problems associated with procedural hurdles in receiving federal financial aid, but it does provide a forum where students can get answers, which frees up financial aid officers to focus on other tasks that require more attention. It becomes a one-stop center that helps students avoid fewer trips to the financial aid office.⁶

Notes

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2. Donald E. Heller, “Early Commitment of Financial Aid Eligibility,” *American Behavioral Scientist* 49, no. 12 (August 2006): 1719–38. For more on early notification, see Kelchen and Goldrick-Rab, “Accelerating College Knowledge.”

3. Regina Deil-Amen and Cecilia Rios-Aguilar, “From FAFSA to Facebook: The Role of Technology in Navigating the Financial Aid Process,” in *Reinventing Financial Aid, Charting a New Course to College Affordability*, eds. Andrew Kelly and Sara Goldrick-Rab (Cambridge, MA: Harvard Education Press, forthcoming).

4. Ibid.

5. Ibid.

6. Ibid.

who provide guidance on interpreting financial aid packages and tuition bills and help complete necessary paperwork can have a positive effect on matriculation rates. One 2012 study found that students who received summer counseling were 14 percentage points more likely to enroll in college the following fall.⁵⁸

But inexpensive nudges can also effectively reduce summer melt. In a randomized experiment, Castleman and Page found that text messages related to key tasks necessary prior to enrollment can increase the chances that students matriculate. At two of the test sites, students who received the text messages were seven percentage points more likely to enroll in college than their peers in the control group.⁵⁹ The total cost of the text message campaign? About \$2 per student.⁶⁰

Matriculating is not the finish line, though. Students still have one of the most daunting tasks left: making it through their first year and returning for a second. In response to the national push for college completion, college and university administrators have been keen to adopt innovations that promote student retention. Many of these solutions—whether in-person or tech-enhanced—attempt to change the way students interact with campus services from a passive, self-selected process to one that proactively grabs students' attention. Typically, these solutions rely on some mix of academic counseling or tutoring and early warning systems that alert students and staff when a student is falling behind.

For instance, InsideTrack is a coaching service that provides one-on-one success coaching to students at colleges and universities. InsideTrack coaches work with students to manage their time, prioritize tasks, and cope with the transition into college. Partner colleges gain access to technological tools that monitor student progress and alert InsideTrack coaches when students encounter a problem, which might be academic, personal, or financial. In a randomized study of the company's work, researchers used two years of student performance data to estimate the impacts of InsideTrack's services on student retention. At the 6-, 12-, 18-, and 24-month mark, the students randomly assigned to the intervention group had higher retention and completion rates.⁶¹ In other words, providing students with an individual coach had a measurable impact on student progression through college.

Colleges and universities have begun to design similar systems on campuses. After its retention rate slid to a low of 61 percent in 2008, the University of Tennessee at Chattanooga implemented a freshman advising program, Freshman Academic Success Tracking (FAST).⁶² Faculty track when a student misses more than two classes. This information is then relayed to the assistant provost for student retention, who reaches out to discuss the change in attendance and its potential impact on academic performance.⁶³ Students also have the option to take seminar courses on how to succeed in college. As of 2011, the school's retention rate had improved to 69 percent.⁶⁴

While InsideTrack and FAST rely on human interaction, Persistence Plus is a software solution that automates academic advising. Students receive personalized messages, via either the smartphone application or text message, that ask about progress and well-being. Questions range from "The beginning of the semester can sometimes feel overwhelming. How are you feeling?" to more specific questions about when a student intends to complete an assignment.⁶⁵ Students then respond to these text messages, and Persistence Plus uses the information to keep students on track or direct them to the appropriate person on campus for help.

These customized solutions appear to be improving rates of student success. The question for institutional leaders is whether some of these solutions can come to substitute for existing student service offerings that may be less cost-effective. Up to now, they have been grafted onto systems and used as complements rather than substitutes.

Barriers to Problem Solving

The recent spate of research and development geared toward the college pipeline is encouraging. In the space of just a few years, advances in communications technology and new ideas about how to reach students and change behavior have opened up significant opportunities to help more qualified students stay on target.

But higher education is also a heavily regulated market with powerful incumbents, many of whom have little incentive to cede their position to consumers. Existing policies and regulations limit the

ability of entrepreneurs to solve even simple problems. Although we have made progress in simplifying processes and providing necessary data, policymakers could do more to create space for creative problem solving. In this concluding section, we discuss some of the main barriers.

Dearth of Data. To make rational cost-benefit calculations about human capital, consumers need clear, comparable information about costs, quality, and likely returns. Unfortunately, colleges (and their lobbyists) bristle at even the most basic levels of transparency. Take the NPCs. (See “Hands Off Our Net Price Calculator” sidebar.) One vendor of online calculators, Rezolve, was bothered by College Abacus’s effort to aggregate NPCs on one website. Pointing to a clause in their terms of use—that users “are not authorized to aggregate data with net price calculator data of other institutions for purposes of generating comparisons, other than for your personal use”—the company blocked the College Abacus information requests, ensuring that students have to visit individual institutions’ websites to generate comparable estimates. Congress created the Net Price Calculator, not Rezolve. Why should a firm be able to block the aggregation of publicly available, federally mandated data?

Efforts to limit data collection do not stop there. Institutions have a vested interest in keeping comparable data on student outcomes out of the public eye. Collecting and analyzing these data could expose some colleges or programs as underperformers, where students are unlikely to graduate or unable to find employment after graduation. When some federal policymakers pushed to collect much finer-grained outcome data at the federal level, Congress caved to institutional interests and outlawed the collection of student-unit record data.⁶⁶

For their part, a number of states have established their own systems. Texas, Florida, Virginia, and others collect data on employment and wages, and are working to disseminate it in a way that can inform students’ decisions. But these efforts are necessarily limited. Unless states partner with each other, the systems cannot track students who move out of state after college. Furthermore, the systems cannot coerce private institutions to join.

The point is, entrepreneurs looking to build informational interventions are hamstrung by the dearth of good data. Collecting better data and making it public in ways that preserve privacy could create an ecosystem of private nonprofit and for-profit providers with tools tailored to the needs of different groups of students.

Data-Rich in a Data-Cautious World. Even the best solutions will go unused if providers cannot get them into students’ hands. Entrepreneurs with data-driven products created for K–12 students must be cognizant that public concerns over data privacy could result in increased scrutiny and political vulnerability for their institutional partners.

As the trajectory of inBloom, a high-profile nonprofit that provided a technological solution for managing education data, exemplifies, even an organization that goes to great lengths to protect student data can still struggle to navigate the privacy conversation. Launched in early 2013 with the support of nine states, the program was designed to serve as a platform that allows school districts to integrate multiple data systems into a single portal. inBloom’s functions could include serving as an early warning system for teachers or a central point from which administrators can facilitate the transfer of transcripts to other schools or, after graduation, to public colleges and universities.

Soon after its launch, parents began to claim that the organization was violating students’ privacy and putting their personal data at risk of exposure. Protests and lawsuits eroded state support and, in April 2014, after months of fighting off such claims despite no actual legal violations, inBloom announced it would close down. inBloom was not able to quell the community concerns about its motives—despite compliance with the law and its own strategies to protect student data—that ultimately led to its demise.

Given the rapid pace of technological innovation, there has been much debate about whether and how the decades-old federal and state laws should be updated to account for new practices in schools. A 2014 White House report on “big data” called for modernizing the Family Educational Rights and Privacy Act, the 1974 law that protects the privacy of student education records, and there has been a surge of legislative activity in the states to place protections on student data.⁶⁷

In this uncertain political climate, schools and districts may hesitate to pursue partnerships with third parties that require use of student information, even if it is perfectly legal. School systems, especially small schools and districts, may struggle to find the technical and legal expertise to ensure terms of contracts adequately protect data.⁶⁸

In other words, promising innovations that rely on data to smooth the college pipeline might find themselves limited by political tensions over data privacy and districts' risk aversion to partner with third-party vendors. Policymakers looking to leverage such tools must be mindful of these limitations, taking care to clarify privacy policies and communicate transparently.

The Vagaries of Partnering with School Districts.

Privacy concerns are not the only obstacle to partnering with schools and districts. The public school system is notoriously bureaucratic, seemingly focused more on day-to-day operations than creating a long-term vision for tackling existing problems. The result is an uphill battle, defined by long budget cycles with little room for creative spending; a litany of stakeholders, all of whom have an opinion but few of whom can make a decision; and existing relationships that trump outside efforts to introduce new solutions.

No matter how great the idea, if a school district's yearly budget is already set, implementation will require a long wait. Larry Berger and Donald Stevenson, two education entrepreneurs with experience working with K–12 districts, quantified the pace of adoption as follows: 8 months to introduce the product in a few schools, 18 months to expand districtwide.⁶⁹ Skirting this issue by offering to pilot the program (typically at a lower cost) comes with its own problems. Entrepreneurs cannot devote adequate resources to it without operating at a loss, and teachers will see it as just another intervention. Sometimes, school districts will discover a budget surplus near the end of the school year, which leads to sudden buy-in.

School districts contain layers and layers of stakeholders. Any one of these people might find the intervention a good idea, but few stakeholders actually have budgetary authority to say yes. Making matters worse, superintendents turn over frequently, often taking

their pet initiatives with them and forcing entrepreneurs to start over with a new set of stakeholders.

School districts are also small communities. Frequently, service providers are retired school leaders who used their connections to gain entry. This creates a market crowded with numerous small service providers that enjoy special access to districts but do not go to scale. As Larry Berger and David Stevenson write, too often, “the would-be entrepreneur scans the educational landscape, sees the crowded field of small companies, notices that few are crossing the chasm to become big, and starts looking at other sectors.”⁷⁰

How can leaders ensure that promising innovations maintain momentum in this kludgy market? State policymakers could play a role in promoting the adoption of new products by creating incentives for campuses to adopt promising interventions that are still in the research-and-development stage. Likewise, state policymakers could encourage districts to partner with each other, pooling resources to purchase new services. These strategies lower the cost of a new provider entering the market and provide opportunities for districts to expand their service offerings without overspending the budget.

Change the Incentives for Institutions. The innovations we have described push students to change their behavior in a way that will often be more efficient than traditional approaches to guidance and student services. One-on-one guidance and advising can keep students on target, but it is also quite expensive. In an era of competing priorities and rising anxiety about tuition costs, interventions that are more cost-effective are at a premium.

But how do policymakers encourage schools and colleges to adopt these new approaches? The problem is really twofold. First, leaders have to provide incentives for schools to adopt them at all. Second, those incentives must push institutions to use those innovations to reduce costs.

On the first issue, bringing attention to student success after high school, as well as state-level accountability policies based on those measures, will continue to put pressure on leaders to find interventions that work. Data on FAFSA completion rates by high school are now available, which can push schools to spend time

and energy on increasing filing rates.⁷¹ Public reporting on college-going rates by school and district (for not just bachelor's degrees, but also all kinds of programs) could do the same.

Adoption is one thing, but sensible adoption is another. One important question for policymakers and institutional leaders is whether some of these solutions can actually *substitute* for some of these existing services that schools offer. To be sure, many schools and colleges have been eager to adopt technology to help them solve problems. But more often than not, these new ideas have been layered onto existing services, increasing success but also raising overall costs. Rather than simply adding one more service to a long list of existing services, schools and campuses could push more aggressively to use successful innovations to replace less cost-effective practices. The money saved could be

reinvested in improving instruction and keeping tuition affordable.

To create these kinds of incentives, state and local policymakers must prioritize cost effectiveness as well as outcomes effectiveness. Doing this requires designing and implementing policies with an eye to how institutions will react. Accountability policies that encourage both improvements in student success *and* the reduction in per-outcome costs will send a signal to institutions that they must improve. Those institutions that successfully meet productivity goals should be rewarded with an incremental increase in state funding that can be invested only in instruction. By changing the criteria on which institutions are judged and funded, policymakers can encourage leaders to solve problems in cost-effective ways.⁷²

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