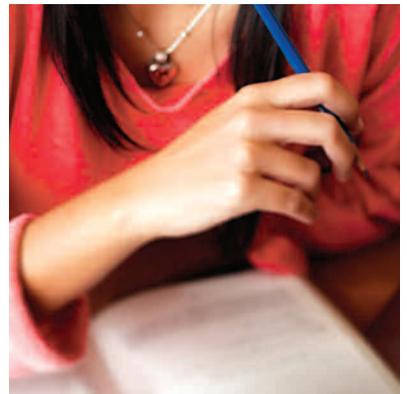
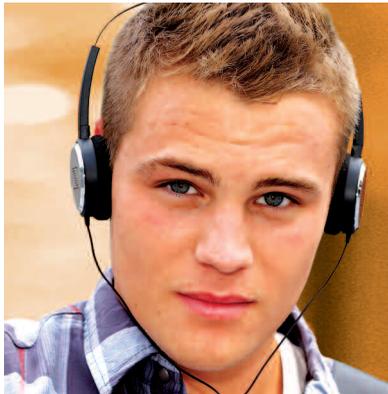
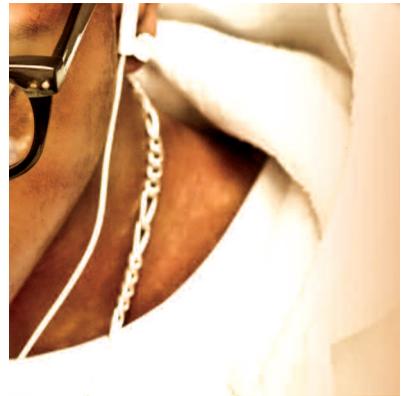


HUDSON INSTITUTE INITIATIVE ON FUTURE INNOVATION

BEYOND RETROFITTING: INNOVATION IN HIGHER EDUCATION

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Beyond Retrofitting: Innovation in Higher Education, June 2013

Technology has the potential to transform higher education as it has other knowledge-based sectors like music, journalism, and financial services, where new providers have unbundled goods and services and improved access and convenience while reducing costs. But technology does not guarantee innovation. Innovation demands that entrepreneurs use technology to re-engineer higher education. This booklet offers path breaking proposals for re-engineering our country's higher education system from two of America's leading scholars in the field of education reform.

HUDSON INSTITUTE INITIATIVE ON FUTURE INNOVATION

is an effort to understand and sustain American technological innovation. Each booklet in the Future Innovation series examines innovation in a specific policy area, offering a detailed look at past developments, present policies, and opportunities for change.

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BEYOND RETROFITTING: INNOVATION IN HIGHER EDUCATION

America has a long history as an innovator in higher education. From creating land-grant colleges in the mid-nineteenth century to democratizing access with the GI Bill and community colleges in the years following World War II, the United States has led the way in redefining what postsecondary education looks like and whom it serves. In many ways, the results are striking: we boast the world's best research universities and are near the top when it comes to adults with a postsecondary degree. These triumphs, which helped to forge the skilled workforce that fueled economic growth in the twentieth century, owe much to new institutions and the policy changes that made them possible.

Yet institutions become ossified, and policies that worked splendidly in one era may work less well in another. This helps explain why so-called “disruptive innovation” is typically driven by new providers—newcomers who barge in with new models and drive the dissolution of once-mighty firms.¹ No matter how reform-minded the leaders who take the helm of existing institutions, remaking established cultures and retrofitting aged organizations with new technologies is a daunting lift. Game-changing innovation is likely to come not from well-intentioned chancellors at prestigious institutions, who are hampered by routine and beset by competing constituencies, but from challengers free to build new models and cost structures from the ground up. Thus, disruptive innovation is more often a baton pass from one generation of innovative ventures to the next than it is a matter of skilled change management.

Many believe that American higher education is on the verge of such a transformation, one far more radical and far-reaching than anything contemplated by the authors of the Morrill Act or the GI Bill. The advent and refinement of digital learning has turned postsecondary content and instruction from what was once a scarce resource,

accessible only on a campus, to an abundant one. When Stanford University professors offered a Massive Open Online Course (MOOC) on artificial intelligence in 2011, 160,000 students from all corners of the globe signed up in response. Journalists have already, if prematurely, declared “the end of college as we know it.”

But enthusiasm for new modes of delivery masks the real obstacles to lasting transformation and improvement. When public entities and public policy enter the mix, resistance to disruption can be fierce. The nature of policymaking and interest group pluralism means that established policies and institutions are hard to change—even ill-suited to meet the demands of a new era. Institutions develop relationships with lawmakers and regulators and establish comfortable routines, codifying one generation’s innovations into the next generation’s status quo. The result is that enthusiastically touted “reforms” often amount, in the grand scheme of things, to minor tweaks to yesterday’s routines.

That, we argue in this paper, is what has happened in higher education in the United States. A kind of cartelization has settled in throughout the superstructure of higher education. It’s evident in the process of accreditation, whereby the credentials of each institution are certified or renewed by a panel of academics that represent entrenched institutional interests. (Not surprisingly, accreditation agencies are often skeptical of new approaches to instruction and credentialing.) State authorization requirements can be similarly protectionist, barring potential competitors from the market under the guise of consumer protection. And federal rules governing financial aid eligibility enshrine antiquated definitions of what constitutes a postsecondary institution and how credit is awarded. For instance, students cannot use financial aid to purchase courses from organizations that don’t award degrees.

We do not cite these barriers as an excuse for inaction. Rather, we cite them to explain why cheerful claims that American higher education is undergoing an irresistible change driven by digital technology are unduly optimistic. Technology has the potential to transform higher education as it has other knowledge-based sectors like music, journalism, and financial services, where new providers have unbundled goods and services and improved access and convenience while reducing costs. But technology does not guarantee innovation. Innovation demands that entrepreneurs use technology to re-engineer higher education.

In markets where new entry is controlled and incumbent institutions are subsidized, there is a temptation to simply graft technology onto existing routines while leaving cost structures intact. Such retrofitting may be better than nothing—and it may look like transformation to optimistic observers, story-seeking journalists, and fretful academics—but it often amounts to little more than repackaging a largely familiar product at a familiar price.

Our point, however, is that there is no reason we should be content to settle for

retrofitting. As we argue below, it does not have to be this way. Ushering in the next round of higher education innovation will require policy reforms—deregulation, essentially—that allow entrepreneurs to unbundle services, enter the market, and compete for students. Specifically, we argue that leaders should develop a reform agenda built on four basic principles:

1. FOCUS ON OUTCOMES RATHER THAN THE ACT OF DELIVERY. Comparing providers based on the quality of the product rather than how they produce it levels the playing field between incumbents and challengers. Regulatory policies should entail a rich set of outcome measures, including student learning, completion rates, graduate success in the labor market, and return on investment.

2. OPENNESS TO NEW PROVIDERS. Transformative innovation typically springs from new market entrants. The story in higher education is the same: historically, it has been new institutions that have driven major change. However, accreditation and state and federal rules tend to reify the traditional model and stifle new approaches.

3. UNBUNDLING. Advances in technology have made it possible to unpack a bundle of goods and services into their component parts and sell them separately, enabling customization and lowering of prices. Similarly, higher education can be unbundled in a number of ways, from decoupling research from teaching to breaking the undergraduate degree into its component parts.² Current policies favor the bundled model, making it difficult for unbundled providers to compete.

4. PORTABILITY. An unbundled market requires that students have the freedom to procure discrete segments of learning from an array of providers and assemble them in useful ways. In sectors like information technology, industry-wide standards ensure that isolated components from distinct providers can work together. Higher education institutions typically work under the opposite set of incentives, raising barriers to students who wish to transfer learning done in one venue to another.³

We translate these principles into concrete reforms, calling on policymakers to inject better information into the market, revise existing rules that keep new ventures out, and develop innovative financial aid programs that better reflect the emerging unbundled market. In particular, we recommend that federal policymakers develop a new path to federal student aid eligibility that is not linked to the existing accreditation sys-

tem. Such a path would allow students to use their aid dollars at organizations that deliver parts of the undergraduate experience—courses or assessments—but not entire degree programs. We also suggest that existing colleges have an opportunity to create branded assessments that will enable them to credential learners regardless of where the learning took place.

Calls for higher education reform have become commonplace. However, even reform-minded groups have tended to focus on nudging existing colleges to innovate, optimistically assuming that these institutions can reinvent themselves by moving some instruction online or adding new, technology-enhanced services on top of the old. In practice, rather than delivering education in cheaper, faster, or smarter ways, online courses are typically priced at the same rate as in-person ones and use the same lecture-based format. The mode of delivery may have changed, but the structure and price remain the same. Meanwhile, those observers who look outside of the existing system often hone in on a particular innovation—MOOCs are the latest example—and assume that it will upend centuries of tradition all on its own, even absent reforms to state and federal policy.

Efforts to reform existing institutions or build large-scale online courses will certainly benefit some students and taxpayers. But transformative improvements in access, affordability, and productivity will require that we push beyond retrofitting and the fads of the moment. Policymakers, entrepreneurs, and institutional leaders must work to cultivate a new, more vibrant higher education market, one where a variety of different providers—new and old, low- and high-cost—can compete for students on a level playing field.

In the pages that follow, we explore the opportunities to create such a market and the obstacles that stand in the way. We begin with a discussion of the changing higher education landscape, then examine the new ideas that could transform postsecondary provision—and the pitfalls of faux innovation that props up the status quo rather than upending it. The paper concludes with recommendations for policymakers and other stakeholders who wish to promote innovation.

THE STATUS QUO: LOTS OF CALLS FOR REFORM, LESS MEANINGFUL INNOVATION

Calls for higher education innovation have been fueled by a steady growth in cost unaccompanied by any evident improvement in quality. After adjusting for inflation, tuition increased 133 percent between 1980 and 2010, outstripping the 40 percent growth in middle class incomes during the same period. Tuition rates shot up 31 percent in the past decade, as institutions raised tuition to compensate for cuts in state funding and damaged endowments.⁴ Meanwhile, completion rates for BA students have hovered below 60 percent; they are far worse at two-year colleges. Internationally, Americans 25–34 years old rank 14th in postsecondary attainment, and the country’s growth in the proportion of adults with a college degree lags behind the average among Organisation for Economic Cooperation and Development (OECD) countries. Add concerns about academic quality (see *Academically Adrift*) and there’s plenty of cause for unease.⁵

The need for innovation in higher education has not always resonated with opinion leaders. Indeed, debates about postsecondary education are often plagued by a serious blind-spot: elites have a tendency to think that all of higher education looks like the top research university or selective liberal arts college they attended. Through this lens, even the most impassioned calls for reform seem overblown at best, and inaccurate at worst.

The skeptics are only partly wrong: America’s top colleges and universities are among the best in the world. But most college students never set foot on such rarified campuses. The latest federal data (for 2011) show that just 15 percent of all students fit the description of traditional undergraduates—full-time students living on campus at a four-year college or university. Fully 43 percent of undergraduates were enrolled in colleges of two-years or less, all of which are open-access institutions. Meanwhile, so-called “nontraditional students”—adults, part-timers, and working learners—now make up about 40 percent of enrollments. Thirty-eight percent of undergrads were over age 25, and the same proportion was enrolled part-time. Among part-time students, 32 percent

were working full-time; 23 percent of full-time students reported working more than 20 hours a week.⁶ These students often come to the higher education system with needs and demands that may not fit with the traditional academic calendar. While there is plenty of room for improvement at elite colleges, it is the institutions that enroll the vast majority of students that are most ripe for innovation.

The Possibilities: The Shift from Scarcity to Abundance

Advances in technology have set the stage for such innovation.

Historically, colleges were designed as a response to one overriding challenge: *scarcity*.⁷ Highly educated professors, books, facilities, labs, and pupils were not widely available, so it made good sense to locate them together on a college campus. Because students could learn only from faculty in the same room and scholars could collaborate only if they were physically proximate, this bundling made good sense: four-year colleges would teach students *and* conduct intensive research, and community colleges would provide occupational training *and* transfer degrees. Elaborate rationalizations grew up around those routines, notably that hiring and rewarding professors based on research accomplishments was a good way to foster great teaching.

In an age of scarcity, bundling allowed colleges to achieve economies of scale. Students seeking a degree, of course, had to pay for the whole bundle—the teaching, the research, the student life office, the sports teams, and the rest. But this also meant that only affluent students who lived near a campus could typically gain access to these opportunities. Thus, it comes as no surprise that in 1910, just 2.9 percent of Americans aged 18–24 were enrolled in one of the nation’s 950 institutions of higher education.⁸ The nation produced a total of 37,000 bachelor’s degrees during the 1909–1910 academic year.

During the twentieth century, state officials addressed geographic scarcity by seeking to build bundled campuses in various corners of their states. Between 1910 and 2000, the total number of institutions more than quadrupled. Between 1950 and 2000, the number of public community colleges alone more than tripled, from 300 to over 1,000. By 2000, American colleges were awarding 1.2 million bachelor’s degrees a year.⁹

The “build and bundle” model of expansion may have made sense in an era of scarcity, but it had high fixed costs and finite physical capacity. Today, matters have changed: vast libraries are available on any laptop, highly educated professionals are

plentiful, and communications technology makes it easy to deliver knowledge across vast distances. As Kaplan's Peter Smith has argued,

The technology revolution, still in its early stages, is standing the historic organizing ethic of higher education—scarcity—on its head . . . [It] is obliterating the old boundaries defined by the campus and its schedule, leaving multiple possibilities to provide organized learning opportunities.¹⁰

Online delivery of content and instruction is at the tip of this spear. The Sloan Consortium's annual survey of online learning reports that 6.1 million students took at least one online course in 2010 (that's 31 percent of all enrolled students). Sixty-five percent of chief academic officers say that online learning is a "critical part" of their institution's long-term strategy.¹¹ Competency-based programs, where students earn credit based on what they can prove they've learned rather than how long they've sat in class, present opportunities for any cost-conscious student with access to digital instructional materials and a proctored exam.

Advances in communications technology and assessment have also made higher education more accessible and easier to unbundle. Students from anywhere can use the Internet to access open courseware, free college-level instruction, and even online learning communities. Since 2001, 125 million people have accessed the course materials offered by MIT's Open Courseware program. Millions more have enrolled in free online courses from Coursera, edX, and elsewhere.

In short, the ingredients of undergraduate education have never been more plentiful or less costly to deliver.

The Reality: Doubling Down on Our Existing System

Unfortunately, much of the current push for reform has not yet capitalized on this profound shift. Instead, today's leaders have more often chosen to double-down on the existing web of colleges and universities.

At the federal level, President Obama has championed higher education by liberalizing student lending, boosting Pell Grant spending, and providing grants to community colleges. But the administration's theory of action is largely premised on the existing system. Its student loan reform law increased funding for Pell Grants but didn't touch rigid eligibility criteria that permit only traditional colleges to receive Pell dollars. Its

regulatory effort to curb for-profit colleges placed additional restrictions on nontraditional providers. Grant programs like the American Graduation Initiative and the “First in the World” competition called for billions of dollars in grants to existing colleges with little regard for whether these place-based institutions would provide the most bang for the federal buck.¹² More recent pronouncements regarding accreditation reform and competency-based education are innovation-friendly, but the new ideas will require congressional action and additional funding.¹³

Foundations have also invested in efforts to remake existing institutions. The Lumina Foundation has created seven “Strategy Labs” where state officials work to bring performance-based funding, new delivery models, and business-based changes to public campuses. The Bill and Melinda Gates Foundation’s postsecondary strategy revolves around traditional community colleges, though recent forays into digital and adaptive learning are moving in an innovative direction.¹⁴

In the fall of 2012, the *Chronicle of Higher Education* launched a glossy effort to “imagine a different higher-education landscape,” entitled “College Reinvented.”¹⁵ Yet the actual proposals added up to a pedestrian set of “innovations” that would only modestly alter the way existing institutions do business. Among the ideas: two presidents for each college, separate tenure tracks for research and teaching, clearer information on college pricing, better use of space on campus, a state tax to support universities, and virtual counseling.

Retrofitting vs. Greenfield: Ignoring Lessons from the Past

Efforts to improve existing institutions make good sense. The vast majority of students will go through traditional institutions for the foreseeable future, and the inefficiencies in those institutions mean that even modest reforms should improve matters. But this approach ignores how innovation typically comes about and overestimates the ability of existing players to reinvent themselves. Established routines, structures, and hierarchies make it inordinately difficult for organizations to rethink their cost structures and business models. This inertial drag is no less true for universities and community colleges than it is for other institutions.

As Jon Marcus pointed out in 2011, most of the innovations in undergraduate teaching “occurred when reformers, frustrated by the slow pace of change at existing universities, opened new ones.”¹⁶ New institutions have been the primary source of innovation in higher education because, as Robert Zemsky argues, while existing institutions “can and

do change . . . their successes tend to pale with time as the inertia of the system draws almost all institutions back to a mean.”¹⁷

Marcus details how in the nineteenth century, frustration with the emphasis on the classics at existing colleges led to the founding of colleges like the University of Virginia (1819) and Rensselaer Polytechnic Institute (1824), both of which taught “practical arts” like science, agriculture, and modern languages. Later that century, the founding of Johns Hopkins (1876) gave the country its first true research university. Hopkins blazed a path for the research institutions that came later: Clark University, the University of Chicago, Stanford University, and others.¹⁸ And in the middle twentieth century, growing demand for postsecondary education from both returning veterans and employers gave rise to hundreds of new two-year colleges. In the 1960s, the United States was building one community college per week. Rather than coaxing old models to do new jobs, reformers have historically found it easier to build new ones.

But entering the higher education market has always been an uphill climb, and it is particularly difficult for new providers that look nothing like existing ones. Higher education functions more like a cartel than a dynamic marketplace. The institutions that sit atop the hierarchy are centuries old and tap generations of accrued wealth, influential alumni, and prestige. They use their market position to reinforce popular notions of what a college education “should” entail. Not surprisingly, less prestigious colleges feel pressed to duplicate the bundled college model that emerged in response to the imperatives of scarcity. Doing so yields access to federal financial aid and ensures that public officials and the news media will treat them as “legitimate.” Providers without a traditional campus and those that operate entirely online invite suspicion, a skeptical if not hostile press, and regulatory headaches.

TECHNOLOGY DOESN'T ALWAYS EQUAL INNOVATION

For those who spend most of their time in sectors marked by price competition and a limited regulatory footprint, the logic of technological innovation is pretty straightforward. Established providers and insurgents compete to wield technologies in ways that will satisfy customer needs and/or reduce costs, and those that develop and deploy the technologies most effectively tend to thrive and gain market share. Those winners tend to use new technologies to revolutionize available goods and services (e.g. Apple, Amazon, Priceline) or to reengineer their core work (e.g. Walmart, Southwest, Toyota).

In less competitive and more heavily regulated markets, such as K-12 schooling or higher education, things can play out somewhat differently. Most established institutions are publicly operated or are non-profits that draw heavily on public funds. Consequently, they are focused less on expanding market-share and satisfying customers and more on satisfying policymakers and their own employees. Because public subsidies reduce pressure to compete on price, the imperative to control costs is much more modest; resistance to cost-cutting is intensified by public employee unions, faculty governance, and webs of rules and regulations.

Thus, in both K-12 and higher education, the preferred course has been to add technology *atop* existing arrangements. Rather than use technology to reengineer core functions and business models, institutions tend to graft modestly pleasing new capabilities onto their established operation, which allows them to make their familiar offerings somewhat more accessible. Hence the explosion in specialized online certificate programs, course and content management systems like Blackboard, and technology-enhanced marketing and enrollment management.

The key distinction is between “*faux innovation*” (using technology to deliver a similar product more widely or layer some features on top of it) and *truly innovative delivery models* that move beyond old assumptions to dramatically improve quality, reduce cost, or both. While enthusiastic higher education reformers suggest that digital learning will inevitably deliver real innovation in quality and cost, technology that is simply grafted onto existing models can just as readily inflate costs and prop up the status quo.

WHAT IS INNOVATIVE? EMERGING DIRECTIONS IN INSTRUCTION, ASSESSMENT, AND CREDENTIALING

Technology and entrepreneurship have given rise to intriguing new approaches to postsecondary schooling that reveal the kinds of innovation that are possible. Perhaps not surprisingly, these path-breaking ideas have taken root mostly outside of the traditional regulatory regime. What makes these efforts unique is not that they deliver education digitally. Rather, it's that they rethink the basic assumptions of institutions built in the age of scarcity.

Measuring Mastery Rather than Time

Historically, regulators and institutions have used “credit hours” to measure student progress. This was a reasonable tactic in the era of scarcity, when technological and physical limitations meant “seat time” was a serviceable (if suboptimal) proxy for learning. But continuing to measure time rather than learning makes little sense today. It provides no independent validation of a student's skills or knowledge, makes it impossible to accelerate learning, and institutionalizes the standard academic calendar (leaving little room for asynchronous, self-paced programs).¹⁹ Entrepreneurs have recognized an opportunity to do things differently.

■ COMPETENCY-BASED MODELS.

Competency-based models reverse the traditional equation—they hold the learning constant and let the time vary. Such programs define a collection of competencies for

a given field of study, create assessments to measure them, and then provide students with course materials, instructional mentors and tutors, and proctored exams that are aligned with the competencies. The idea is not new: the best-known competency-based provider, Western Governors University, was launched in 1997 by the governors of 19 western states. It is gaining traction. WGU now serves 35,000 students online and has been invited to create state-specific satellites in Indiana, Washington, Texas, Missouri, and Tennessee. WGU students pay \$6,000 for a year's worth of access and can take as many assessments in that time as they can manage. The average time to a BA at WGU is about 2.5 years; the average student is 36 years old.²⁰ Wisconsin governor Scott Walker has created a homegrown version in the University of Wisconsin system, nicknamed the "flexible degree."

■ BADGES.

WGU gives out "degrees" that are made up of individual competencies. The budding "badges" movement breaks up the credential further, awarding successful students a signal of competency in a given skill or content area. Mozilla's Open Badge Infrastructure is building a community of badge issuers—including educational institutions, employers, and community organizations—and badge seekers. Individuals display their badges, along with detailed "meta-data" (which identifies the provider that issued the badge and offers a link back to the work that the student completed) via a digital backpack. Badges also radically redefine *who* can provide postsecondary credentials. Organizations as diverse as The Ohio State University, Citizen Schools, and the Minnesota Historical Society recently won grants in the MacArthur Foundation's \$2 million "Badges for Lifelong Learning" competition.²¹

■ ONLINE COMMUNITIES OF MASTERY.

The Internet is also home to a number of self-contained learning networks, where the members evaluate one another on the basis of their answers to challenge questions, problem sets, or programming tasks. GitHub and StackOverflow are two such communities in the programming world. Individuals create profiles, answer programming questions posed by other members of the community, and then receive reputation points and badges based on peer evaluations of their answers. Employers can then use these profiles and reputation scores to identify and recruit workers. As education entrepreneur Michael Staton suggested technology firms now "consider GitHub and StackOverflow to be "the new Computer Science Departments. It's where people go to learn. And increasingly it's where people go to see more about a person."²²

Exploring Ways to Unbundle Provision

Generally speaking, students cannot pick and choose which parts of the college experience they want to pay for. There is little opportunity to turn down services they may not want, and individual courses are difficult to transfer across campuses. In other sectors, unbundling has revolutionized services and driven down costs. In music, one can now buy a single song without having to purchase the whole album; and in air travel, a customer can purchase an economy plane ticket and then choose whether to pay for checked baggage, more legroom, or early boarding.

Clayton Christensen has argued that traditional colleges and universities bundle three business models under one roof: solution shop (research), value-added process (teaching), and facilitated user network (socialization). Because organizations are hard-pressed to succeed at more than one core business, Christensen argues that higher education will be “disrupted” by new providers who focus on one of these jobs.²³ We think he has this right.

But as Staton has argued, the unbundling of higher education can and should go further, as new providers disaggregate the components of undergraduate education, including content and instruction, mentorship and social networking, assessment, and credentialing.²⁴

Unbundling is proceeding on all of these fronts, as new, more focused institutions are born and organizations seek to separate the undergraduate experience into its component parts.

■ FOCUSED INSTITUTIONS.

A few providers have unbundled teaching from research, creating single-minded delivery models that focus on one core purpose and avoid the mission creep that usually plagues universities. The University of Minnesota Rochester offers targeted BA degrees in four health science areas and is housed in the top three floors of an old shopping mall. The school partners with the Mayo Clinic; students intern at the hospital and doctors regularly guest lecture. The institution is nearly self-sufficient, running on student tuition dollars.²⁵ (See also: Harrisburg University of Science and Technology).

■ COURSES OFFERED OUTSIDE OF TRADITIONAL COLLEGES.

College-level coursework is being unbundled with a vengeance. Students have been able

to access inexpensive college-level courses through StraighterLine or Capella University's Sophia for years. But MOOCs have put unbundled coursework on the public's radar screen. Since Stanford's 2011 artificial intelligence (AI) course attracted 160,000 students, 23,000 of whom received a certificate of completion, MOOCs have grown rapidly. The Stanford professor behind the artificial intelligence course left to start Udacity, a for-profit provider of MOOCs, while MIT started edX, a partnership with a handful of other elite universities. In 2012, another team of Stanford computer scientists started Coursera, which has partnered with 33 top universities to provide over 200 MOOCs. More recently, George Mason economists Tyler Cowen and Alex Tabarrok started Marginal Revolution University, an MOOC platform that is wholly independent of their home campus.²⁶

MOOCs certainly look innovative. They take what was once scarce (coursework at elite universities) and make it abundantly available. They unbundle courses, provide them online to large numbers of new customers, and offer them for free or charge a small fee for assessment. There is also a growing sense that students will be able to take MOOC certificates to other institutions or perhaps even directly to employers, thereby competing with traditional colleges. The American Council on Education (ACE) has certified five of Coursera's courses as being worthy of credit, while California has partnered with Udacity to provide \$150 remedial math courses to students in the California State system.

Although MOOCs are certainly an exciting development, there are good reasons—discussed below—to doubt that they will be a silver bullet for higher education reform.

■ CUSTOMIZED LEARNING.

The *course* is an arbitrary unit of learning. Courses can be broken up into smaller units, and technology makes it possible to tailor those units to students' needs. The Kentucky Community and Technical College System has developed a competency-based “Learn on Demand” for remedial education, where students pay for only the modules they need to prepare for college-level work (based on a diagnostic test).²⁷ Carnegie Mellon University's Open Learning Initiative offers adaptive online courses where the instructional sequence responds to individual students' performance on embedded assessments.

■ À LA CARTE SERVICES.

Some new models permit students to choose the services they might need—such as mentoring, academic support, assessment, and career services—without having to purchase the whole bundle. New Charter University is a low-cost provider of coursework and degrees that uses a “freemium” model. Students can start online coursework with NCU

for free, but have to pay to interact with mentors or sit for proctored exams to receive credit.²⁸ At Coursera, students can pay for the “Signature Track,” which includes a proctored exam.

Decoupling Instruction and Assessment

Entrepreneurs are also separating courses and assessment in order to give students a reliable measure of learning. The traditional U.S. model, where a single faculty member is responsible for both, produces an unreliable signal of mastery. The notion that the two should be separate is common in professions such as nursing, medicine, accounting, and law, where students must pass a battery of exams to practice. New providers have recognized that an independent validation of learning will be crucial to building the legitimacy of unbundled course credits. Others have recognized third-party testing as a route to credit for students with workplace or military experience.

■ THIRD PARTY TESTING.

StraighterLine students are able to purchase access to a set of independent assessments—like ETS’s proficiency profile, the Collegiate Learning Assessment, or Excelsior College’s exams—as an independent metric of success. Students who take some of the Saylor Foundation’s 240 free online courses can now take an Excelsior exam for a nominal fee (\$95) to obtain credit.

■ ASSESSMENT AND CREDENTIALING OF PRIOR LEARNING.

Entrepreneurs have also developed ways to assess learning that may have been done outside the classroom. The Council on Adult and Experiential Learning has developed the Prior Learning Assessment, which adult students can use to earn up to 12 credits that can be transferred to partner institutions. For-profit American Public University (APUS) has partnered with Walmart to develop assessments that will award APUS credit to students who have learned from the firm’s professional development modules.²⁹

Degreed, a San Francisco start-up, takes this one step further, offering to “score and validate” learning from both traditional and nontraditional (e.g., iTunes U) outlets. The idea is to create the equivalent of a FICO credit score for education that will be a valid summary of unbundled learning.³⁰

FAUX INNOVATION: MORE TECHNOLOGY, SAME PRICE

While promising, these innovations have taken root on the periphery of higher education, outside of the traditional regulatory framework. Meanwhile, most of what passes for “innovation” in traditional schools is not innovative. Existing institutions offer online courses, implement learning management systems, and create technology-enhanced student services, but these new products do nothing to change existing cost structures or prices. Consider three examples:

Online Learning Often Subsidizes the Status Quo

The growth in online learning at traditional college campuses has been remarkable. Public and non-profit institutions like Arizona State, Central Michigan, Rio Salado Community College, and Southern New Hampshire University have created large-scale online degree programs. As of spring 2012, Arizona State’s ASU Online program was serving 5,000 students and has plans to expand to 30,000. Southern New Hampshire (a non-profit) enrolls 10,600 online students in 120 degree programs—while the school’s traditional campus enrolls 2,250. These efforts are big-money: SNHU’s online programs generated \$74 million in revenue in 2011, up from \$10 million in 2007.³¹ At Arizona State, ASU Online generated \$60 million in 2011, \$6.2 million of which was profit. ASU Online is projected to generate \$200 million in profit by 2020.³²

Many online programs generate large revenues because most colleges charge the same price (or more!) for students enrolled online as for those on campus. A survey of 199 universities by the educational technology arm of the Western Interstate Commission on Higher Education found that 93 percent of universities charged the same or higher tuition for their online programs.³³ This is bizarre, given that online courses are less

costly to deliver than in-person courses.³⁴ But instead of competing on price (meaning that cost savings get passed to the student), institutions have maintained in-person prices for online courses—even as the cost of delivery has fallen.

What do colleges do with that extra revenue? They cross-subsidize activities on the brick and mortar campus: unfunded research, student life, institutional aid programs, and so on. Put more genteelly, they “reinvest” it in their traditional campus. Paul LeBlanc, president of Southern New Hampshire University, recently wrote of the relationship of its 10,000 online students to the 2,000 served on the traditional campus:

There is the occasionally voiced, “Is the tail wagging the dog?” concern, but in truth, any objective analysis would show considerable investments in a traditional campus that in many ways is becoming *more* traditional, not less. Of course, that then raises the question of “Are we making that traditional model even less sustainable and more dependent on online’s cross-subsidy?”³⁵

For our part, the clear answer is “yes.” To its credit, Southern New Hampshire spends its additional revenue on aid for students at the brick-and-mortar campus. But the point remains: most online students pay full price for a less costly product. As Burck Smith of StraighterLine has argued, “Online students are being substantially overcharged to generate profits that subsidize face-to-face learners, faculty and administrators.”³⁶

In short, while online learning has expanded rapidly at traditional institutions, these programs tend to prop up the traditional model rather than challenge it. Online learning can even lead to a perverse form of bundling where online students pay for the services, research, and physical plant to which they do not have access.

Private Sector Innovators Don’t Compete With Colleges, They Sell to Them

With the spread of online higher education, a constellation of third-party providers has emerged to offer products and services that help existing schools put their programs online but are easier to buy than create internally. These providers include education industry giants like Pearson along with newer firms like 2U (formerly 2tor), Academic Partnerships, and EOServe. The partnerships have helped spread online delivery but have done little to alter the rest of the university or the price to consumers. Instead, these private sector firms have built their business models by leveraging existing providers’ brands, access to public funds, and privileged regulatory position.

Take ASU Online. To build its online program, Arizona State partnered with two firms, Pearson e-College and ESM. Instead of signing a standard licensing agreement, whereby Arizona State procures the rights to use the firms' products, ASU entered into a revenue-sharing agreement with them. In Pearson's words, the agreement blends the "capabilities of a for-profit business with the academic ethos, resources, and brand of a major public education institution."³⁷ Put more simply, it permits the university to maintain its traditional operating assumptions and cost structure, and allows commercial partners to piggyback on the institution's reputation.

Academic Partnerships, 2U, EOServe, and others work under similar revenue-sharing arrangements with traditional campuses. Academic Partnerships has created online degree programs for 40 moderately selective public campuses, with whom they share tuition revenues from the online programs.³⁸ 2U, which *Forbes* named one of 10 start-ups "changing the world," has partnered with elite research universities like the University of Southern California, University of North Carolina-Chapel Hill, and Washington University to create online graduate degrees in teaching, nursing, business, and law. These online programs generally charge the same tuition as on-campus programs, with 2U sharing in the tuition revenues. EOServe's proposed agreement with the Southern University system, which would entitle the firm to 70 percent of online revenues, has come under criticism from some in Southern's faculty who question whether the contract was a good deal for the university.³⁹

Beyond these large, one-stop providers are hundreds of other ventures offering digital content, enrollment management, learning management systems, data and analytics software, and social networking platforms for both online and in-person campuses. These firms are responsible for cutting-edge advances in delivery, content management, and peer-to-peer learning. But because entrenched institutions choose which firms to partner with, and prefer to layer technology-enhanced services atop the old rather than substitute them for more costly labor, these products simply get added to the usual bundle.

These entrepreneurs are acting rationally. Because college brands are powerful and there is little market opportunity to sell directly to students, many potential "disruptors" have found it much more lucrative to partner with existing colleges.

Little Price Competition by For-Profits

For-profit colleges have developed innovative approaches to postsecondary delivery. Many advances in online programs at nonprofit and public campuses—things like interactive digital content, measurement of student learning and engagement, and sophisticated

analytics—were born at for-profits like Kaplan, University of Phoenix, DeVry, and Capella.⁴⁰ It is no surprise that entrepreneurial public and non-profit institutions snap up former for-profit employees to bolster their ability to innovate.⁴¹

In theory, for-profits' reliance on online delivery should reduce costs, and competition among providers should drive down prices. Instead, with some exceptions, for-profits have typically priced themselves between private non-profits and public institutions. At the two-year level, for instance, average for-profit tuition in 2011 was about six times that of public community colleges; at the four-year level, for-profit tuition was about twice as expensive as in-state tuition.⁴² These are clearly not “apples to apples” comparisons, as prices at public institutions are kept artificially low by state subsidies. But the point is that for-profits do not seem to compete on price with their lower-priced peers.

What's going on? First, for-profits tend to serve students who are not in the market for traditional higher-ed, such as working adults who need the flexibility of online study. For-profits therefore have little incentive to compete with the traditional system. Second, federal policy mechanically inflates tuition prices at for-profits. The so-called 90/10 rule requires that less than 90 percent of for-profit revenue come from federal student aid; each time loan limits increase (as they did in 2008), for-profits must boost tuition to ensure that students cannot pay the full price using federal aid dollars. Third, for-profits have capitalized on the national mania for providing student loans to all takers, which leaves students with few firm price constraints when examining institutions.

While some for-profits have devised a radically different model of higher education—one that rethinks faculty roles, content and instructional delivery, student services, and linkages to the labor market—these innovations have not had a significant downward effect on the price of higher education.

What About MOOCs?

Enthusiastic higher education reformers argue that MOOCs signal the beginning of the end for traditional higher education.⁴³ They have changed the conversation in higher education, in large part because they reverse the logic of scarcity. Increasingly, the futurists argue, MOOCs will compete with traditional colleges' credentialing power, forcing them to reform, contract, or go out of business. But reformers must remember that existing colleges and the regulatory system that protects them will have a lot to say about who gets disrupted and when. Waiting for MOOCs to transform the existing system all on their own is a dubious strategy for a few reasons.

First, traditional colleges have proven adept at maintaining their credit monopoly—meaning that colleges are still the only place where you can redeem a set of credits for a credential that is recognized (though not necessarily rewarded) in the labor market. Transfer of credit is notoriously byzantine and uncertain, even within state systems where articulation agreements are in place. Simply announcing that a college will evaluate MOOCs for credit the way it does other courses (as Georgia State University did this year) is not the same thing as accepting MOOC credit.⁴⁴ The University of Washington’s plan to “accept” Coursera credits is a case in point: according to the university’s vice provost, students applying for credit “would probably have to pay a fee, do extra assignments and work with an instructor.” In other words, students have to pay for and do the work of a UW course in order to get credit for the free course.⁴⁵ Recall, too, that colleges have survived, and even benefited from, the expansion of peripheral routes to credit like Advanced Placement (AP) and the College Level Examination Program (CLEP). The College Board estimates that 2,900 colleges accept CLEP credits, all of which are presumably still in business. To the extent that they can, existing colleges will try to co-opt MOOCs rather than compete with them.⁴⁶

Second, MOOCs offer a patchwork of courses rather than coherent or integrated programs of study, meaning that MOOC education may be difficult to “sell” to employers as a credible signal of competence. Employers use credentials, not coursework, to measure the skills of prospective employees. If proof of course completion were valuable in itself, we ought not see the enormous spread in earnings between adults with “some college” and those with a degree. Both groups have transcripts listing completed courses, and yet the latter boasts a significant wage premium.

Third, as MOOCs move more definitively toward awarding portable credits, they will stop being free. Reliable assessments of student learning—ensuring students are who they claim and are not cheating—are far more costly than delivering content. For instance, Coursera, Udacity, and edX now offer students the option of taking a proctored exam for a fee of between \$30 and \$100.⁴⁷ For Coursera students to get the ACE credit recommendation, they will have to pay between \$90 and \$190 for exam proctoring. Once MOOCs start charging, the economics become decidedly different: recall that students can use federal aid to pay for courses at the community college down the street but not for Coursera courses. This may change the cost-benefit calculation. MOOCs that charge will look a lot more like extension courses.

Fourth, no MOOC provider has yet demonstrated it has a sustainable business model. If the MOOCs cannot sustain their commitment to free coursework long-term, what would it mean? MOOCs may well create demand for unbundled, low-cost college courses—much like Napster created demand for unbundled music in the early 2000s. But if the ‘free’ version is not economically viable, the crucial question is what a sustainable, unbundled market for coursework would look like.

Are MOOCs truly innovative? That is, do MOOCs use technology to deliver a new product at a lower price that competes with existing products? Or will they be readily co-opted into the existing system? It is too early to tell. They are certainly helping legitimize unbundling and online delivery. But enthusiasm about this particular approach should not distract us from the need for policy reform. As MOOCs begin to charge for assessment and transfer, students with access to financial aid may have incentive to choose subsidized in-person courses instead.

It's the Incentives, Stupid!

Nothing we have written here should be read to suggest that these players—existing institutions, third-party service providers, for-profits, or MOOCs—are “bad actors” (though there are likely some of those in any group). On the contrary, they are innovating in the political economy in which they operate. Existing institutions, battered by fiscal woes, are looking for revenue streams to survive; online programs serve that purpose. For firms like 2U or Pearson, the incentives point toward partnerships with prestigious institutions, not direct competition with them. Most for-profits are merely operating in accordance with the incentives that policymakers have set up—to provide access to students who cannot get into the public or non-profit sectors. And MOOCs reflect the chase for prestige that elite universities have engaged in for generations; creating free online courses is now something elite colleges “do.”

All the technology in the world will not drive innovation if the political economy of the sector discourages it. If regulatory policies impede the emergence of new models of service provision, incumbents will feel little pressure to change. Even dynamic leaders with ideas for unbundling their product will be forced to conform to the prevailing regulatory framework. And if consumers have no way to measure quality among providers of very different stripes, they may feel even greater cause to stick with familiar models.

PROMOTING REAL INNOVATION

To summarize: technology has created opportunities to reverse the logic of scarcity, but we are not there yet. What is needed is a deliberate, innovation-friendly deregulatory agenda that addresses the accumulated detritus of rules, regulations, and policies that entrench the status quo. Reformers need to spend less time celebrating this or that new online program or creating new niche degree programs. Instead, they should strive to erect four tent-poles of a quality-conscious, deregulatory agenda that can spur real innovation. These are:

- ✓ Focus on outcomes rather than dictating delivery;
- ✓ Remove barriers to entry for new providers;
- ✓ Encourage and allow for unbundling;
- ✓ Enhance portability

In other words, policymakers should think less like central planners and more like market cultivators, eliminating the barriers that stand in the way of innovation and finding opportunities to encourage it where they can.

Measure Outcomes, Not Process

How can upstart providers that look nothing like colleges compete with traditional institutions? A critical first step is measuring the outcomes of postsecondary education rather than the process by which it is delivered. Outcome measurement does two things. First, it empowers regulators to base decisions on how well providers serve students instead of whether they look like a college. Second, it allows prospective students to compare providers on objective measures of quality and value.

What do we mean by “outcomes?” We see at least three basic categories: what proportion of students who start a program or course complete it; how much do students learn in a given course or program; and how do completers fare in terms of employment, earnings, and ability to pay off debts. While critics argue that there is more to college than job preparation, we believe you need the third category in order to prevent perverse incentives on the first two; absent an objective measure like labor market success, institutions may have incentive to lower standards and toss out diplomas like candy.

Unfortunately, even basic measures of student success, such as graduation rates that cover more than just first-time, full-time students, are lacking. Popular rankings like *US News and World Report* measure prestige and reputation, not student learning or labor market success; the fastest path to the top of those rankings is to become more selective, raise your prices, or both.⁴⁸ And higher education interests have vociferously resisted efforts to collect new student outcome measures. In 2008, parts of the higher education lobby pushed Congress to prohibit the federal government from collecting individual-level information about college students. The policy limits researchers’ ability to systematically measure program completion and labor market success for all students both within college and afterward. Forward-thinking states have taken up this challenge, but only a handful collect and report data that tracks graduates from particular programs into the labor market in a way that is helpful to consumers.

Policymakers must be mindful of the appropriate role for government on this front. On the one hand, data on the labor market outcomes of graduates is difficult to come by without access to government data from postsecondary systems and wage records. If we believe that these data are a public good, it is currently being underprovided, suggesting a role for government. The federal government has already invested \$500 million in state longitudinal data systems and pays the administrative expenses for the state unemployment insurance programs. But it has not yet leveraged those systems to collect data on the employment, earnings, and loan repayment of graduates from particular programs at particular institutions.

On the other hand, policymakers should avoid any effort to impose academic standards on postsecondary institutions in pursuit of student learning measures. Bringing No Child Left Behind-style accountability to higher education would be a mistake. Further, even though state and federal government agencies may be well-situated to *collect* the necessary data, policymakers should not automatically assume that the government should be the only one to *report* it. Instead, leaders should learn from other policy areas like healthcare, where federal officials have opened up databases to third-party developers so that they can build user-friendly applications (and have done so in a way that protects privacy).⁴⁹ As the Heritage Foundation’s Stuart Butler has argued, because consumers weigh various dimensions of higher education quality in different ways, an array of “college scorecards” would be better than one government-operated version.⁵⁰

Providers of higher education themselves should also take on this measurement challenge. In particular, elite colleges could develop state-of-the-art assessments and market them, thus using their brand as a quality assurance label. This means that any organization that can help a student demonstrate mastery on one of these assessments is a valid provider. If employers recognize such assessments as a valid measure of performance, it will start to erode their willingness to overpay for graduates who've come through elite institutions (and thus start to create downward pressure on their inflated tuition prices). The seeds of this kind of "direct assessment" are already out there, at institutions that grant credit-by-exam and in the proctored assessments now attached to some MOOCs. But assessments from brand name, elite institutions could bring this model into the mainstream.

Absent objective measures of quality and value, accreditation agencies and state boards will continue to rely on measures of inputs and processes: site visits, faculty credentials, the number of volumes in the on-campus library, and so forth. These proxies favor traditional models, deter and delegitimize nontraditional providers, and discourage existing institutions from trying new approaches.

Lower Barriers to Entry and Break Up Regulatory Cartels

Encouraging competition also requires that we rethink higher education regulation. Under the current system, new ventures frequently find themselves on the outside looking in, barred from the market by accreditation agencies, federal rules, and state licensure processes that were developed in a prior era. Meanwhile, many heralded "innovations" are the handiwork of entrepreneurial staff at colleges and universities seeking to carve out small patches of creativity within otherwise stifling systems. Policymakers can try to induce all providers to compete on price and value by removing regulatory barriers that protect incumbent providers from the pinch of competition.

Accreditation is at the top of the list of barriers to entry. Since 1965, regional and national accreditation groups have served as the gatekeepers for access to federal financial aid. By law, students must be enrolled at accredited, degree-granting institutions to be eligible for financial aid.

Accreditation is a form of "self-governance" whereby institutions are subject to periodic review by their peers. Because the accreditation process is run by higher education institutions themselves, *accreditation rewards congruence with the traditional model.*

Institutions are judged by a panel of faculty and administrators from similar institutions through a process that emphasizes inputs and processes in accord with conventional norms. University of Southern California professors Dominic Brewer and William Tierney sum up the dilemma:

Accreditation fosters risk aversion and standardization, but by definition, aspiring new institutions are start-up companies that must be risk-takers and often offer something new and different. Accreditation is a model that wants institutions to conform to norms, while new providers, like those in the for-profit world, work against those norms.⁵¹

Accreditation is particularly problematic for unbundling, as students can only use financial aid dollars at degree-granting institutions. Organizations that only deliver postsecondary courses or assessments, but not degrees, cannot receive federal financial aid.

In addition to accreditation, new federal regulations also serve to stifle new models. Upon taking office, the Obama administration set out to create a new set of regulations designed to crack down on waste, fraud, and abuse in federal financial aid programs. Two of the new rules are particularly problematic for innovative higher education models: one created a federal definition of the credit-hour, while the other required online colleges to obtain authorization from every state where they enrolled students.⁵² The administration's credit hour definition tied eligibility for federal financial aid to measures of seat-time, a standard that is irrelevant to competency-based efforts focused on gauging learning rather than time (theoretically) spent in class. The state authorization requirement imposed compliance costs and bureaucratic headaches on cross-border providers. A survey of 230 institutions with online programs found that 59 percent of the institutions reported that they would likely stop accepting students from some states in order to avoid these compliance costs.⁵³ Both regulations have since been held up by a court challenge, but the administration is still keen to see them implemented.

Accredited colleges and universities are right to be reticent about state authorization: the process is often anything but straightforward. In a classic case of regulatory capture, the interests of state licensure boards are often intertwined with existing public and private campuses. Boards are staffed with graduates of, or representatives from, the state's existing colleges, and regulators have no incentive to open up the market to more competition. As such, licensure boards often act as cartels, keeping new entrants out and consequently protecting the market-shares of incumbent institutions. As USC's Brewer has argued, though state regulations are intended to protect consumers, they tend to "overprotect existing institutions" and "stymie new entrants and breed lethargic institutions."⁵⁴

Policymakers in state legislatures and governments should lower these regulatory barriers, defang state-level cartels, and provide new ventures with an opportunity to compete.

Here, reformers can learn from experiences in trucking, airlines, and telecommunications, where deregulation cracked open closed markets, encouraged new entrants, and fostered competition. This does not imply a *laissez-faire* approach to higher education, but one where regulators would revisit regulations that reify the traditional model and protect incumbents. Smart deregulation, where eligibility would be premised on an organization's track record of serving students, would make it possible for all manner of low-cost postsecondary providers to enter the market.

Three deregulatory steps stand out. First, state and federal policymakers should scour the regulatory code for obstacles to innovation. These rules are not always self-evident, and employees in traditional higher education are relatively inured to them. The way to start is by convening a blue-ribbon commission of entrepreneurial leaders from all sectors of higher education to flag the rules and regulations that have frustrated efforts to proffer alternatives or solutions.

Second, policymakers should use demonstration projects to experiment with new ways of delivering higher education. Such efforts are a test-bed for new ideas. They allow new providers to earn legitimacy. For instance, the federal Distance Education Demonstration Program from the late-1990s created an opportunity for online higher education to prove its merit, leading to the repeal of rules that prevented students in online programs from receiving federal student aid, and that impeded the blossoming of online learning. In the states, something resembling charter school laws in K-12 education might fit the bill, where higher education leaders would sign onto particular performance goals in exchange for more freedom in how they organize and deliver education.⁵⁵

Third, reform calls for a trust-busting approach to the regulatory apparatus. Like trucking and telecom firms, higher education interests have held fast to protections and routines that guard the status quo. Accrediting bodies and licensure boards are staffed by representatives from existing institutions, which allows trade associations and individual colleges to maintain a friendly regulatory environment.

To make inroads, federal policymakers should consider developing a parallel gate-keeping system that could serve as an alternative to the existing accreditation process.⁵⁶ Such an alternative could create a new route to federal student aid eligibility for providers who wish to deliver education differently and are willing to be held to clear standards vis-à-vis the cost and quality of their product. This parallel track could also serve as a kind of Good Housekeeping Seal of Approval that prospective students could trust as a signal of quality, a function that accreditation does not fulfill today.

At the state level, leaders should rethink how they staff licensure boards to counterbalance higher education interests with those of employers and the broader community. They should also examine their licensure process for redundancy and excessive cost. Absent a concerted effort to change the laws and political conditions protecting the higher education cartels, potential challengers will continue to play on an uneven field.

Encourage Unbundling

Existing policy discourages an unbundled market. In order to be accredited, a provider must offer degrees, not just courses, lest their students be ineligible for federal aid. Without access to aid, providers of unbundled services (whether content, assessment, or student services) can typically only sell to existing institutions themselves—which proceed to lump the services back into the bundle and pocket any cost savings. At the state level, funding policies that reward research universities encourage institutions to increase their research capacity and the administrative positions that tend to grow with it.

To encourage an unbundled market, federal policymakers should create opportunities for the increasing number of organizations that provide the components of postsecondary education—MOOCs, course providers, assessment programs—to access federal financial aid programs. The parallel system laid out above would help accomplish this, as long as it specifically allowed non-degree-granting organizations to apply and receive some federal dollars. These new providers would have to undergo a rigorous certification process and would then be held to strict outcomes-based standards and evaluated regularly.

An even more radical idea would be to refashion student aid programs into “human capital savings accounts” similar to the ones that have taken root in healthcare. Students could access their student aid dollars in a savings account and use those dollars to purchase education from any provider who is eligible (either via the traditional path or the alternative described above). They could then spend remaining funds on approved providers of unbundled products like tutoring, student services, mentoring, and so on. Like the “freemium” models described above, students would have the freedom to purchase as little or as much of the bundle as they wished. Framing student aid as a benefit to be budgeted and rationed might also encourage savvier shopping on the part of consumers.

Philanthropists can promote unbundling by supporting organizations that offer high-quality components of postsecondary education at a low price. Funding can imbue new ventures with the legitimacy they need to attract students. But foundations should also be wary of “crowding out” the private sector by funding free tools. Funders are understandably eager to support new tools and to make them freely available. The problem is that it’s not clear how such efforts will be sustainable if the foundations supporting them want to redirect those funds. Meanwhile, the emergence of free tools makes it difficult for sustainable, for-profit ventures to compete. Foundations would do well to seek ways they can give without discouraging self-supporting ventures.

Enhance Portability

In order to convert unbundled courses and competencies into a credential, students must be able to collect learning and have it certified. In an ideal world, students could take their learning to an organization endowed with credentialing power and be given a credential that signifies mastery of a given subject. Clearly, this kind of portability involves a change in mindset about what constitutes a “college.”

Traditional higher education does not allow learning to flow freely across venues. The current system of credit transfer empowers individual campuses to decide which credits they will accept, leaving students at the mercy of registrars and department chairs. Even when institutions sign onto articulation agreements, these agreements do not ensure that credits flow freely from one institution to the other. Credits from new ventures are likely to be viewed with suspicion.

Credit portability is perhaps the most challenging part of the reform equation. Rather than attempting to dictate how existing campuses treat transfer credit—a bridge too far for federal policy—policymakers should look for opportunities to encourage organizations that embrace and facilitate credit portability. For instance, federal policymakers could craft new paths to financial aid eligibility or demonstration grant awards contingent on a rational, open policy on credit transfer. At the state level, policymakers could hold campuses accountable for the number of excess credits students graduate with, and could work to identify a variety of courses—online and otherwise—that fulfill any general education courses required of all graduates from the state system.

EPILOGUE: DON'T FORGET THE DEMAND SIDE

Our discussion has focused on the need to open up the “supply side” of higher education innovation by reforming policies that constrain it. Smart deregulation and outcome measurement can help to create a more vibrant higher education market. But reformers must not neglect the “demand side,” particularly two actors (among others) whose behavior will drive innovation: consumers and employers.

Consumer choices do the work in competitive markets, rewarding the sellers that best fit the buyers’ needs. This process not only requires that consumers have a range of providers to choose from, but also that they have adequate information about price, quality, and bang for the buck. Better information on the likely outcome of enrolling in one education option or the other is key, and this depends on empowering third-party organizations to package the available data in useful ways. State and federal policymakers should look for opportunities to open up data to developers in a way that protects privacy. Informed consumers are one prerequisite to the innovation-fueled competition described here.

Employer acceptance of new credentials is another. This is still a question mark. Early evidence suggests that firms are satisfied with graduates from Western Governors University, and we have noted how Silicon Valley is leveraging online communities of mastery to recruit prospective employees. Rigorous evaluation of new ventures by academic researchers will likely help convince employers of the value of these innovative programs. But there will also be a role for a new kind of firm that helps students package their unbundled learning into a coherent whole. For instance, San Francisco startup Degreed plans to certify learning from many different venues, not just college courses. These credentialing organizations may also come to be trusted sources of talented employees. In short, new ideas and entrepreneurship also have the potential to transform the demand side of higher education.

We believe there is reason for optimism: the components of disruptive change in post-secondary provision are clearly emerging. Technology is one piece of that equation, but it is critical to create space for entrepreneurship and new ventures. Rather than use advances in technology to retrofit our existing system, leaders should lay the groundwork for the next chapter in America's proud history of higher education innovation.

Endnotes

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18. See Marcus, "Old School," note 16 above, for a concise history of these developments.
19. It makes even less sense in light of *Academically Adrift* (note 5 above), where sociologists Richard Arum and Josipa Roksa reported that 45 percent of students at four-year colleges made no discernible gains on the Collegiate Learning Assessment after two years of college. After four years, the researchers found that 36 percent made no gains. These students had lots of credit hours, and little learning to show for it.
20. Robert Mendenhall, "Western Governors University," in *Game Changers: Education and Information Technology*, ed. Diana Oblinger (2012).

21. See all winners at the “Digital Media + Learning” website: <http://dmlcompetition.net>.
22. Software entrepreneur Jon Bishke quoted in Michael Staton, “Disaggregating the Components of a College Degree,” Stretching the Higher Education Dollar Research Conference (American Enterprise Institute, Aug. 2, 2012), <http://www.aei.org/article/education/higher-education/costs/stretching-the-higher-education-dollar-papers/>.
23. Christensen et al., “Disrupting College,” note 2 above.
24. For one take on the components of a degree and an exploration of how they are being unbundled, see Staton, “Disaggregating the Components of a College Degree,” note 22 above.
25. See Kevin Carey, “The Mayo Clinic of Higher Ed,” in *Reinventing Higher Education*, ed. Wildavsky, Kelly, and Carey, note 16 above.
26. Coverage of MOOCs is plentiful. For a good survey of them, see: Amanda Ripley, “College is Dead. Long Live College!” *Time*, Oct. 18, 2012, <http://nation.time.com/2012/10/18/college-is-dead-long-live-college/>. For professor-run MOOCs, see Jeffrey R. Young, “Welcome to Star Scholar U., Where a Personal Brand is the Credential,” *Chronicle of Higher Education*, Nov. 5, 2012, <http://chronicle.com/article/Welcome-to-Star-Scholar-U/135522/>.
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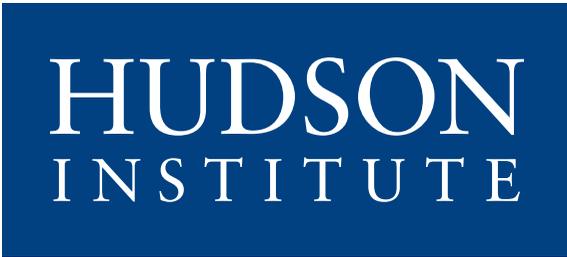
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