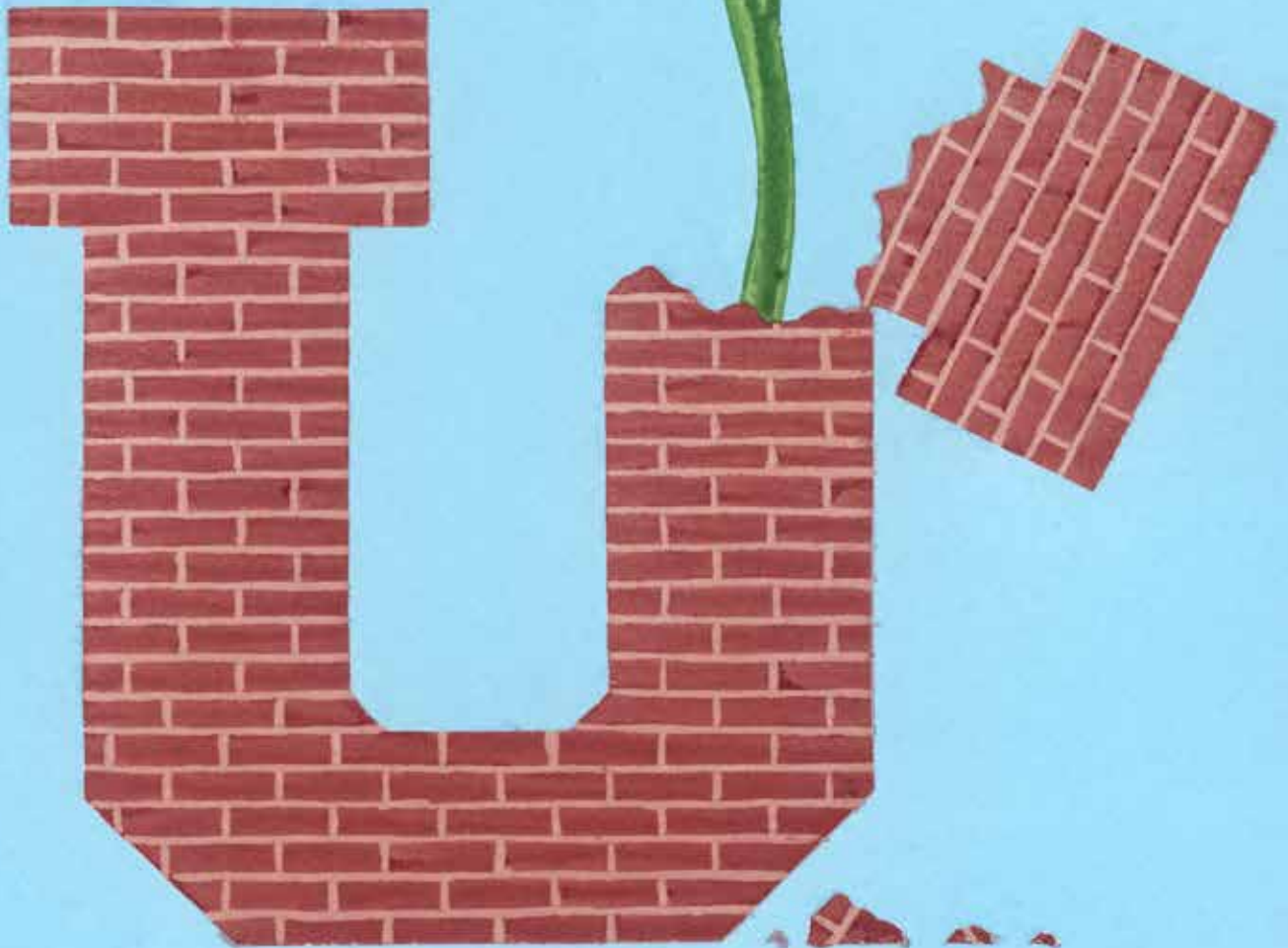


Reimagining higher education

How colleges, universities, businesses,
and governments can prepare for
a new age of lifelong learning



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Introduction

AS Laura arrived at her parents' house, she found them lighting the grill and setting out chairs for the afternoon's festivities. Soon, guests would arrive for a party in honor of Laura's new job, an entry-level position with a large architectural firm.

Once, she might have had a graduation party. But it's 2025, and unlike her parents, Laura hadn't walked across a stage to mark the end of her formal education. Instead, she earned a series of credentials by mastering skills that qualified her for her chosen career.

If Laura's transition from student to employed professional was different from her parents', so were many other aspects of her academic experience. In high school, she didn't pore over college websites, check rankings, tour campuses, and consider various majors before compiling a list of schools and looking into financial aid. Instead, she researched careers that would make good use of her math skills and her strong sense of design. Once she decided on architecture, her guidance counselor led her to digital tools that helped her explore various educational pathways she could take to land the job she wanted.

In two years, Laura developed foundational skills in critical thinking, communications, and ethics, among other areas, and sharpened her quantitative skills, earning her a competency-based degree. She then studied independently through massive open online courses (MOOCs), participated in a 12-week immersive boot camp, completed a university architectural certificate, and worked as an intern for a design firm. She did all this while attending frequent networking meet-ups to explore and pursue full-time job opportunities and spending most of her free time in a design studio where she interacted with peers and mentors.

Her "courses" carried no credit hours; instead, she advanced at her own pace, allowing her to balance her studies with her need to earn a living. When she applied for a job, the recruiter checked her credentials against an online scoring system that allowed him to compare a broad range of educational programs on content and rigor. With this tool, he could see how her credentials stacked up against those of other candidates who had followed different educational pathways.

She didn't incur massive debt; instead, she took each step in her education as she could afford to. And there was no formal commencement ceremony to mark her departure from academia because lifelong learning has become a permanent fixture of professional life. Laura will continue her studies as she advances in her career.

An industry in disruption

Laura's scenario, and others like it, may arrive in response to the current crisis in American higher education. The cost of tuition continues to skyrocket, putting the dream of higher education out of the reach of many and saddling others with decades of debt, even as the connection between the subjects that schools teach and the competencies that employers need grows ever less certain. Colleges and universities face two large, related challenges—how to make an education more affordable and how to increase the returns students realize on their investment. No one wants to watch another generation struggle to pay off tens of thousands of dollars in college loans on barista-level wages.

Just as iTunes®, Netflix, the Kindle, and other innovations have disrupted the music and media industries, new developments are

shaking higher education to its core. In much the same way these technologies and business models changed the way we interact with and consume everything from books and television to movies and other media, so, too, with education.

Science and technology have spawned new models for teaching and learning that will fundamentally alter the student experience in the years ahead. Education innovators are using technology and analytics to transform every facet of the college experience, from helping students make more informed educational investments to reducing the geographic and financial barriers to learning. Take Georgia Institute of Technology's online master's degree in computer science, for example. With a price tag of less than \$7,000, students have the flexibility to set their own pace and engage with personal coaches and project peers as they progress through the program.¹

Moreover, the exponential rate at which new knowledge is created today is drawing a new breed of alternative education providers into higher education. These providers are developing lower-cost, lightweight, on-demand learning solutions to help close the growing gap between the skills employers seek and the skills students possess upon graduation.² HackReactor, one such provider, specializes in providing students with computer science skills in just three months. Another, General Assembly, offers both in-person and online courses in everything from business fundamentals to web development.

The question facing colleges and universities is how to marry the best of a liberal arts

education with advances in technology and new models of learning to effectively adapt higher education for the digital age we live in. In today's hypercompetitive world, accelerating learning is the new dominant driver of success.³

According to John Seely Brown, co-author of *A New Culture of Learning: Cultivating the Imagination for a World of Constant Change*, the business of universities in an era of exponential change must shift from simply transferring knowledge to students to providing them with access to the latest knowledge via digital platforms, developing their skill sets through mentorship, and then immersing them in situations that encourage them to probe and push the boundaries of current knowledge and practice.⁴

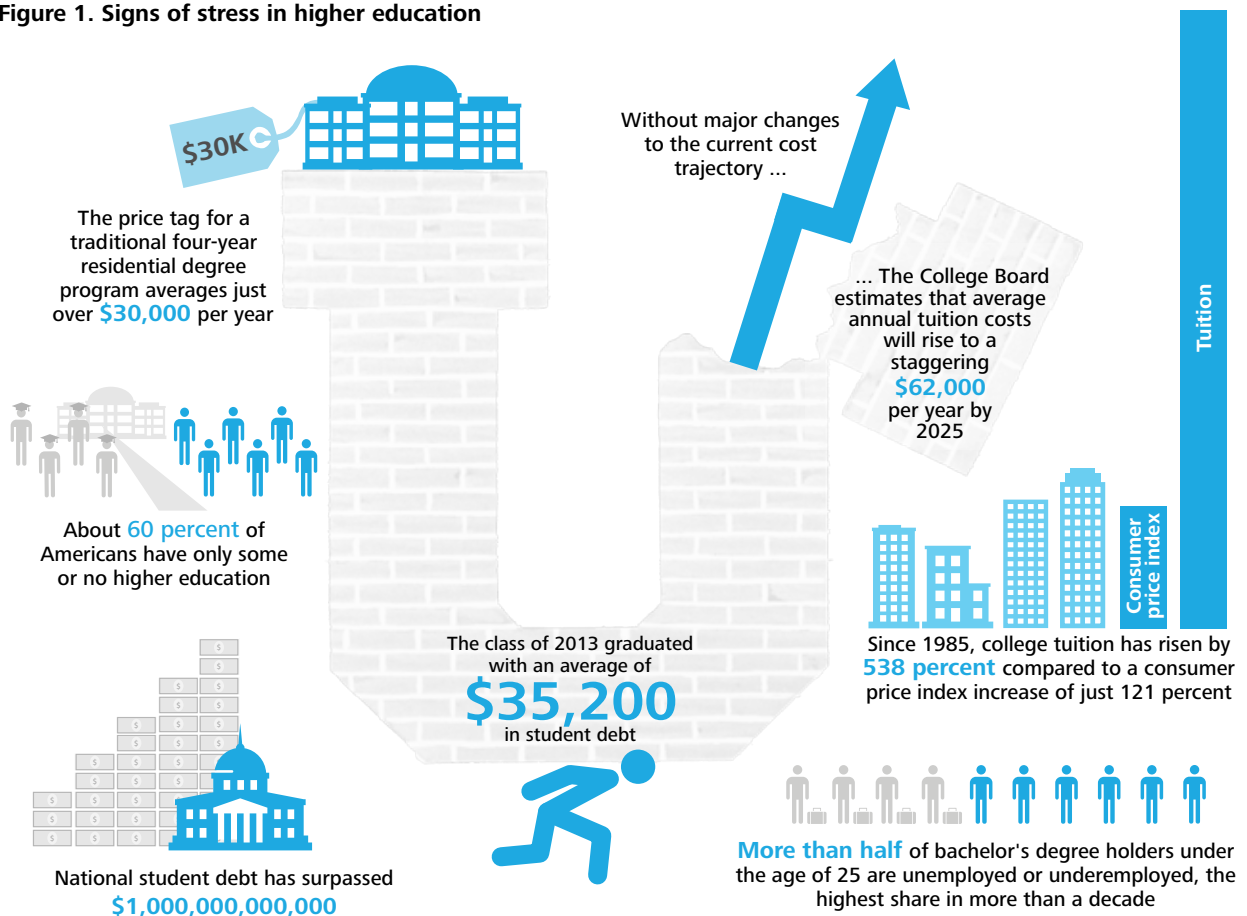
Wide-ranging and thought-provoking conversations with higher education industry experts, educational technology startups, alternative education providers, college, university, and business leaders, and education policymakers led to intriguing insights on what all of these innovations could mean for the future of higher education. Collectively, these insights provide a glimpse into the changing landscape of higher education in America, which is detailed in the first part of this report. The second half of this report examines how colleges, universities, businesses, and governments can adapt to this changing landscape and the broader shift underway to a new era of lifelong learning. Making sense of this fast-changing landscape is essential; we all have a stake in making higher education more accessible, affordable, and relevant.

The emerging higher education landscape

FRACTURE lines can be seen everywhere in America's higher education system, from skyrocketing tuition costs and mounting student debt to a significant mismatch between the skills employers seek and those students possess upon graduation (see figure 1).⁵ These pressures, coupled with the recognition that the status quo is unsustainable, are, in turn, fueling innovation across the higher education ecosystem. While it's still early days, we're beginning to see the emerging outlines of a new landscape for higher education.

The emerging higher education landscape is one that is befitting of the digital era and of today's tech-savvy students. It's one that uses the cloud, social networks, mobile computing, and big data to create digital learning ecosystems that serve entrepreneurial learners, allowing them to design their own educational path based on the goals they want to achieve. It may or may not involve four years of study. Rather, students set their own pace, progressing not through semesters but as they master various competencies. And similar to electronic health

Figure 1. Signs of stress in higher education



records, the credentials they earn follow them throughout their professional lives, reflecting the total sum of their education, from traditional degrees earned to alternative badges and corporate training completed.

In this section, we examine the ways in which the landscape for higher education is beginning to evolve.

Rethinking the college decision-making process

Up to now, college rankings, campus visits, marketing materials, and advice from family, friends, and guidance counselors have served as the main sources of information to guide students' college search. Now, thanks to technology, it's possible for students to employ a more data-driven approach to the college decision-making process.

The role of big data in the college search

As Jeffrey Selingo, author of *College Unbound: The Future of Higher Education and What It Means for Students*, notes, "Until recently, data science was largely absent from the high-stakes decisions made in higher education. Think about it: We have used this technology for years to help us with mundane choices like picking our next movie from Netflix, but not to help a student select the right college."⁶

Today, because of organizations such as LinkedIn, which provides free access to its members' aggregated education and career data, we can map the career pathways of hundreds of millions of professionals—data that students can use to make more informed college decisions.⁷ Students can see the varied paths today's professionals took to succeed in their chosen fields. For example, students can see that engineering graduates from Carnegie Mellon University most commonly work at Google, IBM, and Microsoft.⁸ They are also able to explore the less linear paths students take today, like the musical theater major who

Today the nontraditional student is the new norm. At last count, they accounted for nearly 70 percent of all US undergraduates.

used his skills in developing compelling narratives to land a job as a game designer at Zynga.

Moreover, MOOCs and other shorter-term immersive programs provide a medium through which students can begin exploring possible areas of interest before committing to an educational pathway. With a growing number of low- or no-cost options available, students no longer need to delay career exploration until college.

Others like Admitted.ly, an online counseling service, allow students to do more sophisticated matching based on their natural aptitudes, lifestyle preferences, financial situation, areas of interest, and career aspirations to find the school that best fits their needs.

Grounding investment decisions in financial reality

Students should be able to make informed decisions about educational finances—what they can afford, the debt they could be shouldering, and above all, the returns they can expect from their investment.

But, as Adam Phillabaum, an educational technology innovator, observes, "Too often, students are making education decisions in a financial vacuum."⁹ And it's often hard for students to connect their choices with the financial implications down the road.

This problem has spurred entrepreneurs to develop tools, using open government data and analytics, which can help students better understand everything from the amount of aid they can obtain to their likely financial circumstances after graduation.

“The way we learn should be our most personalized experience because no two people process information the same way.”

– George Siemens, associate director of the Technology Enhanced Knowledge Research Institute

College Abacus, for example, helps students assess financial aid packages across more than 4,000 schools.¹⁰ Using College Abacus’s net price calculator, students create a cost estimate based on their unique academic and financial information, allowing them to select schools within their budgets.

Other companies are applying crowd-sourcing approaches to student aid offers, to help students negotiate stronger aid packages. One such tool, How’s My Offer, allows students to anonymously share and compare their college offer letters, akin to platforms such as GlassDoor that allow employees to gauge whether their compensation packages are competitive.¹¹ Another, FindTomorrow, uses government and private sector data on salary and careers to shed new light on the link between educational choices and career outcomes.¹² This type of information helps students make dollars-and-cents connections between the decisions they face (school, major, loans) and future outcomes (such as monthly student loan payments, earnings over time, and job satisfaction).

Yet another firm, PayScale, uses salary data from alumni and the total cost of attendance to develop its college return on investment (ROI) report which ranks colleges and universities based on their net return to students over a 20-year period.¹³

These innovations are only beginning, but already huge strides have been made in analyzing, visualizing, and disseminating data in ways that allow students to make much smarter decisions about their higher education investments. Social networks, big data,

and analytics are shedding new light on factors such as graduation rates, student debt, and post-graduation salaries, enabling students to analyze the costs and benefits of different educational paths far more effectively.

A new model of “just right” education

Anyone plucked from a century ago and set down in a typical lecture hall today would immediately know they were on a college campus. Students might be taking notes on laptops rather than paper, and the blackboard may have been replaced by a whiteboard or a digital “smartboard,” but they’d have no doubt they were in a classroom.

This lecture-based model for learning has characterized higher education since its inception. But, with better technology and a much deeper understanding of how students learn, educators are beginning to make strides in personalizing learning by combining the best of traditional teaching with digital technology, using analytics to track student success, and focusing on competencies rather than credit hours. According to George Siemens, associate director of the Technology Enhanced Knowledge Research Institute, “The way we learn should be our most personalized experience because no two people process information the same way.”¹⁴

“Made for me” education

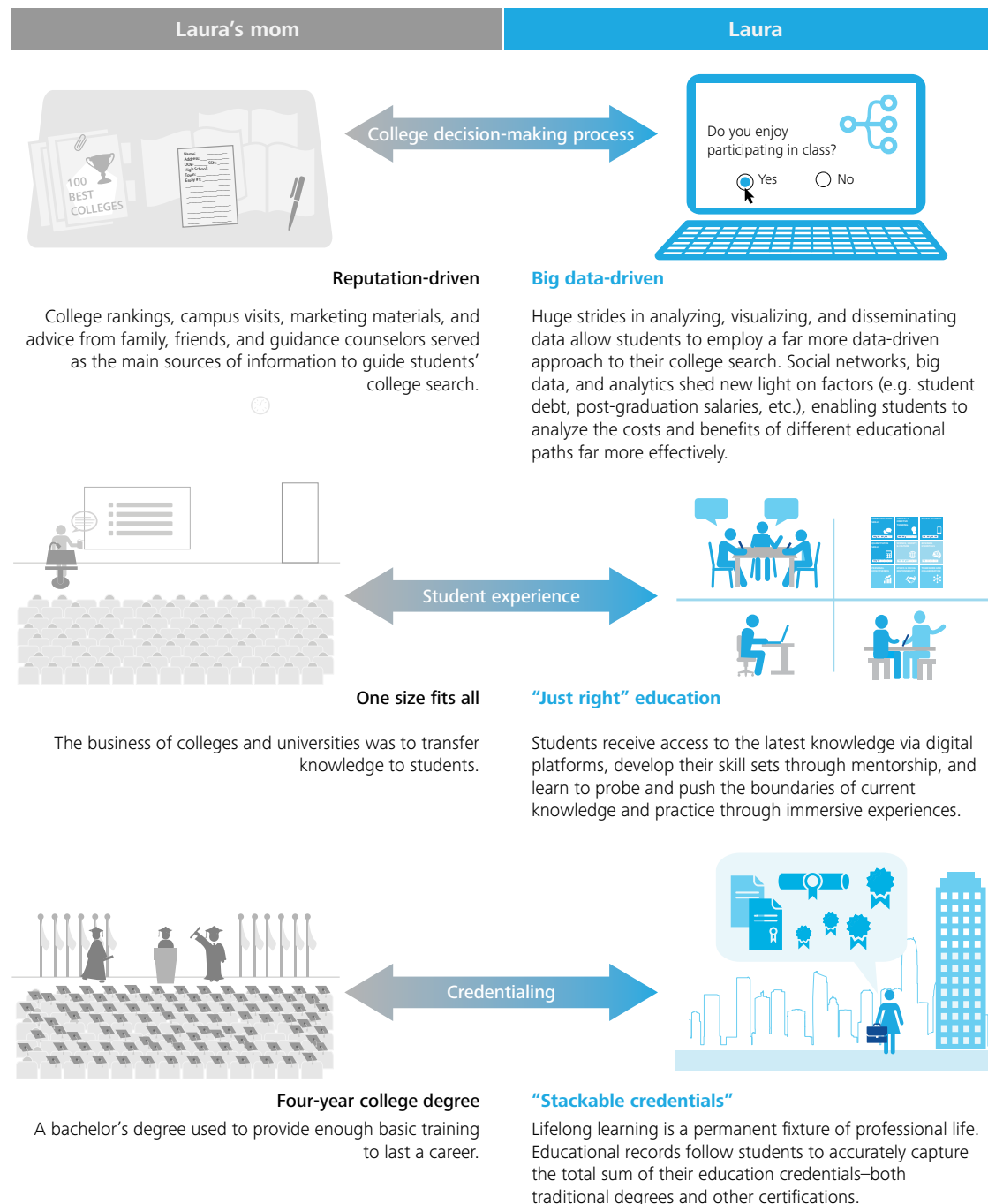
The Center for Digital Education reports that blended education models improve comprehension and test scores for 84 percent

of students.¹⁵ These models blend elements of “brick-and-mortar” in-person instruction with asynchronous, self-paced online learning.

Stanford University, for instance, in partnership with the online learning platform Khan Academy, piloted a blended learning “flipped classroom” biochemistry course. Students watch video lectures online at home

and then spend class time solving problems, maximizing the time students spend with professors.¹⁶ This partnership has extended into the medical school, allowing Stanford medical students to watch core curriculum videos online, and freeing up class time for students to practice that curriculum alongside their peers

Figure 2. Higher education in the 20th century vs. the 21st century



Graphic: Deloitte University Press | DUPress.com

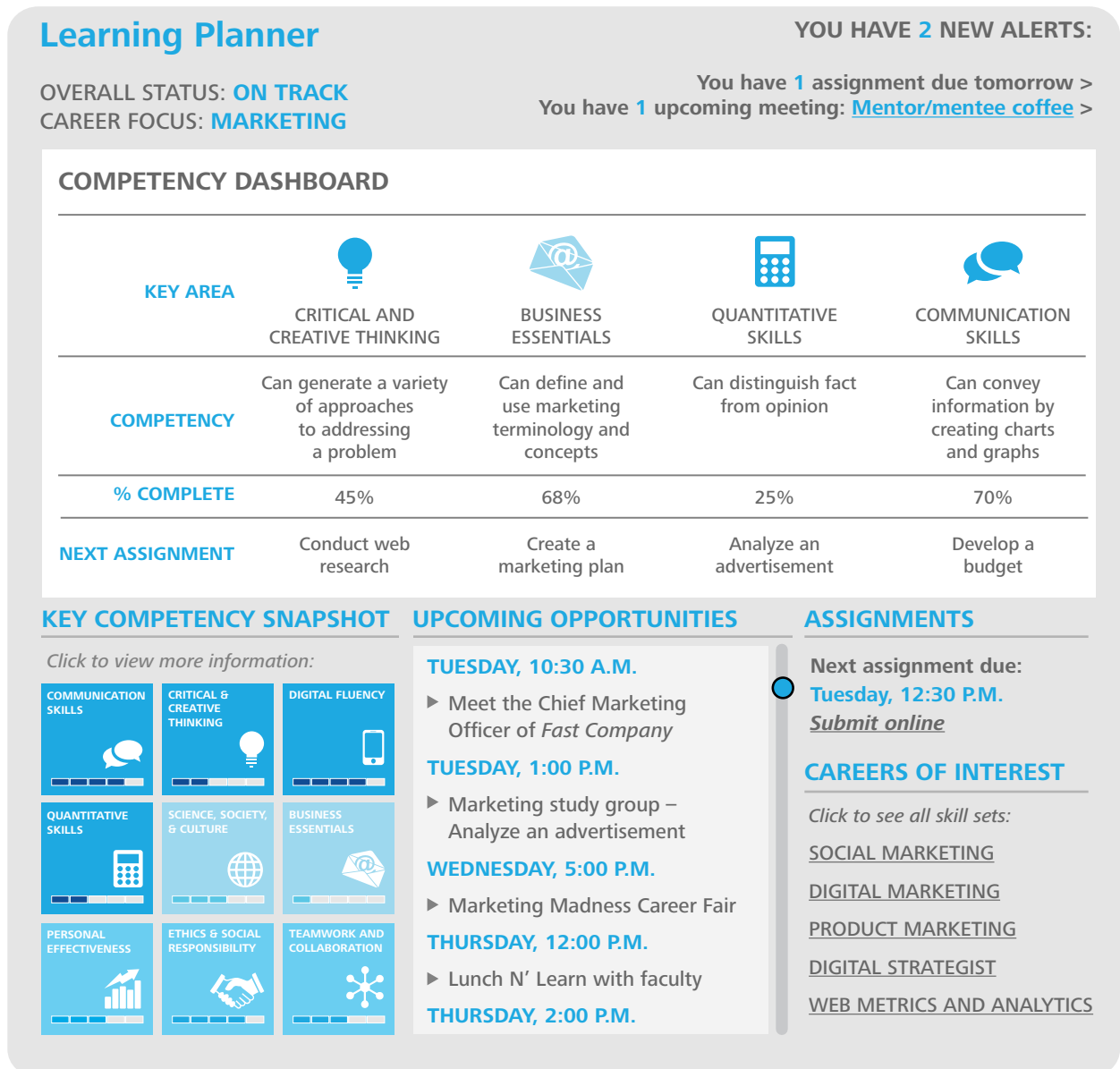
and professors and to explore their passion areas early in their schooling.¹⁷

Predictive analytics—commonly used in the private sector to inform decisions about consumer behavior—offers higher education institutions a more effective way to calculate and track student progress. Software platforms such as Course Signals, for example, can serve as an early warning system for both students and faculty. Students receive notifications about how they are performing in a course as they progress through it. By providing this

performance data to faculty, they are able to identify students who need additional assistance to succeed and can target interventions to ensure at-risk students stay on track.¹⁸ At Purdue University, students enrolled in Course Signals classes have a 21 percent higher graduation rate than those enrolled in courses that don't use the software.¹⁹

The Department of Education has found the traditional lecture hall to be less effective than personalized learning models.²⁰ Yet today, only 12 percent of higher education courses

Figure 3. Illustrative learning planner dashboard



Source: Adapted from College for America's competency-based curriculum.

Graphic: Deloitte University Press | DUPress.com

take advantage of blended learning, and even fewer take advantage of predictive analytics.²¹ Even so, personalized options are gaining momentum and, given their proven benefits, are certain to become increasingly common on college campuses.

Serving the nontraditional majority

In the recent past, the traditional college experience involved a four-year degree, earned while attending classes full-time, and living on campus, complete with student activities. And it's still a reality for some, of course.

Today, however, the nontraditional student is the new norm. At last count, they accounted for nearly 70 percent of all US undergraduates.²² They come from a variety of backgrounds and situations that do not lend themselves to the old model of higher education; they have varying levels of education and experience, likely cannot afford four years to complete a degree, need to work part- or full-time, and often must juggle family and other responsibilities while completing their studies.

For these students, competency-based models are emerging as an attractive alternative to the traditional credit hour model. Rather than using “butts in seats” as the yardstick for measuring success (How many credit

hours did you complete?), competency-based degree programs focus on whether students are actually mastering the material. Selingo points out that the idea behind this is simple, “[D]egrees should be based on how much students know, not how much time they spend in a classroom.”²³

Competency-based degrees reward prior experience and measure learning through demonstrated proficiency—therefore students are able to progress through “courses” at their own pace, shortening or lengthening the time necessary to complete a degree. College for America, University of Wisconsin, and Western Governors University (WGU) are using technology to scale competency-based education to more students.

College for America students, for instance, can earn an associate's degree in as little as 100 days for \$2,500 or a bachelor's degree in just two years for \$10,000.²⁴ Students complete a customized academic plan aligned to skills defined by employers. The University of Wisconsin, the first major public university offering a competency-based program, allows working adults with some college experience to finish their degrees through online courses and competency testing for \$2,250 per three-month term.²⁵

Figure 4. The emerging world of alternative education

The exponential rate at which new knowledge is created today is drawing a new breed of alternative education providers into higher education. These providers are developing lower-cost, lightweight, on-demand learning solutions to help close the growing skills gap. These alternative education providers fall into two broad categories: MOOCs and immersives.

MOOCs

Known for providing open access to online learning, MOOCs come in many different forms.

Some, like [edX](#) and [Coursera](#), seek to provide the online equivalent of a university experience with everything from expert-curated lectures and quizzes to peer-reviewed assessments. [Udemy](#) offers a similar model, but anyone is welcome to curate content, not just university professors.

Others, like [Khan Academy](#) and [Lynda.com](#), provide access to hundreds of short video courses for on-the-go learning. All MOOCs provide an opportunity for anyone to engage in online learning that's available at low- or no-cost.



Immersives

Immersives are characterized by short, intensive learning experiences that allow students to quickly acquire in-demand skills.

[HackReactor](#), [HackBright](#), [DevBootcamp](#), and [General Assembly](#), collectively referred to as coding bootcamps, provide in-person lectures, peer learning, hands-on projects, and networking opportunities in anywhere between three weeks to three months. Many have partnered with businesses who recruit students post “graduation.”

General Assembly is expanding this learning model far beyond coding by providing a range of learning opportunities that students can complete in-person, online, part-time, or full-time on everything from business fundamentals and product design to mobile development and digital marketing.

Graphic: Deloitte University Press | [DUPress.com](#)

To date, one of the most successful examples of competency-based education is WGU, which spent the better part of the last decade refining its competency-based program.²⁶ The 100 percent online, accredited institution surpasses national averages for one-year retention rates (79 percent at WGU, 73 percent nationally), graduate satisfaction (80 percent at WGU, 67 percent nationally), and post-graduation employment (89 percent at WGU, 84 percent nationally).²⁷ At a price tag of under \$6,000 a year, the university has grown to serve over 40,000 students and has been recognized by *Fast Company* as one of the world's most innovative companies.²⁸

The emergence of alternative education providers

Today, alternative education providers primarily serve college degree holders—both recent graduates seeking a bridge to employment and those further along in their careers looking to gain new skills without the commitment of going back to school (see figure 4). But, as alternative education options proliferate and gain status, they could become a first stop for students seeking to further explore their interests and to test different career options before committing to a six-figure college education, serving as a new gap-year option. For others, they may become an increasingly

attractive substitute for a traditional four-year degree.

MOOC provider edX, for instance, has created the xSeries, a MOOC curriculum comprised of multiple courses that, taken together, are equivalent to traditional “brick-and-mortar” courses. The series, which costs approximately \$100 per course, will provide students with a certificate for each individual course and a separate certificate for completing the entire series. According to Chris Terman, a senior lecturer in electrical engineering and computer science at MIT, the courses for the computer science series can give students a solid foundation in fundamentals, which gives them a strong jump start on future studies or prepare them for a summer internship.²⁹

Other online learning platforms such as Lynda.com organize their video libraries into “tangible skill buckets.” Lynda.com’s self-paced video lessons are available via subscription 24/7 on computers, tablets, or mobile devices, and provide a range of skills from graphic design and web development to business analytics and 3D printing.

Furthermore, a wave of new in-person, non-accredited educational options have increased tenfold in the past year to meet the increasing demand for certain skills.³⁰ While the market for these immersive programs is still in its infancy, it is expected to bring in \$59

THE RISE OF THE ENTREPRENEURIAL LEARNER

Returning to the case of Laura. Laura represents a new breed of students who have made the most of the changing landscape for higher education. Before pursuing higher education, she worked out that math and design were her strongest skills, which helped narrow her focus to certain career paths which she further explored before ultimately landing on architecture as her chosen profession. She collapsed the time to acquire core skills by completing a self-paced competency-based degree program before investing in a three-month immersive course to rapidly develop hard skills. At the same time she began to grow a network of peers, mentors, and employers. The university certificate provided an opportunity for her to further develop specific areas of expertise, while continuing to grow her network. All the while, she participated in internships and other hands-on opportunities to further refine her skills and gain professional experience before landing her first job. Laura’s is just one of many possible scenarios in which entrepreneurial students make higher education work for them by pursuing educational paths custom-tailored to their career interests and objectives, schedule, and budget. This by no means spells the end of higher education institutions, but rather takes into account a dynamic and burgeoning higher education marketplace that will, in effect, enable entrepreneurial students like Laura to design their own education.

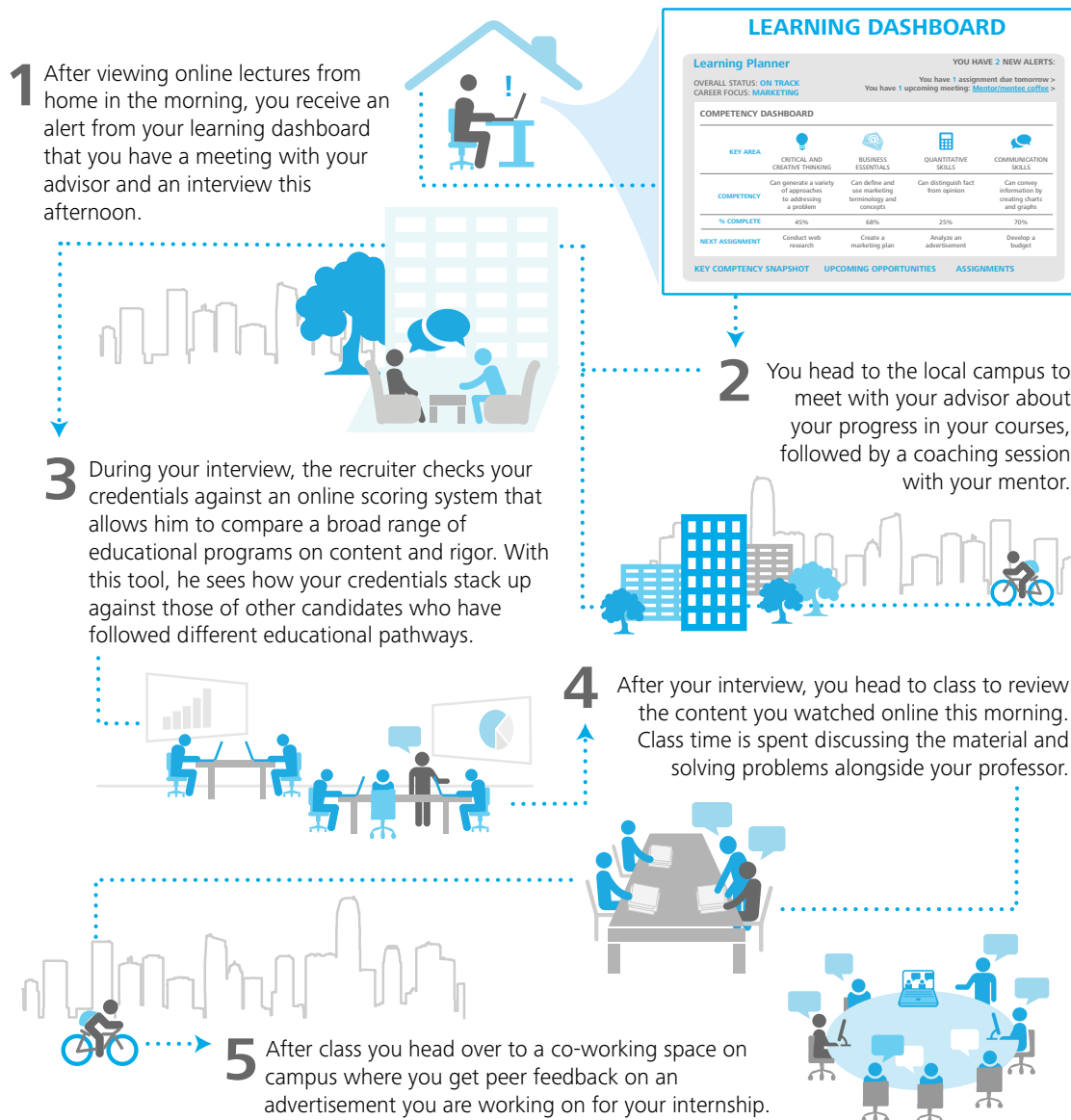
million in tuition fees and “graduate” nearly 6,000 students in the United States this year.³¹

One example, HackReactor, focuses on computer programming, placing a dozen students at a time in an immersive training environment for three months. Located in San Francisco, HackReactor boasts a 99 percent job placement rating, with “graduates” going to companies such as Google and Facebook with average salaries of \$105,000.³² General Assembly, another alternative education provider, teaches immersive programming courses similar to HackReactor’s, but also provides

part-time in-person and autonomous online courses on everything from data analysis to user experience design, making them useful for employees seeking to refresh their skills and advance their careers.³³ General Assembly has campuses in nine cities globally and plans on “graduating” 40,000 students by 2015.³⁴

While MOOCs and immersives are still in their infancy and are undergoing optimization for a new delivery channel and to keep pace with continuously evolving content, they represent early attempts to tackle both the financial and geographic barriers to learning.

Figure 5. A day in the life of the entrepreneurial learner



Lifelong learning with “stackable” credentials

App developers, data scientists, and user-experience designers represent just a few of the now essential professions that didn't exist a short time ago. Given the pace of change, the emergence of entirely new categories of jobs will likely become more common. To keep pace with the ever-quicker cycle of creative destruction, lifelong learning will become a permanent part of our professional lives. This, in turn, is prompting innovators to develop new credentialing infrastructure to support lifelong learning.

The rise of on-demand learning

Given the dynamism of the higher education market, it can be difficult to navigate the evolving landscape and determine which options best meet a potential employer's needs. As alternative models proliferate, businesses will need ways to compare the relative merits of various credentials. How do the skills acquired from a two-year technical program really stack up against those provided by a bachelor's degree from a state university? How do you compare a certificate from an edX computer science MOOC with a 12-week immersive program from General Assembly?

New services such as Balloon, Degreed, and Parchment are all trying to fill this void by making clear connections between skills, courses, and jobs for students and employers.

Acting as an online marketplace of alternative education options, Balloon, from Apollo

Education Group, is an online career skills and learning platform that connects students to nearly 15,000 courses provided by leading technology companies and education providers.³⁵ By helping students identify clear career paths and the knowledge and skills required by employers along different paths, students can enroll in the right courses to better position themselves for job opportunities.

Another firm, Degreed, assigns scores to the full range of educational opportunities available, from MOOCs and immersives to college degrees and corporate training.³⁶ Degreed scores and validates both traditional and alternative education options to provide a credit score-like assessment of everything a student's ever learned. This score, in turn, allows employers to make quick apples-to-apples comparisons of educational achievement across different domains.

Parchment is overhauling the outdated process of requesting and mailing transcripts by creating an online exchange that connects students and employers with transcript information.³⁷

These and other emerging educational technology (ed tech) solutions provide new ways for businesses to easily assess the rigor of a candidate's educational track record, no longer relying on the four-year degree as the sole standard of quality. In the same way that electronic medical records can follow us, regardless of where we receive treatment, our educational records should follow us to accurately capture the total sum of our credentials.

Retrofitting colleges and universities for the digital age

SINCE 1985, the cost of college tuition has risen by 538 percent. The consumer price index, by contrast, increased just 121 percent over the same time period.³⁸ The price tag for a traditional four-year residential degree program now averages just over \$30,000 per year and, barring major changes to the current cost trajectory, could rise to a staggering \$62,000 a year by 2025.³⁹

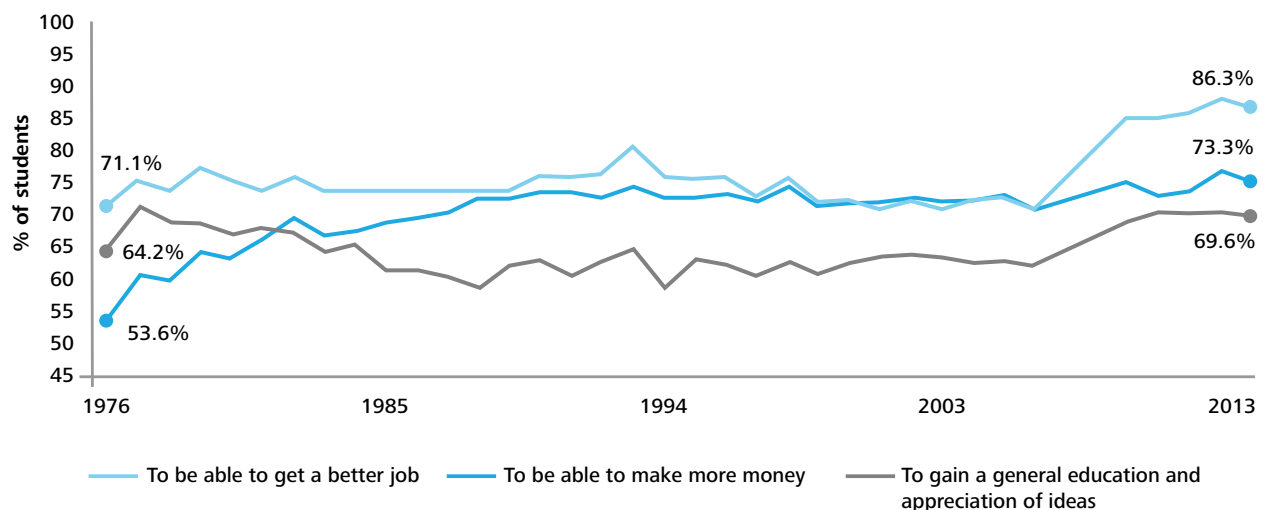
The rising cost of college is, in turn, putting downward pressure on enrollments. Across the country, college enrollments have dropped from 20.2 million in 2012 to 19.9 million in 2013.⁴⁰ Higher costs are not only placing higher education out of the reach of more Americans, they also play a major role in determining where college-bound students ultimately enroll. According to the 2013 American Freshman Survey, 76 percent of students were admitted to their first-choice

college, but only 57 percent actually enrolled in their top-choice school, primarily due to cost.⁴¹

The federal government, too, has increased its focus on college affordability. With the recent introduction of the College Scorecard, a ratings system that evaluates affordability, access, and student outcomes, colleges and universities are subject to greater transparency. These ratings may eventually be linked to federal student aid, providing an incentive for colleges and universities to address the challenges of cost and to improve outcomes.

Moreover, today's students place a premium on job-related reasons to go to college, more so than previous generations. Eighty-six percent of incoming freshmen say that getting a better job is a very important motivator in their decision to go to college.⁴² Seventy-three percent cite making more money as another very important factor.⁴³ While the basic task of

Figure 6. Trends of reasons in deciding to go to college, 1976–2013 (% indicating “very important”)



Source: 2013 CIRP Freshman Survey.

Graphic: Deloitte University Press | DUPress.com

“Already traditional universities are showing the strains of a broken business model, reflecting demand and pricing pressures previously unheard of in higher education.”

– Clayton Christensen, Harvard Business School

higher education is far broader than just career preparation, it's notable that student values have changed over time (see figure 6).

As Harvard Business School professor Clayton Christensen, the father of disruptive innovation, observes, “Already traditional universities are showing the strains of a broken business model, reflecting demand and pricing pressures previously unheard of in higher education.”⁴⁴

America has more than 4,500 colleges and universities.⁴⁵ According to Selingo, a few hundred of these colleges, “[H]ave the status and money to remain resistant to the forces bearing down on higher education right now, but the colleges and universities that the vast majority of Americans attend will need to change if they want to survive and thrive.”⁴⁶

As Lisa Davis, Georgetown University's CIO, puts it, “Higher education is ground zero for disruption.”⁴⁷

This doesn't mean abandoning the liberal arts. But, as more studies show that a significant percentage of students are failing to learn how to think critically and reason analytically, among other higher-level skills students are supposed to acquire through a liberal arts education, improving learning outcomes and connecting these higher-level competencies back to real-world applications will be critical. According to a Collegiate Learning Assessment, 36 percent of students do not demonstrate any significant improvement in learning over four years of college, primarily due to limited academic rigor.⁴⁸

For colleges to succeed in this new era, they will have to find ways to connect their students with the people and institutions on the front lines of new knowledge and to instill in students an ability to learn how to learn, unlearn, and relearn. With many courses now widely available through low- or no-cost online platforms, the unique value proposition universities can offer students in the digital age will consist of entrée into a dynamic ecosystem providing access to the latest knowledge and fostering relationships with other students, faculty, and employers, as well as other players that could include venture capitalists, nonprofits and foundations, and R&D organizations.

There are strong arguments that universities need to become more focused in what they offer, more connected to a broader ecosystem, and more open to experimenting with new models of learning that improve student learning outcomes.

Finding a niche in the provider marketplace

Rather than trying to be all things to all people, some universities are beginning to carve out unique niches in the market for higher education, shedding unnecessary costs and better differentiating themselves from their peers.⁴⁹

By focusing on tackling some of today's most challenging environmental issues, for instance, The Energy and Resources Institute (TERI) University has won the acclaim of both

industry executives and academics. Its curriculum allows students to apply classroom knowledge to real-world settings through partnerships with leading research institutions and other universities.⁵⁰

Georgia Institute of Technology, by contrast, has focused on providing the lowest-cost options in fields undergoing a rapid growth in demand. MOOC provider Udacity, in collaboration with AT&T, is powering Georgia Tech's first accredited online master's program in computer science with a price tag of \$7,000.⁵¹

Finding a niche doesn't necessarily entail deserting the liberal arts or cutting dozens of programs. Instead, it allows universities to clearly articulate their unique value proposition for students. For example, a university could define itself as an international policy school. It could still provide all the essentials of a liberal arts education, with degrees in everything from journalism to business. Its differentiator would be an international policy emphasis in all courses and services, giving it a central role within the broader international affairs community that allows it to connect students with employers and other leading institutions.

In a globally competitive industry—one adding new alternatives on a daily basis—a niche focus allows students to better understand the unique value of their education that sets them apart from their peers and gives them access to the relevant knowledge flows in their chosen field. Once a niche is identified, colleges and universities can work backward

to redesign their business models to align with the particular market they are serving.

Cultivating a broader educational ecosystem

Eighty percent of all Americans believe that the typical college education is not worth its cost.⁵² This belief stems in part from the growing disconnect between the courses offered by higher education institutions and the skills students need to succeed in the labor market. As Dennis Yang, president and chief operating officer of Udemy, points out, “Universities weren't designed to change curricula and introduce new classes at the pace required by changing industry requirements.”⁵³ Moreover, he notes, “[T]he fact that we now live in a world in which half of today's jobs didn't exist 25 years ago” makes it clear that universities, by themselves, simply cannot fully prepare students for jobs that don't yet exist.⁵⁴

To close the skills gap, higher education institutions will need to work more closely with industry to promote job-skill alignment, combining labor market data with industry input to define the skills likely to be needed for tomorrow's jobs.⁵⁵

Take the Pacific Gas & Electric (PG&E) PowerPathways initiative, for example, which is part of the Aspen Institute's Skills for America's Future initiative. PowerPathway is a public-private partnership of PG&E, California community colleges and universities, local workforce investment boards, community

“Universities weren't designed to change curricula and introduce new classes at the pace required by changing industry requirements.”

– Dennis Yang, president and chief operating officer of Udemy

training organizations, military installations, unions, and industry employers that develops industry-informed career pathways, training, and curriculum for jobs in California's energy and utilities industries.⁵⁶

The Clemson University International Center for Automotive Research (CU-ICAR) in Greenville, South Carolina, is another initiative to help bridge the gap between academia and industry. The center is home to the country's only graduate department of automotive engineering, where students and university researchers are connected with work performed by automotive companies. Over 90 percent of CU-ICAR graduates are employed in the automotive industry.⁵⁷

New models for learning

Next Generation Learning Challenges (NGLC), in partnership with philanthropies such as The Bill and Melinda Gates Foundation and education associations such as EDUCAUSE, is promoting more flexible and personalized learning models. The grants it provides reward colleges and universities for testing these models. NGLC has tested a range of models and found that no one is best, but rather that multiple models allow students to self-select the one that best meets their needs. Southern New Hampshire University, for instance, used this grant funding to create the aforementioned College for America, which offers an online competency-based degree at a low cost that can be completed in as little as a year.

Still other ongoing experiments across the country test everything from dynamic tuition pricing to new paths for obtaining credentials.

In California, a new law allows Long Beach University to pilot dynamic pricing per credit, which increases the cost per credit for high-demand courses.⁵⁸ Dynamic pricing helps universities balance supply and demand for different courses, in effect giving them a means of increasing funding for popular degrees and, in turn, access to them.

The University System of Georgia, departing from all-or-nothing credentialing schemes, offers a Bachelor of Arts degree in communications with intermediary markers of achievement that is targeted for students who may not be able to complete a four-year degree. The program allows students to earn a certificate after one year, an associate's degree in two years, and a bachelor's degree upon completion. By staging credentials, students are encouraged to progress, but should they opt to pause their education, they have employer marketability and can easily return to complete their degree down the road.⁵⁹

A newcomer to higher education, Minerva is reinventing the college experience through its global immersion undergraduate degree program. According to its founder Ben Nelson, "[Minerva] want[s] to rethink everything, and bring together the world's best curriculum, the best students, the best professors, at the lowest possible price."⁶⁰ The for-profit startup, accredited through the Keck Graduate Institute, aims to provide students with a world-class global education experience for less than half the cost of an Ivy League education. Students complete introductory courses through MOOCs and more advanced coursework through live, online video seminars, with professors using advanced software that tracks student learning.⁶¹ Since online learning can take place anywhere, students are able to traverse the globe with their cohort of peers and immerse themselves in different cultural and business contexts over the course of their four years in the program.

Also emerging are partnerships that help students graduate with a clear career path. Thirteen universities have partnered with Koru, a startup focused on reinventing the internship experience by connecting universities with leading employers to provide students with immersive learning experiences that emphasize skills development, coaching, and mentorship.⁶²

How to get there

Define a value proposition

A first step for institutions of higher education is to go beyond accreditation criteria and do an honest assessment of the value they provide to students. Given today’s hyper-transparent marketplace, higher education institutions can be assured that if they don’t perform a candid assessment of the outcomes they provide, others will, as the *Atlantic* recently did in a review of the “least valuable” colleges and majors based on PayScale data for schools that returned a net loss to students over a 20-year period.⁶³

Institutions that do not clearly articulate and deliver value to students will likely, in time, be displaced by newcomers who do. For colleges and universities, there’s never been a

better time to redefine themselves and the way in which they do business. Given the changing landscape of higher education, successful colleges and universities will redevelop their business models based on what they can uniquely provide to students, and deliver that value in ways that decrease price premiums.⁶⁴ For institutions of higher education this means making strategic choices about who to serve, what to provide, how to provide it, who to partner with, and how much to charge (see figure 7). The outcome of these strategic choices will lead to greater recognition—from students and donors to employers—of the distinct value the college is able to provide.

Just as TERI University and others are creating successful niches focused on value to students—through career focus, low cost, and personalization—so too must others carve out their own spaces.

Figure 7. Strategic choices for colleges

To successfully adapt to the forces bearing down on the market for higher education, colleges and universities should make the following strategic choices which will inform how their business model needs to change.

Customer segment(s)	<i>Who do we want to serve?</i>	In the automotive world, some automakers are focused on providing a luxury good to a sub-segment of the market willing to pay a premium for an electric car. Others, on the other hand, provide a broad spectrum of options ranging from luxury vehicles to basic entry-level cars without all the bells and whistles, each of which caters to a different customer segment. Colleges and universities, too, may decide to continue to serve the mass market for a liberal arts education, or, as TERI University has done, focus on a particular niche of the market (in their case, sustainability).
Product(s) or service(s)	<i>What products and services do we provide to students?</i>	By clearly defining products and services provided to students, colleges can better articulate their unique value as competition across the higher education industry continues to increase.
Channel(s)	<i>How do we provide products and services to students?</i>	Colleges can tailor their products and services to provide customized learning models, integrating components of just-right education, for the targeted student segment. Education could be delivered in-person, online, or a hybrid of both.
Partnership(s)	<i>Who do we need to partner with to deliver products and services to students?</i>	With defined products and services, colleges can seek partnerships to support student success. These partnerships could be with employers, ed tech companies, or even alternative education providers.
Pricing	<i>How much are students willing to pay?</i>	In light of skyrocketing tuition, both revenue and cost considerations are important in determining the price points of products and services while maintaining healthy growth for the college.

Track student outcomes

Until recently, most yardsticks for measuring success in higher education have been output-focused—the number of credit hours completed, the percentage of students who graduate in four years, and so on. As open government data is combined with private sector career and salary data, the focus is shifting to student outcomes (student debt ratios, job placements, career preparedness, and satisfaction ratings).

While many colleges and universities have perfected the art and science of the admissions process, they have not applied the same analytical rigor to the business of educating students, or to tracking their success after graduation. Yet the benefits of effective student outcome tracking can be significant. By measuring learning on a day-to-day basis, professors can adapt their lessons in real time, to adjust to the pace at which students are actually progressing, rather than waiting for midterms to judge how they're doing. This is especially important for at-risk students who, without support, may flunk courses or drop out before completing their degree.

And monitoring student progress throughout college can help faculty and staff better position students for career success. If a student excels in economics but struggles in the biology courses needed for his or her major, for instance, it could be cause for a career discussion. If, with LinkedIn's higher education tool, university staff see that recent graduates are completing skills-focused certificate programs shortly after leaving college, the school could consider integrating similar courses into its curriculum, to ensure that future graduates are competitive. Such interventions will help to create a sense of shared accountability for outcomes on the part of both students and institutions.

An outcome focus will benefit colleges and universities over the long run. According to a recent Pew survey, the Millennial generation (defined by Pew as Americans aged 18 to 33) has higher levels of student loan debt, poverty, and unemployment, and lower levels of wealth

and personal income, than the two preceding generations had at the same age.⁶⁵ As recent graduate Emily Koss explained, "I am part of the first generation since the Depression to have higher levels of poverty and unemployment than the previous generation at the same age. More than a quarter of us still live with our parents, and only 30 percent think of our current jobs as careers. And yet, we are the best-educated generation in American history."⁶⁶ As a result, many recent graduates look back on their college days with frustration. Despite their newly minted degrees, nearly 40 percent of them are working in jobs that don't require a degree, while shouldering an average of \$35,200 in debt.⁶⁷

By shifting the focus from outputs to outcomes, and applying the analytical rigor of the admissions process to the entire student lifecycle—from the time students step foot on campus through their post-graduation careers—universities can better position students for success after college. One way to do this is by comparing traditional success measures (think number and quantity) with emerging success measures (think degree and quality)—many of which are also tracked by major, not just for the college as a whole (see figure 8).⁶⁸ This doesn't mean doing away with traditional success measures (like student-teacher ratios and attrition rates, for example), but rather supplementing them with additional measures such as the likelihood of students to recommend a course or university to others.

Experiment with new solutions

With a flurry of new educational technologies and models under development, colleges and universities are ideally positioned to experiment with and adopt solutions that facilitate better student-focused outcomes.

Georgetown University's Designing the Future(s) of the University initiative seeks to answer the question: What would a university with liberal arts education values at its center that's appropriate for the world of 2030 and beyond look like?⁶⁹ Through a "co-design" process, students, alumni, faculty members, and

Figure 8. Measures of student success

As greater emphasis is placed on quality metrics from both the Department of Education and the general public, colleges can consider these measures and others that align to their strategic choices.

Traditional success metrics	Additional success measures for the future
<ul style="list-style-type: none"> • Number of students enrolled • Average SAT/ACT scores • Number of advanced degrees granted • Ratio of undergraduates to graduate students 	<ul style="list-style-type: none"> • Number of graduates per year • Institutional cost per degree granted • Student cost per degree earned • Average time to graduation • Average debt load of graduates • Job placement rate • Average starting salary of degrees • Alumni satisfaction

Source: Adapted from *The Innovative University*.

university leaders are encouraged to participate in hackathons to come up with new ideas for retrofitting the university for the digital age. The most recent hackathon focused on reimagining the boundaries between the school's curriculum and the workforce to create more hands-on learning experiences. The hackathon resulted in the creation of the Georgetown Experimental Learning Lab, which creates immersive experiences for students to role play realistic business scenarios (like a client meeting, for example). This idea will be piloted at the university to test its merits.

To foster innovation, the Harvard Innovation Lab (i-lab) serves as a community space for bringing students and faculty together with the wider Boston community to explore new ideas. The i-lab applies a unique pedagogy which combines entrepreneurial coursework with hands-on experience, allowing students to develop critical thinking and problem solving skills that are desired by employers, but often lacking in recent graduates.⁷⁰

Another example of college experimentation can be seen at Southern New Hampshire University's Innovation Lab. The lab is an incubator, staffed by academic and technology experts, that works with students to develop and pilot new models of education that use competency-based approaches and leverage

technology, community support, social networking, and a strong assessment component.⁷¹ The aforementioned College for America is a product of the lab, and is quickly gaining recognition as one of the leading competency-based degree programs in America. College for America graduated its first class of students in December 2013, and the lab continues to learn from and build upon the college's success by testing and iterating on new learning models.

Creating opportunities for exploration, engagement, and experimentation allows a wide swath to have a say in the inevitable changes facing higher education and provides insights from the people most affected. To combat institutional inertia, these colleges and universities are adopting a lean startup mentality, quickly testing solutions on a small scale before making a decision on whether to drop, modify, or scale them for wider use. The lean startup mindset is also applied to test new technology solutions on a small scale before they're deployed more widely. DePaul University did exactly this when it began using CourseSignals, a predictive analytics software package, in a few classes to determine the impact analytics would have on student learning outcomes. Recognizing its success, the university subsequently rolled it out to additional courses the next semester.

Rethinking talent acquisition and development

ABOUT 10 million Americans are unemployed, while 4 million jobs go unfilled.⁷² Many employers report that they simply cannot find skilled workers to fill open jobs. According to a recent survey by ManpowerGrowth, 39 percent of US employers are in this position.⁷³ A third says that their inability to fill vacancies hurts their competitiveness and productivity.⁷⁴

To close the skills gap, businesses must shift their hiring practices to accept both traditional and alternative credentials in order to expand the pool of talent. They must also rethink corporate training in the wake of an accelerating cycle of obsolescence that depreciates the knowledge and skills acquired in school. The ability to rapidly retrain employees will provide an important competitive edge. According to a Deloitte survey of senior executives and talent managers at large companies across a range of industries, over a third of respondents said managing and delivering training programs is one of their organization's most pressing talent concerns.⁷⁵

Recognize alternative education options

Today, a bachelor's degree is usually a prerequisite for employers to even read a resume—and two-thirds of all employers refuse to waive their degree requirements. Many of these same employers, however, also decry the lack of qualified candidates, calling recent graduates “woefully underprepared.”⁷⁶

Given the dynamic evolution of the higher education marketplace, however, today's and tomorrow's students can increasingly be expected to pursue alternative options,

alongside—or in lieu of—traditional education. Recognizing the far shorter duration of many alternatives (often measured in weeks rather than years), and the nature of the in-demand skills they provide, an increasing number of employers are viewing them as a suitable prerequisite for entry-level jobs.

Businesses can reap the benefits of just-in-time learning by recognizing the badges and certificates awarded by alternative education options that provide students rapid acquisition of much needed web programming and design skills. In addition to acquiring specific hard skills, participants also gain essential “soft” skills through mentorship and networking organized by alternative education providers. Nearly 90 percent of Hackbright and DevBootcamp “graduates” are employed within three months at leading technology firms such as Facebook, Eventbrite, and Salesforce, many of them earning six-figure salaries.⁷⁷

Reconfigure talent-screening processes

As the number of educational providers proliferates, and with it the variety of possible certificates, badges, and other credentials, employers will need to revisit their talent acquisition processes. Simply put, digital-age resumes, which may include incredibly diverse portfolios of credentials, professional experience, and work-relevant projects, will call for an overhaul of traditional talent screening processes. One student may have specialized in data science at a prestigious four-year university, while another may present an online certificate in data science and a robust portfolio of work; yet another may have completed a

12-week immersive course in data science and have five years of work experience in statistical analysis. Which is best for the job?

To lower the transaction costs associated with hiring, employers can turn to services provided by organizations that measure the full range of academic, professional, and lifelong learning options available to students from both accredited and non-accredited sources, to allow for apples-to-apples assessments of candidates' educational track records. Tools such as Mozilla's Open Badges platform and Degreeed's credit score system can help employers gain a more holistic understanding of a prospective employee's educational background, which may include everything from a traditional degree to MOOCs.

While the average student pursuing alternative education paths today has already obtained a four-year degree, it is likely that alternatives will become a first stop for many students seeking career options in a shorter timeframe and with less of a financial commitment. As low- or no-cost educational alternatives become a viable option for just-in-time learning, employers will have greater access to a growing talent pool that possesses the skills they seek.

By clearly defining competencies and using normalized educational data to assess them, employers will be better positioned to fulfill their talent needs.

Adopt lifelong learning models

The days when student life ended with a college degree are all but gone. By 2020, the knowledge college students acquire will have an expected shelf life of less than five years.⁷⁸ Given the accelerating rate at which knowledge is being created, some students entering college today may graduate into jobs that did not exist when they enrolled. To keep up with this pace of change, lifelong learning will become a permanent fixture of professional life. As futurist Alvin Toffler observed, "The illiterate of the 21st century will not be those who cannot

read and write, but those who cannot learn, unlearn, and relearn."⁷⁹

The shift to lifelong learning in turn will prompt employers to rethink their training and professional development strategies, in order to allow their employees to upgrade their knowledge and skills continuously. Currently, fewer than 45 percent of businesses have a written plan for learning.⁸⁰ As such, businesses across a range of industries are looking to MOOCs and other experiential education providers to fill this role.

Companies such as Yahoo reimburse employees for the cost of verified course-completion certificates from Coursera.⁸¹ Online retailer 1-800-Flowers has announced plans to create an online education portal on the Udemy platform for its network of independent florists.⁸² Tenaris, a global steel manufacturer, has licensed edX's software platform and course materials for its employee learning program.⁸³ Carmen Scheidel, vice president of Learning and Development at Time Inc., encourages employees to use Lynda.com to gain basic skills in software such as Photoshop and JavaScript.⁸⁴

How to get there

Articulate desired competencies

Scan the job postings today and you'll find that all too many rely on generic qualifications such as "good communication skills" and "works well in a fast-paced environment." As the qualifications employers seek grow more specific and nuanced, competencies will need to be more clearly defined.

By defining the specific competencies they are looking for, employers will expand their talent pool since both alternative and traditional higher education providers will know what skills they need to provide while giving students more clearly defined pathways to the careers they want.

One way to do this could be to take advantage of MOOCs and define a "playlist" of skills-based courses students can complete to

demonstrate mastery of skills.⁸⁵ By making job requirements more transparent, students from a variety of educational backgrounds have the opportunity to prepare for jobs and demonstrate that they possess the skills employers are seeking.

Broaden recruiting strategies

From career fairs and mock interviews to networking events, many organizations rely on campus recruiting as their primary source for entry-level talent. As multiple alternative paths emerge, however, organizations can expand their recruiting strategies beyond college campuses to better reflect the changing marketplace for higher education and, in turn, to ensure a constant supply of the best talent.

By continually monitoring, assessing, and even sponsoring emerging education options, employers can develop customized recruiting plans to create the best pipeline for their particular needs. Instead of a four-year, \$100,000 degree in computer science, for instance, an organization may find that General Assembly's 12-week, \$11,000 course in web development provides all the skills they need for entry-level workers, providing them with opportunities to

attract a much larger pool of qualified candidates more quickly.

Furthermore, recruiting efforts could be targeted further upstream, to reach high school students just as they begin to consider career paths.

Foster partnerships with ed tech

Businesses can capitalize on the growing educational technology movement as a way of lowering the costs associated with talent acquisition and training. Partnerships with educational technology firms can take a variety of forms. Organizations can partner with professional social networking sites such as LinkedIn to better understand where they should recruit, startups like Koru to arrange for apprenticeships to ease the transition from college to the working world, MOOCs for access to training and online learning platforms, and with boot camps to provide just-in-time skills development.

Alternative education providers have already reached out to businesses, but we will see a cultural shift when businesses return the favor. Business-approved alternative education through some new type of accreditation could become the new norm.

Government's role in digital-age education

ACROSS America, the cost of pursuing a college degree has never been higher. As costs increase, more students are borrowing to pay for their education than previous generations. The class of 2013 graduated with an average of \$35,200 in student debt.⁸⁶ At the national level, student debt has surpassed \$1 trillion.⁸⁷ At the same time debt is growing, so too are defaults. The two-year student loan default rate climbed to 10 percent—the highest it's been in nearly two decades.⁸⁸ Today, 7 million student loans are in default.⁸⁹

Moreover, the number of students who don't make it to graduation is also on the rise. More Americans are enrolling in college and then dropping out part way through—when they've likely already incurred some level of debt without the benefit of better job prospects and higher lifetime earning potential that accrues to college degree holders. A study by Harvard's Graduate School of Education shows that just over half (56 percent) of college students actually complete a four-year degree within six years and fewer than a third (29 percent) of students who start two-year degrees finish them within three years.⁹⁰

While the percentage of degree holders in other developed countries continues to rise with each successive generation, the percentage of Americans with college degrees has plateaued (see figure 9). According to The Century Foundation, "After decades of leading the world in higher education, the United States now ranks ninth in the proportion of young adults enrolled in college, and has fallen to 16th in degree attainment—suggesting that while graduation rates are improving, the drop-out rate remains far too high."⁹¹

All said, about 60 percent of Americans have only some (meaning they've dropped out before completing their degree) or no higher education, primarily due to financial barriers and limited flexibility.⁹²

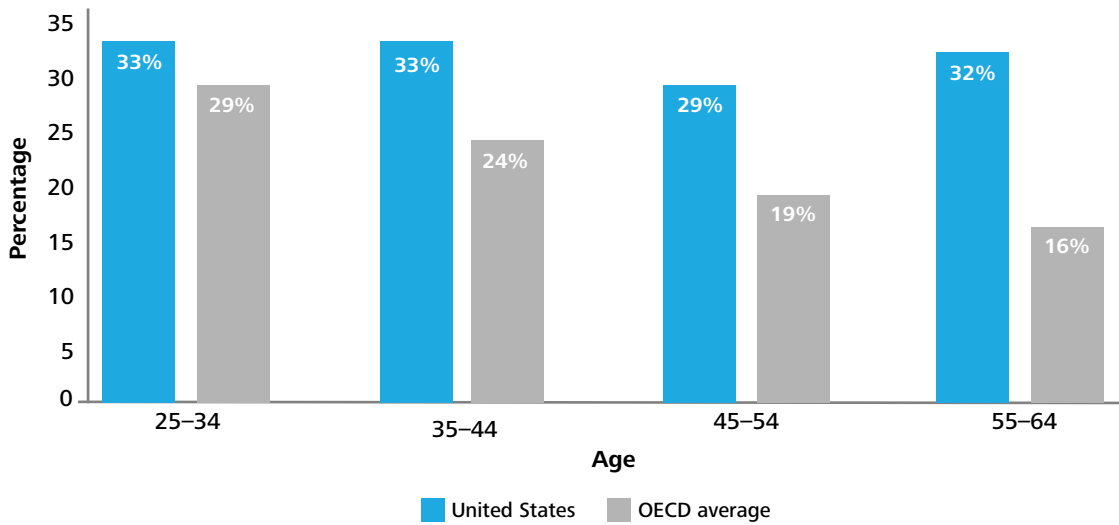
The question facing government officials and policymakers is how to make quality higher education more accessible and affordable for all Americans. This means increasing the return that students realize on their investment without further exacerbating crippling levels of debt that delay younger generations from attaining financial independence.

This will require rethinking how the Department of Education uses the levers it has at its disposal in order to advance its goals of increasing affordability, access, and attainment. The Department of Education has already started down this path with recent initiatives aimed at increasing transparency for students and accountability for colleges and universities receiving Title IV funding through President Obama's plan to make college more affordable. The plan proposes initiatives which include paying for performance, promoting innovation and competition, and ensuring student debt remains affordable.⁹³

“Upon graduation, a college degree today is more likely to guarantee you debt than a well-paying job.”

– William Bennett, author of *Is College Worth It?*

Figure 9. Percentage of degree attainment in Organization for Economic Co-operation and Development (OECD) countries and the US by age group, 2010



Source: National Center for Education Statistics.

Graphic: Deloitte University Press | DUPress.com

But the department can and should go further by building on the success of recent open government data initiatives, evolving transparency of outcomes associated with colleges and universities, and rigorously evaluating promising alternative education options and funding what works.

Evolve open government data initiatives

The January 2014 “Education Datapalooza” marked a concerted federal effort to promote innovation in higher education.⁹⁴ As part of the president’s plan to make college more affordable, the event gathered more than 200 entrepreneurs to develop solutions that could increase the return students realize on their education investments. The initiative, which combined the efforts of the White House, the Department of Education, the Department of the Treasury, the General Services Administration, and hundreds of enlisted entrepreneurs who had earlier participated in a series of higher education-focused data jams, resulted in a range of new private sector tools and services underpinned by open government data.

To build upon the momentum generated by the Education Datapalooza, the Department of Education is exploring the use of application program interfaces (APIs) to make higher education data more widely available to the public.⁹⁵ Up to now, this data has been used to develop new tools and services aimed at improving the college decision-making process. The open government data strategy should evolve to include new tools and services that go beyond college decision-making to support student success throughout the entirety of the college experience and beyond, as well as to include the variety of alternative education options (such as MOOCs and immersives) that exist to support students who opt to pursue a nontraditional route. While the Department of Education can’t force alternative education providers that are ineligible for Title IV funds to make their data publically available, it could be solicited on a voluntary basis. For alternative education providers, making their student outcomes data available could serve as a means of promoting their offerings to a broader audience.

To support this evolution, a variety of stakeholders should be included in the process of identifying and releasing open data.

Tech-savvy students, administrators, faculty members, new alternative education providers, and parents—all have a stake in the Department of Education’s data. With a better understanding of what information is needed, the department can evolve its open government strategy to provide even more value to the higher education community.

A successful example of this is LearnDC, a website that hosts information and resources on all the public and charter K-12 schools in Washington DC. By providing side-by-side comparisons of schools and information on how DC schools compare to national standards, parents can make informed decisions on where to send their children to school. As a collaborative effort led by the Office of the State Superintendent of Education (OSSE), LearnDC is the product of partnerships with several local agencies and organizations dedicated to providing transparent and easily assessable information on education. Furthermore, all the data on LearnDC will be available in an API format for others to analyze, add to, and develop more advanced applications. From OSSE’s perspective, LearnDC has bolstered agency capabilities, driven new conversations with local leaders and community members, and demonstrated the value of public-private collaborations with open source data.⁹⁶

Increase transparency for students

Until recently, most college-bound students focused on getting accepted to a “good” college and maintaining a high GPA throughout their college career, seeing the diploma as their ticket to a good job. But, as the focus shifts from rankings to outcomes and the return students can reasonably expect from ever steeper investments in higher education, government can assume a role in promoting greater transparency for students seeking more insight into the outcomes associated with different educational pathways.

The Department of Education is already moving in this direction with the introduction

of the College Scorecard, which allows students to assess college value in terms of access, affordability, and outcomes, including average tuition costs, loan debt, graduation rates and graduate earnings.⁹⁷ If approved by Congress, the scorecard could eventually serve as a mechanism for moving to a performance-based funding system for higher education by tying federal student aid to college performance to guide students to the institutions that provide the best value.

Such rating systems serve as a useful starting point for beginning to unpack outcomes. But just what constitutes a meaningful outcome from higher education is the subject of much debate. As Selingo points out, “The ultimate question is: What constitutes quality higher education?”⁹⁸

The answer to that question will depend on who you ask and will necessarily reflect different consumer preferences and values. Just think about our car purchasing behavior. Some want a luxury sedan with all the attendant bells and whistles. For others, safety or environmental considerations drive purchasing decisions. Some want the best value, while others just want in at the lowest possible price point. Period. There is no single right answer to the question.

Just as Consumer Reports takes account of different consumer preferences in their rating system, so too must any kind of meaningful outcomes scorecard for higher education. As Andrew P. Kelly, director of the Center on Higher Education Reform at the American Enterprise Institute, points out, “Outcomes can’t just be defined in financial terms.”⁹⁹

“The ultimate question:
What is quality higher
education?”

– Jeffery Selingo, author of *College Unbound*

Moreover, government has yet to grapple with a wealth of alternative paths that, in terms of access, affordability, and outcomes, may prove superior to a traditional degree for some students. Currently, the federal focus lies primarily on traditional higher education degree programs, with federal aid available for just a few competency-based degree programs.

But, if higher education is to evolve to meet the needs of the growing nontraditional majority that will consume higher education in some form or another throughout their professional lives, then all options should be on the table and scrutinized in terms of the outcomes they generate for students. This scrutiny could be done by a Consumer Reports-like third party with the capacity for rigorous, independent evaluation.

By taking a more holistic perspective of the growing spectrum of education opportunities available, the Department of Education can begin to develop appropriate outcome measures that provide greater transparency for different customer segments.

Create room for experimentation

At the beginning of 2014, California's Bureau for Private Postsecondary Education stated that intensive boot camp programs, such as DevBootcamp, HackReactor, and Coding Dojo, were not properly licensed to offer educational services. The boot camps received cease-and-desist letters stating, "They run afoul of the state's education laws."¹⁰⁰

Most of the immersive programs agree that a certain level of regulation is beneficial to mitigate fraud and protect students, and are attempting to comply. But regulation treating these 8- to 12-week immersives as traditional degree programs may hinder their ability to adapt quickly to market demand. As Anthony Phillips, cofounder of HackReactor points out, "...what that [regulation] looks like and what makes sense for our schools is not necessarily going to fit the current regulations."¹⁰¹ Given

the rising demand for computer and programming skills, both the popularity of these programs and their friction with traditional regulation are likely to continue.

As Andrew McAfee, co-director of MIT Sloan School of Management's initiative on the digital economy, observes, "You should care about business innovation and disruption because they're a primary way that progress happens and that people become better off over time."¹⁰²

Given the clear economic need for innovation in the area of just-in-time learning to help close the skills gap and an accreditation system that has been slow to evolve, state and federal education authorities should identify ways to work with new providers to carve out space for experimentation with new models, while at the same time protecting consumers from potentially fraudulent actors.

How to get there

Convene the higher education community

Insights often come from the mash-up of open government data with private sector and other data, as with LinkedIn for Higher Education, College Abacus, FindTomorrow, and others featured at the Education Datapalooza.

The Department of Education could use its role as a convening body to prompt further exploration and development of new solutions undergirded by the mash-up of different data sources to better understand, for example, the increasingly specific skills needed for various jobs and promote new models or experimental sites geared at providing these skills. The mash-up of data sources could also help inform the development of new outcome-focused metrics. Convenings like the recent Datapalooza provide an opportunity for the department to enhance its collaboration with different stakeholder groups (including higher education institutions, businesses, alternative education

“You should care about business innovation and disruption because they’re a primary way that progress happens and that people become better off over time.”

– Andrew McAfee, codirector of MIT Sloan School of Managements’ initiative on the digital economy

providers, and, of course, students) through co-design efforts and regular communication.

Promote rigorous evaluation of new models

If we are to reap the full benefits of the revolution in higher education, policies concerning financial aid and accreditation will need to be reexamined. In the meantime, the Department of Education can focus on helping institutions adapt to the changing landscape by rigorously evaluating the relative effectiveness of new education models. According to Philip Regier, executive vice provost of Arizona State University Online, there is a need for more research on the many solutions attempting to improve retention, graduation rates, and student engagement.¹⁰³

Beyond building on the foundation of research that’s already been done by the department, foundations, and others on new education models (including online, bended, and competency-based learning), the department can expand its use of innovation funds and challenge prizes to promote new solutions with demonstrated outcomes.

Incentivize experimentation

The president’s plan for college affordability proposes significant incentives for experimentation, including a Race to the Top for Higher Education, seed innovation funding, and even experimental sites. The goal of these initiatives is to provide students with higher-value, lower-cost education through the increased use

of technology, data analysis, and assessment of competencies.

The Race to the Top for Higher Education, a proposed initiative aimed at promoting the adoption of higher education reforms through a competitive grant program for colleges and universities, requested \$1 billion to spur reforms focused on lowering costs and increasing adoption of competency-based learning.¹⁰⁴ To enhance this effort, the Department of Education could work with Next Generation Learning Challenges (NGLC) to assess its breakthrough model designs for higher education. With NGLC having already piloted more than a dozen different associate and bachelor degree models, the department can assess which are most effective in lowering costs and increasing student success, and encourage more schools to adopt them. Doing so would help prevent higher education institutions from making investments in models that have already proven unsuccessful in earlier pilots.

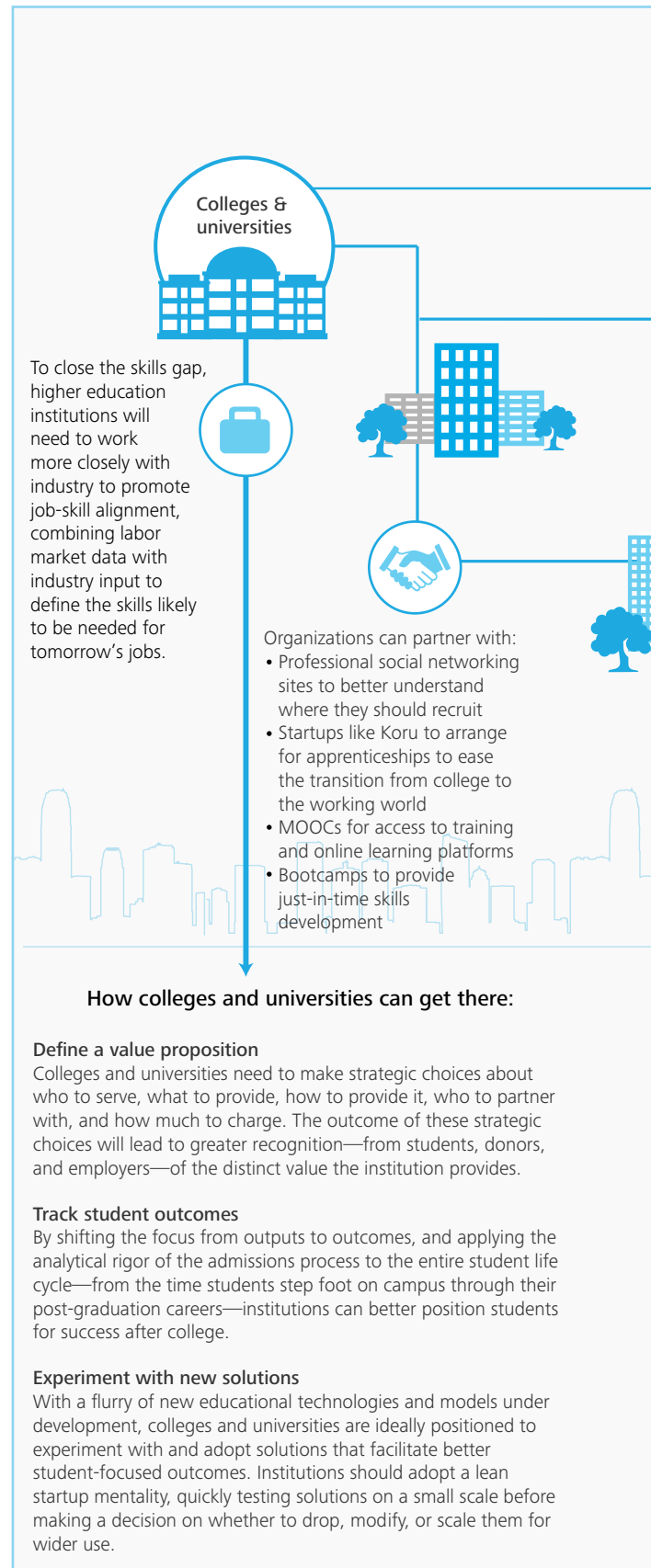
The president’s plan also proposes spending \$260 million from the Department of Education and \$500 million from the Department of Labor to identify and demonstrate effective new learning models.¹⁰⁵ Both agencies can work closely with private and nonprofit concerns such as NGLC that are already leading similar efforts. The funding could also be used to identify alternative education options that succeed in preparing students for the marketplace. The agencies could, for example, encourage higher education institutions to partner with alternative

education providers such as General Assembly to develop customized courses on programming, data science, and product management. Some courses lend themselves well to more nimble, alternative education providers because they require regular adaptation to keep pace with new knowledge creation and technological progress.

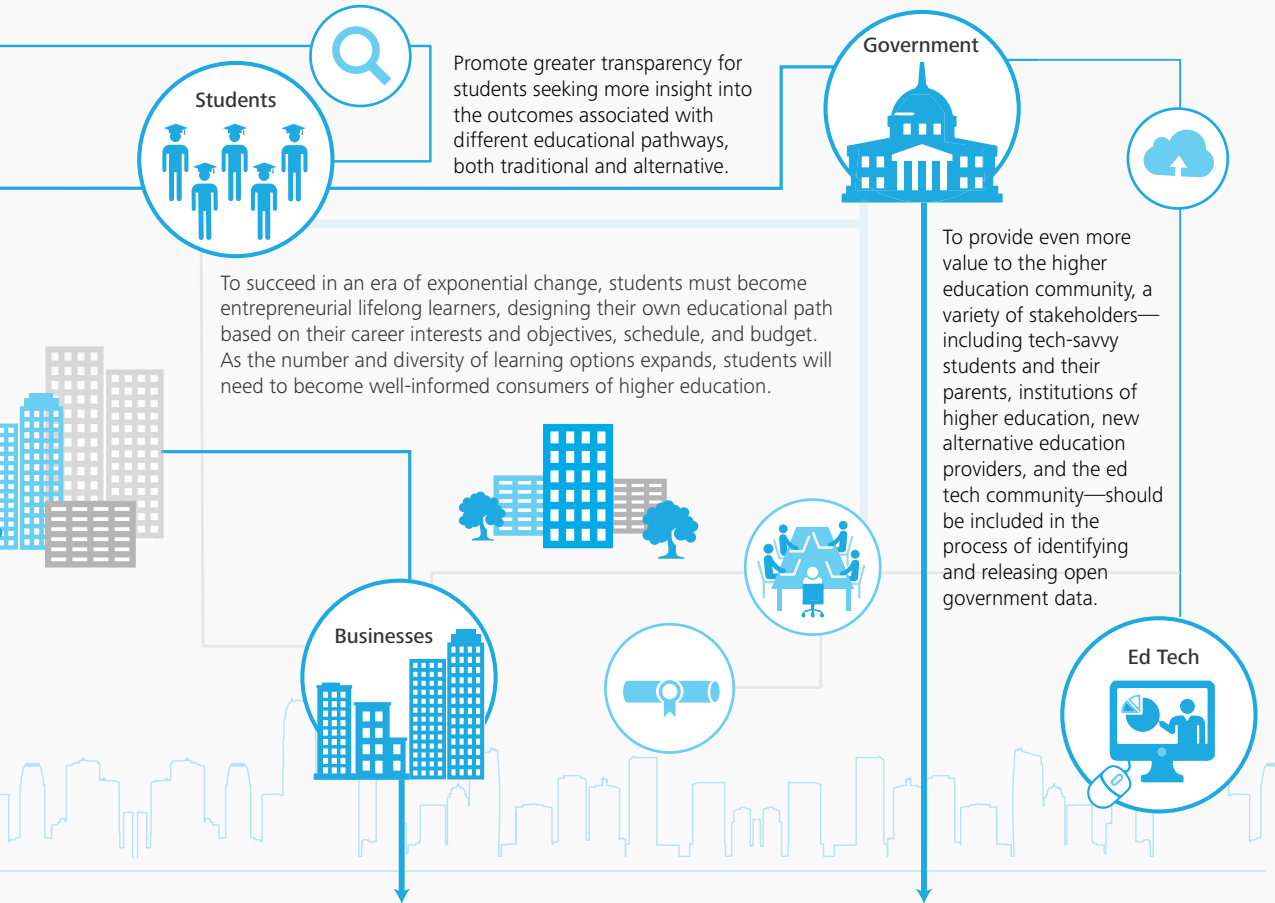
Finally, the call for experimentation sites which waive certain requirements on the provision of financial aid could be expanded. The current efforts are aimed at providing Pell grants to high school students taking college-level coursework and providing financial aid for competency-based courses and for students seeking credit for prior learning. But these experimentation sites could more fully embrace the wealth of alternative higher education options available. Many new education providers charge fees for workshops, immersive courses, and certificates, and allowing federal financial aid, perhaps in the form of micro-loans, for alternatives with a demonstrated track record of success would help them extend their reach.

By recognizing the ongoing evolution of the entire college experience, understanding the potential of new solutions and alternative options, and providing students with greater transparency in terms of outcomes, the Department of Education will be well-positioned to make effective policy changes as needed.

Figure 10. The reimagined higher education landscape



As an integral part of the fabric of American society, everyone has a stake in the future of higher education. Colleges and universities must welcome new methods of instruction. Businesses must welcome new certifications of competencies. Governments must see to it that taxpayer dollars are tied to meaningful education outcomes. But ultimately it will be up to individual students as consumers to determine what a high quality education is for their unique circumstances.



How businesses can get there:

How government can get there:

Articulate desired competencies

As the qualifications employers seek grow more specific and nuanced, employers have an opportunity to clearly define the competencies they are looking for. In doing so, employers will expand their talent pool since both alternative and traditional higher education providers will know what skills they need to provide while giving students more clearly defined pathways to the careers they want.

Broaden recruiting strategies

As multiple alternative education paths emerge, organizations can expand their recruiting strategies beyond college campuses to better reflect the changing marketplace for higher education and, in turn, to ensure a constant supply of the best talent.

Foster partnerships with ed tech

Businesses can capitalize on the growing ed tech movement as a way of lowering the costs associated with talent acquisition and training.

Convene the higher education community

The Department of Education could use its role as a convening body to enhance its collaboration with different stakeholder groups and prompt further exploration and development of new solutions undergirded by the mash-up of different data sources.

Promote rigorous evaluation of new models

Beyond building on the foundation of research that's already been done by the Department of Education, foundations, and others on new education models (including online, blended, and competency-based learning), the department can expand its use of innovation funds and challenge prizes to promote new solutions with demonstrated outcomes.

Incentivize experimentation

The president's plan for college affordability proposes significant incentives for experimentation, but could be expanded to include emerging alternatives as a means to provide students with higher-value, lower-cost education through the increased use of technology, data analysis, and assessment of competencies.

Looking ahead

WHAT is most striking about the education world these days is not that people are being forced to change their behavior, but that the enticements to change are growing exponentially. New possibilities and opportunities are transforming the landscape for higher education. These range from the technological (the rise of online and blended learning) to the cultural (the growing willingness to engage in alternative educational pathways) to the entrepreneurial (the recognition that governments and traditional universities alone are unable to solve our education challenges).

There remains a lot of work to be done to retrofit the current system of higher education for a new era of lifelong learning. Financing and accreditation, models of learning (followed by unlearning and then relearning), hiring, and professional development practices will all need to evolve. As Dennis Yang, president and chief operating officer of Udemey, observes:

Education is no longer something that happens between the ages of 6 to 22, and then it's over. The line between the years we learn and the years we earn has blurred; to stay relevant, workers must train nonstop. Even if educational institutions evolve and ensure newly minted workers are ready for employment, workers must continue learning

throughout their lives to stay relevant. We're talking less about K-12 education and more about K-Gray education, kindergarten to retirement.¹⁰⁶

As an integral part of the fabric of American society, everyone has a stake in the future of higher education. Colleges and universities must welcome new methods of instruction. Organizations must welcome new certifications of competencies. Governments must see to it that taxpayer dollars are tied to meaningful education outcomes. But ultimately it will be up to individual students as consumers to determine what a high-quality education is for their unique circumstances.

To succeed in an era of exponential change, students must become adept lifelong learners. As the number and diversity of learning options expands, students will need to become well-informed consumers of higher education, as demand will ultimately dictate how the landscape for higher education evolves in the years ahead.

Yet what is most exciting about this particular moment is that the opportunities seem limitless for making higher education more affordable, accessible, and relevant. The challenge is to embrace the extraordinary innovation taking place. Finding our way in this new era will take work, but there's no question that we have crossed its brink.

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About GovLab

GovLab is a think tank in the Federal practice of Deloitte Consulting LLP that focuses on innovation in the public sector. It works closely with senior government executives and thought leaders from across the globe. GovLab fellows conduct research into key issues and emerging ideas shaping the public, private, and nonprofit sectors. Through exploration and analysis of government's most pressing challenges, GovLab seeks to develop innovative yet practical ways that governments can transform the way they deliver their services and prepare for the challenges ahead.

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