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# Five Trends to Watch in Higher Education

# AT A GLANCE

A host of forces are compelling U.S. universities and colleges to rethink old notions about higher education. Experiments around the country show that some institutions are responding rapidly and with bold innovation.

## **FIVE TRENDS TO WATCH**

Falling revenues have pushed many institutions to plug the gap with unsustainable tuition increases. Some universities and colleges could go bankrupt if the trend continues. At the same time, the return on an investment in higher education has been called into question. Institutions are increasingly being challenged to be accountable for student outcomes, to implement new business and delivery models, and to compete globally.

# **HOW LEADERS ARE RESPONDING**

Many institutions are reviewing their portfolio of programs to improve productivity and reduce costs. They are also using data to improve outcomes and ensure success for the changing mix of students. Some universities are broadening their research efforts to better attract funding, while a number of colleges are expanding their share of the online-education market. Such creative efforts signal the diversity of ways to change the game.

EADERS OF U.S. UNIVERSITIES and colleges are navigating a challenging economic environment. Revenues from enrollment, government, and other sources have fallen, leading many institutions to raise tuition to unsustainable levels and putting a number of the weakest schools at risk of failing.

Meanwhile, the return on investment of a degree is increasingly subject to debate. After years of low graduation levels and high unemployment rates for those students who do complete college, the spotlight has shifted firmly toward improving outcomes.

Additionally, college as we know it—what it looks like, how it gets delivered, and who it serves—is being altered.

These and other forces are transforming the U.S. higher-education system. The fundamental model of universities and colleges has been called into question. Experiments large and small across the nation point to a multitude of paths forward.

# Five Forces Are Reshaping Higher Education

The Boston Consulting Group has spent much of the past year surveying the higher-education landscape. Through conversations with a variety of education leaders and experts, we have identified five long-term trends that are creating the most risk—and opportunity—for leaders. Each of the following trends demands that colleges and universities respond with as much creativity and innovation as they can muster. Ultimately, the transformation under way will not only ensure their survival but also fuel their growth.

Revenue from key sources is continuing to fall, putting many institutions at severe financial risk. Enrollment is the main driver of tuition and fee revenue. But enrollment has been flat or declining in recent years, a trend that could cause a painful readjustment for institutions accustomed to stronger enrollment growth. From 2011 through 2013, undergraduate and graduate enrollment for all public universities declined slightly, while similar enrollment at private universities grew slowly over the same period. The result was an annual growth of only 0.4 percent in enrollment for all public and private universities from 2011 through 2013, down from an annual growth of 3.6 percent from 1990 through 2010. Furthermore, as a result of a demographic bubble made up of the children of baby boomers, the number of high-school graduates peaked in 2011 and is projected to continue falling or to stay

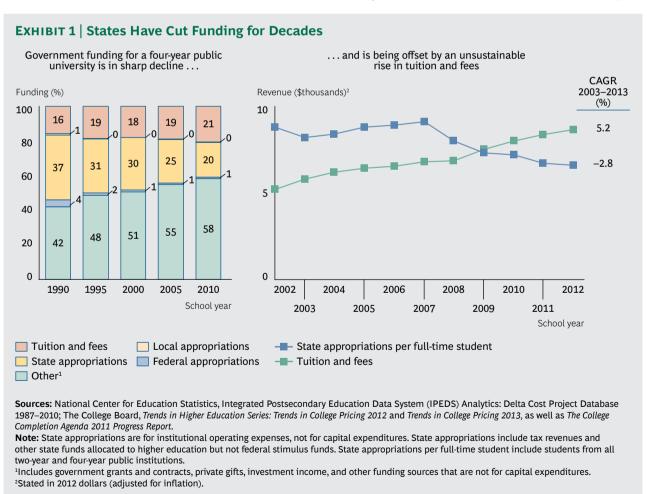
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the same until 2024—a trend that will have an impact on the enrollment and revenue of all but the most selective colleges and universities.

Flat or declining enrollment comes on the heels of states slashing their annual appropriations. From the 2002–2003 school year through the 2012–2013 school year, state funding declined by an average of 2.8 percent per year (adjusted for inflation), reaching its lowest point in decades. (See Exhibit 1.)

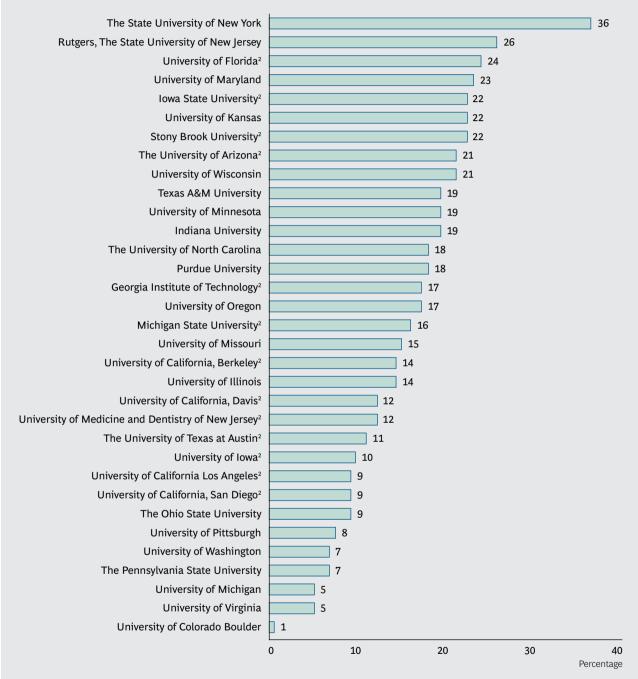
We have found, however, that the extent to which top U.S. public universities depend on state funding varies greatly. State appropriations range from 1 to 36 percent of total revenue among the public school members of the Association of American Universities, a group of leading universities that awards more than one-half of all doctoral degrees. (See Exhibit 2.) If state education expenditures continue their long-term decline, public universities that remain heavily dependent on such funding will find themselves increasingly unable to cover their costs.

At the same time that tuition and fee revenue and state funding have fallen, endowments have experienced volatile investment returns, and philanthropic gifts have declined. Revenue from the largest federal funders of research and develop-





## State appropriations as a percentage of total revenue, Association of American Universities members<sup>1</sup>



Sources: Annual financial reports, 2010–2011 or 2011–2012, depending on availability; BCG analysis.

**Note:** The analysis focused on an entire university system when data was available. The University of Medicine and Dentistry of New Jersey is now part of Rutgers, The State University of New Jersey.

<sup>&</sup>lt;sup>1</sup>Total revenue includes operating revenue (such as tuition) and nonoperating revenue (such as private gifts), as well as revenue from other sources (for example, capital gifts and grants).

<sup>&</sup>lt;sup>2</sup>A specific campus or a university with only one campus in a university system.

ment, the National Institutes of Health and the National Science Foundation, has also significantly decreased over the past four years, making winning such funding that much more competitive.

As a result of revenue shortfalls, many institutions could face persistent deficits or close altogether. Recent predictions foresee as many as one-third to one-half of all universities going bankrupt over the coming decades.1 The analysts at Moody's Investors Service have assigned a negative outlook to the entire U.S. higher-education sector.2

Although midtier private colleges are particularly at risk of failing, both public and private midtier schools are feeling the effects. Many have merged with nearby schools, cut their workforces, outsourced noncore services, and deferred billions of dollars of maintenance costs. From 2010 through 2013, 45 schools merged, compared with 16 from 2006 through 2009.3 The state of Georgia has consolidated 8 public institutions into 4 and reorganized its 15 technical colleges, moves that it estimates will save \$6.7 million a year in overhead costs.

Demands are rising for a greater return on investment in higher education. By some measures, the return on investment is high: college graduates have much higher earnings and lower unemployment rates, on average, than people with a lower-level degree or diploma. The gap is even greater between the expected earnings of graduates holding a four-year bachelor-of-arts degree and those with a master's or professional degree. The rate at which this gap is growing suggests that many students must continue their education past college to reap the full benefit of their degree.

For other reasons, however, in recent years students, families, businesses, and government officials have been questioning the value proposition of a degree from a four-year institution.

One reason is because the investment required for a college education is outpacing incomes. From the 2002-2003 school year through the 2012-2013 school year, tuition and fees increased by 5.2 percent annually for public universities and by 2.4 percent annually for private nonprofit universities (inflation adjusted). This fast rise in costs contrasts sharply with the stagnation of the median family income and the rate of inflation. The average in-state tuition and fees at a four-year public insti-

tution stands at nearly \$9,000 in 2013 and at more than \$30,000 for a private nonprofit four-year school.

Furthermore, absolute unemployment levels remain stubbornly high for college graduates. When students graduate, about half are unemployed, amid a soft job market for recent college graduates without much job experience. In general, unemployment is two to three times higher among low-skilled professionals than it is among medium- and high-skilled professionals, showing the even greater difficulties facing graduates with only basic skills.

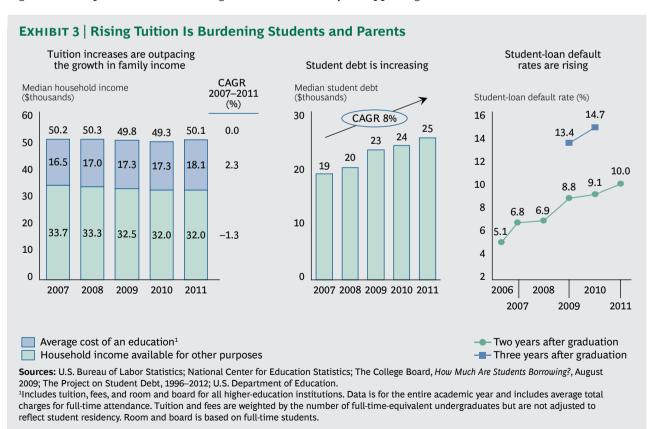
Making matters worse, student debt loads have grown 8 percent annually since the financial crisis began. The student-loan default rate within two years of graduation

College graduates have much higher earnings and lower unemployment rates, on average, than people with a lower-level degree or diploma. climbed to 10 percent in 2011, the latest data available, double the rate in 2006. The default rate within three years of graduation (a new monitoring period required by federal law) rose to nearly 15 percent. (See Exhibit 3.)

Greater transparency about student outcomes is becoming the norm. At a time when only 59 percent of first-time students at four-year institutions graduate within six years, colleges and universities are increasingly being challenged to be accountable for student outcomes. For instance, more and more, employers are demanding competencies that are closely linked to the needs of the workplace.

Efforts are under way to make more information about student outcomes available to those who are evaluating colleges. At the federal level, the U.S. Department of Education has launched the College Scorecard, an interactive Web tool showing consumers how a school stacks up against its competition in terms of costs, graduation rates, student-loan default rates, and median student-borrowing levels. The department is also beginning to allocate some funding on the basis of competencies learned rather than on time spent in class.<sup>4</sup>

In addition, a handful of states are linking economic success metrics to individual institutions, degrees, and areas of study. An example of such an effort is Career Bridge, an online portal that includes detailed charts about costs, student performance, and graduates' employment for nearly 6,000 education programs in Washington state. A parallel effort toward greater accountability is happening in



16 states that have implemented performance-based funding. Assessing student outcomes, such as completion rates, are part of the appropriations process.

At the institutional level, many colleges are providing detailed report cards to justify the cost of an education and to demonstrate the outcomes of specific programs and areas of study. Some are even making guarantees of employment after graduation or certifying the knowledge and skills of graduates.<sup>5,6</sup>

New business and delivery models are gaining traction. Institutions are providing alternatives to traditional degrees, including accelerated three-year degrees, industry accreditations, and "\$10,000 degrees" (the low cost made possible by colleges accepting credits earned in high school). We also see competency-focused course bundles emerging, which provide certifications that are relevant to vocations and supplement a degree. Some institutions, such as Western Governors University and StraighterLine, can offer a bachelor's degree at a lower cost or in less time, or both.<sup>7</sup>

On the delivery side, online programs, particularly hybrids that blend online and face-to-face learning, offer traditional brick-and-mortar institutions significant opportunities. The number of college students taking at least one online course has increased five-fold since 2000, reaching 7.1 million students in 2012 and growing much faster than enrollment in traditional courses. (See Exhibit 4.) About 3 million students are currently enrolled in what we call primarily online degree programs—education programs that are at least 80 percent online. The projected annual growth rate of these programs will be approximately 7 percent through 2020, also faster than the growth rate of traditional programs. Five million students are expected to be enrolled in primarily online degree programs by 2020. And the strong shift toward online education is happening outside the U.S. as well. About 10 million stu-



dents worldwide had enrolled in at least one massive open online course (MOOC) as of late 2013, up from only 1 million in 2012.

A program that has received a great deal of attention is the result of a partnership between Georgia Institute of Technology and Udacity and a donation by AT&T.8 Using the MOOC model, the program offers an online-only master's degree in computer science for \$6,600. The program launched in January 2014 with 401 students. To date, completion rates for pure-play MOOCs are low, and some early experiments have failed to produce the hoped-for results. But when online is combined with in-person instruction, the results have proved much stronger. A federal study found strong evidence that blended models can produce outcomes that are equal to or better than face-to-face or online instruction alone.9

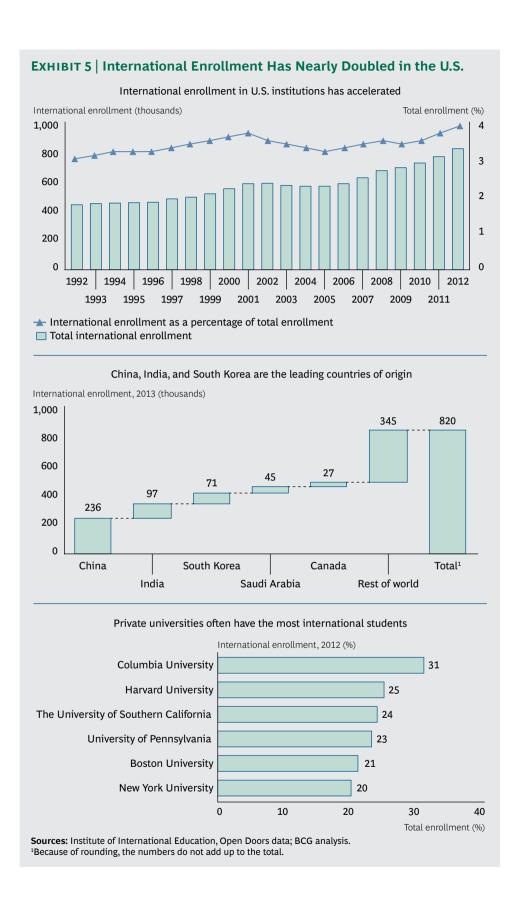
The globalization of education is accelerating. Students are increasingly mobile. The best and brightest are traveling to the developed world's major universities for higher education. Top universities that once vied locally and nationally for students now face global competition from other top-tier universities. In the U.S., international enrollment in all universities nearly doubled from the 1992–1993 school year through the 2012–2013 school year, reaching 820,000 students or nearly 4 percent of total enrollment. China, India, and South Korea are the top countries of origin. (See Exhibit 5.)

Despite these seemingly modest overall numbers, the trend is playing out with disproportionate strength in select segments of the market. Some public universities have been particularly aggressive in replacing lost state aid with revenue from international students, in addition to those from out of state, since these students pay full tuition. We sampled 18 top public universities and found that the average international enrollment stood at 15 percent of total enrollment in 2012, up from 9 percent in 2002. An example of the trend is the University of California, Berkeley, the flagship of the ten-campus UC system. Over the past decade, UC Berkeley has doubled the number of students from outside the U.S., bringing international enrollment to 16 percent of total enrollment in 2012. The rising acceptance of international students has been a direct response to significant cuts in state appropriations, and the approach is being used elsewhere. Purdue University in Indiana has also doubled international enrollment, bringing it to 24 percent of the student body—an eye-catching number for an elite public institution, particularly one in the heartland of the U.S.

The evolution is also dramatic at elite private colleges. Our sample of six top private universities showed that, on average, international students comprised 24 percent of total enrollment in 2012, up from 18 percent in 2002. At Columbia University, 31 percent of students came from outside the U.S., up from 22 percent in 2002. And international students made up about 20 to 25 percent of total enrollment, up from 14 to 20 percent in 2002, at each of the following: Boston University, New York University, the University of Pennsylvania, Harvard University, and the University of Southern California.

Many universities also now have a global footprint. The past decade has seen major universities open satellite campuses overseas to raise their profile internationally, expand their applicant pool back at home, and attract top research talent. Six uni-

Top universities that once vied locally and nationally for students now face global competition from other top-tier universities.



versities from the U.S., including Georgetown, Carnegie Mellon, Cornell, and Texas A&M, have campuses in Education City, which is outside Doha in the state of Qatar on the Persian Gulf. New York University has two campuses abroad. In 2010, it opened a satellite campus in the Middle East with a \$50 million investment from Abu Dhabi. At the time, NYU president John Sexton announced, "We're going to be a global network university." NYU Shanghai opened in fall 2013. Half of those enrolled come from outside China, including a substantial number from the U.S. 10

Finally, many educational institutions have a digital footprint abroad, making courses accessible to students wherever they live and whenever they want to learn. For instance, 68 percent of those enrolled in Coursera courses, frequently offered in association with top universities, live outside the U.S., with India, the U.K., and Brazil as the top countries of origin, according to a 2013 study from the MOOC provider.

# **How Leaders Are Responding**

Colleges and universities face major challenges. To address them, leaders will need to develop a long-term, holistic strategy that answers critical questions about the market segment in which they operate, the students they target, and the alignment of their educational offering and its delivery with their market and targets. In the near term, however, the actions of a variety of education leaders reveal potential tactics others can adopt or adapt to combat the forces threatening their institutions.

Conduct portfolio reviews, while identifying opportunities to increase productivity and reduce costs. Examples are emerging of broad-based research institutions transforming academic departments into interdisciplinary clusters and cutting noncore departments—actions that are aligning academic research interests with twenty-first-century workforce needs and budget requirements. Other institutions are merging or eliminating smaller programs. At seven public universities in Texas, for instance, some programs that produce a small number of graduates, such as undergraduate physics, are being recommended for termination.

In addition, institutions have increased the number of part-time teachers to reduce costs. Full-time tenured and tenure-track professors represented 57 percent of faculty in 1975, compared with 31 percent in 2007. More and more, colleges and universities are relying on a core of full-time research professors who are supported by a part-time teaching staff. Some institutions are also finding efficiencies by outsourcing services that are not instruction related yet account for approximately 40 percent of costs. At a state university, we identified as much as \$28 million that could be saved annually, mainly through streamlining management, outsourcing some activities, and improving procurement practices.

Use data to improve outcomes. Efforts are also under way to use data and big-data-style predictive analytics to accurately identify at-risk students, keep them on track to graduate, and measure their success in the workforce. For instance, Arizona State University's eAdvisor system uses data mining to provide precision scheduling and online counseling to students who are at risk of getting off track. Since the program began, the university's retention rate has risen 7 percentage points, a change that the provost attributes to eAdvisor. The university has also partnered with Pearson

Efforts are under way to use data to accurately identify at-risk students, keep them on track to graduate, and measure their success in the workforce. to use the company's adaptive-learning platform to dramatically reduce withdrawal rates and boost pass rates for students in remedial math courses. Capella University is another example of a school that's using data analytics. It has increased transparency at its CapellaResults website, where the for-profit university publishes data that shows detailed career and learning outcomes for the degrees it offers.

Broaden research efforts to be more competitive in attracting funding. Big data has turned into big money for many universities. Research centers with a big-data focus—often affiliated with leading companies, made up of networks of researchers from many universities, and funded by top foundations and government agencies—have popped up at the Massachusetts Institute of Technology, New York University, the University of California, Berkeley, and the University of Washington. The latter three received a five-year, \$38 million grant from the Gordon and Betty Moore Foundation and the Alfred P. Sloan Foundation to accelerate the growth of data-intensive discovery across a wide variety of fields. In addition, the University of Rochester announced a commitment of \$100 million to the creation of its Institute for Data Science. And in 2012, the Obama Administration announced more than \$200 million in commitments from six federal departments and agencies for its National Big Data Research and Development Initiative.<sup>11</sup>

Universities are taking other strategic approaches to funding research as well, including expanding internationally and creating centers of excellence. Harvard has opened research centers in South America and China to attract more dollars and more researchers with diverse backgrounds. At Stanford, the Volkswagen Group donated \$5.8 million to create the Volkswagen Automotive Innovation Lab. Inside the state-of-the-art vehicle-research facility, interdisciplinary teams of Stanford researchers and visiting scholars work to accelerate automotive-related research and build a global community of academic and industrial partners committed to the future of automotive research.

Ensure success for the changing mix of students. The face of enrollment is changing dramatically. The number of adult learners is expected to grow about three times as fast as the number of students who are of traditional college age. And as we've discussed, the number of international students enrolled at U.S. universities and in their courses outside the U.S. have reached a high. Adult learners and those studying online outside the U.S. are often attracted to the flexibility and accessibility an online education offers. Institutions must ensure the academic success of these populations offline and online, since to grow means serving diverse populations when and where they want to learn.

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In addition, non-Caucasian students will increasingly comprise a larger percentage of enrollment in U.S. institutions. For example, the number of Hispanic students in the U.S. has reached 3.4 million, rising from 11 percent of the college student population in 2006 to 17 percent in 2012. Some institutions are implementing innovative ways to respond to such shifts in student demographics and, as a result, are becoming more attractive to those students and improving outcomes. For example, at the University of California, Riverside (UCR), one of the nation's most ethnically and economically diverse research universities, an optional program groups first-year students in communities of at least 20 students, who typically take courses together,

meet in study groups, receive tutoring, and learn time-management techniques and study skills. UCR is 1 of only 11 U.S. universities at which graduation rates for black and Hispanic students are about the same as or higher than the rates for white students.

Expand share of the online-education market. Some institutions are managing to grow in a difficult environment through their online-learning efforts, such as their own credit-bearing online courses and programs, partnerships with MOOC providers, and blended- or hybrid-learning experiments that mix online and in-person learning. For example, the online MBA program of the University of Massachusetts Amherst makes up 26 percent of total MBA enrollment but generates 40 percent of the business school's revenue. The university systems of Maryland, Minnesota, and Texas have either required or proposed that students earn 10 to 25 percent of their credits through alternative modes, such as online learning.

Institutions benefit from these moves by generating incremental revenue from the changing mix of students, including older workers and remote and international students who otherwise would not attend the university. Colleges and universities can also compress the time needed to complete a degree through blended-learning courses, freeing up seats for additional students and potentially saving costs. And schools can win market share from other institutions, such as the for-profit universities that currently have the largest proportion of online enrollment and the institutions with less brand prominence. Still, the surge in investment in online education is creating an increasingly competitive market, making it more critical than ever for institutions to differentiate their offerings and master the new capabilities required for success.

IGHER EDUCATION IN the U.S. faces peril and promise. Rising pressures are driving universities and colleges to transform themselves so they can remain in business. The array of pressing challenges requires education leaders to act with unprecedented strategic clarity and vision in order to seize the opportunities that lie ahead. A handful of efforts around the nation are demonstrating creative and innovative solutions that leaders can draw on to shore up their institutions in the immediate future.

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