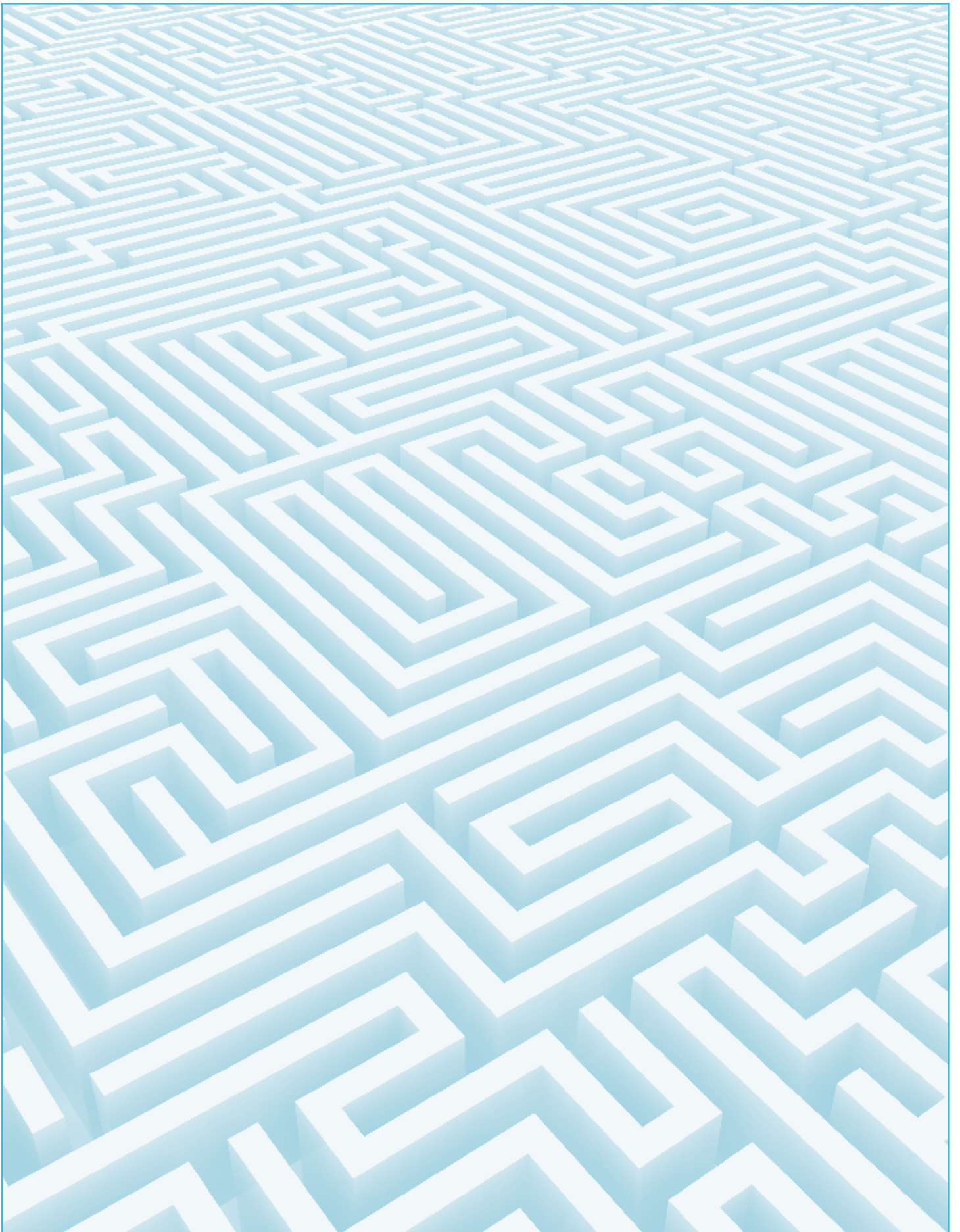




NAVIGATING THE “NEW NORMAL”

LUMINA NATIONAL
PRODUCTIVITY
CONFERENCE / INDIANAPOLIS / 2010



INTRODUCTION: THE “NEW NORMAL” AND THE BIG GOAL

Economists may be signaling the recession is over, but higher education will feel the pain for years to come. According to the National Conference of State Legislatures, states will face more than \$60 billion in budget shortfalls in 2011 and another \$50 billion in 2012. Federal stimulus programs that filled the gap for colleges and universities are winding down, forcing most states to confront steep drops in available tax revenues.

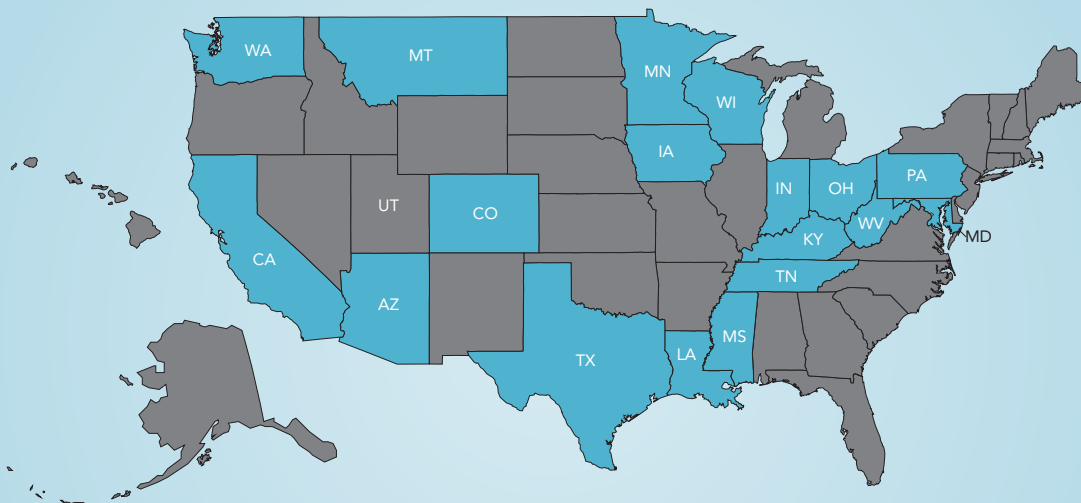
Amid these challenging fiscal conditions, Lumina Foundation for Education is launching Productivity Strategy Labs to help states explore ways of both saving money and graduating more students. Officials are facing demands for funding cuts that undoubtedly will force tough decisions that reshape American higher education. (For example, see “Louisiana’s ‘32% Gap’” Page 8.)

During past economic slumps, higher education has met budget challenges through spending cuts and tuition increases. But the most recent recession was an economic earthquake like none since the Great

Depression, with devastation so broad and so deep that growth in state revenues could take the better part of the decade to recover. Ray Scheppach, executive director of the National Governors Association, says that states are in retrenchment. Today’s seemingly bleak budget environment, Scheppach and others assert, is “the new normal.”

Yet the challenges presented by this dramatically altered economic terrain offer opportunity for thoughtful alignment of spending with the goals of access, quality and improved attainment, which would be difficult under usual circumstances.

PRODUCTIVITY STRATEGY LABS



The Strategy Labs provide “real-time” response and peer-based resources to state policymakers desiring to effect policy change to increase postsecondary productivity. The Labs are staffed by several former state officials with experience in politics and higher education. They host workshops and gatherings, offer funding for travel

and resources, facilitate collaborations, deliver technical assistance, and serve to unify the state leaders working on these issues. Strategy Labs focus on Lumina Foundation’s *Four Steps to Finishing First* state productivity agenda. Initial, targeted support will focus on 18 states.

Policymakers and leaders in higher education should use this time to refocus the country's colleges and universities on the need to graduate more students with existing resources and without sacrificing academic quality. Lumina Foundation has called for dramatic improvement in college attainment; it has established as a national goal that by 2025, at least 60 percent of working-age Americans will have earned high-quality degrees or credentials. This is known as the Big Goal, an aggregate total that each state contributes toward, and it has been embraced by President Obama as well as by governors and higher education leaders across the country. (State-by-state projections for meeting the Big Goal are offered in the table, at right.)

The challenge is clear. Record numbers of young adults are enrolling in colleges or universities; yet too often they are leaving without the degrees or credentials they will need to secure good lives for themselves, their families and those around them. As adults, they have difficulty reentering higher education. Meanwhile, the country's workforce is

starving for workers with the skills, knowledge and credentials that only postsecondary education can provide. Realizing the American promise for all will mean graduating more 21st century students, including many from low-income or immigrant families and others who are unemployed or underemployed and need further education to keep their grip on the middle class. Yet among developed countries, the United States is in a three-way tie for eighth in college attainment—down from fifth in 2001 and third in 1998.

Refusing to budge from the existing cost structure of American higher education will doom the attainment agenda to failure. A business-as-usual financing model will effectively guarantee our country further declines in attainment. Colleges and universities simply cannot go through their usual cost-cutting exercises; to ensure the nation's critical economic and social goals are met, leaders of higher education institutions instead must think strategically about how the shape of higher education must change.

EFFECTS OF THE FEDERAL STIMULUS

Among Strategy Lab states receiving stimulus funds, several had to make deep cuts in their higher education budgets:

- ▼ Arizona—9.7 percent
- ▼ West Virginia—7.6 percent
- ▼ Washington—6.2 percent
- ▼ California—6 percent

Stimulus money had a significant cushioning effect in the 2010 budget year, raising higher education funding levels by more than 5 percentage points in each of nearly 20 states. Among Strategy Lab states, the stimulus boost was especially noteworthy in:

- ▲ Montana—18.6 percent
- ▲ Ohio—12.5 percent
- ▲ Iowa—11.5 percent
- ▲ Louisiana—11 percent

These states will face especially steep funding cliffs in 2011.

Sources: http://www.sheeo.org/finance/shef/SHEF_FY_2009.pdf and <http://www.ncsl.org/documents/fiscal/HigherEdFundingFINAL.pdf>

REACHING THE BIG GOAL

	Current % of Adults with College Degrees (2008)	Additional Degrees Needed to Reach the Big Goal	Additional Degrees Needed Annually	Annual Percentage Increase Needed
Alabama	31.6	664,131	4,883	7.1%
Alaska	36.3	92,662	681	8.9%
Arizona	34.4	1,120,884	8,242	7.7%
Arkansas	26.5	508,567	3,739	8.3%
California	38.6	4,745,448	34,893	6.7%
Colorado	45.3	397,973	2,926	4.6%
Connecticut	46.6	249,543	1,835	4.9%
Delaware	37.0	111,623	821	6.3%
Florida	36.8	2,843,880	20,911	7.0%
Georgia	36.2	1,346,524	9,901	7.8%
Hawaii	42.3	116,790	859	5.6%
Idaho	34.8	229,610	1,688	7.2%
Illinois	40.8	1,273,954	9,367	5.4%
Indiana	33.4	877,737	6,454	6.3%
Iowa	38.8	305,775	2,248	4.1%
Kansas	40.5	272,085	2,001	5.0%
Kentucky	29.2	692,515	5,092	7.5%
Louisiana	27.0	756,375	5,562	8.2%
Maine	36.8	167,905	1,235	6.5%
Maryland	43.9	548,409	4,032	5.9%
Massachusetts	49.6	362,193	2,663	3.3%
Michigan	35.6	1,322,257	9,722	6.3%
Minnesota	45.0	457,057	3,361	4.7%
Mississippi	29.3	460,850	3,389	7.3%
Missouri	34.9	776,922	5,713	6.1%
Montana	37.6	112,354	826	6.4%
Nebraska	40.5	164,124	1,207	4.6%
Nevada	30.1	575,389	4,231	10.1%
New Hampshire	46.0	114,649	843	4.7%
New Jersey	44.6	764,904	5,624	6.1%
New Mexico	33.4	258,032	1,897	7.0%
New York	43.7	1,604,405	11,797	4.4%
North Carolina	36.9	1,283,782	9,440	7.1%
North Dakota	45.2	42,784	315	3.1%
Ohio	34.9	1,443,143	10,611	6.4%
Oklahoma	31.3	516,906	3,801	6.6%
Oregon	38.6	493,150	3,626	6.8%
Pennsylvania	37.9	1,394,238	10,252	5.5%
Rhode Island	41.4	107,363	789	4.0%
South Carolina	34.4	619,241	4,553	7.3%
South Dakota	39.4	76,469	562	5.0%
Tennessee	31.3	991,518	7,291	7.9%
Texas	33.3	3,969,133	29,185	8.0%
Utah	40.2	286,080	2,104	4.5%
Vermont	43.6	58,161	428	4.4%
Virginia	43.4	765,755	5,631	5.6%
Washington	42.0	737,264	5,421	5.9%
West Virginia	25.6	305,174	2,244	7.0%
Wisconsin	38.0	668,822	4,918	6.0%
Wyoming	36.0	61,375	451	5.7%
US	37.9	37,914,259	278,781	6.3%

Source: US Census, National Center for Higher Education Management Systems

NEW TOOLS TO HELP REACH THE BIG GOAL

To provide state policymakers with new tools for reaching the Big Goal, Lumina Foundation commissioned a series of national and state-level student-flow and productivity models. This paper's recommendations draw from these models findings about how many additional graduates are needed, how much this will cost and approaches for improving student progression and restructuring costs.

Working with the Delta Project on Postsecondary Education Costs, Productivity and Accountability, the National Center for Higher Education Management Systems (NCHEMS) has analyzed what it will take to reach the Big Goal. According to its calculations, colleges and universities across the country will need to graduate nearly 23 million more students than they are on track to graduate at current rates and costs. This no doubt seems daunting, but we believe it's achievable. Iowa, for example, needs to graduate just 2,248 more students each year to reach the Big Goal—this when its enrollment in higher education tops 70,000.

NCHEMS estimates it will cost \$33 billion in real terms in some combination of new state appropriations or tuition increases—beyond funding the “base”—to pay for increased attainment. If net tuition revenues per student remain constant, and the increase to meet the Big Goal were to be financed exclusively through state appropriations, public funding would have to increase in real terms at a rate of 2.9 percent per year. Conversely, if overall state appropriations were to remain constant, tuition revenue per student would need to grow at a rate of 4.4 percent per year. Compare this to the average increase in state appropriations of about 1.2 percent per year during the past two decades, plus tuition increases of more than 4 percent per year, and the magnitude of the challenge becomes clear. Any real increases in cost per student would make this funding gap substantially larger. For example, if costs of fringe benefits continue to increase by 2 percent per year above the inflation rate, the amount of real growth in new money needed to reach the Big Goal will increase from \$33 billion to \$63 billion.

National cost to meet attainment goal: \$33 billion by 2025

- 3 percent per year annual increases in state appropriations...
- or
- 4.4 percent annual increases in tuition

The challenge need not be overwhelming if potential solutions are viewed strategically. Through a combination of productivity improvements and careful reductions in spending, institutions can make significant strides toward closing the funding gap.

From the NCHEMS analysis, however, it is clear that higher education must address cost structures or a lack of adequate funding will become the excuse for failing to meet the educational needs of the future. To help policymakers identify how this might be managed within their own

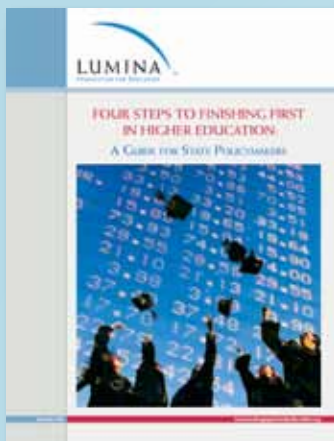
states, NCHEMS has created interactive national and student-flow and productivity models. With these tools, state policymakers and higher education leaders can estimate how some key policy or management changes—or combination of changes—will likely affect both costs and the number of graduates. The models are based upon available or easily estimated data regarding several major cost drivers in higher education, including: ratios of full- and part-time faculty to students; student-to-administrator ratios; average salaries; and the cost of employee benefits as a share of salary expense. These models also disaggregate data by sector, differentiating between research universities, comprehensive universities and community colleges.

Ultimately, the models aim to foster an environment of innovation and creativity. They will help states quickly gauge the potential benefits of reshaping not only the business side of university and college operations but also the delivery of instruction and learning opportunities for students.

WORKING SMARTER, AND OFTEN WITH LESS

As state leaders work with the NCHEMS models, they may find valuable help in *Four Steps to Finishing First in Higher Education*, the productivity agenda developed by Lumina. This series of reports outlines an array of approaches to make higher education more cost effective, increase the number of students who complete college, and draw adults back into higher education to earn the credentials they will need to find good jobs. (See *Four Steps to Finishing First*, below).

FOUR STEPS



Four Steps to Finishing First in Higher Education: A Guide for State Policymakers defines the four steps and makes the case for why states need to make significant changes in how they fund and deliver higher education.

STEP 1: *Rewarding Institutions That Focus on Students Completing Quality Programs, Not Just Attempting Them* examines state funding models for colleges and universities and profiles approaches that reward institutions for outcomes such as graduation rather than just inputs such as enrollment or last year's funding levels.

STEP 2: *Rewarding Students for Completing Courses and Degree or Certificate Programs* notes that course completion and graduation incentives should be focused on students as well as institutions, and it highlights promising new work in this area.

STEP 3: *Expanding and Strengthening Lower-Cost, Nontraditional Education Options* documents the role that nontraditional institutions (e.g., online, competency-based institutions) play in providing lower-cost, high-quality pathways to certificates and degrees.

STEP 4: *Investing in Institutions That Demonstrate the Result of Adopting Good Business Practices* calls on colleges and universities to regularly review their costs; consolidate, outsource or eliminate programs and services where necessary; and reinvest cost savings toward increasing student completion of high-quality programs.



TUITION, STUDENT AID AND BUDGET CUTS: USING FINANCE TO DRIVE PERFORMANCE

To eliminate budget shortfalls, governors, budget directors, state higher education executive officers, legislative fiscal leaders and college and university financial officers inevitably must make tough decisions about tuition, financial aid and academic programs. These decisions are painful and often political, as leaders juggle competing demands—whether from families stretched to make tuition payments or universities scrambling to make payroll or bond interest payments. It's difficult in an environment of recurring funding crises to make such decisions with strategic intent—that is, with the aim of doing as much as possible to preserve and even advance goals of educating and graduating more students.

But with a plan and policy in place, Indiana recently did just that. For several years, the state has incrementally overhauled its higher education funding. Eventually, Indiana will tie the bulk of higher education spending to measures of student and institutional performance—including data that show how many students complete coursework and earn degrees, especially among 21st century students. The objective is to focus colleges and universities on their specific missions and to give them incentives to improve.

Last year, the state took performance funding a step further. In June 2009, facing a 4.1 percent shortfall in the state's operating budget, Gov. Mitch Daniels

asked state higher education leaders to distribute budget cuts based upon degree- and course-completion measures, while also taking into account the needs of students who typically have not been well served by higher education. The Indiana Commission for Higher Education oversaw the reallocation of campus-by-campus funds so that better-performing institutions received smaller budget cuts. Six months later, when the state had to cut an additional 6 percent, or \$150 million, Indiana once again relied upon its performance measures to guide decisions. Forty percent of the cuts were based on the commission's performance-based formulas, including the degree- and course-completion measures. Nearly 60 percent of the mandated cuts were allocated using a formula that measured a combination of persistence to degree and cost per degree, so that less productive institutions faced deeper cuts.

Indiana's efforts clearly demonstrate that the principles of performance funding can be broadly applied in circumstances in which new funding is not available. Even when clear data on institutional performance are lacking, policymakers should review programs facing cuts through the lens of how directly such efforts relate to helping more students graduate.

States also should strategically consider how to vary tuition to help students—as well as institutions—minimize the time and credits it takes to get a degree. For example, at bachelor's-granting institutions in Texas, students are given a \$1,000 rebate if they do not take more than three credit hours beyond what their degree programs require. Additionally, Texas requires public colleges and universities to charge in-state undergraduates the out-of-state tuition rate when they begin a semester with "excessive"—more than 140—course credits.

In Florida, when state budget constraints forced cuts in the state's Bright Futures scholarship program, lawmakers used the cuts as an opportunity to focus on course and degree completion. The scholarship program stopped funding:

- Courses from which students withdraw. Requiring students to repay scholarship money for dropped courses resulted in tens of thousands of fewer "withdrawn" credit hours;
- Full-time students who don't finish at least 24 credit hours a year. Previously, the scholarship program only required students to attempt 24 credits;
- Students who take more than five years to finish their bachelor's degrees; and,
- Course credits taken beyond degree-program requirements.

HOW TO DEFINE PRODUCTIVITY

In simplest terms, productivity in higher education is defined as cost per degree:

Productivity = educational resources used/degrees produced

Leaders in higher education claim that they've become more productive in recent years, and by this definition, that's true—they have produced more degrees for every dollar spent. But this "productivity improvement" resulted chiefly from recession-related reductions in their spending; colleges and universities have not awarded significantly more degrees and credentials. That has to change in order to make the United States competitive globally.

In order to meet the Big Goal of raising college attainment rates to at least 60 percent, "productivity improvement" must consist of the following:

- A substantial increase in the number of degrees and certificates produced,
- at lower costs per degree awarded,
- without sacrificing the goals of access and equity,
- while maintaining (and even improving) quality.

BOTTOM LINE: Productivity improves when 1) unit costs are reduced, 2) the proportion of students completing degrees increase, 3) or the production function itself (e.g., credits or time to the degree) is changed to lower the costs per degree.

STRATEGIC CUTTING:

HOW TO TRIM THE BUSINESS SIDE—AND REACH “THE BIG GOAL”

Even after three straight years of cutting college and university budgets to make up for declines in state support arising from much-lower-than-expected tax collections, states are still scouring for cost savings. The NCHEMS modeling tools offer policymakers an opportunity to break with traditional cost-cutting strategies and to adopt business practices that restructure costs of delivering education. Using the tools, they can create budget scenarios that estimate likely effects of changing some key drivers of higher education costs, including:

Payroll. Most of higher education’s costs stem from compensation for faculty and staff. Colleges and universities should reduce nonessential administrative and staff positions and change the faculty structure to better deploy personnel (e.g., increase teaching loads in research institutions, rely more on junior faculty or part-time adjuncts).

According to the NCHEMS cost model, **increasing student-faculty ratios by 10 percent nationally would reduce costs by almost \$10 billion over the next 15 years—covering almost a third of the investment needed to meet the 60 percent attainment goal by 2025. In addition, reducing the amount spent on instructional salaries by 10 percent would eliminate nearly 11 percent of the estimated additional cost of meeting the Big Goal.** Lumina also believes better use of technology in academic instruction holds potential for even greater savings.

Many institutions have reduced personnel through attrition, hiring slowdowns and the use of part-time faculty. Some colleges and universities also are outsourcing functions that are not central to their academic missions—typically food and custodial services or operations of campus bookstores and dormitories.

Employee benefits. Often generous in comparison with private-sector and government benefits, these are placing great stress on higher education budgets. Rapidly rising health care costs and unfunded obligations of defined-benefit retirement plans have forced some institutions to reduce benefits, increase the share of costs that employees pay, limit options for types of benefits and fundamentally alter retirement plans. The University of Nebraska and the University of Maine are among institutions that have addressed this problem directly. They have initiated two-tier systems that

maintain commitments to current and retired employees while offering less-costly benefits packages to newly hired workers. NCHEMS estimates **a 10-percent reduction in benefits expenses could net 7 percent of the additional investment needed to reach the Big Goal.** If benefits growth is not curtailed, however, the amount of new funding needed to meet the attainment goal nearly doubles. Tuition increases of 4 percent to 6 percent per year would be required just to pay for increases in employee benefits. This estimate does not include new money for hiring additional faculty, making new investments or increasing financial aid.

Consumables. Data aren’t available for NCHEMS to analyze spending on consumables such as office and lab supplies and energy. But such items clearly are another big cost driver. Many states and higher education systems have netted savings through group purchasing. The University System of Maryland has saved millions through group purchases of energy. Colleges and universities in Ohio have boosted their buying power by partnering with K-12 schools and local governments. The Midwestern Higher Education Compact arranges collective purchase of many items, including property insurance, for which a large pool of buyers can be leveraged to lower costs. MHEC also is exploring the potential for savings in student health insurance, bulk purchasing through drug formularies for faculty and staff health insurance plans and large purchases of energy-efficient fixtures and lighting.

Colleges and universities also must reengineer and centralize administrative functions. Ohio has established a statewide efficiency council to promote and share best practices with every public campus. The state also aims to combine “back-office” functions, widen membership in joint purchasing pools and implement e-procurement. Ohio might also implement a common technology platform. Savings generated from these efforts could exceed \$100 million.

A University of North Carolina at Chapel Hill audit last year found that administrative expense had grown much faster than spending on academics. Recommendations projected to save more than \$150 million called for the university to flatten its organizational structure and to centralize procurement operations and information-technology functions.

ADMINISTRATIVE REFORM: REENGINEERING THE ACADEMY

During periods of relative abundance, the academic enterprise grew and grew, often without focus or discipline. Institutions chasing prestige and revenue expanded services and activities of all kinds. It is past time for carefully considered pruning.

The NCHEMS analysis suggests that many institutions would do well to find savings through strategic restructuring of the curriculum, beginning with required general education courses. A good first step: Compile data on course-taking, and then eliminate courses that relatively few students sign up for. In the long run, colleges and universities should aim to construct focused academic programs that offer clear pathways for students to earn degrees. This can improve retention and completion. Researchers have found that students get tangled up when there are too many course choices; lacking guidance, they take too many nonessential courses and prolong the time it takes to get a degree.

According to NCHEMS calculations, **a 10-percent reduction in the number of excess credits accumulated by students on their way to a degree would net savings equivalent to nearly 25 percent of the additional investment needed to reach the Big Goal.**

Institutions also must break with the past and differentiate between sectors as they allocate funding, giving priority to programs and units directly related to increasing numbers of college graduates. They must invest in efforts that increase access as well as programs closely tied to workforce needs.

The NCHEMS models can't estimate the effects of all types of academic restructuring, but several initiatives by states and institutions suggest the following can simultaneously ease the pressure of future costs and improve degree productivity:

Jointly deliver small majors with other institutions. North Dakota's community colleges offer a joint nursing program on a rotating basis throughout the state. Institutions in Ohio and New York have similar collaborations, and North Dakota and Oklahoma encourage such efforts through incentive funding.

Pare the menu of extracurricular activities to the affordable few that directly involve the largest number of students and convincingly reflect the mission of the institution; eliminate general-fund subsidies for the remainder. The University of New Orleans recently made this move, dropping its athletics program from Division I to Division III. Other institutions also have dropped sports programs and invested the savings in graduating more students.

LOUISIANA'S "32% GAP"

State leaders in Louisiana are studying Lumina's *Four Steps to Finishing First in Higher Education* productivity agenda as a road map for maintaining an efficient, high-quality education system in response to the prospect of a dramatic loss of state taxpayer support. The Louisiana Community and Technical College System has been asked to eliminate 32 percent of its state support from the 2012 budget, and President Joe May and other system leaders are responding with a sweeping plan to rethink services and instructional delivery so the system can still meet plans to enroll 100,000 more students by 2015—enrollment one-third higher than projected for 2012. The draft plan does not close campuses, limit

student access or remove educational services from any community—moves that would limit opportunity for Louisiana residents at a time of high unemployment. Rather, May and his colleagues are exploring a strategic restructuring of the system's operating budget. Key provisions of the draft plan aim to: 1) reduce administrative costs, 2) consolidate academic and operational services, 3) eliminate high-cost, low-performing programs or seek private-sector support for their operation, 4) align tuition with market demand, 5) restructure tuition and fees to streamline course taking and encourage completion, and 6) increase the use of technology in delivering instruction.

CONCLUSION: THE IMPERATIVE FOR CHANGE

After centuries of excellence and decades of cyclical recessions, higher education has developed some bad habits. When facing budget shortfalls, colleges and universities have not always adequately addressed underlying cost drivers and have instead pursued short-term solutions. Today, the need for fundamental changes is inescapable. The demand for highly skilled workers is unavoidable, the economic effects of a better-educated nation unequivocal—the United States needs more college-educated workers than ever.

A half century ago, higher education helped transform America's World War II fighting force into a powerful labor force. In unpredicted and unprecedented ways, colleges and universities expanded and met the challenge of educating millions of returning GIs. They responded with heart and innovation. Today, higher education faces another challenge. The road ahead can become a deep plunge into a fiscal morass, a financing disaster that results in severely limited opportunity—or it can become an invigorating time of innovation, strategic cutting and reinvestment, with a laser focus on student completion. Through your leadership, we can work together to reinvent higher education and ensure continued progress toward the Big Goal.

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- Kristin Conklin, HCM Strategists

The views expressed in this report, including any errors or omissions, are solely those of Lumina Foundation.

APPENDIX A: A Guide to Student-Flow and Productivity Models

With support from Lumina Foundation for Education, the National Center for Higher Education Management Systems—working with the Delta Project on Postsecondary Costs, Productivity and Accountability—has developed national and state-by-state models for calculating the number of additional college graduates needed to meet the Big Goal. These models, which can be accessed on collegeproductivity.org, have two interactive dashboards: one to gauge the performance needed from each state’s system of postsecondary education to meet the college-attainment target of 60 percent, and one to assess strategies of paying for increased attainment.

National projections suggest that these degree-attainment goals and their funding requirements are quite large. As a result, policymakers at first glance often view the 60-percent target as unreachable. But looking at strategies to both increase degree attainment and fund efforts to produce new graduates, it’s clear that a combination of educational and investment practices can help states succeed.

Reaching the Big Goal will require efforts to both cut spending and increase efficiencies in the delivery of student learning. The two dashboards include the following interactive drivers:

DASHBOARD: Closing the Degree Gap

(These measures of student progression help translate college access into attainment across higher education sectors.)

- High school graduation rates.
- Rates of students going directly from high school into college.
- Rates of adults between the ages of 20 and 39 who are enrolled in higher education but who did not enter college immediately out of high school.
- College completion rates. These are undergraduate credentials awarded per 100 full-time equivalent undergraduates. The figures are broken down by sector—public research universities, public bachelor’s- and master’s-granting institutions, public two-year institutions and private nonprofit and for-profit institutions.
- Alternative enrollment patterns. An example: an effort to increase college access and, ultimately, degree attainment by giving students more—or less—access to community colleges rather than research universities or private institutions.

DASHBOARD: Strategies for Reducing Budget Gap

- Student-faculty ratios. Lower student-faculty ratios cost more; higher ratios reduce costs. The effect on quality is not always clear.
- Instructional salaries per FTE student.
- Administrative expenditures per FTE student.
- Student-services expenditures per FTE student.
- Employee benefits per FTE student. (The models handle these separately from salary expense; estimates of salary savings are based only on cash compensation and do not include benefits.)
- Tuition revenues. (These are net revenues realized after financial aid and discounting.)
- Tuition discounting per FTE student.
- State and local revenues.
- Credit hours earned toward degrees. These estimates are based on average costs across degree levels and disciplines.

The models are derived from publicly available resources produced by such federal agencies as the U.S. Census Bureau and the National Center for Education Statistics. Descriptions of the variables and their sources, as well as major assumptions, are included in this appendix.

OPERATING THE MODELS

The state models, created in Microsoft Excel, are built into a PowerPoint slide. To run them, your computer must be equipped with a recent version of Adobe Flash. (NOTE: Adobe Flash is available for free download at <http://www.adobe.com/cfusion/search/index.cfm?term=flash+download&sit>)

eSection=downloads.) When you click on the file to open the model, the slide will appear blank. To activate the content, go to the “View” pull-down menu and click on “Slide Show,” then “Enable.”

The slide features tabs near the top for each of the two dashboards: “Closing the Degree Gap” and “Strategies for Reducing Budget Gap.” Because the slide is interactive, you can test how various policy options affect 1) student progression to degrees and credentials and 2) the estimated spending needed to produce these outcomes at current and other levels.

CHANGING ASSUMPTIONS: You can change assumptions in the two dashboards by clicking on and adjusting the red and green “levers” on the sliding scales. For example, you can investigate strategies for increasing student participation and completion, or test the potential effects of cutting costs tied to specific strategies for graduating more students with high-quality degrees and credentials. There are several default conditions in the baseline model, including:

- Either a projected reduction or increase in the number of degrees produced by 2025. The models include projections of high school graduates from the Western Interstate Commission for

Higher Education and projections of enrollment among adults 20 to 39 years old. These two populations represent the majority of students who in the future will enroll in postsecondary education. States projected to lose residents will generate fewer graduates by 2025 at current graduation rates; states projected to gain residents will generate more.

- An increasing gap between needed and anticipated revenues to deliver public higher education. The model includes 2 percent real annual increases in employee benefits, a conservative estimate based upon past trends.
- The default position for each lever reflects the states’ current values for each measure. On the “Degree Gap” dashboard, reference markers (thick black lines on the sliding scales) show the average performance of the top three states for each student-progression measure; on the “Budget Gap” dashboard, and the markers illustrate the 25th and 75th percentiles among states for the cost and revenue measures. These should help keep your exercise within the bounds of reality, because it’s often difficult to improve performance or reduce costs beyond the levels of best-performing states.

APPENDIX B:

How the model can help you target opportunities

The following charts and tables are provided to help you use the models:

1. The first set of tables (Pages 12-15) provides an “at a glance” reference for the student progression rates or cost drivers for which states have the most room to reduce funding gaps while maintaining or improving performance. For each measure, the tables indicate whether a state is in the bottom quartile nationwide in performance, the top quartile in costs, or the bottom quartile in revenues. These are all strong indications of whether improvements in performance, reductions in costs, or increases in revenues are possible.
2. The final page (16) describe the calculations for each measure and the sources for the data used.

WHERE STATES SHOULD FOCUS FOR IMPROVED PERFORMANCE

(Based on their Relative Position to Other States, **X** = the Top Quartile in Costs and Bottom Quartile in Revenues)

State	High School Graduation Rate	College-Going Rate Directly Out of High School	Participation Rate of 20 to 30 Year Olds	Undergraduate Credentials Awarded per 10 FTE Undergraduates			
				Public Research	Public Bachelor's and Masters	Public Two-Year	Private Non-profit and For Profit
Alabama	X		X	X	X		X
Alaska	X	X	X	X	X		X
Arizona		X			X		X
Arkansas		X	X	X	X		X
California	X	X	X			X	
Colorado							
Connecticut			X			X	
Delaware			X				
Florida	X						
Georgia	X				X		X
Hawaii			X				
Idaho		X			X		X
Illinois							
Indiana						X	
Iowa							X
Kansas							
Kentucky							
Louisiana	X			X	X		X
Maine			X				
Maryland						X	X
Massachusetts			X		X		
Michigan							
Minnesota							
Mississippi	X			X			
Missouri		X			X		
Montana				X			X
Nebraska							
Nevada	X	X		X	X	X	
New Hampshire			X				
New Jersey				X		X	
New Mexico	X			X			
New York	X		X				
North Carolina	X						X
North Dakota				X			
Ohio					X		
Oklahoma							
Oregon		X				X	
Pennsylvania						X	
Rhode Island		X		X		X	
South Carolina	X						X
South Dakota					X		
Tennessee				X	X	X	
Texas	X	X				X	
Utah		X					
Vermont		X	X			X	
Virginia						X	
Washington		X	X				
West Virginia				X			X
Wisconsin							
Wyoming					X		

WHERE STATES SHOULD FOCUS EFFORTS FOR REDUCING COSTS OR GENERATING REVENUES

(Based on their Relative Position to Other States, **X** = the Top Quartile in Costs and Bottom Quartile in Revenues)

State	Public Research Institutions							
	Student/ Faculty Ratio	Instructional Salaries per FTE Student	Administrative Expenditures per FTE Student	Student Support Expenditures per FTE Student	Employee Benefits per FTE Student	Tuition Revenues per FTE Student	Tuition Discounting per FTE Student	State and Local Appropriations per FTE Student
Alabama			X	X				
Alaska	X	X	X	X	X	X		
Arizona								
Arkansas						X		
California		X		X			X	
Colorado	X							X
Connecticut		X	X	X	X		X	
Delaware		X	X		X		X	X
Florida						X		
Georgia						X		
Hawaii	X	X		X	X			
Idaho						X		
Illinois				X				
Indiana								
Iowa	X			X			X	
Kansas								
Kentucky	X	X	X	X	X		X	
Louisiana						X		
Maine				X			X	
Maryland	X		X				X	
Massachusetts								
Michigan			X		X		X	
Minnesota	X	X	X	X	X		X	
Mississippi								
Missouri	X						X	
Montana								X
Nebraska						X	X	
Nevada								
New Hampshire							X	X
New Jersey		X	X					
New Mexico						X		
New York			X		X	X		
North Carolina		X						
North Dakota								X
Ohio							X	X
Oklahoma								
Oregon								X
Pennsylvania	X	X	X	X	X			X
Rhode Island								X
South Carolina								
South Dakota						X		X
Tennessee		X						
Texas								X
Utah	X				X	X		
Vermont	X	X	X	X	X		X	X
Virginia								
Washington	X	X	X	X	X			
West Virginia								X
Wisconsin								
Wyoming	X					X		

WHERE STATES SHOULD FOCUS EFFORTS FOR REDUCING COSTS OR GENERATING REVENUES

(Based on their Relative Position to Other States, **X** = the Top Quartile in Costs and Bottom Quartile in Revenues)

State	Public Bachelor's and Masters Institutions							
	Student/ Faculty Ratio	Instructional Salaries per FTE Student	Administrative Expenditures per FTE Student	Student Support Expenditures per FTE Student	Employee Benefits per FTE Student	Tuition Revenues per FTE Student	Tuition Discounting per FTE Student	State and Local Appropriations per FTE Student
Alabama								
Alaska	X	X		X	X			
Arizona								
Arkansas						X	X	
California								
Colorado		X	X	X				X
Connecticut	X	X	X	X	X			
Delaware	X	X	X	X	X		X	
Florida						X	X	
Georgia						X		
Hawaii	X	X	X	X	X	X		
Idaho								
Illinois		X		X				
Indiana								
Iowa								
Kansas								
Kentucky							X	
Louisiana						X		
Maine	X			X	X			
Maryland		X	X	X	X			X
Massachusetts				X				
Michigan							X	X
Minnesota								X
Mississippi			X	X		X	X	
Missouri							X	
Montana	X			X	X		X	
Nebraska						X	X	
Nevada	X		X			X		
New Hampshire	X	X		X	X		X	X
New Jersey	X	X	X					
New Mexico	X	X	X		X	X		
New York		X	X		X			
North Carolina		X	X					
North Dakota	X							
Ohio								X
Oklahoma						X		
Oregon					X			
Pennsylvania								X
Rhode Island								
South Carolina								X
South Dakota							X	X
Tennessee								X
Texas						X		
Utah						X		X
Vermont	X		X		X			X
Virginia								
Washington							X	
West Virginia	X					X		X
Wisconsin								X
Wyoming								

WHERE STATES SHOULD FOCUS EFFORTS FOR REDUCING COSTS OR GENERATING REVENUES

(Based on their Relative Position to Other States, **X** = the Top Quartile in Costs and Bottom Quartile in Revenues)

State	Public Two-Year Institutions							
	Student/ Faculty Ratio	Instructional Salaries per FTE Student	Administrative Expenditures per FTE Student	Student Support Expenditures per FTE Student	Employee Benefits per FTE Student	Tuition Revenues per FTE Student	Tuition Discounting per FTE Student	State and Local Appropriations per FTE Student
Alabama							X	
Alaska	X	X	X	X	X	X	X	
Arizona						X		
Arkansas								
California						X		
Colorado								X
Connecticut				X	X		X	
Delaware	X		X	X				
Florida								X
Georgia								
Hawaii		X		X	X			
Idaho	X		X	X	X		X	
Illinois						X		
Indiana								X
Iowa								X
Kansas			X	X		X	X	
Kentucky	X				X	X	X	
Louisiana			X		X			
Maine	X				X			
Maryland	X	X	X	X			X	
Massachusetts			X	X				
Michigan				X				
Minnesota				X				
Mississippi		X						
Missouri								X
Montana	X			X			X	
Nebraska						X		
Nevada						X		
New Hampshire	X	X	X					X
New Jersey								X
New Mexico						X		
New York		X	X		X			
North Carolina	X	X				X		
North Dakota	X	X	X				X	
Ohio								
Oklahoma								
Oregon		X		X	X			
Pennsylvania	X							X
Rhode Island		X	X		X			
South Carolina								X
South Dakota			X					X
Tennessee								
Texas						X		
Utah					X			
Vermont	X			X				X
Virginia								X
Washington		X					X	
West Virginia							X	X
Wisconsin	X	X	X		X			
Wyoming		X	X	X	X	X	X	

MODEL CALCULATIONS AND DATA SOURCES

MODEL ASSUMPTIONS

- (1) The model assumes linear progress toward all 2025 goals/targets - incremental improvements rather than all at once.
- (2) All increases and reductions in expenditures and revenues by 2025 are in current dollars — no inflation taken into account.
- (3) Included in the model are projections of high school graduates and young adults aged 20 to 39 to the year 2025. This leads to declines in degree production (at current levels of performance) in states that have projected declines in population — and vice-versa.
- (4) A 2 percent annual increase in benefits costs is included in the model (in current dollars). This is approximately the rate of increase over and above inflation experienced in the last decade (conservatively).

Measure	Calculation	Source
CLOSING THE GAP MEASURES		
College Attainment of 25 to 64 Year Olds	Percent of 25 to 64 Year Olds with Associate Degrees and Higher	U.S. Census Bureau, 2008 American Community Survey
High School Graduation Rate	High school graduates as a percent of 9th graders four years earlier	NCES, Common Core Data
College-Going Rate Directly Out of High School	Fall first-time students directly out of high school (within the past year) as a percent of recent high school graduate (the previous spring)	NCES, Common Core Data and IPEDS Fall Residency and Migration Survey
Participation Rate of 20 to 39 Year Olds	Fall first-time students not directly out of high school as a percentage of 20 to 39 year olds	NCES, IPEDS Fall Residency and Migration Survey; U.S. Census Bureau Population Estimates
Undergraduate Credentials Awarded per 100 FTE Undergraduates	Undergraduate credentials (certificates, associates, and bachelor's) awarded per 100 full-time equivalent undergraduates	NCES, IPEDS Completions and Enrollment Surveys
STRATEGIES FOR REDUCING THE BUDGET GAP MEASURES		
Student/Faculty Ratio	Number of Students per Faculty Member: Total FTE students / Total FTE faculty (full-time plus 1/2 part-time)	NCES, IPEDS Enrollment and Fall Staff Surveys
Instructional Salaries per FTE Student	Total instructional salary outlay / Total FTE Students	NCES, IPEDS Fall Enrollment Survey
Administration Expenditures per FTE	The Costs of Running the Institution: (institutional expenditures + plant operation and maintenance expenditures) per FTE student	NCES, IPEDS Finance and Enrollment Surveys
Student Service Expenditures per FTE	The Non-Instructional Costs of Serving Students: (student services expenditures + academic support expenditures) per FTE student	NCES, IPEDS Finance and Enrollment Surveys
Employee Benefits per FTE	Employee benefits for all faculty and staff per FTE student	NCES, IPEDS Finance and Enrollment Surveys
Percentage Tuition Increase per Student by 2025	Percentage increase in net tuition revenues per FTE student	NCES, IPEDS Finance and Enrollment Surveys
Tuition Discounting per FTE	Non-Need-Based Tuition Discounting: (Gross tuition revenues minus net tuition revenues per FTE student) / 2. This assumes that half of the discounting is based on need	NCES, IPEDS Finance and Enrollment Surveys
Annual Increase in State and Local Revenues	Percentage increase in state and local revenues (unrestricted - not restricted for research, agriculture, etc.)	NCES, IPEDS Finance Survey
Reduction in Credit Hours to Degree	Reduction in the number of credit hours students earn toward an associates degree at two-year colleges and a bachelors	NCES, IPEDS Enrollment Survey

APPENDIX C:

Additional Opportunities for Productivity Increases

The models are restricted to the measures for which there are reasonable data from reliable sources. Some alternative strategies that cannot be effectively modeled are likely to arise in discussions about productivity. These include:

Strategically Cut Costs

- Reduce the cost of borrowing by renegotiating interest rates on bonds. In the current environment, states can achieve greater savings in some instances by refinancing rather than reducing program spending.
- Undertake energy-saving projects that will yield future returns.
- Eliminate faculty and staff tuition-waiver programs. This is a major employee benefit that does not show up in most cost analyses; cutting it could lead to significant savings.
- Eliminate subsidies for intercollegiate athletics. Knight Commission on Intercollegiate Athletics research indicates that subsidies for athletics are increasing significantly faster than spending on academics.

Improve Performance

- Change the program or discipline mix to consolidate programs in lower-cost areas such as the humanities and social sciences. National data don't allow us to model the savings from this restructur-

ing, but research consistently indicates the mix of disciplines offered—more than mission or degree structure—heavily influences instructional costs.

- Consolidate low-performing programs, based on their enrollments or graduate output.
- Reduce course offerings. Simplifying and reconfiguring curriculum can help students better navigate their way toward degrees, an option that may increase the number of college graduates even as spending is reduced.

Reinvest in Transformative Change

- Require that half of new tenure-track faculty members are hired at a level no higher than associate professor.
- Create alternative faculty career paths for teaching-centered promotions.
- Redesign core curriculum to focus on student-learning outcomes rather than “seat time” and the accumulation of credit hours.
- Increase workplace-centered, accelerated, and online learning opportunities.



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