

January 2014

An Open Letter to the People of Purdue,

One year ago today I took up my new assignment as your Purdue colleague. I did so with the deepest respect for Purdue's great history and traditions, but also in the knowledge that we have entered a period of momentous change for all of higher education, with predictions in many quarters of upheaval or even widespread failure of long-standing institutions. Fortunately, one of Purdue's strongest traditions is that of constant innovation, of continuous improvement, of steadily striving to build "one brick higher."

In August, after months of consultation with faculty and other campus leadership, we announced a series of actions aimed at propelling our university further forward in both its teaching and discovery missions, and to addressing head-on many of the challenges now confronting all of higher education. Before I or anyone could devise a catchy label for the ten selected initiatives, an informal colloquialism stuck, and they have become known as the Big Moves. As a slogan, it may be pedestrian, but the ambition it embodies is not: Successful implementation would stamp Purdue as a global leader in areas that we believe fit our historic land-grant mission, and matter most to the society of today.

The Morrill Act, which Abraham Lincoln signed in 1862, committed the nation to construct new colleges with two principal goals: to throw open the doors of higher education to a much wider swath of the population, and to promote technological progress in "agriculture and the mechanical arts." At its sesquicentennial, the act's purposes are at least as relevant as at its inception. One study after another informs the nation that economic success requires thousands more engineers, scientists, and technologically adept citizens.

During 2014, we intend to build world-class research teams and facilities in drug discovery and plant science. We are actively recruiting exciting new research talent to join our current complement of drug discovery faculty, and the new Drug Discovery Building and the Multidisciplinary Cancer Research Facility will soon open to house their work. In plant science, we are also moving to recruit new faculty and to identify new research space. A new phenotyping facility, to be housed at the Agronomy Center for Research and Education, and a Center for Molecular Agriculture are underway.

By year's end, we expect to have expanded our engineering faculty by 50 net new professors, en route to a Phase One growth of 107. By that time, we should have determined targets for student and faculty growth during our second round of expansion. This time next year, we project that our undergraduate engineering enrollment will exceed 7,700, setting a record high for the seventh consecutive year, and our total engineering enrollment (undergraduate plus graduate) will exceed 10,700. By 2015, Purdue will be accounting for more than 5 percent of the

national call to graduate 10,000 more engineers a year.

Our College of Technology is setting a great example for us all by rethinking creatively the way it teaches and prepares students for the 21st Century economy. Its faculty deserves our encouragement and support as it seeks to transform itself into the Purdue Polytechnic Institute, featuring an even more hands-on, experiential curriculum designed to foster the skills today's employers say they prize most.

When one arrays the public research universities of the U.S. by their concentration of STEM disciplines (measured in percentage of undergraduate degrees conferred), Purdue already ranks third. After our Big Moves expansions are complete, we should be even more distinctive as a leader in producing the thousands of new engineers and technologists for which both business and governmental leaders are calling. We aspire to be the leading technology school between the coasts, and a wellspring of new inventions and jobs to strengthen the Indiana economy of tomorrow.

THE PAJAMAS TEST

When critics and skeptics contrive dramatic metaphors like "tsunami" and "avalanche" to forecast wrenching changes in higher education, they are thinking of two intersecting phenomena: first, the appearance of disruptive alternatives to site-based, "seat-time" residential education, and the escalating costs which have begun to send many students and parents searching for such less expensive alternatives. I have been reducing this to an only half-joking formulation: "Why, in ten or fifteen years, will students still find it wise to pay lots of money to go and live somewhere for four or more years, when a host of competitors are offering to bring them excellent teachers and instruction in the inexpensive comfort of their own homes?" The doomsday predictions may well be misguided or premature, but history is littered with extinct institutions, businesses, or entire industries that dallied in arrogant denial as the bases of their past success were undermined and washed away.

Whatever the future brings to other universities, we intend that Purdue not merely survive but thrive in the reshaped environment ahead. Much of what we already offer, such as undergraduate research projects, extensive laboratory experience, and our plethora of campus leadership opportunities, will be very hard for non-residential offerers to replicate. But we will not rely on traditional strengths alone.

Our Big Moves agenda, through its acceleration of our IMPACT program, includes the swiftest possible transformation of the typical course to some version of the "flipped" classroom that blends the best of the new technologies and time-tested, interpersonal teaching methods. We are already well-embarked on radically increasing the percentage of Boilermakers whose Purdue careers include at least one meaningful international study experience. And, noting the superior academic outcomes for students who live on as opposed to off a college campus, we are acting to increase the share of our students who choose to do so to at least half. All these initiatives must make significant, quantifiable headway in 2014.

AFFORDABILITY

Cutting across all of these challenges is the urgent matter of affordability. As we quickly learned when we offered modest help with expenses, it is a big reason that so few students have been studying abroad. And, particularly as reflected in the cost of meals, it is a big factor in the choice of many students who would otherwise stay on campus to move elsewhere.

Purdue caught the attention of many in and beyond Indiana last spring when we broke a 36-year string of tuition increases, announcing instead a two-year freeze. We followed that up with a 5 percent reduction in the cost of our meal plans, as well as a 56 percent cut in the cost of our co-op internship fees. We declared that we would base Purdue's reputation on the proven excellence of its faculty and graduates, not on its sticker price. We stated that henceforth we would seek to adjust our spending to the budgets of students' families rather than require that they adjust their budgets to ours. Reaction from students, parents, and outside observers was predictably positive. The steps necessary to make the freeze possible were the product of university-wide commitment, in which literally every faculty and staff colleague participated.

Examples large and small can be found all over campus. To cite just a few: Our information technology unit, by consolidating data centers and coordinating with the regional campuses on bulk purchasing, has achieved several hundred thousand dollars in savings that will repeat and grow every year. Through collective purchasing of diesel fuel and renegotiated contracts for bus service and parking, Purdue will save tens of thousands more annually. We've sold 10 underutilized vehicles for around \$10,000 apiece and cut unneeded rental storage in half for a savings of \$160,000 per year. And the sustainability office found used furniture to reduce a planned expense of \$30,000 to \$2,000. If we can maintain a campus-wide commitment to holding costs down, counting every \$10,000 saved as a "student tuition equivalent," we can fulfill our duty to our students, taxpayers and everyone who chooses to invest in Purdue's enterprise.

Our land-grant mission starts from the premise that the life-changing benefits of higher education must be open to all who are ready and able to meet its standards and requirements, regardless of income or social status. As we enroll the Class of 2018, we will add to our scholarship assistance and target it more closely to low-income applicants, but that will not suffice. We recently reduced our meal plan prices by another 5 percent and, this spring, I will ask the Board of Trustees to extend our tuition freeze for a third year. As in 2013, we ask a campus-wide commitment to economy and to concentrating our resources on the core objectives of the university: teaching, research, and engagement.

ACCOUNTABILITY

Like, until recently, the K-12 education system, American higher ed has been immune from close examination of its results, as reflected in value compared with price. It has been taken for granted that a college diploma, almost any diploma, was a prerequisite to the best-paying and most satisfying careers, or that historic career advantages would unquestionably persist in future generations. But with a majority of recent graduates either unemployed or working at jobs that do not require a college degree, and with an estimated 45 percent of them living with parents

rather than independently, these assumptions are being rethought. A number of new analyses and rankings are emerging, purporting to tell potential students the extent to which a diploma in a given discipline, and/or from a given school, is truly worth its asking price.

Purdue must welcome, and lead, the new accountability era. We must do so for reasons of responsibility, necessity, and opportunity. Responsibility, because we should see it as our duty to be absolutely certain that the learning we provide equips its purchasers for successful, fulfilling lives. Necessity, because whether or not we embrace our duty, the world will soon demand proof of efficacy or take its business elsewhere. And opportunity, because we are highly confident based on the fragmentary emerging evidence that a Purdue education does unquestionably deliver exceptional value to those who acquire it.

After months of effort by a faculty committee I empaneled at the outset of my service, we announced the launching of a new national index of university effectiveness. Teaming with the world-renowned Gallup research organization, Purdue experts have crafted a means of measuring not merely the material success of our graduates, but also their readiness for increasing levels of leadership in their chosen fields, and their overall fulfillment in life. From now on, we intend to know with empirical assurance what we have known anecdotally, to be able to prove what we have long suspected and believed, about the superior value of a Purdue education. We undertake this new responsibility because it is the right thing to do, but also with the confidence that the findings will redound to our university's benefit, especially as the marketplace requires other schools to attempt to produce similar proof.

Accountability takes an internal form as well. In accepting Purdue's offer of employment, I requested a different sort of contract, one based heavily on performance against the most important strategic goals of the university and its Trustees. Thirty percent of my compensation is at risk, meaning that anything short of straight-A ratings will reduce my pay. During 2013, we began applying this principle to other top officials, such as the new president of the Purdue Research Foundation, for whom two-thirds of pay is at risk. Although such formal arrangements will likely always apply to a small minority of our personnel, the principle that performance matters should be universally accepted by everyone fortunate enough to work for Purdue.

INNOVATION

I have already praised our College of Technology for its willingness to reshape its traditional mode of teaching, and it is not the only such example. Our College of Education has begun a promising new emphasis on differentiating itself as the nation's premier preparer of STEM teachers. And, of course, every professor who has joined the IMPACT project or begun teaching in the summer is playing an important innovator's role. But we need to explore even further afield.

Two of the new questions posed to higher education these days are 1) Why does it take so long for students to fulfill their graduation requirements? and 2) Why can't students progress at their own rate instead of being tied to an historic semester calendar? Often, the matter is put more directly: Why can't at least some degrees be completed in less than the traditional four years, and why can't students move ahead as soon as they have demonstrated their mastery, or

"competency" of a subject, rather than wait for an arbitrary testing date?

These are not radical notions. In Europe, degrees are often earned in three versus four years, and the practice is beginning to spread here in the U.S. Many of the new entrants in our market are structured completely around a competency-based model, in which students can move as fast as their ability and diligence will permit, reducing time to degree and cost as they do so.

Clearly, much of what we teach at Purdue will not lend itself to these emerging practices. But if and where they could apply, we should be a leader and not a laggard in devising and applying them.

To encourage such leadership, I am offering a million-dollar prize for innovation, divided between these two areas. The first department or program to fashion a three-year degree, and the first to create a competency-based degree, will each be supported with \$500,000 from the presidential discretionary account. Any funds left over after costs of transition are the department's to keep. I'll follow up with details within a short time, but I hope that somewhere on campus imaginations will begin to work on pioneer programs from which others can learn and through which Purdue will stamp itself as a leader among student-centered universities.

TRANSITIONS

No year passes without meaningful changes in the faculty and administrative leadership of a university our size, but it's not often that the very uppermost positions of both these communities turn over at the same time. But that will occur later this spring when two remarkable men, Tim Sands and Al Diaz, move on to exciting new opportunities.

Identifying and searching the best possible replacements for them will be among the most important tasks of the year ahead. We will spread the net nationally, as well as examine all potential on-campus candidates. The provost selection in particular will require the broadest possible faculty input, both in suggesting and evaluating possibilities. We are off to a good start with the convening late last week of a search committee comprising some of our most illustrious faculty, with the task of concluding the search by mid-April.

PURDUE'S SPECIAL CHALLENGE

Given the high quality and value of a Purdue education, and our university's demonstrated ability to move with the times, we have every reason for confidence that we can navigate even should the tsunami scenario eventuate. But Pres. Lincoln, and Sen. Morrill, and all our great Boilermaker predecessors have bequeathed us a grander and nobler mission than mere survival.

Another fair criticism of American higher education is that so few students, barely one half of those who enter, complete a degree even in six years. Our own completion rate, at 70.7 percent, has been far too low, and past administrations have done fine work in raising it. More improvement is in the offing, due primarily to the higher standards we have been requiring of applicants over recent years. Our freshman to sophomore retention rate, a strong indicator of

eventual completion, has climbed to 91 percent, while retention on into the third year is 84.3 percent. So far, this has been accomplished without lapsing into "grade inflation" or compromising the rigor for which Purdue wins proud national notice.

We could continue to enhance persistence and completion levels just by continually raising the entrance bar, reducing the overall student population if need be. Similarly, we could improve our percentages of underrepresented minority students by outbidding other schools for the limited pool of top, generally higher-income candidates. A colleague from my days in the contract research business used to joke about experiments that were "doomed to succeed," and that would be a reasonable description of the above practices.

The tougher, but preferable approach will be to maintain and to the extent possible grow our student body, spreading the benefits of a Purdue education more widely. Doing so, while maintaining rigor and continuing to improve our graduation rates, will require that we excel at the new techniques of "student success." The Signals technology, which identifies student difficulty before it becomes irreversible, was born at Purdue; it should be adopted in every Boilermaker classroom. We should resolve to be second to none in developing mentoring programs, more learning communities, and utilizing the new tools of "learning analytics" to assist current students and to be better prepared to help future students do well.

During 2013, America's postsecondary education system showed signs of serious stress. Overall, colleges saw a drop of 460,000 students, the largest single-year decline in many years. Thirty-seven percent of top school administrators express concern about maintaining current enrollments, a jump from 23 percent just a year before. Purdue still enjoys a AAA credit rating from Moody's, but that agency gives the higher ed sector as a whole a "negative outlook." In what many expect to be an accelerating trend, a number of small colleges closed their doors completely.

Amid this turbulence, Purdue stands, if not exactly "serene and grand," certainly apart.* As I endeavor to demonstrate in every public presentation, our university represents, in its traditional land-grant mission, its present reality, and even more so in its future potential, the answer to the questions being posed about our troubled higher ed system. 2014 must be another year in which we take actions that further validate the investments our students, donors, and fellow citizens make in our institution, and separate our university still further from competitors old and new.

Sincerely,

Mitchell E. Daniels Jr.
President

*From "Purdue Hymn," the alma mater of Purdue University, music and lyrics by Alfred B. Kirchoff (1941): "Close by the Wabash,/In famed Hoosier land,/Stands old Purdue,/Serene and grand." (1-4)-