

# The brains business

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A survey of higher education  
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# The brains business

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Mass higher education is forcing universities to become more diverse, more global and much more competitive, says Adrian Wooldridge

FOR those of a certain age and educational background, it is hard to think of higher education without thinking of ancient institutions. Some universities are of a venerable age—the University of Bologna was founded in 1088, the University of Oxford in 1096—and many of them have a strong sense of tradition. The truly old ones make the most of their pedigrees, and those of a more recent vintage work hard to create an aura of antiquity.

And yet these tradition-loving (or -creating) institutions are currently enduring a thunderstorm of changes so fundamental that some say the very idea of the university is being challenged. Universities are experimenting with new ways of funding (most notably through student fees), forging partnerships with private companies and engaging in mergers and acquisitions. Such changes are tugging at the ivy's roots.

This is happening for four reasons. The first is the democratisation of higher education—"massification", in the language of the educational profession. In the rich world, massification has been going on for some time. The proportion of adults with higher educational qualifications in the OECD countries almost doubled between 1975 and 2000, from 22% to 41%. But most of the rich countries are still struggling to digest this huge growth in numbers. And now massification is spreading to the developing world. China doubled its student population in the late 1990s, and India is trying to follow suit.

The second reason is the rise of the knowledge economy. The world is in the grips of a "soft revolution" in which knowledge is replacing physical resources as the main driver of economic growth. The OECD calculates that between 1985 and 1997 the contribution of knowledge-based industries to total value added increased from 51% to 59% in Germany and from 45% to 51% in Britain. The best companies are now devoting at least a third of their investment to knowledge-intensive intangibles such as R&D, licensing and marketing. Universities are among the most important engines of the knowledge economy. Not only do they produce the brain workers who man it, they also provide much of its backbone, from laboratories to libraries to computer networks.

The third factor is globalisation. The death of distance is transforming academia just as radically as it is transforming business. The number of people from OECD countries studying abroad has doubled over the past 20 years, to 1.9m; universities are opening campuses all around the world; and a growing number of countries are trying to turn higher education into an export industry.

The fourth is competition. Traditional universities are being forced to compete for students and research grants, and private companies are trying to break into a sector which they regard as "the new health care". The World Bank calculates that global spending on higher education

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A list of sources can be found online

[www.economist.com/surveys](http://www.economist.com/surveys)

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► amounts to \$300 billion a year, or 1% of global economic output. There are more than 80m students worldwide, and 3.5m people are employed to teach them or look after them.

### Enemies of promise

All this sounds as though a golden age for universities has arrived. But inside academia, particularly in Europe, it does not feel like it. Academics complain about “the decline of the donnish dominion” (the title of a book by A.H. Halsey, a sociologist), and administrators are locked in bad-tempered exchanges with the politicians who fund them. What has gone wrong?

The biggest problem is the role of the state. If more and more governments are embracing massification, few of them are willing to draw the appropriate conclusion from their enthusiasm: that they should either provide the requisite funds (as the Scandinavian countries do) or allow universities to charge realistic fees. Many governments have tried to square the circle through tighter management, but management cannot make up for lack of resources.

So in all too much of the academic world, the writer Kingsley Amis’s famous dictum that more means worse is coming to pass. Academic salaries are declining when measured against similar jobs elsewhere, and buildings and libraries are deteriorating. In mega-institutions such as the University of Rome (180,000 students), the National University of Mexico (200,000-plus), and Turkey’s Anadolu University (530,000), individual attention to students is bound to take a back seat.

The innate conservatism of the academic profession does not help. The modern university was born in a very different world from the current one, a world where only a tiny minority of the population went into higher education, yet many academics have been reluctant to make any allowances for massification. Italian universities, for instance, still insist that all students undergo a viva voce examination by a full professor, lasting an average of about five minutes.

What, if anything, can be done? Techno-utopians believe that higher education is ripe for revolution. The university, they say, is a hopelessly antiquated institution, wedded to outdated practices such as tenure and lectures, and incapable of serving a new world of mass audiences and just-in-time information. “Thirty years from now the big university campuses will be relics,” says Peter Drucker, a veteran management guru. “I consider the

American research university of the past 40 years to be a failure.” Fortunately, in his view, help is on the way in the form of internet tuition and for-profit universities.

Cultural conservatives, on the other hand, believe that the best way forward is backward. The two ruling principles of modern higher-education policy—democracy and utility—are “degradations of the academic dogma”, to borrow a phrase from the late Robert Nisbet, another sociologist. They think it is foolish to waste higher education on people who would rather study “Seinfeld” than Socrates, and disingenuous to confuse the pursuit of truth with the pursuit of profit.

The conservative argument falls at the first hurdle: practicality. Higher education is rapidly going the way of secondary education: it is becoming a universal aspiration. The techno-utopian position is superficially more attractive. The internet will surely influence teaching, and for-profit companies are bound to shake up a moribund marketplace. But there are limits.

A few years ago a report by Coopers & Lybrand crowed that online education could eliminate the two biggest costs from higher education: “The first is the need for bricks and mortar; traditional campuses are not necessary. The second is full-time faculty. [Online] learning involves only a small number of professors, but has the

potential to reach a huge market of students.” That is nonsense. The human touch is much more vital to higher education than is high technology. Education is not just about transmitting a body of facts, which the internet does pretty well. It is about learning to argue and reason, which is best done in a community of scholars.

This survey will argue that the most significant development in higher education is the emergence of a super-league of global universities. This is revolutionary in the sense that these institutions regard the whole world as their stage, but also evolutionary in that they are still wedded to the ideal of a community of scholars who combine teaching with research.

The problem for policymakers is how to create a system of higher education that balances the twin demands of excellence and mass access, that makes room for global elite universities while also catering for large numbers of average students, that exploits the opportunities provided by new technology while also recognising that education requires a human touch.

As it happens, we already possess a successful model of how to organise higher education: America’s. That country has almost a monopoly on the world’s best universities (see table 1), but also provides access to higher education for the bulk of those who deserve it. The success of American higher education is not just a result of money (though that helps); it is the result of organisation. American universities are much less dependent on the state than are their competitors abroad. They derive their income from a wide variety of sources, from fee-paying students to nostalgic alumni, from hard-headed businessmen to generous philanthropists. And they come in a wide variety of shapes and sizes, from Princeton and Yale to Kalamazoo community college.

This survey will offer two pieces of advice for countries that are trying to create successful higher-education systems, be they newcomers such as India and China or failed old hands such as Germany and Italy. First: diversify your sources of income. The bargain with the state has turned out to be a pact with the devil. Second: let a thousand academic flowers bloom. Universities, including for-profit ones, should have to compete for customers. A sophisticated economy needs a wide variety of universities pursuing a wide variety of missions. These two principles reinforce each other: the more that the state’s role contracts, the more educational variety will flourish. ■

### America rules

The world’s top universities\*

Rank	University	Country
1	Harvard University	America
2	Stanford University	America
3	University of Cambridge	Britain
4	University of California ( <i>Berkeley</i> )	America
5	Massachusetts Institute of Technology	America
6	California Institute of Technology	America
7	Princeton University	America
8	University of Oxford	Britain
9	Columbia University	America
10	University of Chicago	America
11	Yale University	America
12	Cornell University	America
13	University of California ( <i>San Diego</i> )	America
14	Tokyo University	Japan
15	University of Pennsylvania	America
16	University of California ( <i>Los Angeles</i> )	America
17	University of California ( <i>San Francisco</i> )	America
18	University of Wisconsin ( <i>Madison</i> )	America
19	University of Michigan ( <i>Ann Arbor</i> )	America
20	University of Washington ( <i>Seattle</i> )	America

\*Ranked by a mixture of indicators of academic and research performance, including Nobel prizes and articles in respected publications  
Source: Jiao Tong University, Shanghai

## Secrets of success

America's system of higher education is the best in the world. That is because there is no system

IT IS all too easy to mock American academia. Every week produces a mind-boggling example of intolerance or wackiness. Consider the twin stories of Lawrence Summers, one of the world's most distinguished economists, and Ward Churchill, an obscure professor of ethnic studies, which unfolded in parallel earlier this year. Mr Summers was almost forced to resign as president of Harvard University because he had dared to engage in intellectual speculation by arguing, in an informal seminar, that discrimination might not be the only reason why women are under-represented in the higher reaches of science and mathematics. Mr Churchill managed to keep his job at the University of Boulder, Colorado, despite a charge sheet including plagiarism, physical intimidation and lying about his ethnicity.

With such colourful headlines, it is easy to lose sight of the real story: that America has the best system of higher education in the world. The Institute of Higher Education at Shanghai's Jiao Tong University ranks the world's universities on a series of objective criteria such as the number of Nobel prizes and articles in prestigious journals. Seventeen of the top 20 universities in that list are American (see table 1, previous page); indeed, so are 35 of the top 50. American universities currently employ 70% of the world's Nobel prize-winners. They produce about 30% of the world's output of articles on science and engineering, according to a survey conducted in 2001, and 44% of the most frequently cited articles.

At the same time, a larger proportion of the population goes on to higher education in America than almost anywhere else, with about a third of college-aged people getting first degrees and about a third of those continuing to get advanced degrees. Non-traditional students also do better than in most other countries. The majority of undergraduates are female; a third come from racial minorities; and more than 40% are aged 25 or over. About 20% come from families with incomes at or below the poverty line. Half attend part-time, and 80% of students work to help support themselves.

Why is America so successful? Wealth



Larry Summers committed heresy

clearly has something to do with it. America spends more than twice as much per student as the OECD average (about \$22,000 versus \$10,000 in 2001), and alumni and philanthropists routinely shower universities with gold. History also plays a part. Americans have always had a passion for higher education. The Puritans established Harvard College in 1636, just two decades after they first arrived in New England.

The main reason for America's success, however, lies in organisation. This is something other countries can copy. But they will not find it easy—particularly if they are developing countries that are bent on state-driven modernisation.

The first principle is that the federal government plays a limited part. America does not have a central plan for its universities. It does not treat its academics as civil servants, as do France and Germany. Instead, universities have a wide range of patrons, from state governments to religious bodies, from fee-paying students to generous philanthropists. The academic landscape has been shaped by rich benefactors such as Ezra Cornell, Cornelius Vanderbilt, Johns Hopkins and John D. Rockefeller. And the tradition of philanthropy survives to this day: in fiscal 2004, private donors gave \$24.4 billion to universities.

Limited government does not mean indifferent government. The federal government has repeatedly stepped in to turbocharge higher education. The Morrill Land Grant Act of 1862 created land-grant universities across the country. The states poured money into community colleges. The GI Bill of 1946 brought universities within the reach of everyone. The federal government continues to pour billions of dollars into science and research.

The second principle is competition. Universities compete for everything, from students to professors to basketball stars. Professors compete for federal research grants. Students compete for college bursaries or research fellowships. This means that successful institutions cannot rest on their laurels.

The third principle is that it is all right to be useful. Bertrand Russell once expressed astonishment at the worldly concerns he encountered at the University of Wisconsin: "When any farmer's turnips go wrong, they send a professor to investigate the failure scientifically." America has always regarded universities as more than ivory towers. Henry Steele Commager, a 20th-century American historian, noted of the average 19th-century American that "education was his religion"—provided that it "be practical and pay dividends".

This emphasis on "paying dividends" remains a prominent feature of academic culture. America has pioneered the art of forging links between academia and industry. American universities earn more than \$1 billion a year in royalties and licence fees. More than 170 universities have "business incubators" of some sort, and dozens operate their own venture funds.

### Nothing quite like it

There is no shortage of things to marvel at in America's higher-education system, from its robustness in the face of external shocks to its overall excellence. No country but America explores such a wide range of subjects (including some dubious ones such as GBLT—gay, lesbian, bisexual and transgender studies). However, what particularly stands out is the system's flexibility and its sheer diversity.

For a demonstration of its flexibility, ►►

► consider New York University. NYU used to be a commuter school with little money and even less prestige. In the mid-1970s, it was so close to bankruptcy that it had to sell off its largest campus, in the Bronx. But today it is flush with money from fundraising, “hot” with would-be undergraduates across the country, and famous for recruiting academic superstars. The Shanghai world ranking puts it at number 32.

The academic superstars certainly helped, but two other things proved even more useful. The first was NYU’s ability to turn its location in downtown Manhattan into an asset. Lots of universities have fine economics departments, but having the stock exchange nearby adds something extra. The second was the university’s ability to spot market niches.

What made all this possible was the fact that power is concentrated in the hands of the central administration. Most universities in other countries distribute power among the professors; American universities have established a counterbalance to the power of the faculty in the person of a president, which allows some of them to act more like entrepreneurial firms than lethargic academic bodies.

The American system’s diversity has allowed it to combine excellence with access by providing a wide range of different types of institutions. Only about 100 of America’s 3,200 higher-education institutions are research universities. Many of the rest are community colleges that produce little research and offer only two-year courses. But able students can progress from a humble two-year college to a prestigious research university.

To be fair, one reason why America’s best universities are so good is that they have borrowed liberally from abroad—particularly from the British residential universities that grew up in Oxford and Cambridge in the Middle Ages, and from Wilhelm von Humboldt’s German research university in the early 19th century.

### Serpents in paradise

But America’s academic paradise harbours plenty of serpents. The political correctness that has plagued Mr Summers is just one example of a deeper problem: America’s growing inclination to abandon the very principles that have made it a world leader.

Ross Douthat has recently created a stir with his exposé of Ivy League education, “Privilege: Harvard and the Education of the Ruling Class”. High-school students compete furiously to get into Ivy League

universities such as Harvard, but Mr Douthat, who graduated from there only three years ago, argues that they are seldom stretched when they arrive. A few professors try to provide overviews of big subjects, but many stick with their pet subjects regardless of what undergraduates need to learn. Mr Douthat wanted to pick a comprehensive list of classes in his chosen subjects, history and literature, but ended up with a weird mish-mash taught by “unengaged professors and overburdened teaching assistants”. Looking back on his experience, he feels cheated.

He is not alone. In many ways, undergraduates are the stepchildren of American higher education. Most academics pay more attention to research than to teaching, and most universities continue to neglect their core curriculums in the name of academic choice.

From time to time, universities try to improve the lot of the undergraduate, as Mr Summers is currently doing at Harvard: reforming the core curriculum, taming grade inflation and asking professors to concentrate on teaching rather than self-promotion. But reformers are fighting in hostile territory. The biggest rewards in academic life are reserved for research rather than teaching, not least because research is easier to evaluate; and most students are willing to put up with indifferent teaching so long as they get those vital diplomas.

Complaints about the neglect of undergraduate education are as old as the research university, but the past few years have produced a host of new criticisms of

American universities. The first is that universities are no longer as devoted to free inquiry as they ought to be. The persecution of Mr Summers for the sin of intellectual rumination is symptomatic of a wider problem. At a time when America’s big political parties are deeply divided over profound questions, from the meaning of “life” to the ethics of pre-emptive war, university professors are overwhelmingly on the side of one political party. Only about 10% of tenured professors say they vote Republican. The liberal majority has repeatedly shown that it is willing to crush dissent on anything from speech codes to the choice of subjects worth studying.

There are signs that scientists, too, are turning against free and open inquiry, though for commercial rather than ideological reasons. Corporate sponsors are attaching strings to their donations in order to prevent competitors from free-riding on their research, such as forcing scientists to delay publication or even blank out crucial passages from published papers. When Novartis, a Swiss pharmaceutical giant, agreed to invest \$25m in Berkeley’s College of Natural Resources, for example, it stipulated that it should get a first look at much of the research carried out by the plant and microbial biology department.

The second criticism is that America’s universities are pricing themselves out of the range of ordinary Americans. Between 1971-72 and 2002-03, annual tuition costs, in constant 2002 dollars, rose from \$840 to \$1,735 at public two-year colleges and from \$7,966 to \$18,273 at private four-year col- ►►



New York University: from underdog to top dog

leges. True, the federal government spends over \$100 billion a year on student aid, and elite universities make every effort to subsidise poorer students. One study of admissions to selective colleges shows that, in 2001-02, students with a median family income paid only 34% of the "sticker" price.

Still, the sheer relentlessness of academic inflation is worrisome. Elite colleges have little incentive to compete on price; indeed, they tend to compete by adding expensive accoutrements, such as star professors or state-of-the-art gyms, thus pushing up the cost of education still further. And the public universities that played such a valiant role in providing opportunities to underprivileged students are being forced to raise their prices, thanks to the continual squeeze on public funding. The average cost of tuition at public universities rose by 10.5% last year, four times the rate of inflation.

The dramatic rise in the price of American higher education puts a heavy burden on middle-class families who are too rich to qualify for special treatment. It also sends negative signals to poorer parents who may be unaware of all the subsidies available. Deborah Wadsworth, an opinion pollster, points out that universities may be courting a popular backlash. Americans increasingly regard universities as the gatekeepers to good jobs, but they also see them as prohibitively expensive. The result is a steady erosion of public admiration for these formerly much-esteemed institutions.

This points to a third criticism: that universities are becoming bastions of privilege rather than instruments of social mo-

bility. From the 1930s onwards, America's great universities did much to realise the American creed of equality of opportunity. James Bryant Conant, Harvard's president from 1933 to 1953, opened up scholarships to academic merit, and the vast post-war expansion of higher education extended Conant's meritocratic principle to millions of students. "Flagship" public universities such as Michigan, Texas and Berkeley, California, provided world-class education for next to nothing.

#### Meritocracy in retreat

But the march of academic meritocracy has now slowed to a crawl, and, on some fronts, has even turned into a retreat. William Bowen of Princeton University and two colleagues, in a study of admissions to elite universities, found that in the 11 universities for which they had the best data, students from the top income quartile increased their share of places from 39% in 1976 to 50% in 1995. Students from the bottom income quartile also increased their share very slightly: the squeeze came in the middle.

Mr Summers points out that Harvard now offers free tuition to students whose families earn less than \$40,000 a year, and greatly reduced fees to students from families earning \$40,000-60,000. Other elite universities have followed suit. Yet at the same time those universities give priority to athletes, people applying early (who often come from privileged backgrounds) and the children of alumni ("legacies"). Duke University encourages the offspring of wealthy parents to apply early and considers their applications sympathetically.

The real threat to meritocracy, how-

ever, comes not from within the universities but from society at large. One consequence of the squeeze on funding for public universities, created by Americans' reluctance to pay taxes, has been an academic brain drain to the more socially exclusive private universities. In 1987, seven of the 26 top-rated universities in the *US News & World Report* rankings were public institutions; by 2002, the number had fallen to just four.

The biggest risk to American higher education is the erosion of the competitive principle. The man often cited as the architect of American academia's current success is Vannevar Bush, who was director of the office of scientific research and development during the second world war. After the war he insisted that research grants be allocated to universities on the basis of open competition and peer review. But in the 1980s universities began undermining this principle by lobbying their local congressmen for direct appropriations. In 2003, the amount of money from the federal research budget awarded on a non-competitive basis topped \$2 billion, up from \$1 billion in 2000.

American academia's merits still outweigh its faults. Many American undergraduates are savvy enough to get a first-class education. Many academics resist the temptation to censor ideological minorities. The vast bulk of research grants are allocated on the basis of merit. Yet American universities are acquiring a growing catalogue of bad habits that could one day leave them vulnerable to competitors from other parts of the world—though probably not from Europe, which has overwhelming academic problems of its own. ■

## Head in the clouds

Europe hopes to become the world's pre-eminent knowledge-based economy. Not likely

THERE are few things European leaders like better than talking about their plans for turning Europe into the world's most competitive "knowledge-based economy" by the end of this decade. The aim was first laid out at the EU's summit in Lisbon in March 2000 and has been repeated with hypnotic fervour ever since.

To grasp the full absurdity of this ambition, it is worth visiting the Humboldt University in Berlin. Walk into the main foyer, stroll up the steps to the first floor past a slo-

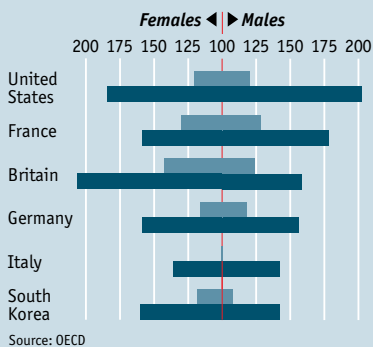
gan by a former student engraved in gold on the wall ("Philosophers have simply interpreted the world; the point is to change it") and study the portraits of the Nobel prize-winners that line the walls. There were eight in 1900-09, six in 1910-19, four in 1920-29, six in 1930-39, one in 1940-49 and four in 1950-56. The roll of honour includes luminaries such as Theodor Mommsen, Max Planck, Albert Einstein and Werner Heisenberg. But after 1956 the Nobel prizes suddenly stop.

The list of Nobel prize-winners actually understates the university's past glories. In the 19th century, it not only nurtured such world-class intellectuals as Hegel and Fichte, it also pioneered a new sort of educational institution—the research university. And the drying-up of Nobel prizes in 1956 is not the only indication of the university's current plight. It occupies 95th place on the Shanghai list, next to the University of Utah. The buildings are drab, lectures and classes are overcrowded, and ▶▶

## A good investment

Premium for higher education on earnings from employment, 25-64-year-olds, 2002  
Upper secondary education=100

Shorter vocational education  
Full-length university education and advanced research programmes



▶ some of the best professors have left.

Apologists might retort that Humboldt is still recovering from its time on the wrong side of the Berlin Wall. Yet Humboldt's problems are replicated across the whole of Germany, west as well as east. The highest-placed German university in the Shanghai rankings is the Technical University of Munich, at 45. The ratio of students to teachers at German universities is depressingly high. For some lectures, a thousand or more students pile into the hall. The only count on which German universities still lead the world is the age of its students at graduation, 26 on average.

Their biggest problem is the dead hand of the state. The German government—both regional and central—tries to micro-manage every aspect of academic life, from whom universities employ to whom they can teach. The state has progressively starved universities of funds, not least because it has forbidden them from charging fees. It has also snuffed out academic competition. Universities have little power to pick their pupils and even less to attract star professors.

Belatedly, the Germans are beginning to recognise that their system is dysfunctional, not least because some of the brightest German students are voting with their feet and going abroad to study. The government is trying hard to encourage foreign students to come to Germany, though its success may have more to do with the fact that higher education is free to both domestic and foreign students than with the quality of the education purveyed. The government is also trying to make its universities more competitive by

creating a German Ivy League. Furthermore, Germany's Constitutional Court has ruled against the federal government's ban on tuition charges, opening the way for universities to increase their revenues (and prompting protests from tens of thousands of students). But these reforms are only a beginning. German states controlled by the left are likely to continue to resist fees, and even the more conservative ones will charge only a nominal amount.

Universities are a mess across Europe. European countries spend only 1.1% of their GDP on higher education, compared with 2.7% in the United States. American universities have between two and five times as much to spend per student as European universities, which translates into smaller classes, better professors and higher-quality research. The European Commission estimates that 400,000 EU-born scientific researchers are now working in the United States. Most have no plans to return. Europe produces only a quarter of the American number of patents per million people. It needs to ask itself not whether it can overtake the United States as the world's top knowledge economy by 2010, but how it can avoid being overtaken by China and other Asian tigers.

The basic problems with the universities are the same across Europe: too much state control and too little freedom to manage their own affairs. Governments have forced universities to educate huge armies of students on the cheap, and have deprived them of the two freedoms that they need to compete in the international marketplace: to select their students and to pay their professors the market rate for the job.

Still, the Europeans are taking a couple of practical steps to improve their troubled universities. The Bologna Declaration, signed in 1999, is intended to produce a single European higher educational "space" by introducing a combination of comparable qualifications and transferable credits. Various EU initiatives are also encouraging young people to study in other European countries: the Erasmus programme, for example, has already benefited more than one million students. This combination of increased transparency and enhanced mobility is bound to promote competition among universities.

But this is all too little, too late. There has been little or no progress on introducing realistic fees, freeing universities from government control or concentrating research in elite universities. To understand how far most European countries still have to go—and how difficult it will be to get

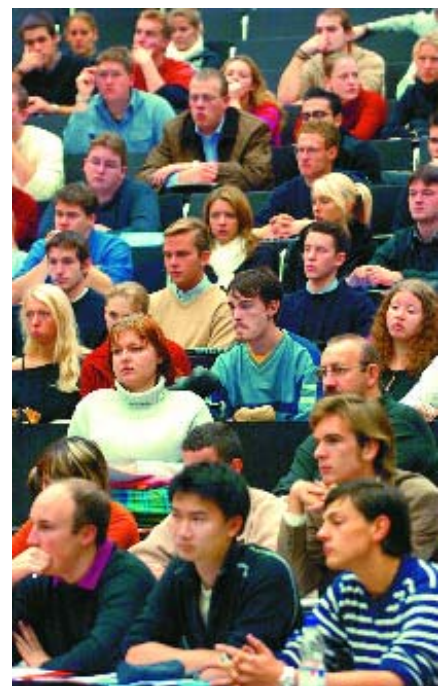
there—Britain offers some useful pointers.

Britain is a marked exception to the European pattern of complacency and decline. It has two universities in the top ten of the Shanghai rankings, Cambridge at number three and Oxford at number eight, and four in the top 30, a far better showing than any other European country. It also has one of the highest graduation rates in the OECD, with more than 30% of the relevant age group completing university or college, up from only 14% in the mid-1980s.

## Half right

Britain's academics were aghast when Margaret Thatcher set about shaking up the universities in the early 1980s. Oxford even denied an honorary degree to the country's first female prime minister, an old alumnus. But the long-term effect of her policies, which have been continued and in some ways intensified under Labour since 1997, has been to leave British universities in a much better state than their continental rivals.

British universities have won a measure of freedom to charge tuition fees: the amount they can charge is set to triple to £3,000 next year. They are also learning how to raise money from both private business and alumni. If the most conspicuous figure on British campuses in the 1960s was the radical sociologist, the most conspicuous figure today is the academic en-

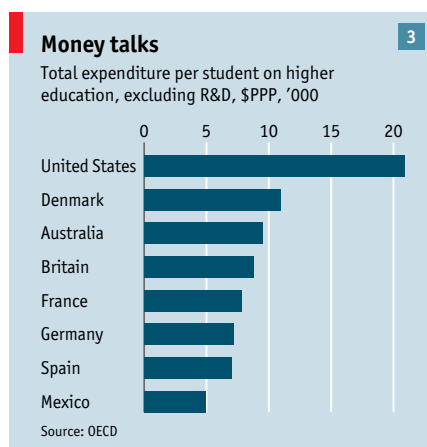


Have the Germans lost the knack?

▶repreneur. But Britain's universities still suffer from two vexatious problems.

The first is government meddling. The government's determination to improve academic productivity is creating a Stalinist bureaucracy of "academic auditors" who cannot distinguish between make-work articles and genuine research, and its desire to open up access to higher education is creating a second Stalinist bureaucracy in the Office for Fair Access.

The second problem is a relentless financial squeeze. Successive governments have trumpeted improvements in productivity, which is supposedly rising by 1% a year. But too often this is just a synonym for the erosion of quality. In the 1990s, spending per student fell by more than a third, and the student-teacher ratio doubled from 9:1 to 18:1. Academic salaries have been falling by about 2% a year in real terms for two decades, and the army of part-time lecturers has grown ever bigger.



Half the universities are running deficits.

This is undermining the country's ability to support world-class universities. Some of the finest scholars have been lost to foreign competitors. Just as damaging,

the universities are being forced to eat into their capital. Oxford is currently running an operating deficit of £20m a year and an accumulated deficit on teaching and research of £95m. This is because the Treasury pays only about half of the estimated average of £18,600 a year it costs to teach an Oxford undergraduate, so the university and its colleges have to make up the difference from their own resources. The new top-up fees will help, but not enough to solve the university's problems.

The British government has led continental Europe in reforming its universities. It has established a system of student loans, and has crossed an important threshold in conceding the principle of "variable fees". But the sort of managed market it has created, in which the government regulates what universities can sell and how much they can charge for it, is an unsatisfactory half-way house. It should now set the universities free. ■

## A world of opportunity

Developing countries see the point of higher education

**A**CROSS the developing world, higher education is coming in from the cold. Gone are the days when it was purely a luxury for the elite. Governments are rapidly expanding their higher-education systems, with China probably witnessing the biggest expansion of student numbers in history. They are trying to create centres of excellence and throwing open the sector to private entrepreneurs.

The main reason for this flurry of activity is the dramatic growth in the supply of potential students. Secondary school enrolment rates have grown rapidly across the developing world. But there has also been a revolution in economic thinking. Not so long ago the World Bank pooh-poohed spending on higher education as both economically inefficient and socially regressive. Now many development economists are warming to higher education, pointing to the demand for graduates—as demonstrated by their wage premium—and to the positive effect of university-based research on the economy.

Nobody doubts the difficulty of building decent universities in the developing world. In most countries the legacy of colonialism has been compounded by the legacy of anti-colonialism. Colonialism

meant that universities concentrated on producing a tiny group of elite administrators, and anti-colonialism tightened their bonds with government.

Public spending on universities in developing countries is highly regressive. In Latin America the professional classes, who account for 15% of the population, take up nearly half of all university places. In Rwanda, 15% of the total education budget is spent on the 0.2% of students who attend universities. Most universities in the developing world are also hopelessly badly managed.

But there are a few bright spots on the horizon. Some universities in poorer countries have been doing world-class research. The botany department of the University of Sao Paulo, for example, was first to crack the genetic code of a bacterium called *Xylella fastidiosa*, which has been laying waste to vineyards in southern California. This work attracted global funding as well as attention from, among others, America's Department of Agriculture and the American Vineyard Foundation.

A second bright spot is that good management can produce striking improvements. Uganda's Makerere University, which in the late 1980s was on the verge of

bankruptcy, has increased its student numbers fivefold and is investing in its infrastructure. It has introduced fees for 80% of its students, and now generates a third of its revenue from a variety of commercial ventures such as a bakery and an in-house consultancy.

A third cause for cheer is the proliferation of different kinds of universities. A few years ago most universities in the developing world were much the same: designed for the elite and dominated by the state. Now there is more variety. The biggest change is the emergence of a for-profit sector that concentrates on subjects such as accounting and computer skills, and often pioneers educational innovation.

What are the prospects that the good news will outweigh the bad? To answer this question, it is worth looking more closely at the two countries that are currently conducting the world's biggest experiments in the "massification" of higher education: India and China.

India's higher-education system has plenty of inherited handicaps. Some of them are left over from colonialism and some from anti-colonialism; some arise from poor management and political confusion. B.S. Baswan, the country's secre- ▶▶



► tary for secondary and higher education, notes that his sector lacks a clear political constituency. Yet the problem is deeper than that: the government does not have the resources to fund the expansion it wants, but cannot summon up the political courage to start charging students realistic fees. The result is that India often seems to take one step back for every two steps forward.

Undoubtedly, though, it is making advances. The number of people attending universities almost doubled in the 1990s, from 4.9m to 9.4m. The price of this has been a decline in overall quality. That said, India has two valuable things going for it. One is its collection of elite institutions. For decades, India has been pouring resources into the All India Institute of Medical Sciences, the Indian Institute of Science in Bangalore and, above all, the Indian Institutes of Technology. These institutions take their pick from an army of candidates every year, with 180,000 hopefuls taking the screening test for around 3,500 places in the seven IITs. They provide a highly intensive education, with all students and often professors too living on campus. And they produce a stream of highly educated people who help to set professional standards. "They are a class apart, like Oxford and Cambridge," says P.V. Indiresan, an expert on universities.

These elite institutions help to keep India plugged into the global knowledge economy. R.S. Sirohi, the former director of IIT Delhi, explains that he used to give his staff long sabbaticals in western universities, and that about a third of them spend time in America every summer. His institute receives sponsorship for research from multinationals such as Sun Microsystems, Cisco, Volvo and Ford. Granted, the elite institutions produce many people who get brain-drained away, but they also keep many bright people from emigrating, and may even attract émigrés back if India's economy keeps booming. It is accepted wisdom in India that the brightest students go to the IITs and the second-best to American universities.

India's other big advantage is a more recent development: a booming private sector. This being India, the sector is plagued by scandal. In February, India's Supreme Court ordered the closure of nearly 100 private universities because of quality concerns. Still, the best private colleges are doing admirable work, responding to unmet demand for technical and managerial education, often in highly creative ways, correcting India's bias towards theoretical

education, and encouraging entrepreneurs to pour millions into a sector that has traditionally been starved of funds.

Vinay Rai, a telecoms and steel magnate, is just such an entrepreneur. Rai University bills itself as "India's best private university", with 16 campuses across the country. Mr Rai wants the university to fill a gap in the market, and sees huge demand for education in practical subjects such as management, media, accounting and tourism. But he is interested in more than just tapping a booming market, pointing out that half his students are on scholarships. He wants to shift from training obedient clerks towards training self-starting entrepreneurs. He waxes lyrical about the "beautiful model" of higher education he encountered in America at the Massachusetts Institute of Technology.

The contrast between Rai University's main campus in Delhi and that of Jawaharlal Nehru University, one of India's most distinguished public universities, is striking. Rai University is spick and span whereas JNU is sprawling and untidy. Rai is full of computers, whereas JNU is resolutely low-tech. Rai's students are determined to take part in the global economy, whereas JNU is plastered with signs protesting against the evils of capitalism.

A growing band of successful private companies are pioneering the democratisation of technical education. NIIT, a computer-training company, has 40 wholly owned centres and more than 1,000 franchised operations, and is expanding to America and Britain. It has also established a research-and-development de-

partment to discover the most effective teaching methods. One of its cleverest ideas was to give illiterate children free access to computers in order to see how easily they could master them. It has also established links with Citibank to enable students to take out loans to pay fees. The company has become such a brand name that some advertisements in the matrimonial pages of the *Times of India* specify graduates of NIIT.

### China enrolls the market

In higher education, as in so much else, China is visibly pulling ahead of India. The Chinese are engaged in the biggest university expansion in history. In the 1980s, only 2-3% of school-leavers went to university. In 2003, the figure was 17%. The watershed year was 1999, when the number of students enrolled jumped by almost half. The expansion at the doctoral level is even faster than for undergraduates: in 1999-2003, nearly 12 times as many doctorates were awarded as in 1982-89 (see chart 4, next page). And there is more to come: the number of new doctoral students jumped from 14,500 in 1998 to 48,700 in 2003.

The Chinese are determined to create a super-league of universities to rival the best in the world. The central government is investing heavily in chosen universities, such as Peking, Tsinghua and Fudan, offering higher salaries and more research funding. The state governments are doing likewise. It is no accident that the most widely used annual ranking of the world's research universities, the Shanghai index, is produced by a Chinese university. ►►



Peking pulls them in



▶ What lies behind all this is a gigantic exercise in technology transfer. The Chinese are trying to recreate the best western universities at home in order to compete in more sophisticated industries. They have stocked up with foreign PhDs: in some de-

partments of the University of Peking, a third of the faculty members have American doctorates. They are using joint ventures with foreign universities in much the same way as Chinese companies use joint ventures with foreign companies.

The Chinese have no qualms about using market mechanisms to achieve this technology transfer. Tuition charges now make up 26% of the earnings of public universities, nearly twice the level in 1998; many professors are paid according to the number of students they attract; and China is creating a parallel system of private universities alongside the public ones. For example, the University of Peking has more applicants than places, so it has created a parallel university that charges higher fees and accepts slightly less able students. Links between universities and industry are commonplace. The majority of doctorates earned in China between 1992 and 2003 were in practical subjects,

which attract the brightest students: engineering (38% of the total), natural sciences (22%) and medicine (15%).

But will China achieve its academic ambitions? The trouble is that investment will not do the trick without broader cultural changes. Rui Yang, a professor at Australia's Monash University, points out that academic corruption is rife. The powerful academics that distribute much of the research funding are prey to both political favouritism and lobbying. Plagiarism is commonplace. Many academics use a good part of their research funding for personal rather than academic ends.

The country's authoritarianism will also prove a limiting factor, affecting not only the humanities but the sciences as well. For example, Chinese scientists suppressed information on SARS because it contradicted the official line. A world-class university without freedom of thought is still a contradiction in terms. ■

## Wandering scholars

For students, higher education is becoming a borderless world

**B**ILL CLINTON tells a nice story about the first time he set eyes on Oxford University. He was dropped off at his college at 11pm on a rainy October night, together with three other Rhodes scholars. One of them was Robert Reich, his future labour secretary, who is exceedingly short. The four Americans walked into the college's main quadrangle, a splendid 17th-century edifice, and marvelled about the wealth of history facing them. But they were immediately brought down to earth by the head porter, Douglas Millin, who complained that he had been promised four Yanks, but had been sent only three and a half.

In Mr Clinton's student days, international education was still the preserve of a small elite of potential superstars. Today it is undergoing the same process of "massification" that has reshaped domestic higher-education policy. The number of foreign students in the OECD (see chart 5) has doubled over the past 20 years, to 1.5m.

What is driving this solid growth? The two most obvious things are the magnetic power of the world's top universities and the under-supply of university places in the developing world. The world's brightest students—and particularly its brightest graduate students—want to study at the

world's best universities. Half the world's students live in developing countries where the supply of university places cannot keep up with the demand. Two of the biggest exporters of students in absolute numbers are China (with 10% of all those studying abroad) and India (with 4%).

In recent years several other things have speeded this growth even further. One is competition for talent. A growing number of rich countries are rejigging both their education and their immigration policies in order to attract highly qualified workers. A second is competition for the tuition fees that foreign students have to pay, which is particularly fierce from countries that will not allow their universities to charge realistic fees to home-grown students. Oxford has recently doubled the proportion of its overseas students, to 15%; at the London School of Economics, 75% of graduate students are from abroad. A third factor is the EU's policy of sponsoring student mobility within the Union so as to create a European identity among the young.

Several countries—most notably Australia and New Zealand—are trying to turn education into an export industry. Foreign students are triply valuable. They pay fees

to universities, spend money on things like food and lodging, and may even end up staying on permanently. What better way to shift your economy from its traditional reliance on primary production?

For the past 50 years America has effortlessly dominated the market for inter- ▶▶



national students, who have brought both direct and indirect benefits. Not only are they contributing some \$13 billion a year to America's GDP, they are also supplying brainpower for its research machine and energy for its entrepreneurial economy. But now America's leadership is under challenge. The Institute of International Education reports that the number of foreign students on American campuses declined by 2.4% in 2003-04, the first time the number has gone down in 30 years. Foreign applications to American graduate schools fell by 28% last year, and actual enrolment dropped by 6%.

Coming after decades of steady growth, these figures sent shock waves through the academic system. Many American universities initially blamed the tightening of visa rules after September 11th 2001 and lobbied furiously for reform. Visa policy clearly played a part, but in fact America has been losing market share among international students since 1997. The biggest reason for that is foreign competition. In 2002-04 the number of foreign students increased by 21% in Britain, 23% in Germany and 28% in France. A growing number of European countries are offering American-style degree programmes taught in English. Germany has the added attraction of dispensing university education free to foreigners as well as to domestic students. Universities in the developing world, too, are expanding rapidly, and often a booming domestic job market stands ready to absorb the resulting graduates.

Yet it would be a mistake to equate America's loss of its quasi-monopoly in the supply of higher education to foreigners with long-term decline. For one thing,



Thoroughly international Berkeley

the market is likely to continue to grow rapidly as Asia produces its own mass middle class. For another, American universities are well placed to operate in the global market for student talent. In the past, American universities have been at their best when competing for faculty or domestic students. Why should foreign students be any different?

#### Brain circulation

The spectacle of so many bright people from poor countries upping sticks for the rich world raises questions of social justice, in part because they contribute both money and brainpower to their host country while they are studying and in part because so many of them end up staying permanently. Some people see the development as a kind of neo-colonialism of the mind. But there is no guarantee that all these bright people would have prospered if they had stayed at home. The combined net worth of Indian IIT graduates in America is reportedly \$30 billion. But would all those brilliant Indians have become so rich if they had stayed in India? "Better brain drain than brain in the drain," was the much-quoted verdict of the late Rajiv Gandhi, an Indian prime minister.

Perhaps what is going on is not so much a "brain drain" as "brain circulation". The governments of many developing countries encourage bright students to go abroad, often using scholarships as inducements, as part of a general policy of "capacity-building" so they can plug themselves into the latest thinking in the West.

Few highly skilled migrants cut their links with their home countries completely. Most keep in touch, sending remittances (and, if they are successful, venture capital), circulating ideas and connections, and even returning home as successful entrepreneurs. A growing number of Indian and Chinese students go home after a spell

abroad to take advantage of the hot labour markets in Shanghai or Mumbai. And a growing number of expatriate businessmen invest back home.

Increasingly, developing countries encourage foreign universities to come to them, rather than sending their students abroad. Singapore has established close relations with 15 partners, including such elite institutions as Stanford, Cornell and Duke Medical School. Dubai has established a "knowledge village" with 13 foreign universities, and Qatar an "educational city" with four, largely for the benefit of Middle Easterners who want a western education but think they may no longer be welcome in America.

Some developing countries are even establishing themselves as educational middlemen: importers as well as exporters of talent. China not only sends the most students abroad but is also one of the leading hosts in the Asian region. Between 1998 and 2002 the number of international students in the country doubled, from 43,000 to 86,000. Malaysia sends lots of its own students abroad in an effort at "capacity-building", but is also actively recruiting students from China and Indonesia, and increasingly from Pakistan and other Islamic countries.

The problem with equity arises not so much between the rich and the poor world but within the developing world. As a rule, only the developing world's elites attend foreign universities. The Ford Foundation is devoting huge resources to putting this injustice right: in 2000 it provided \$280m over 12 years—its biggest-ever grant—for a scholarship programme to send disadvantaged people from poor countries to leading universities abroad. Douglas Millin is, alas, no longer with us. But if the Ford Foundation has its way, his successors will have to deal with people from considerably farther afield than Hope, Arkansas. ■



## Higher Ed Inc

Universities have become much more businesslike, but they are still doing the same old things

THE University of Phoenix's Hohokam campus looks more like a corporate headquarters than a regular university. There is none of the cheerful mess that you associate with student life. The windows are made from black reflecting glass, the corridors are neat and hushed, the grass has been recently cut, there is plenty of parking space for everybody, and security guards in golf carts make sure all the cars are on legitimate business. The university is conveniently close to a couple of motorways, and ten minutes from the airport.

But the campus does not just look like a corporate headquarters; it is one. The University of Phoenix is America's largest for-profit university (and indeed America's largest university, full stop), with 280,000 students, 239 campuses and various offshoots around the world, including some in China and India. The Hohokam campus houses the corporate headquarters of the Apollo Group, the company that owns the university, along with the group's corporate university.

The University of Phoenix was the brainchild of John Sperling, a Cambridge-educated economist turned entrepreneur. When he was teaching in San Jose State University in the early 1970s, Mr Sperling noticed that adult students got scant attention from universities designed to teach people aged 18-22. That, he felt, was not only unfair but also unwise: in the new economy, workers might have to keep going back to university to update or improve their skills.

The University of Phoenix is designed to cater for the needs of working adults, who make up 95% of its students. The emphasis is on practical subjects, such as business and technology, that will help them with their careers, and on fitting in with busy schedules. One of the university's golden rules is that there should be plenty of parking, and that students should be able to get from their cars to their classrooms in five minutes. In the early 1990s it became the first university to offer degrees online, and the internet is now integral to all its teaching.

But in designing a university for working adults, Mr Sperling also introduced two other far-reaching innovations. The

first was to concentrate power in the organisation. In traditional universities academics are semi-independent contractors who devote as much time as possible to their own research. In Phoenix they are simply employees. It is the university, not the teachers, that owns the curriculum. Todd Nelson, the company's boss, claims that this has allowed the university to become a "learning organisation": it is constantly improving its ability to teach by measuring performance and disseminating successful techniques. The only research it cares about is the sort that improves teaching.

The second innovation is to turn higher education into a business. The cost of a year's education at Phoenix, at \$9,000, is not particularly high for a private university, but the business ethos is unusually pervasive. Mr Nelson cheerfully talks about "the education industry", and boasts that enrolment is currently growing at 25% a year. The Apollo Group spent a staggering \$383m on marketing last year.

### Dollars and degrees

It is hard to imagine what von Humboldt, with his belief in research for its own sake, would make of the University of Phoenix. But for many people it is a vision of the future. Milton Friedman, a Nobel prize-winning economist, regards the triumph of the for-profit sector as inevitable, because universities "are run by faculty, and the faculty is interested in its own welfare."

For-profit universities are finding a growing number of market niches, particularly in America. Strayer University, one of the University of Phoenix's biggest competitors, concentrates on telecommunications and business administration. Concord Law School, owned by Kaplan, which in turn is owned by the *Washington Post*, boasts one of the largest law-school enrolments in the country. All of its teaching is online. Cardean University, the brainchild of Michael Milken, offers online business education, including MBAs.

The Apollo Group's corporate university marks another big educational change. The number of corporate universities, which provide education for their parent companies, has grown from 400 in the

mid-1980s to more than 2,000 today. Some of these institutions, such as the McDonald's Hamburger University, do not deserve the name, but others, such as those set up by Microsoft and Schwab, are more serious. A growing number of corporate universities are awarding degrees in conjunction with traditional universities.

For-profit universities are only the most dramatic example of a more general trend: the changing balance of power between the state and the market. For much of the 20th century the state steadily tightened its grip on universities. Now the market is beginning to get its own back.

The old-fashioned public universities are becoming ever more promiscuous in their pursuit of income. In America, "public university" is fast becoming a figure of speech. At the University of Virginia, the share of the operating budget coming from the state declined from about 28% in 1985 to 8% in 2004. As one university president put it, his university has evolved from being a "state institution" to being "state-supported", then "state-assisted", next "state-located" and now "state-annoyed".

In other countries too, public universities are becoming more entrepreneurial. Increasingly they are starting to charge fees, usually in combination with student loans. They are also transforming themselves into competitive commercial operations when it comes to attracting fee-paying foreign students or winning contracts with business. At the same time, new non-profit private universities are springing up. These have long been common in America, Japan and South Korea, but used to be rare elsewhere. In Portugal, private universities and colleges have grown from almost nothing two decades ago to account for two-thirds of all higher-education institutions and 40% of all students. All in all, private funding has grown faster than public funding in seven of the eight OECD countries for which data are available.

Another eye-catching change is the rise of the internet as a way of delivering tuition. The internet has all sorts of advantages, from lowering costs to opening up markets. MIT has struck up an innovative alliance with two Singaporean universities that allows Singaporean students to



The way we learn now?

▶ take part “virtually” in MIT lectures. The Virtual University of Monterrey, Mexico, uses a combination of teleconferencing and the internet to reach more than 70,000 students all over Latin America.

But for all the new technology and the “marketisation” of higher education, it is striking how little has changed. Traditional universities are raising money not so that they can do radically new things but so that they can continue to do the same old things. For-profit universities are undoubtedly doing an excellent job in filling market niches, particularly for technical educa-

tion, but their position in the academic hierarchy remains humble.

The internet is producing equally modest results. However good it is for transmitting information or reinforcing learning, e-learning is no substitute for bricks-and-mortar universities. The e-learning bubble of the late 1990s burst with shocking speed. Fathom, a joint venture established by Columbia and 13 other universities, libraries and museums, closed down after raising revenues of only \$700,000 in two and a half years. Caliber, the Wharton School’s e-partner, filed for bankruptcy.

Temple University abandoned Virtual Temple without offering a single course. NYU Online has also pulled the plug.

New technologies generally prompt heady predictions that they will revolutionise higher education. Thomas Edison forecast that motion pictures would replace campus lectures; others have made even grander claims for radio or television. David Noble, a historian, compares the internet craze with the fashion for correspondence schools that bubbled up in the early 20th century. By 1919, more than 70 American universities had launched correspondence courses, competing against some 300 private correspondence schools. But the bubble eventually burst, partly because of poor teaching and high drop-out rates but mainly because the human dimension was missing.

None of this is to say that the idea of the university is carved in gothic stone. It is indeed changing, but by evolution rather than revolution. And the most important recent development in the world of higher education has been the creation of a super-league of global universities that are now engaged in a battle for intellectual talent and academic prestige. ■

## The best is yet to come

A more market-oriented system of higher education can do much better than the state-dominated model

WILLIAM JAMES had good reason to be nervous when he turned up, back in 1869, to be examined for his Harvard medical degree: he had spent most of the previous three years abroad. But as luck would have it, his examiner turned out to be Oliver Wendell Holmes, an old family friend. Dr Holmes asked the candidate a single question and, when young William answered it correctly, drew the event to a close: “That’s enough! If you know that, you must know everything. Now tell me, how is your dear old father?”

For at least its first 200 years, Harvard was a finishing school for Boston’s—or at most New England’s—elite. Eliots and Lowells held leadership positions continuously for more than two centuries, and Cabots and Lodges kept appearing on the school rolls in various permutations. But starting in the late 19th century, Harvard gradually transformed itself into a national university. Now the university is undergoing another dramatic transforma-

tion: from a national to a global university.

This is not to say that Harvard is losing its American roots entirely. America is, after all, the world’s greatest marketplace for higher education, and Harvard’s very Americanness is part of its attraction. All the same, the university is increasingly operating in a global labour market. Faculty searches are always worldwide; in some departments 40% of PhD students come from abroad; and the graduate and professional schools are truly multinational.

Harvard is not alone. The great universities of the 19th century were shaped by nationalism; the great universities of today are being shaped by globalisation. The world’s higher-education system is increasingly dominated by a superleague of world-class universities competing with each other for talent and prestige.

There is nothing new about globalism in higher education, of course. Medieval scholars communicated in Latin and often studied at several universities in different

countries. But for a long time many academics felt that their principal loyalty was to their university or college rather than to their discipline. Universities were mainly schools for national bureaucrats and seminaries for nationalist ideas.

Today there are fewer restraints on universities’ natural inclination towards internationalism. The top universities are citizens of an international academic marketplace with one global academic currency, one global labour force and, increasingly, one global language, English. They are also increasingly citizens of a global economy, sending their best graduates to work for multinational companies. The creation of global universities was spearheaded by the Americans; now everybody else is trying to get in on the act. The current vice-chancellor of Oxford, John Hood, hails from New Zealand, and his counterpart at Cambridge, Alison Richard, spent 30 years teaching at Yale.

Global universities do not have to have ▶▶

▶ a physical presence abroad to be worthy of the name. Some of the world's best universities have been reluctant to set up campuses abroad, and some of the most enthusiastic offshorers, such as Webster University, which runs seven overseas campuses from its headquarters in Missouri, are hardly global in the sense of having world-class faculty and the pick of the world's graduate students. However, a growing number of the world's top universities are getting more enthusiastic about offshoring.

### It pays to be world-class

The most obvious reason for the rise of the global university is science's appetite for money and manpower. MIT's Lincoln Laboratory, for example, employs nearly 2,400 people and spends \$450m a year on research. Access to global labour markets is needed to put together first-rate teams of researchers. But policymakers have also begun to realise that world-class universities produce a disproportionately large share of cutting-edge ideas and research. Look at the University of Chicago's impact on economics, and hence on economic policy. Of the 55 economists who have won the Nobel prize since 1969, when economics was added to the roster, nine were teaching at the University of Chicago when they were awarded their prizes, and another 14 either trained at Chicago or had previously taught there.

World-class universities can also produce outside economic benefits. The best-known example of this is Stanford, which helped to incubate Google, Yahoo!, Cisco, Sun Microsystems and many other world-changing firms. But there are plenty of others. The University of Texas at Austin has helped to create a high-technology cluster that employs around 100,000 people in some 1,700 companies. In 2000, the eight research universities in Boston provided a \$7.4 billion boost to the region's economy, generated 264 new patents and granted 280 licences to private enterprises.

Top universities are a valuable asset in the global war for talent too. America's great research universities enable it to recruit more foreign PhD students than the rest of the OECD put together. And a striking number of these people stay put: in 1998-2001, about two-thirds of foreigners who earned American doctorates in science and engineering said they had "firm plans" to stay, up from 57% in 1994-97.

The benefits of having global universities are now so clear that governments around the world are obsessed with pro-

ducing "Ivy Leagues". The British are introducing fees in part because they want their best universities to be able to compete with the best American ones. The German Social Democratic Party—traditionally a bastion of egalitarianism—has produced a plan to create German equivalents of Harvard, Princeton and Stanford. And the Chinese are hard at work trying to build world-class universities. Today "excellence" is taking over from "expansion" as the mantra of higher education.

But this academic revolution has only just begun, particularly in continental Europe. How can you create world-class universities if your academics are civil servants trapped in a national labour market? Only 2% of French academics are foreign-born. The comparable figure in Switzerland, which is much more successful at producing top universities, is 25%. Only 7% of newly hired professors in major American universities are alumni of the institutions where they teach. In France the figure is 50% and in Spain 95%. And how can you have world-class universities without proper resources? Hardly any continental European universities employ professional fund-raisers. Most do not even keep in touch with their alumni.

The new global universities are shaking up everything from academic funding to immigration laws. But they also manage to mix a large measure of conservatism with their radicalism. For the most part, they are



The way they used to learn

still the children of the century-old marriage between the German research university and the British residential university. Most of them still try to combine teaching with research.

Over the past century, there have been various attempts to unbundle the two. The Chinese and Russians created pure research institutes. The French trained their elites in *grandes écoles*—professional schools that did not emphasise research. But for the most part these alternatives have failed.

A striking number of research universities have also preserved the idea of the academic village. A handful of hermits apart, most scholars prefer to live in a community of scholars in which academic and social life are melded together, preferably in beautiful surroundings. James Watson's account of a walk in Cambridge after he and Francis Crick discovered the double helix of DNA makes the point perfectly:

I slowly walked toward the Clare Bridge, staring up at the gothic pinnacles of the King's College Chapel that stood out sharply against the spring sky. I briefly stopped and looked over the perfect Georgian features of the recently cleaned Gibbs Building, thinking that much of our success was due to the long, uneventful periods when we walked among the colleges or unobtrusively read the new books that came into Heffer's Bookstore.

European universities these days are given to nostalgia. Professors reminisce about an age when public money was plentiful, governments left them alone and academics were part of the ruling class. Students remember when the government picked up the tab for tuition and living costs. And almost everybody complains that quality has declined.

In reality, though, that golden age was never quite as wonderful as it is now made out to be. The public universities were never as democratic or egalitarian as they seemed. The justification of offering free higher education is that nobody should be denied it on cost grounds. But in practice the children of the privileged have long been much more likely to get into university than the children of the poor. The result was perverse: in the name of equality, all taxpayers were forced to subsidise the privileged.

These public universities often spiced de-facto elitism with anti-business snobbery. Many universities were not just reluctant to be "knowledge factories"; they were antagonistic to the capitalist economy. Oxford and Cambridge long resisted ▶▶

► the study of practical subjects such as business or engineering; instead, they specialised in turning the sons of businessmen into educated gentlemen. This anti-business bias reached its apogee in the 1960s, when many of the current generation of dons got their jobs.

In the long run, the universities' deal with the state proved to be a bargain with the devil. In the days when universities were restricted to elites, the bargain worked well enough for the few; hence the nostalgia. But the moment that academia embarked on massification, this gentlemanly bargain broke down. Universities were forced to do more with less because the government faced lots of competing demands for funds. And academics were increasingly treated like other public servants—and held accountable for their use of public money.

The more market-oriented model of higher education that has been pioneered in the United States, and is gradually spreading to much of the rest of the world, has four big advantages over the public model. First, it is better at combining equity with excellence. America sends a higher proportion of poor school-leavers to college than, say, Germany, which justifies its free universities by claiming they offer universal access. Second, it is better at producing a diverse system that stretches from the Ivy League to community colleges. Governments can engineer differentiation in higher education, but state-sponsored differentiation tends to degenerate into academic apartheid. Third, the market model is much more sustainable than the public-sector model. Putting all your eggs in one basket is never very sensible; it is particularly silly if you belong to an elitist institution that comes low in the pecking order for public resources. Fourth, serving many masters gives universities much more control over their own destiny than being beholden to a single patron.

That is not to say that the transition to a more market-oriented system will be easy. Countries will have to solve the problem of social justice by allowing students to borrow against their future incomes. They will also have to cope with a host of new problems that come along with newly liberated markets. How do you prevent the erosion of the intellectual commons (for example, by companies preventing "their" scholars from publishing commercially sensitive material)? How do you regulate foreign universities? How do you deal with differences in national standards? How do you prevent outright cheating,

such as selling degrees? These are serious problems. But they pose far less of a threat to universities than the slow starvation that accompanies public funding.

### Empires of the mind

There are two other big reasons to be optimistic about universities. The first is the way they are increasingly regarded as the engines of the knowledge economy. This means that all sorts of people—from governments to companies to students—have a big incentive to keep investing in them. The second is that universities—particularly global research universities—have achieved such striking successes in advancing knowledge. To be sure, their recent record in the humanities has been decidedly mixed; but the sciences have never been healthier. For the people who are mapping the genome or looking for a cure for cancer, arguably the golden age of the university is now.

Noel Annan, the very embodiment of the British academic establishment, once said that universities "exist to cultivate the intellect. Everything else is secondary." The most precious gift that universities can offer is to live and work among books and laboratories, he argued; and the most important lesson they can teach is how to use the intellect:

A university is dead if the dons cannot in some way communicate to the students the struggle—and the disappointments as well as the triumphs of that struggle—to produce out of the chaos of human experience some grain of order won by the intellect.

Three cheers to that. There are plenty of justifications for the revolution that is



**Wanted: 21st-century Humboldts**

sweeping through higher education, most notably in the United States. It is giving students more control over where they get educated. It is giving millions of youngsters a chance to spend their formative years abroad. It is throwing up colleges that can teach managerial and technical skills. It is reconnecting academics with the wider knowledge economy. But the most important justification of all is that it is freeing resources for intellectual activity. It is filling libraries with books. It is stocking laboratories with equipment. And it is giving more researchers than ever before a chance to produce order out of chaos.

Von Humboldt's university with its emphasis on research was one of the transformative institutions of the 19th century. The emerging global university is set to be one of the transformative institutions of the current era. All it needs is to be allowed to flourish. ■

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