



THE FUTURE OF EUROPEAN UNIVERSITIES Renaissance or decay?

Richard Lambert and Nick Butler





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Both authors write here in a personal capacity.

ACKNOWLEDGEMENTS

The authors would like to thank the many experts and officials who have provided input and ideas for this paper, most of whom would wish to remain anonymous. They would also like to thank Katinka Barysch and her CER colleagues for the editing, and Kate Meakins for layout and production.

The Centre for European Reform would like to thank Vodafone for supporting its work on higher education.



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Contents

About the authors

Acknowledgements

Foreword

1	Introduction	1
2	Europe’s higher education malaise	7
3	Current reforms in higher education	33
4	The way forward: some policy suggestions	49
5	Conclusion	63

Foreword



At Vodafone the principle that we should use our size and scale to assist in the creation of a more sustainable world permeates through our business. We work hard to harness the potential of mobile technology to generate prosperity and increase social capital and embed this approach within our business goals.

Our research shows us that use of mobile technology brings benefits to people and adds to social development. This is particularly evident in developing markets where existing infrastructures are unable to cope with the general increase in consumer demand. Our aim, therefore, is to ensure that as wide an audience as possible, irrespective of location, wealth or ability, is able to take advantage of this. After all, mobile voice and data services are innovations which have already had an enormous impact on the way people live.

The goal we have set ourselves is considerable and we recognise that, to achieve meaningful change, we must work with others to share ideas and challenge accepted norms. Without due consideration and informed debate the opportunity to improve and create a tangible difference is often lost. The CER is dedicated to promoting a reform agenda, and we are therefore delighted to be able to support its work on higher education.

This paper outlines a vision to build on the strengths of the European tertiary education system and confront its problems. I wholeheartedly support this initiative. Without a talented, motivated and educated workforce our vision for the future will slip from our grasp. With this in mind I commend this paper and look forward to witnessing its influence on the discussions ahead.

Arun Sarin

Chief Executive Officer

Vodafone

1 Introduction

Europe's universities, taken as a group, are failing to provide the intellectual and creative energy that is required to improve the continent's poor economic performance. Too few of them are international centres of research excellence, attracting the best talent from around the world. Their efforts in both teaching and research are limited by a serious, and in many areas desperate, lack of resources.

Knowledge is becoming the critical factor in shaping economic life, as well as social and cultural values. But the institutions which should be the main sources and channels of such knowledge in Europe are not equipped to meet the challenge.

There is no simple correlation between spending on tertiary education and economic growth.¹ But there is plenty of evidence that the top US research and teaching institutions have played an important role in the American technological and economic achievements, and there is a correlation between a country's higher education attainment levels and its economic prosperity.² Without enough world-class universities of its own, Europe risks slipping behind in terms of innovation and technical excellence. Furthermore, the indifferent quality of teaching at too many of its universities has serious implications for Europe's skills base.

¹ Alison Wolf, *Does education matter? Myths about education and economic growth*, Penguin, London 2001.

² European Commission, annex to *Developing a knowledge flagship: The European Institute of Technology*, Commission staff working document, March 2006.

Universities play a crucial role in Europe's research efforts. They employ more than a third of all researchers, and undertake four-fifths

³ *European Commission, 'The role of universities in the Europe of knowledge', February 2003.* of all its basic research.³ Their importance partly reflects the weakness of Europe's business sector when it comes to research and development (R&D). In the US, business plays a much bigger part in R&D, with academic institutions accounting for only half of all basic research.

Universities are important engines of regional and national economic development. They provide management training and contribute to the expansion of life-long learning. And they are becoming a major business sector in their own right, generating substantial revenues, especially from teaching foreign students. More than two million highly-qualified students around the world study outside their home country. The British Council estimates that this figure could rise to around six million by 2020.

For all these reasons, the well-being of its higher education system is of prime importance to Europe's economic future. Other parts of the world are recognising the challenge, and global competition among higher education institutions is intensifying. US universities dominate the global league tables when ranked by the quality and productivity of their research efforts. They are also an increasingly powerful magnet for talent from around the world. Asian countries, for their part, are devoting enormous resources to expanding and upgrading their university systems. Around two million students graduated from higher education in China in 2001, compared with three million in the EU. It is likely that China will outstrip Europe over the next ten years.

The overall quality of the EU's higher education sector varies widely, not just between but within countries. A handful of its universities rank along the best in the world, and a growing number – particularly in the Nordic countries and the Netherlands – have substantially improved their financial and governance structures in recent years. But across the sector as whole there are common problems and weaknesses:

★ European universities are seriously under-funded compared with their international peers. One result has been an exodus of academic talent from Europe, both at the professorial level and among undergraduate and postgraduate students. Higher education is rapidly becoming a global activity, which means that talented people can easily move to different institutions around the world.

★ Many decades of state domination have left most European universities with limited autonomy and poor systems of governance. There is a kind of drab uniformity across the sector: many institutions are struggling to cope with growing numbers of students and inadequate resources, delivering uninspiring teaching in dilapidated buildings.

★ Too many of Europe's universities are aiming for the same goals – which they cannot all hope to achieve – and the available resources are spread much too thinly. There are nearly 2,000 universities in the EU, most of which aspire to conduct research and attract funding for it. A high proportion of them award postgraduate degrees. By contrast, out of around 3,300 degree-awarding bodies in the US (which comprise a broader range of institutions than the European universities), only about 215 award postgraduate degrees. And there are fewer than 100 recognised research-intensive universities in the US. No wonder US institutions dominate the league tables of the world's best research universities, given this concentration of resources. Europe has too much mediocrity and not enough of the critical mass necessary to support excellence.⁴

⁴ *European Commission, 'Developing a knowledge flagship: The European Institute of Technology', communication from the Commission to the Council, February 2006.*

★ Although student numbers have been growing rapidly in the last twenty years, less than a quarter of the EU working-age population has achieved tertiary education. This compares with

⁵ *European Commission, 'Mobilising the brainpower of Europe: Enabling universities to make their full contribution to the Lisbon strategy', April 2005.*

38 per cent in the US, 36 per cent in Japan and 26 per cent in South Korea.⁵

European universities are beginning to change. The radical restructuring of university curricula that is now underway could, if properly implemented, greatly increase the effectiveness and efficiency of undergraduate and postgraduate teaching. The changes could also inject a badly-needed element of competition into the system, by placing a premium on excellence and making life harder for those institutions which fail to make the grade. Equally, many EU member-states have begun to overhaul the antiquated governance systems of their universities.

However, universities in general are not natural modernisers. Most academics are likely to recognise the pressures for radical change, but many probably hope that it could be deferred until after they have retired. Nor are they in general masters of their own destiny. The big questions – about funding, governance and autonomy – are decided at government rather than university level. And in Europe, that is where the real difficulties start.

Current funding is inadequate on every comparative measure. Some countries, such as Austria and the UK, have made politically brave but limited attempts to draw in additional funds through the introduction of modest tuition fees. So far, these initiatives have fallen well short of what is needed to provide adequate resources for a growing population of students, let alone to meet the serious imbalances between European and international levels of academic pay at the top level. Given their budgetary problems, the big European countries in particular are in no position to devote much larger shares of public funding to higher education. Sooner or later, they will all have to take the politically sensitive step of introducing tuition fees.

As well as devoting more resources to teaching, Europe must find ways of allocating its research funding more effectively. The

European Research Council, which is due to be launched in 2006, is an important starting point. Unlike earlier EU contributions to science funding, it will allocate research grants purely on the basis of peer-reviewed excellence. This will introduce a badly-needed degree of selectivity into the funding of research as a whole, and on university research in particular. In order for Europe to undertake more world-class research, more of its resources will have to be concentrated in those places that do the best work.

Europe needs more diversity in its higher education in order to support different regional and national needs. It requires more efficient and selective funding mechanisms, and much improved systems of governance. And it must make it easier for academics and students to cross borders in order to pursue their work. What it does not need, however, is a common model of higher education, or any top-down attempt to graft new institutions on to the existing system, such as the European Institute of Technology proposed by the European Commission. Competence in matters of higher education should not be transferred to the Commission or to any other pan-European body.

2 Europe's higher education malaise

Europe's university system is shaped by the history of the past 200 years. An understanding of today's big challenges requires an awareness of how we got here. Three broad themes are worth highlighting.

The first is that Europe's universities were not established according to any kind of coherent or rational plan. In the Netherlands, Belgium, Switzerland and the Nordic countries, different religious traditions together with regional and national rivalries led to the establishment of far more institutions than justified by population size. In Italy, 21 universities existed at the time of unification, scattered in a fashion that bore no relation to actual needs. Naples was the only university town in the south. ⁶ *Walter Rüegg, 'A history of the university in Europe', Volume 3, Cambridge University Press, 2004.* In Spain and France, higher education scarcely existed outside the capital cities in the nineteenth century.⁶

Over the past 50 years, many new institutions have opened to fill the gaps in what used to be intellectual wastelands. But very few old ones have closed. The result is that Europe has too many small-scale institutions scattered across the continent. Nearly all of them aspire to be research-intensive, even though they usually lack the scale to be able to compete with their regional and global competitors.

The second point is that from the early nineteenth century, universities almost everywhere became increasingly dependent on central governments for their finances. This was quite unlike the US. The only partial exception in Europe was the UK, where the universities retained their formal independence, even though the establishment in

⁷ Martin Wolf, 'How to save British universities', *The Singer and Friedlander Lecture*, September 2002.

1919 of the University Grants Commission led to them relying ever more heavily on public funding.⁷

The medieval privileges of independence were abolished in Spain, France and Germany. Ministries of public education were established almost everywhere, taking responsibility for finance, academic appointments, salaries and the curriculum. Prussia's centralised approach to the management of its universities was established in the nineteenth century, and copied by Austria, Switzerland and the Nordic countries. French universities were regularly purged of troublesome academics throughout the nineteenth and early twentieth centuries.

By the end of the 1930s, the state was already providing between 25 and 100 per cent of university funding across Europe. And the enormous growth in the student population during the post-war years was almost entirely financed by public money.

The third broad theme is that from the inter-war period onwards, most European universities stopped charging fees, and many of them became less selective. Payments, generally rather modest, had been the norm through the nineteenth century. But as student numbers started to multiply, student payments largely disappeared. Moreover, in a significant number of European countries, including Germany and France, universities were not allowed to select their students – they had to accept any candidates who qualified under a given set of criteria. The number of students in tertiary education across the EU has more than doubled over the past 25 years, and the growth trend continues. Between 1997 and 2003 the total rose by 20 per cent, to almost 17 million. The rise in student numbers, largely funded by the state, has swamped almost all remaining traces of autonomy and self-governance within universities in most European countries.

This brief history helps to explain today's major challenges. The first is that Europe now has very few world-class universities. The second

is that its higher education institutions are over-regulated and under-funded. And the third is that the political obstacles to reversing 200 years of history are enormous.

Europe does not invest enough

The EU countries invest on average around 1.2 per cent of their GDP in higher education. But this figure masks large differences in performances across the member-states. At the top of the list come Denmark, Finland and Sweden, each putting close to 1.8 per cent of GDP into higher education. At the other end of the scale are Italy and the Slovak Republic, with 1 per cent or less. The Commission has calculated that to close the spending gap with the US, the EU would need to invest an additional €150 billion a year in higher education.⁸

⁸ European Commission, annex to 'Mobilising the brainpower of Europe: Enabling universities to make their full contribution to the Lisbon strategy', April 2005.

The three biggest EU countries – France, Germany and the UK – appear close to the bottom of the league, spending around 1.1 per cent of GDP on their universities. This figure is roughly in line with that of Japan. But it is far behind the performance of key competitors like Australia (1.5 per cent), Canada (2.3 per cent) and the US (2.6 per cent).

These funding levels translate into an enormous spending gap per student between the EU and the other large OECD economies. In 2001, the EU-25 spent on average €8,600 annually per tertiary student, compared with €20,000 in the US. Only five EU countries – Belgium, Denmark, the Netherlands, Austria and Sweden – invested more than €10,000 per student (Sweden heads the league at €14,000).⁹

⁹ European Commission, annex to 'Mobilising the brainpower of Europe: Enabling universities to make their full contribution to the Lisbon strategy', April 2005.

The key difference between Europe and just about every other developed economy is that private finance plays an extremely modest role in university funding. Thus public funding for higher

education represents around 1 per cent of GDP for the EU-25 – the same as in the US. But private finance in the US amounts to 1.4 per cent of GDP, and 2.4 per cent in South Korea, compared with only 0.1 per cent for the EU-25. The OECD average is 0.8 per cent, and even in the four EU countries with the greatest private involvement – Spain, Poland, the Netherlands and the UK – private investment in higher education is far below the OECD average.¹⁰ There are obvious reasons for this critical difference. Most European countries

¹⁰ OECD, 'Education at a glance: OECD indicators 2005', 2005. lack a culture of private philanthropy: the default position is that the state is the provider of public goods and services.

EU universities lack the tradition of raising money from alumni, and in many cases their legal status does not allow them to amass private funds: any cash gifts have by law to be passed straight through to the regional or state government. This is not the way things work at Harvard, where the university's endowment fund now comfortably exceeds \$20 billion. In addition, there are relatively few philanthropic institutions in Europe to provide support, while industry does not readily supply funds.

Above all, few EU countries charge tuition fees. Students in public universities in the US pay an average of €4,000 a year, while in the private sector the figure is more than €15,000. The Commission has calculated that if European countries would charge similar tuition fees for public universities, the additional 'private' funding would amount to €62 billion a year, compared with total public investment in higher education of around €110 billion in the EU-15 in 2001.

Table 1: Investment in tertiary education, per cent of GDP, 2002

	Public funding	Private funding	Total
Austria	1.1	Neg	1.1
Belgium	1.2	0.1	1.4
Denmark	1.9	Neg	1.9
Czech Republic	0.8	0.1	0.9
Finland	1.7	Neg	1.8
France	1.0	0.1	1.1
Germany	1.0	0.1	1.1
Greece	1.2	Neg	1.2
Hungary	1.0	0.3	1.2
Ireland	1.1	0.2	1.3
Italy	0.8	0.2	0.9
Netherlands	1.0	0.3	1.3
Poland	1.1	0.5	1.5
Portugal	0.9	0.1	1.0
Slovak Republic	0.7	0.1	0.9
Spain	1.0	0.3	1.2
Sweden	1.6	0.2	1.8
UK	0.8	0.3	1.1
USA	1.2	1.4	2.6
Australia	0.8	0.8	1.6
Japan	0.4	0.6	1.1
OECD	1.0	0.8	1.7

*Neg = Negligible. Not all figures add up due to rounding.
Source: OECD, 'Education at a glance', 2005.*

The battle for tuition fees

A number of European countries plan to increase revenues from tuition fees in the years ahead, but not on a scale that will make a significant difference to overall funding levels. The UK has been the most aggressive in this respect, with higher 'top-up' fees coming into effect later in 2006.

To win approval for this change in the face of fierce political opposition, the UK government had to impose a cap of £3,000 per year on fees until at least 2009. At that level, fee income will increase total funding in higher education by less than 0.2 per cent a year. And part of that extra money will have to be distributed to support poorer students. To take a single example, Oxford expects that extra revenues from the increased fees will amount to around £19 million a year. But net of higher bursary payments, that figure will come down to £12 million. The university is currently running an annual deficit on teaching of close to £30 million a year.

Other countries are introducing fees on an even more modest scale. Last year, the German *Länder* won a battle with the federal government in the constitutional court, which will allow them to introduce fees if they so choose. Those states that are preparing to charge fees are planning to cap them at just €500 per semester. Many Germans suspect that if private finance starts to increase, public funding will be cut back – leaving the universities no better off.

European countries have to cope with other big handicaps when it comes to funding university education. One is the fact that students can take many years to graduate. This means that although the annual spending per head may be relatively modest, the cumulative cost over the total period of study can be much more substantial. There are also very high drop-out rates in a number of European countries, which represent a significant waste of public resources.

Many European universities allocate their often meagre resources inefficiently. Standards vary significantly from country to country,

but the status and quality of non-academic staff – for example, those responsible for finance or human resources – is often very low. A number of Nordic universities have financial and accounting systems that compare favourably with those in the US. Sweden's Chalmers University of Technology issues financial statements that can compete with those of big corporations in their transparency. At the other extreme, it seems almost impossible to identify the financial strategy and structure of many universities in France and Italy. This is the fault of governments, not of the individual universities. French universities do not have a central budget because they do not control their own resources. So long as universities are an emanation of the state, effective allocation of resources and meaningful budgets will remain a pipe-dream.

The consequences of all this for the quality of both teaching and research are predictable. On one estimate, the annual budget of a top technical university in Germany amounts to around one-fifth of the figure for a US institution like Stanford – and the German university could be handling twice the number of students. It is not hard to imagine what this difference means in terms of equipment, scholarly resources and salaries.

The European Commission has suggested that in a modernised university system, a total investment of some 2 per cent of GDP is the minimum required for knowledge-intensive economies. That may be a realistic objective for the Nordic countries: Denmark, Finland and Sweden are already the world leaders in terms of public investment in higher education, although private support is modest. But in the current political and economic climate, such a level of public investment would seem an absolute fantasy for other European countries. Fiscal pressures across the EU will make big increases in public spending very difficult to achieve. And there is very little appetite for a substantial increase in more private funding from the students themselves: given that Tony Blair's government found it extremely difficult to increase tuition fees in England, imagine the reaction to a similar proposal in France.

Governments in the ten countries that joined the EU in 2004 increased their spending on tertiary education at a rapid pace in the second half of the 1990s. For example, in Poland, spending rose by three-fifths. Clearly there are limits to how much more money hard-pressed governments can invest in higher education. The Mediterranean countries have also been trying to catch up, with increases in spending in Spain, Italy, Greece and Portugal over recent years. But public investment has more or less stagnated in France, Germany and the UK.

How (not) to run a university

If Europe's universities are going to make a case for more funding, they must first demonstrate that they are capable of managing their existing resources effectively. Governance reforms have become an urgent priority for universities throughout the European Union. Some countries, like Denmark, the Netherlands, Austria and Sweden, have already recognised the need for change and are well on the road to reform. Others, like France, Italy and Germany, still have a very long way to go. But what is clear everywhere is that structures which worked for small communities of scholars are utterly inadequate for institutions with tens of thousands of students.

In the words of Commission President José Manuel Barroso: "If universities are to use the limited resources they have as efficiently as

¹¹ José Manuel Barroso, 'Strong universities for Europe', speech at the European Universities Association Convention, April 2005. possible, if they are to maximise the social return on the investment society makes in them, they must have more freedom to manage themselves as they see fit."¹¹

The key point is that only national governments can make the necessary changes. Individual universities lack the power and often the incentives to introduce more effective governance systems. No single model for governance would be appropriate for such a large number of universities spread across 25 different countries. But some general principles do apply:

- ★ Top-down bureaucratic interventions will not produce good results in an era of global competition and rapid change. Universities which need ministerial approval in order to appoint a professor, as can happen in Italy, will have enormous difficulties in competing for talent with their fast-moving US counterparts. German politicians talk longingly about the need to create a number of 'elite' universities – but are only now beginning to recognise that this ambition is incompatible with a system that denies universities control over their own student admissions.
- ★ State control brings with it the idea that all institutions are of equal status. But Europe has too much dull uniformity. There is a growing need for diversity – for some universities with the resources to compete with the best in the world, and for others to meet regional and local requirements in a first-class fashion. Universities require the authority to develop their own comparative advantages: to close second-rate departments and to expand in new areas, or to pay the rates needed to attract talented academics.
- ★ Universities will have to become more transparent and accountable if they wish to secure much-needed private sector finance. If they are to collaborate with business, universities will need to understand the economic costs of their research efforts. Potential donors, where they exist, will want to know that their money is being well spent. Universities need to strengthen their central administration, and pay much more attention to such neglected areas as the handling of research funding, the management and development of support staff, and the campus infrastructure.
- ★ Universities around the world are playing an increasingly important part in basic scientific research and innovation. But success in these areas requires management skills as well as creative genius. According to the Commission's Forum on

University-based Research, many European universities do not have what it takes to translate research excellence into

¹² *European Commission, 'European universities: Enhancing Europe's research base', report by the Forum on University-based Research, 2005.*

commercial opportunities.¹² As a result Europe is missing out on opportunities to build bridges between the market and universities.

UK universities have in principle always been independent private institutions, albeit heavily dependent on the state for finance. In the face of budgetary pressures over recent decades, they have substantially strengthened their central administrations. Most governing boards have agreed on a voluntary code of governance; vice-chancellors are appointed in a professional fashion, often from outside institutions; and financial controls have been greatly improved.

A number of European countries have broken away decisively from the old model of absolute state control. Just over 40 years ago, Dutch universities were in formal terms a part of the Ministry of Education, Culture and Science: they had no separate legal personality. Following a long series of legislative reforms, they now have their own legal identities, a clearly defined system of central governance, and boards of trustees which have to be approved by the relevant government minister but are in practice

¹³ *Burton Clark, 'Sustaining change in universities', Society for Research into Higher Education, Open University Press, 2004.*

nominated by the university.¹³ The result is that Dutch institutions such as the universities of Groningen, Leiden and Utrecht are now among the most dynamic in Europe.

Denmark, meanwhile, is establishing independent governing boards for each university. The board appoints the rector, and the rector appoints the deans. The academic council is elected by the faculty, and the division of power between rector, governing body and academic council is set down in statutory form. Government and university work together on the basis of a contract which is negotiated over a three-year period.

But other countries have made much less progress. The Aznar government in Spain devolved certain powers from the state to the regional authorities, but ran into trouble when it proposed that Spanish academics should raise their rather modest commitments to teaching and research.

Germany still has 16 separate centralised systems, one for each of the *Länder*. Some have become quite liberal. In others, micro-management by the regional government is so extensive that trivial payments – such as membership fees of a trade association – have to be signed off by state bureaucrats.

In Italy, the finance ministry still wields extensive influence over academic affairs. Among other things, this means that the appointment of professors can be delayed until Rome frees up the cash to pay their salaries.

France's *Grandes Ecoles* distort the picture

There are big barriers to reform in France, where academics and students in the public university system tend to be very conservative and strongly opposed to change. In 2003 tentative plans to give universities a greater degree of autonomy were stopped in their tracks by academic and student protests, even though the Conference of University Presidents had warned that the absence of reform would threaten the public provision of French university education.

In practice, France has created over the last 200 years a unique system of higher education founded on excellence and exclusivity. At the heart of the system are the 50-odd *Grandes Ecoles* – the great schools which stand outside the mainstream framework of the public universities

The *Grandes Ecoles* typically focus on a single subject area – such as specialist engineering skills or public administration. With the exception of the privately-run business schools, the *Grandes*

Ecoles are publicly funded. The *Ecole Polytechnique*, for instance, is funded directly by the Ministry of Defence. The schools remain small, typically with an annual intake of no more than 200. They are very successful both in terms of the quality of teaching and the subsequent career paths of their graduates. In most cases the *Grandes Ecoles* admit students only after a minimum of two years of preparatory higher education. In the case of ENA (*Ecole Nationale d'Administration*, France's elite school for public administration) this preparatory period can extend to five years.

A particular problem for France is that while the *Grandes Ecoles* attract a grossly disproportionate share of public finance for higher education, they do little or no research. There is thus an artificial gap created between the institutions that prepare the country's elite and the universities that are classed as second rate. The brightest students usually seek to gain entry to a *Grande Ecole*, which means that they are not following a career in research.

With their ability to attract the best students and greater teaching resources, the historic success of the *Grandes Ecoles* is not in doubt. Nor for many observers is their negative impact on the French university system as a whole, which scores poorly in all the international league tables.

Too much top-down control

For understandable reasons, a number of the new EU member-states are far behind the best-performing EU countries when it comes to establishing robust governance systems for their universities. A recent study of institutional autonomy by the European Universities Association (EUA) concluded that: "The differences between individual European countries are enormous in this respect, with some countries such as the UK, Ireland, Finland, the Netherlands, recently also Denmark and Austria, granting wide-reaching autonomy to their universities within the bounds of accountability,

while other countries such as the French community of Belgium, Germany, Greece, Czech and Slovak Republics impose severe restrictions on the internal governance of their institutions." In some cases, the intervention comes not so much from governments but from professional accreditation bodies, which restrict the types of courses that can be offered.

Significantly, the EUA analysis shows that the institutions which benefit from the greatest degree of autonomy are also those which have done the most to improve the quality of their work. The opposite is also true: the most frequently voiced complaint came from those universities which, by national law, were not allowed to select their own students but had to accept all those with the appropriate paper qualifications.

Too much top-down control is not just a European problem. Public universities in the US are also subject to political intervention, albeit in rather different ways. They often seek to please local politicians – on whose votes the university's budget depends – by skewing their funding to build a successful local sports team. As the British academic Alan Ryan has written: "You don't expect the local politician to feel good about your philosophy department; but if you want a good philosophy department, you want the politicians to feel good about your football team."

The central dilemma in most European countries is that universities are not in a strong position to make a case for more public funding as long as they cannot show that they run their existing resources as efficiently as possible. Politicians are not prepared to offer more, because they face conflicting demands on scarce taxpayers' money and they fear that additional funds would produce few improvements. Except in those few countries which have permitted private universities, the private sector is unwilling to step in to fill the gap. And in a number of countries the absence of suitable channels makes engagement between business and the academic world complex and time consuming.

At the same time, the level of under-funding is such that universities do not have the ability to modernise and adapt themselves to meet society's changing requirements. In this way, they are trapped in a vicious circle: they will get no more money unless they reform; and they cannot reform without more money. Unless Europe's universities can find their way out of this dilemma, they will continue to falter in their two main missions, namely research and teaching.

In a different league

It is easy to pick holes in academic league tables. The criteria used for selection are inevitably partial and arbitrary. To the extent that they are based on academic citations in international publications, which are predominantly written in English, they have a bias towards English language institutions. Different league tables tell different stories. All the same, there is a stark message contained in the published rankings of the world's great research universities. They are dominated by US institutions. And most of the big European countries are hardly represented at the top of the table.

- ★ Shanghai's Jiao Tong University was the first to attempt such a global rating system. The 2005 ranking has 36 US universities in the top 50, and just nine from Europe, of which five are in the UK (Cambridge, Oxford, Imperial, University College, London and Edinburgh) and one each from Switzerland (the Swiss Federal Institute of Technology in Zurich), Sweden (the Karolinska Institute in Stockholm), France (Université Pierre et Marie Curie, Paris 06) and the Netherlands (Utrecht).
- ★ The *Times Higher Education Supplement* also publishes a league table, drawn up on a different basis and including a measure of peer review. Its top 50 includes 20 universities from the US and 13 from Europe: eight from the UK, two each from France and Switzerland and one from Germany.

Table 2: The world's top ten universities

	Country	Global rank
Harvard	US	1
Cambridge	UK	2
Stanford	US	3
Berkeley California	US	4
Massachusetts Inst Tech	US	5
California Inst Tech	US	6
Columbia	US	7
Princeton	US	8
Chicago	US	9
Oxford	UK	10

Table 3: The world's top ten non-US universities

	Country	Global rank
Cambridge	UK	2
Oxford	UK	10
Tokyo	Japan	20
Kyoto	Japan	22
Imperial College London	UK	23
Toronto	Canada	24
University College London	UK	26
Swiss Tech Inst, Zurich	Switzerland	27
British Columbia	Canada	37
Utrecht	Netherlands	41

Table 4: Europe's top ten universities

	Country	Global rank
Cambridge	UK	2
Oxford	UK	10
Imperial College London	UK	23
University College London	UK	26
Swiss Tech Inst, Zurich	Switzerland	27
Utrecht	Netherlands	41
Karolinska Inst Stockholm	Sweden	45
Paris 06	France	46
Edinburgh	UK	47
Munich	Germany	51

Source (tables 2-4): *Institute of Higher Education, Shanghai Jiao Tong University, 'Academic rankings of world universities', 2005.*

- ★ A list of where the top 1,000 scientists in computer sciences were educated shows that the first ten institutions at masters and PhD level were all in the US.¹⁴ Cambridge is the only European university in the top ten at bachelor level. It is also striking that universities from South and East Asia are doing

¹⁴ Andrea Bonaccorsi, 'University of Pisa: Frontier research and new institutions for European Science', presentation at the CRUI-University of Geneva Conference, April 2005.

much better than those from Europe on this high technology measure. The only other institutions from outside the US are the Indian Institute of Technology, National Taiwan University and Seoul National University.

- ★ Europe does not lag behind only in the hard sciences. In economics, for example, there are only five European

departments in the world's top 50 ranked by citations, and all but one (Copenhagen) are in the UK.¹⁵

¹⁵ Tom Coupé, 'Revealed performances: Worldwide rankings of economics departments 1990-2000', *European Economic Association*, 2003.

- ★ Between 1901 and 1950, 73 per cent of Nobel Prize winners were based in what is now the EU. Between 1951 and 2000, this share dropped to 33 per cent, while in the period from 1995 to 2004 the figure was down to just 19 per cent.¹⁶

¹⁶ European Commission, 'A European Institute of Technology?', *Public consultation on the possible mission, objectives, value-added and structure of an EIT*, December 2005.

These figures tell a grim story for Europe.

How can it hope to become "the most competitive and dynamic knowledge-based economy in the world" – the strategic goal of the EU's economic reform ('Lisbon') agenda – when most of its best universities are so clearly in the second division? And how is it possible that such a rich and diverse set of countries should have found it so difficult to build and sustain world-class institutions?

Europe is falling behind in research

There are several answers to this second question. First, the European Union as a whole invests too little in research and development. In 2003, total R&D spending in the EU-25 averaged just under 2 per cent of GDP, compared with 2.6 per cent in the US and 3.2 per cent in Japan. Despite the lofty goals of the Lisbon agenda, growth of R&D investment in the EU has slowed since 2000. On current trends, China will be investing the same amount of its GDP in research by the year 2010. The EU average masks wide differences between individual member-states. The Nordic countries once again perform much better than the Southern European member-states. Finland and Sweden far outstrip the US and Japan in terms of research intensity: for Sweden, R&D spending amounts to more than 4 per cent of GDP. By contrast, Spain invests just 1.1 per cent of its GDP, while Portugal, Cyprus, Latvia, Slovakia and Poland all spend less than 1 per cent. France

and the UK spend approximately 2 per cent of their respective GDPs, while Germany does rather better, investing around 2.5 per cent. All three countries have set targets to improve this performance by 2010, but so far only the UK has implemented significant measures towards achieving this goal.

A second explanation for Europe's poor showing in the league tables is that public funding for research is inefficiently allocated, with insufficient co-ordination between public research institutes and university research departments. A case in point is France, where public science has been in a state of permanent crisis for some years. Here, the bulk of government funding is channelled through public research institutes rather than universities, most notably the giant CNRS (National Centre for Scientific Research). Although large numbers of the institutes' laboratory directors are also university professors, there is little sense of a coherent strategy for R&D investment across the system.

CNRS researchers generally have long-term tenure and no teaching role, as well as a higher status than university teachers. So they have no incentive to do anything but oppose closer links with universities, despite the government's best efforts.

In Germany, non-profit research institutions such as the Max-Planck or Fraunhofer Institutes play a very important part in the funding of research: they invest almost as much as the universities. The bulk of research funding for universities is channelled through the *Länder* which have an interest in developing regional rather than national research champions. A hundred years ago, German universities were by far the most successful research institutes in the world, and a model for their peers everywhere. Today, they struggle to show up in the top 100.

One obvious explanation for the relatively high showing of UK universities in the league tables is that its research funding is much more heavily concentrated on the top institutions than elsewhere in

Europe. Well over three-fifths of public and business investment in university research in England is directed to the top 15 universities.¹⁷ British universities are also much more selective in their admissions policies than most of their European counterparts. Top universities are able to pick the brightest students and to cream off a large share of research funding.

¹⁷ Data from the Higher Education Funding Council for England.

The US invests a bigger share of its GDP in R&D and in its higher education system than the EU does. Funding is also more heavily focused on elite institutions. No wonder its best institutions look a lot more successful than most European universities. The European Commission's Forum on University-based Research described the position this way: "The extent and potential impact of European universities is very diverse and [the lack of] economies of scale do not warrant fully dedicated research management staff in all institutions. This means that the wealth of human and other resources commanded by most European universities is not being fully tapped to promote growth and well-being in Europe."

Europe's R&D problems are compounded by the fact that its universities play a more important role in the research infrastructure than in the US or Japan, despite their relative weakness. This is because European companies, taken as a whole, are not as research intensive as their international peers. In 2002, business financed 56 per cent of domestic R&D expenditure in the EU, compared with 63 per cent in the US and 74 per cent in Japan.¹⁸ Around 80 per cent of researchers in Europe are university-based, against some 60 per cent in the United States.

¹⁸ Data from the European Commission.

Europe conducts most of its research in humanities and social sciences, and a substantial part of its work in the natural sciences, within its university system. So what happens on the campus is a matter of critical importance for its overall intellectual dynamism.

The missing link: universities and business

Moreover, universities everywhere are playing a more important role than they did in the past in basic research and innovation. Companies around the world are seeking to collaborate with outside partners, rather than attempting to do everything in their own laboratories. Businesses see universities as increasingly attractive partners. Universities are multi-disciplined in character, and they attract a constant stream of fresh talent. Successful academics are in touch with their peers around the world; they are at the cutting-edge of their discipline; and they are able to set themselves ambitious and long-term goals.

¹⁹ Richard Lambert, 'Lambert review of business-university collaboration', HM Treasury, December 2003. Of course there are good stories of business-university collaboration across Europe. The UK has seen a big shift in this direction in the last ten years.¹⁹ Examples elsewhere

include Delft Technical University in the Netherlands, which has developed a highly successful series of business links around its specialisation in glass and materials technology, measurement and control systems, and ergonomics. The RWTE University at Aachen has created a range of links with companies in the region, focusing on specific areas of expertise including material science, mobility and transport, and environmental science. Finland's University of Oulu has a worldwide reputation for business collaboration in information technology. But in large parts of Europe, business people and academics regard each other with mutual suspicion. Individual academics may have relationships with particular companies, but there are very few institutional links.

In order to compete with the US and, increasingly with Asia, Europe badly needs to develop more world-class research universities. Top academics want to work with the best brains in their discipline, using the best equipment and – ideally – getting well paid for their efforts. As global competition for talent heats up, the US is exercising an increasingly strong pull on the best rate researchers, and this is having important economic as well as intellectual

consequences. Europe continues to lose talent: 58 per cent of the European citizens who received doctorates in American institutions between 1998 and 2001 chose to stay in the US once their studies were finished.²⁰ ²⁰ European Commission, 'Key figures in science, technology and innovation', 2005.

How to attract the best and brightest

Data from the OECD and the European Commission show Europe compares reasonably well with the US in terms of the numbers going through higher education. But overall the EU's teaching record is poor. Many countries have high drop-out rates while European students can take long periods to graduate. And the figures show that the US is becoming an increasingly powerful magnet for talented European students at all levels.²¹ As the Commission has recognised, it is clear that European universities are decreasingly able to compete in what has become a global market. ²¹ European Commission, 'The role of universities in the Europe of knowledge', February 2003.

Table 5: Students in tertiary education, million, 2003

EU	16.3
US	15.9
Japan	4.0
China	12.1
India	10.6
Russia	8.0

Source: European Commission memo, April 2005.

In the US, 30 per cent of people in the age range of 25 to 34 have been through tertiary education, although that includes courses that would not count as higher education in the EU. In Europe, the proportion ranges from 25 per cent in the Netherlands and 23 per

cent in Finland down to 14 per cent in Germany, 12 per cent in Italy and a similarly low figure for most of the new member-states. However, student numbers have risen fastest in the countries of Central and Eastern Europe, along with Spain, Portugal and Greece over recent years.

High drop-out rates are a sign either that the university system is not meeting the needs of its students, or that young people are using universities as a convenient place to pass a year or two before getting on with their lives. In a mass access system with no selection and high youth unemployment rates, it may be quite rational for a student to sit around for a year or two before dropping out. But this is hardly an efficient use of public resources.

Across the EU as a whole, the drop-out rate stands at around 40 per cent – much higher than the OECD average of around one-third. Italy stands out as a poor performer: close to three-fifths of all students fail to complete their course. Seeking to explain this dismal figure, the Commission has suggested: “The ‘education for everybody’ approach in higher education has resulted in a huge expansion of the student population with no fundamental change in university structures and living conditions. In most member-states, a successful secondary school career gives automatic right of access to university studies with no additional selection. This right is considered an essential element of democracy to guarantee equality

for all citizens. Many students thus embark on higher education without any real academic vocation and do not get what they want from university.”²²

²² European Commission, ‘The role of universities in the Europe of knowledge’, February 2003.

Perhaps not surprisingly, there appears to be a link between the length of a course and the percentage of students successfully graduating. On average in OECD countries, 32 per cent of people at the normal age of graduation have completed higher education courses lasting from three to five years. But in Austria, the Czech Republic, France, Germany, Italy and the Slovak Republic, the

majority of students go through longer programmes (of at least five years’ duration) and graduation rates are 23 per cent or below.

Drop-out rates are much lower than average in countries like the UK, where there is a selective entry system, or in courses elsewhere in Europe which limit the number of participants. It is all about commitment.

Some European students are distinctly long in the tooth. The median age of students in the EU is around 22 years. In Denmark and Germany it is more than 25, while in the Nordic countries along with Austria and Germany more than 15 per cent of students are 30 years of age or older. In these countries courses start later and last longer.

There are no reliable benchmarks to measure the quality of teaching in different universities around the world. But it is hard to escape the conclusion that most institutions with high international reputations operate some kind of selection process for students. By contrast, many European universities have to accept what they are given. Taken together with overpopulated university classrooms and extremely high teacher-student ratios, the lamentable drop-out record in parts of Europe should be no great surprise.

One way of measuring the relative attractions of different teaching systems is to look at flows of international students. Most people studying outside their home country have to pay their way, at least in part. These students tend to be more demanding customers, looking for value for money.

In the year 2000, European universities attracted some 450,000 students from other countries, while their US counterparts pulled in more than 540,000. More significantly, the US attracts many more students at advanced levels in engineering, mathematics and information technology, and is much more successful in persuading people with doctorate qualifications to stay in the country.

Around half the Europeans who obtain their qualifications in the US stay there for several years, and many of them remain permanently. The Commission has estimated that about 400,000 Europeans with a technical and scientific education are currently living in America, of whom about 120,000 are employed as researchers. Nearly 10 per cent of the 1.45 million people holding a PhD in the US are originally from the EU.

²³ OECD, 'Education at a glance: OECD indicators 2005' 2005.

There are twice as many European students in the US as there are Americans coming to Europe to study.²³ And while the

Europeans are generally seeking a full qualification at their host university in the US – often at an advanced level in science or technology – American students generally come to Europe on a short-term basis as part of a course run by their home university. They often arrive at an early stage in their syllabus, and tend to concentrate in human or social sciences.

Why students flock to the US

Five countries enroll nearly three-quarters of all students studying abroad: the US with 30 per cent, the UK and Germany each with 12 per cent, Australia on 10 per cent, and France with 9 per cent. However, the German figure includes a significant number of 'domestic foreigners', mainly the children of migrant workers who are redefined as foreign students, despite holding permanent residence in the country. There are particularly large numbers of African students in France for reasons of language and history. Furthermore, more than half of the international students in France and Germany are on short-term intra-European exchange programmes, which cannot be compared with the long-term undergraduate and postgraduate students who make up the bulk of the international population in the US, the UK and Australia.

These three countries have two obvious things in common. The first is the English language, which has become an increasingly powerful

attraction for students everywhere. As a result, a growing number of courses in continental Europe are now being taught in English, both at graduate and postgraduate level. Nordic universities in particular are offering a wide assortment of courses in English, which helps to explain the steep increase in the proportion of foreign students enrolled in Sweden in recent years.

The second is that they have a clear economic incentive to attract students from outside their home country or, in the case of the UK, from outside the EU.²⁴ Given the pressure on public funding everywhere, foreign students – normally paying full fees – are becoming ever more attractive to those universities which can charge for them. For the UK and Australia, in particular, international students have become a vitally important source of revenue.

²⁴ *Universities in the UK can and do charge the full cost of tuition to students from outside the EU, while students from within the EU enjoy the same treatment as UK students. The distinction does not arise in most other EU countries, which do not charge fees at all. Sweden and Finland, however, are debating the introduction of tuition fees for students from outside the EU/European Economic Area.*

The OECD data provide a revealing picture of how European students are willing to vote with their feet. By measuring the net inflows or outflows of students against the total student population in a particular country, you can judge how successful that country has been in attracting foreigners and holding on to its own students. In Australia, Switzerland and the UK, the net intake is between 5 and 8 per cent of their total enrolment. By contrast countries like France, Italy and Ireland all have net outflows. Greece is bottom of the EU league table, with a net outflow of more than 9 per cent. It is not as if European students are desperately keen to study elsewhere in the EU. Only 2 per cent of tertiary level students in the EU study in another member-state or EFTA/EEA country.

One country which appears to be drifting away from rest of Europe is the UK. The numbers of British students participating in the Erasmus programme, which places students on courses within the

EU but outside their home country, has fallen sharply over the last decade. An analysis in 2004 observed that British students are increasingly heading off to campuses in California, Florida, New

²⁵ *Sussex Centre for Migration Research and Centre for Applied Population Research of the University of Dundee, 'International student mobility', July 2004.*

Orleans and Australia. The study added, perhaps a little wearily, that “the climatic factor is all too evident”, although poor levels of language teaching in the UK might also be pertinent.²⁵

Five years ago, Europe’s ministers of education set themselves the objective of turning the EU into “the most favoured destination of students, scholars and researchers from other world regions”. Given current trends, this goal seems an almost absurd aspiration. Taken as a whole, European universities offer students and researchers a less attractive environment than their main global competitors. Radical reforms will be necessary – not just to pull in talent from overseas but, more importantly, to persuade Europe’s best and brightest to stay at home. Fortunately, some of these reforms are now in the offing.

3 Current reforms in higher education

The good news is that these weaknesses are beginning to be recognised at a political level, and changes are afoot. The big question is whether the reforms that are now being contemplated will go far enough to meet Europe’s needs.

The Bologna process

Europe’s higher education sector is currently undergoing the most sweeping reform programme for decades. The biggest single initiative is the so-called Bologna process. The 45 signatory governments are committed to a radical restructuring of university teaching, and to creating what has been grandly described as a European Higher Education Area by the year 2010.

If the reforms are successfully implemented, the results could range far beyond the changes in the curricula which are at their core. University teaching could become more efficient and cost-effective, and drop-out rates could fall. Universities would have to think much more seriously about their comparative strengths and weaknesses, since there would be more competition for students who had completed their first degree and were moving on to the masters level.

Students would become more mobile, able to move to different institutions – and into different European countries – to complete their masters programme. There could be greater scope for introducing private finance, by getting businesses or students themselves to contribute towards the cost of teaching at the masters level. There could be a rapid expansion in business teaching, since it will become easier for students to switch to an MBA.

The roots of the Bologna process date back to 1998, when the higher education ministers of France, Italy, Germany and the UK agreed on an approach to the “harmonisation of the architecture of the European higher education system”. By the following year the ball was rolling, and in the Bologna declaration 29 higher education ministers announced their intention to:

- ★ establish a system of easily recognisable and comparable degrees;
- ★ create a two-cycle system of university studies, starting with a bachelor degree and moving on to a masters. At the end of each stage, students would have qualifications which would be relevant to the labour market;
- ★ develop a European-wide credit system to promote student mobility;
- ★ promote co-operation between quality assurance bodies across Europe, in order to create comparable systems and criteria; and
- ★ build networks of European learning.

Ministers subsequently agreed to go beyond the two main cycles of higher education (undergraduate/postgraduate) and include the doctoral level as the third stage of the Bologna process. And an increasing number of countries, not only from within the EU, have signed up. The total number is now approaching 50, with the latest additions including Armenia, Azerbaijan, Georgia, Moldova and Ukraine.

The essential point about Bologna is that it splits continental Europe’s traditional degree course – which can take five years of more to complete – into two separate parts. After three or four

years, students will graduate with a bachelor degree, and choose whether to go out into employment or press on with a masters degree, usually for a further two years.

The introduction of this break point at bachelor degree level is the key to changing the structure of European higher education. The two-cycle degree system is now being implemented on a large scale: around half the students in Europe are now enrolled. Almost all the signatories have made provision for a quality assurance system based on agreed criteria. And 36 of the participating countries have agreed on a convention covering the recognition of degrees and study periods across borders. According to GMAC (the Graduate Management Admission Council, a group committed to supporting graduate management education around the world) more than 2.4 million European students a year will be graduating with a bachelor degree by the time the new system is fully operative in 2010.

Why have things moved so rapidly? Bologna has provided external pressure to encourage changes which many universities and governments would have liked to introduce anyway. The European University Association (EUA) says that this comment by one Finnish institution is echoed in a wide range of different national and university contexts: “A key word for this process is reinforcement, as the Bologna process has been used as a vehicle to carry out reform work which was needed with or without Bologna.”²⁶

²⁶ Sybille Reichert and Christian Tauch, ‘Trends IV: European universities implementing Bologna’, *European University Association*, 2005.

Governments have economic reasons for supporting Bologna. Most countries will make significant savings if they succeed in cutting the amount of time students spend in higher education. GMAC estimates that Austria, France, Germany, Italy and Spain have the greatest potential to reduce costs and improve labour market conditions in this way, and could therefore be expected to be first movers.

Shorter degree courses

A reduction in the duration of studies should also reduce drop-out rates. OECD figures show that an additional 11 per cent of students fail to complete studies lasting five to six years compared with those on three to five year programmes. Moreover, it may well be politically easier to introduce or raise tuition fees at masters level than for bachelor degrees. Many countries have already introduced fees for masters students, and allowed institutions to receive funding from private sources. Postgraduate degrees bring considerable benefits to the student concerned – in the shape of above-average incomes and job opportunities – so it is harder to argue that they should be financed entirely with public funding.

Smaller countries on the fringes of Europe had everything to gain – and very little to lose – by signing up for Bologna once it had achieved critical mass. What the reforms will mean for them in practice is an open question: quality assurance standards, for example, are bound to vary enormously among so many countries. The primary responsibility for maintaining standards will continue to lie at the national level. There are not going to be Bologna inspectors stomping around the campuses of Moldova, checking that everything is up to scratch.

According to the EUA, universities all over Europe are in the process of redefining their courses. Contrary to initial fears that restructuring

²⁷ Sybille Reichert and Christian Tauch, 'Trends IV: European universities implementing Bologna', *European University Association*, 2005.

would amount to a superficial regrouping of existing curricula, most institutions are rethinking their core objectives, and are locking the Bologna reforms into their own institutional programmes.²⁷

In a study of 62 institutions across Europe, the EUA found that two-thirds had already decided to integrate the Bologna reforms into their own agenda. One example of this bottom-up approach is Switzerland, where the University of St Gallen and the Federal Institute for Technology took the lead – and were swiftly followed

by their peers. In the absence of government guidelines, Swiss institutions have developed their own programme for a fundamental restructuring of their curricula.

Not everyone is moving at the same pace. Universities in Northern Europe are more positive about change than those in the south. Some countries have made the Bologna process a key part of their national efforts to modernise the university system, such as the Quality Reform Project in Norway. Within the participating countries, some universities are more enthusiastic than others.

Among the less enthusiastic countries, the UK signed up for Bologna on the assumption that it would have little or no impact on a system which was already built around an undergraduate/postgraduate cycle. But this was a misjudgement: some aspects of the UK system do not fit comfortably into the Bologna structure. Many European academics feel that the UK masters degree, which often takes only a year on top of the three years of the bachelor degree, is too short – especially since the British undergraduate year has significantly fewer teaching hours than elsewhere in Europe.

British academics tend to regard Bologna as an irritation, or worse. But if UK degrees are perceived to fall short of a new European standard, the country cannot hope to sustain its global market position as a prime location for foreign students – especially at a time when increasing numbers of competing English language courses are being introduced elsewhere in Europe.

Other countries are facing similar difficulties in trying to adapt their traditional teaching approach to the Bologna requirements. Some universities are attempting to squeeze the content of a five-year programme into the new three-year bachelor programme, rather than taking the opportunity to clear out curricula. Universities in Italy and Hungary complain that they need clearer ministerial guidelines about what their masters programmes should look like. Most say that they need extra funding to cover the often heavy

costs of wholesale teaching changes. Characteristically, Nordic governments appear to be the only ones providing extra financial help for this purpose.

One of the biggest concerns about the Bologna process is over the employability of students whose higher education stops at the bachelor level. Many European academics still express doubts about the possibility of offering a degree after only three years that is academically valid and relevant to the labour market. Some employers wonder how students can possibly learn enough in three years to make them worthwhile recruits: Italy is one of the countries where this concern is expressed most noisily. According to the EUA, reservations about the validity of the three-year bachelor course are particularly strong in engineering, natural sciences and fine arts. The regulated professions – lawyers, engineers and so on – also tend to be extremely conservative, and reluctant to accept the validity of three year degrees.

In some cases, governments themselves are failing to support the reforms that they have initiated. The EUA concludes: “It is vital that governments set a good example by declaring clearly their willingness to hire bachelors for public service posts.” The Italian government, for one, has been slow to recognise the new structure when it comes to civil service appointments.

Denmark provides an example of what can go wrong. Under reforms passed in 1988, universities could award shorter bachelor degrees alongside their traditional five-year programme. The idea was to cut the average duration of a degree and reduce student drop-out rates. But with no shortage of graduates available to the market, employers continued to favour the traditional degrees, and the shortened degree failed to take off.

One powerful argument in favour of Bologna is that it could bring a badly needed injection of diversity and competition into the European university system. Students will no longer be captives of the same institution: universities will have to market themselves and

their programmes if they are to retain existing students and attract new ones at the masters level.

This will be a brand new experience for most European universities, which until now have never thought of their students as customers. They will have to decide on their areas of comparative strength and weakness, and be much more forthcoming about what they can offer. Countries like Belgium and Denmark, where bachelor holders have guaranteed access to a masters programme in the same discipline, will surely have to rethink their approach in a more competitive environment.

Above all, students will have more options open to them if Bologna works. As things stand, European universities operate a wide range of different qualifications with a bewildering series of different titles. Drawing comparisons between awards across the different national systems is extremely difficult. With a common two-cycle system and a broadly agreed approach to quality assurance, student choice should increase – and with it student mobility.

GMAC, in its analysis of the possible consequences of Bologna, argues that some European universities will be able to capitalise on the strength of their masters programmes. These institutions will benefit enormously from their success in recruiting students at this level from around the world. “Others will be less fortunate, and may very quickly come under tremendous financial pressure.” Some institutions will not be able to survive in such a competitive environment, at least in their present shape. If that means a degree of consolidation in the system, more collaboration on a regional basis, a greater diversity of mission and structure, then so much the better for Europe.

But if the Bologna process is going to have this kind of sweeping impact across higher education in Europe, it is going to need real support and drive from national governments. On its own it will not make a significant difference to institutional autonomy. Academics

are not usually great champions of change. Bologna will help to improve the structure of university courses. But it will still be up to politicians to adopt the difficult and sometimes unpopular changes that are needed to give Europe the universities it requires.

Growing competition from private universities

Bologna is at present the dominant driver of reform in universities in most European countries, but it is by no means the only one. Innovations on the funding side are also leading to big changes. For example, Austria, the Czech Republic, Ireland, Sweden and Finland have all recently moved from a system of itemised budgets to lump-sum or block-grant funding for teaching and support – a change which should help to increase institutional autonomy. This is a critical component of reform. The Slovak government has been preaching autonomy for its universities for years, but since it has continued to control budgets down to the smallest detail, its words have been meaningless.

At the same time, some countries, such as the Netherlands, Finland, Sweden and the UK, are allocating a greater portion of funds on the basis of performance. A growing number of member-states are discussing the introduction of tuition fees. European universities are also increasingly willing to compete for students, particularly for lucrative fee-paying overseas students. A study by GMAC identified just over 1,500 English language taught masters programmes available for the academic year 2003-04 outside the UK. The heaviest concentration was in the Nordic countries and the Netherlands: the latter offered 448 courses, compared with just 37 in Italy.

Traditional universities are facing increasing competition from for-profit institutions, especially in parts of Central and Eastern Europe, Greece and Spain. These often offer a narrow range of courses, such as business studies, and are compensating for weaknesses in the national higher education system.

In Poland, for example, the supply of student places has failed to keep up with rapidly accelerating demand. The number of private higher education institutions in Poland increased from three in 1990 to 280 in 2004, of which nearly 60 were in Warsaw. Enrolment in 2004 amounted to 510,000 students, or nearly 30 per cent of all those involved in tertiary ²⁸ *Data from the European Commission.* education in the country.²⁸

In other countries, overly rigid systems of selection and teaching have left a gap for these new competitors to fill. The growth of profit-making institutes in the US – like the University of Phoenix which has invested heavily in sophisticated on-line content, pedagogy and assessment measures – suggests potential scope for an expansion in for-profit education in Europe.

Germany's search for excellence

At the national level, reforms of various kinds are underway in many European countries. Germany is the most interesting example. A hundred years ago its universities were the intellectual leaders of the world, but by the end of the twentieth century they were in poor shape and falling behind internationally. A country which had once dominated the lists of Nobel Prize winners has gained just five prizes in the last ten years, and four of those winners worked in the US. And German universities do not usually feature in the top 50 in international league tables.

The German federal government began a series of cautious reforms three years ago. It first moved to replace the seniority-based remuneration system for professors with a payments structure that made it possible to offer more competitive salaries to top performers. At the same time, it created the new post of junior professor in order to encourage young academics to stay in the system. More recently, universities have been permitted to select some of their students, rather than being obliged to accept anyone with the appropriate qualifications in all but the most popular courses.

Some *Länder* have proven unwilling to incorporate these changes into their own legislation. But others are moving ahead more rapidly and making changes of their own, for example by offering individual institutions a degree of autonomy over academic appointments and governance. Baden-Württemberg is a prime example of a reforming state; it is also investing much more than the national average in R&D. In addition, the federal government has been seeking to encourage technology transfer from the campus to the marketplace. The starting point is very low, but the intellectual property regime has been modernised, and funding has been provided to facilitate the transfer of knowledge.

Two important changes occurred in 2005. In spring, the constitutional court overturned the federal government's attempt to prevent some of the *Länder* from charging tuition fees. And the federal government has come up with what it calls the 'Excellence Initiative': a €1.9 billion programme spread over five years which will be used to upgrade ten so-called elite universities, as well as to finance 40 graduate schools and support a number of research clusters around the country.

This initiative will almost certainly fail in its stated objective, which is to create a German Ivy League to compete with the best in the world. For political reasons, the money is being spread around the country without the degree of concentration needed to support world-class universities. However, this still marks a very important shift in the German system. After the war, the new republic embraced a socially egalitarian way of life and set its face deliberately against elitism. Universities were funded on the basis of inputs, not outputs.

The new money will be awarded on a competitive basis, introducing a badly needed element of merit-based selection into the system. After decades in which good performance has gone unrewarded, this is a very healthy development. The cumulative effect of all these changes, if they are sustained, may be enough to check and then reverse the decline of German higher education.

All this activity in Germany contrasts with somnolence in France and Italy, where many of the public universities continue their drift away from excellence. The Italian government in 2004 announced the creation of the *Istituto Italiano di Tecnologia*, "Italy's MIT". But rather than building a new institution, the money would have been better spent on revitalising the best facilities in Italy's chronically under-resourced higher education system.

Of course, it is easy to exaggerate the speed and breadth of the reforms now underway in many parts of the European university system. Universities are not usually susceptible to radical change. They have big vested interests in the status quo – as indeed do their stakeholders, whether they are academics, public authorities or students.

But after decades of under-investment and institutional neglect, there is at least a growing awareness that higher education represents a very large problem for Europe. The trouble is that the pace of reform across Europe is uneven, and too slow to either meet the needs of Europe's citizens or to withstand global competition from the US and Asia. So universities, national governments and the European Union all have a crucial part to play in sustaining and accelerating the momentum of reform.

How to improve Europe's research record

Despite the wide transatlantic divergence of total spending on R&D, the EU and US each invests roughly the same amount in research undertaken at university laboratories, around \$30 billion a year on a comparable basis. But as this pamphlet has already suggested, the outcomes are very different. European universities perform reasonably well on a broad range of measurements. But for a number of reasons, they very rarely hit the high spots achieved by their top US counterparts.

American research funding is targeted at leading institutions. Most public funding in the US is allocated in response to competitive bids

by researchers. In large parts of Europe, it is doled out on the basis of other criteria, such as the size of individual universities. A disproportionate amount of European research takes place in established disciplines such as chemistry. The US has been much more flexible in switching its research efforts to growth sectors such as the biosciences, and to the support of multi-disciplinary research.

American funding also tends to follow the researcher rather than being allocated to a particular institution. It is therefore easy for a talented researcher in, say, Illinois to move to California and retain his or her funding. That is not the case for a researcher in Ireland who wishes to move to a top team in Germany. Finally, US universities have the power to decide where they want to invest their resources and – if necessary – where to cut back. Universities in most European countries lack the autonomy to make such critical decisions, with the exception of a few countries like the UK and Sweden.

An underlying problem is that the resources deployed by the European Union to support R&D are modest in scale and are not primarily directed at research excellence. A report by the European Science Foundation concluded that EU funding mechanisms were, among other things, frequently perceived as:

- ★ aimed at applied rather than frontier research: the EU's 'Framework Programmes' are intended to increase industrial competitiveness rather than break new ground;

- ★ not responsive enough to a rapidly changing research world;

²⁹ 'New structures for the support of high-quality research in Europe', a report from the high-level working group constituted by the European Science Foundation to review the option of creating a European Research Council, April 2003.

- ★ biased by the policy-driven nature of the funding; and

- ★ complex and cumbersome: some researchers say that the time taken to apply for EU funding is simply not worth the bother.²⁹

These shortcomings have led the Commission to launch a very important new initiative – the European Research Council (ERC). The ERC will be able to grant funding to all kinds of public and private research institutes, not just to universities. But most of the funding is expected to go towards cutting-edge research in university departments and the allocation of ERC money should therefore serve as a benchmark of excellence. The fact that funding will be allocated through competition should have a catalytic effect on European research as a whole: those countries that lose out will probably engage in some serious soul-searching.

Once established, the ERC will allocate funding in response to competitive bids from around Europe. The ERC will take its decisions independently of politicians, meaning that the money will be awarded solely on the basis of peer-reviewed excellence: no *juste retour* for say, Germany, and no suggestion that it is Greece's or Finland's turn for a handout. Like the US National Science Foundation, its job will be to ensure that the best scientific opportunities are explored and developed wherever in Europe they are to be found. A crucial element in the success of the project is that its funding must be additional to existing national and European R&D activity. If the money was simply top-sliced from other research budgets, the ERC would have a much more modest impact on Europe's research base.

The ERC has been planned as part of the EU's 'Framework Seven Research Programme', which is due to start at the beginning of 2007. The EU has already approved a governing body of eminent scientists. But the details of the ERC subsequently became caught up in the politics of the European budget. In December 2005, EU leaders agreed the framework for the EU's next medium-term budget for 2007-2013, with a total volume of €862 billion, significantly lower than what the European Commission had originally suggested.³⁰ In January 2006, the European Parliament rejected the Council's deal, claiming that the budget was too

³⁰ Iain Begg and Friedrich Heinemann, 'New budget, old dilemmas', CER briefing note, February 2006.

heavily skewed towards farm spending and that its overall size was too small for the enlarged EU. MEPs sought an additional €10 billion in funding, with more emphasis on ‘Lisbon’ type objectives such as support for innovation and research. In April the two sides finally reached a compromise, under which the total size of the budget would rise by €2 billion, with another €2 billion potentially available through budgetary reserves. At the time of writing, the exact details of the new budget had not been published since the various EU institutions were still working on the final compromise. But the European Parliament claimed that EU spending for research, innovation and lifelong learning could rise by as much as €2.1 billion compared with the Council’s December proposal.

EU spending on research and science looks set to rise to around €48 billion in the new 2007-2013 budget, compared with the equivalent of around €32 billion during the ‘Framework Six Research Programme’, which started in 2002 and runs out in 2006. That should be enough to allow existing programmes to be sustained and to create ERC funding of a bit more than €1 billion a year – the minimum that the UK’s Royal Society deems necessary for the ERC to make an impact.

Of course even €1 billion would still be a modest amount when set against the total investment in science across the EU, let alone the €40 billion annual cost of the Common Agricultural Policy. But the funding will be focussed on a narrow group of scientists working at the frontiers of research. And if it does its job, it will set benchmarks that should have a more fundamental impact on the structure of European science.

For one thing, the ERC’s approach should demonstrate the benefits of allocating funding solely on the basis of excellence. For two decades, UK universities have received most of their research funding in this way – with results that are evident in the global league tables. If a competitive funding process is adopted – at least in part – across the EU as a whole, there will be more scope to develop world-class research departments.

Moreover, the ERC’s decisions are bound to raise questions about the effectiveness of national science policies, because they will show how scientists in one country are performing against their counterparts elsewhere.

Three countries are currently responsible for two-thirds of all EU research citations: the UK, Germany and France. The Nordic countries also have a highly productive research output in relation to their size. On the face of it, they are much more likely than, say, Italy to secure a reasonable share of ERC funding – which would surely force Italian policy-makers to think harder about their national research system.

The EU will also have to find ways of helping the newer and poorer member-states to climb up the research ladder. But as will be suggested in the next chapter, the way to do that is through the European Investment Bank and the EU’s structural funds. If it is going to create and sustain world-class research universities, Europe is going to have become more selective in the use of its funding mechanisms.

4 The way forward: some policy suggestions

★ For universities

Improved governance and increased financial and managerial autonomy are both critical issues for Europe's universities. Unless they can demonstrate that they can run their affairs efficiently, universities will not be able to build a credible case for more funding. Unless they have the authority to decide their own strategy for teaching and research, they cannot hope to flourish in an increasingly competitive environment.

All universities face political constraints. So they need to become much more efficient lobbyists. And they also need to try and achieve reforms within the existing legal and political framework. For example, most UK universities have signed up to a voluntary code of governance, which sets out in broad terms the role of the governing body and general principles about its structure and processes. Oxford and Cambridge, in particular, are finding that adapting old structures to meet today's requirements can be a painful process. So there are plenty of benchmarks against which other European institutions can measure themselves. But there is no doubting the urgency of reform.

Most European universities lag far behind their US counterparts in the area of human resource management. This is mainly because of their history, typically as state bodies with very limited powers to hire and fire. It may also be the result of academic arrogance: some scholars like to concern themselves with loftier issues than bean-counting, or rather ensuring that they employ proficient bean-counters.

In today's much more competitive environment, these attitudes have to change. In the Commission's words: "Universities must therefore work to enhance their human potential, both qualitatively and quantitatively, by attracting, developing and keeping talent in the teaching/research career. Excellence can only emerge from a favourable professional environment based in particular on open, transparent and competitive procedures. Vacancies, at least for

³¹ *European Commission, 'Mobilising the brainpower of Europe: Enabling universities to make their full contribution to the Lisbon strategy', April 2005.* rectors, deans, professors and researchers should be advertised publicly, and where possible internationally... Compensation should reward quality and achievement in the performance of all tasks."³¹

These goals will be much harder to achieve in some countries than in others. In some universities in France or Italy, for example, they would be treated as heresy. Even in Oxford University, which has a more developed compensation structure than many others, the proposed introduction of performance-related pay has proved highly controversial.

The Bologna reforms present further challenges. Universities will be compelled to reassess their curricula in order to decide what is appropriate for the bachelor and masters levels. They will need a better understanding of their strengths and weaknesses, and of their capacity to change. They will have to learn how to market themselves to students, in order to attract candidates at the masters level: they will no longer be able to count on a captive market of students staying with them throughout their higher education.

Build networks

Universities are going to have to get much better at collaborating with each other, and with the business community. It will increasingly make sense for them to build networks of research departments with complementary skills that would be beyond the reach of any single institution.

Unless they are very lucky, universities are not going to make much money out of their dealings with the business sector. Even the most successful universities in the US, such as Stanford and Yale, only derive a modest share of their revenues from commercial activities. Nevertheless countries like Finland and the Netherlands have shown how such collaborations can increase the overall dynamism of an economy, and bring new ideas and equipment on to the campus. Cambridge has probably been the most successful of all the European universities in developing successful partnerships with international companies.

Universities also need to start lobbying more aggressively to increase their overall funding. They will have different views about the arguments for and against tuition fees: they ought to make their views heard, either way. And it is hard to argue against the idea that they should all be working much more seriously to attract both financial and intellectual support from their alumni. In the US, after all, it is not just the Ivy League institutions that attract big money and expertise from this source. Successful state universities also secure a growing share of their income from former students.

Most European universities have hardly started down this road. They are distinctly conservative in character, and extremely unwilling to face the kind of upheavals that would be involved in, for example, introducing tuition fees. And in the end, it will not be up to them to resolve the crisis facing higher education in Europe. The heavy lifting will have to be undertaken by national governments.

★ For governments

Each European government must decide on the appropriate level of investment in its higher education system, and on the way that the costs should be shared out between the public and private sectors. Clearly they have to decide between competing priorities. But the conclusion of this report is that a government that cannot present a credible programme for investing close to 2 per cent of

GDP in higher education cannot claim to be building a knowledge-based economy.

Any member-state that fails to meet this target will have increasing difficulties in retaining its best brains and in competing in the global economy. Finland is one of the very few European countries which is close to the 2 per cent mark and is willing and able to let its taxpayers take the strain. With budgetary pressures mounting across the EU, that option is not open to most countries. Sooner or later, they will have to start thinking about raising more private finance – which in essence will lead them to the question of tuition fees.

The starting point is that free higher education does not by itself guarantee equal access and maximum enrolments. Enrolments in Austria dipped in the first year after the introduction of (admittedly modest) tuition fees, but the numbers had recovered by year two.

Everywhere in Europe there is an educational bias in favour of the middle classes. In Martin Wolf's words: "There can be no policy worse targeted at helping the relatively disadvantaged than a general subvention of university education, since it goes to young people who come from relatively advantaged backgrounds and will then

³² Martin Wolf, 'How to save British universities', *The Singer and Friedlander Lecture*, September 2002. end up in relatively well paid jobs. Use of the access argument to justify free higher education for all university students is simply a piece of middle class special pleading."³²

Charge tuition fees

Most academic studies have found little or no evidence of adverse effects on access from well-designed tuition fee programmes. Some of the money raised from fees should be used to encourage students from lower income groups. Meanwhile, the repayment of student loans should be linked to actual earnings in the years after graduation. Government promises to increase university participation rates among less privileged groups will prove valueless if the institutions lack equipment and the means to attract qualified

academic staff. Without a new injection of resources, increased participation simply results in higher ratios of students to staff and a decline in the amount spent on each student.

The OECD cites New Zealand as a clear example of a country in which the introduction of fees, alongside student loans, has produced a positive outcome. In 1992, New Zealand introduced very flexible loan schemes under which students can as easily borrow to finance tuition fees as to finance living costs. Student loans in New Zealand now amount to a little over 0.5 per cent of GDP, easily the highest level in the OECD. At the same time, the number of young people entering higher education has risen rapidly, to become the highest in any OECD country, while the social mix has broadened and now also includes a larger share of students from Maori and Pacific ethnic groups.

The arguments in favour of tuition fees are not just about raising extra money. People do not value free goods or services. Even the very modest fees that are now being planned by some German *Länder* will change significantly the relationship between universities and students. It will be less easy for young people to think about higher education as a convenient way of filling in time. Instead, they will have an incentive to complete their course at a less leisurely pace, and they will have to think harder about the costs of dropping out. For their part, German universities will have to start paying more attention to the kind of experience they are offering their students. Once people start paying for a service, they become much more demanding.

Inevitably, there are fears that governments will simply use the rising revenues from the private sector to reduce public funding. That is why it is so important that governments should commit themselves to an overall target figure for investment in higher education. It will take time for the arguments in favour of tuition fees to shift public opinion. Even in England, which has gone further down this route than any other European countries, fees remain a contentious issue.

But the debate needs to begin now. An obvious starting point would be to focus on fees for masters programmes, once the Bologna reforms are implemented. Students with such qualifications can expect significant economic benefits relative to other citizens, so why should they not contribute to the cost?

Allow more autonomy

Governments have other funding questions to consider. Many of them revolve around the degree of autonomy that universities should enjoy to manage their own affairs. Countries like Austria and Ireland have moved from itemised budgets to lump-sum or block-grant funding to allow more room for manoeuvre at the university level. Some countries are also shifting towards performance-based allocations, to provide incentives for universities to get their house in order. Reforms in funding methods and in governance go hand in hand, and both are a critical pre-condition for the development of dynamic European universities.

Governments should concentrate on the strategic direction of their countries' university system and on the public accountability of individual institutions for quality, efficiency, and the achievement of agreed targets for teaching and research. Universities should be responsible for managing their staff and students, for defining their curricula in accordance with agreed priorities, for handling their resources in a way that allows them to build on their strengths. Some countries, particularly in Southern Europe, are a very long way from meeting these ideals.

The idea of creating a number of elite universities is under discussion in several countries: Germany and Italy are two examples, and Europe could certainly benefit from more world-class campuses. However, such institutions cannot be created by government dictat, and they require several pre-conditions. They have to be free to select their own academics and pay them a globally competitive rate, and they have to be allowed their pick of clever students.

Foster elite institutions

Elite universities take years to create, and are very expensive. They cannot develop within a funding system which is primarily geared to regional policy or to general ideas of equality and fairness rather than to excellence. If they are good enough, they have to be allowed to compete for a significant share of public teaching and research resources. If these conditions are not in place, top-down efforts by governments to create future global winners are destined to fail.

Governments also have a part to play in driving forward the Bologna process. Member-states should consider helping universities with the considerable costs of curricula reform. Even more importantly, governments should adapt their own recruitment processes to ensure that they recognise the values of both the bachelor and the masters degree. Having gone to the trouble of reforming their teaching systems, it would be absurd for them to show an interest only in graduates with five years or more of study under their belts.

Governments have an interest in encouraging the transfer of knowledge from universities to business. This again is an area where the US has moved well ahead of Europe over the past 20 years – as can be measured, for example, by comparing the volumes of patents and licensing arrangements, or the number of successful university spin-outs. Arguing the case for a European Institute of Technology, the Commission has compared the declining share of patents granted to EU companies with the rising numbers granted to US firms and concluded that “excellent results in European research and teaching institutions are not being transferred as effectively beyond the ‘ivory tower’, and co-operation with industry is less well developed”.³³

³³ European Commission, ‘A European Institute of Technology?’, public consultation on the possible mission, objectives, value-added and structure of an EIT, December 2005.

The argument in favour of such activities is that publicly subsidised research should, where possible, lead to public benefits. Universities everywhere are playing a larger part in frontier

research, and it is vitally important that the outcome of this work finds its way into the market. Governments should be ready to provide limited funding to help build bridges between the campus and the corporate sector. The UK is the example of best practice in this respect. It now spends £100 million a year on the commercialisation of university research. This money has encouraged a real change of culture on British campuses, which are now much more willing than in the past to embrace commercial partners.

Governments also need to consider whether their intellectual property and patenting regimes are a barrier to such knowledge transfers. There is evidence that it costs a lot more to transfer knowledge from campus to business in Europe than it does in the US. Germany recently reformed its intellectual property regime at least partly to give its universities more incentive to engage in commercial activities. But German businesses say that so far, at least, the changes have brought more confusion than clarity. If so, this is a problem that needs fixing. A number of other countries have not even started to address the issue.

Get business interested

The establishment of clear incentives for business participation in the higher education sector could trigger a new and mutually beneficial partnership. Business support for universities has too often been identified as a matter of philanthropy rather than investment. Business links need not be restricted to the elite level of universities and to the funding of programmes of fundamental research. At local and regional level the engagement of universities with local businesses could produce significant benefits in terms of the application of research, and dedicated programmes of staff training and development.

Research in the US and the UK has shown that business stands to benefit significantly from such collaboration, for example through access to new ideas across a wider range of disciplines than

companies can acquire on their own; from the ability to leverage research spending by working alongside publicly funded researchers; through the ability to expand pre-competitive research; and by being able to identify and recruit the brightest young talents.

Governments have a critical role to play in raising the quality of European higher education. But they must concern themselves with the big picture and with the construction of incentives: micro-management will not do the job.

★ **For the European Union**

The EU should concentrate on three broad areas in its efforts to raise the quality of European higher education. In particular, the EU should:

- ★ Act as a catalyst for change, and promote the exchange of best practice among member-states. It needs to establish world benchmarks against which individual departments can measure themselves. It should encourage not only the development of world-class universities, but also support the expansion of regional and local excellence, especially in the new member-states.
- ★ Ensure that there is enough compatibility between different national systems and regulations to allow for a free exchange of people and ideas.
- ★ Create financial incentives and give other support for students and academics to move around within the EU.

The planned European Research Council is a prime example of what should be done under the first heading. It will encourage and support research excellence, and will set up benchmarks against which the best researchers in Europe can measure themselves. It

will also force policy-makers in countries which fail to win funds to ask themselves where they are making mistakes.

Much more questionable is the Commission's proposal to create a 'European Institute of Technology' (EIT), which has had personal support from President Barroso. The EIT could turn out to be a serious distraction at a time when the EU needs to focus on reforming higher education, rather than on creating new institutions.

There is nothing wrong with the Commission's analysis of the crisis that has to be tackled. In its supporting document, it makes the case for more competition among academic researchers, greater

³⁴ European Commission, 'Developing a knowledge flagship: The European Institute of Technology', communication from the Commission to the Council, February 2006.

engagement with business and payment for performance. It says that research funding is spread too thinly across too many institutions, and it laments the low level of demand from European business for cutting-edge research.³⁴

Careful with creating new institutions

But it draws the wrong conclusions from this analysis. The effort to reform existing institutions, it argues, "will face resistance and it will take time. Moreover, if we are to take full advantage of the quality of European education and research, we will need new skills and competences to bridge the gap between science and society, as well as new reference models to inspire and guide the long-term change involved."

This is woolly thinking, and it gets worse. The EIT, it says, will operate through a series of integrated networks – it calls them "knowledge communities" – working in multi-disciplinary fields. They will be chosen by and accountable to the EIT governing body – made up of "Nobel Prize winners and leaders of the most innovative and effective businesses" – which will oversee their objectives and the broad scientific agenda. Moreover, this will not just be an informal network of co-operating partners. "Institutions

and companies will have to second resources to the EIT: they will thus cease to be part of their home organisation, and will become legally part of EIT."

Why would a university or – even more improbably – a company agree to pass control of its best research teams to this new body? Because, says the Commission, the EIT involvement would bring prestige, some knowledge spill-overs and financial benefits, and it would also be a dynamic force for change in the university environment. This is fantasy land, of an expensive kind. It is envisaged that the EIT could eventually build up to ten knowledge communities, with up to 2,000 PhD students and 3,000 MA students each. No cost estimates have been published, but the Commission acknowledges that, at least in the early stages, substantial public funding will be required.

There have been a number of serious attempts over the past 50 years to create a 'European University', and to a large extent they have foundered on the rocks of national rivalries. It is hard to see why the proposed EIT would not suffer the same fate. Such an institution would be extremely expensive, and would take years to establish. The politics of choosing its location and its direction would be a nightmare. Years of creative energy, much political goodwill and large sums of money could be wasted in the exercise. The project could lead to attempts to bind universities into a centralised system, just when efforts are being made to give them greater independence and freedom.

Instead of taking this top-down approach to creating excellence, the EU should do what it can to strengthen the best universities that already exist in Europe. It should not attempt to pick winners. Instead, it should earmark a significant sum of money to support excellent research, as defined by peer review, and then allow open bids for funding from universities across Europe, with the resources being allocated purely on the grounds of peer-reviewed excellence. The ERC process is a positive step in this direction.

There is a clear tension between the need to support world-class research – which would necessarily be clustered around a limited number of universities – and the political, cultural and economic importance of ensuring that excellent universities are spread right across the EU. The new member-states, in particular, need all the help they can get to develop their higher education systems.

The Commission recognises the importance of sustaining quality research and teaching in all member-states. It says that the same political will that was used to reshape the steel industry should now be applied to modernising the university sector. Higher education is not currently a big beneficiary of European structural funds and European Investment Bank loans. In future, co-funding and long-term loans from the EU budget and the EIB should be directed towards building infrastructure and creating training programmes. Member-states should also make the fullest use of all the EU's financial instruments to develop their knowledge sector. This is only the beginning of a new strategy. But at least the Commission is coming round to the view that higher education – as was the case with steel – is a sector in crisis, and that all available financial and legislative means should be deployed to bring about the necessary changes.

Encourage cross-country learning

The EU could also do more to encourage the exchange of best practice. This would be especially helpful in the field of governance. As one small example, it could publish an annual commentary comparing the varied quality of financial reporting across all Europe's universities. There is no one-size-fits-all approach to governance, but there are some general principles about what does – and does not – lead to the best outcomes.

Similarly, the EU can help to lower the costs of transferring intellectual property from the research laboratory to industry, which are currently four or five times higher than in the US. Member-states could learn a lot from each other about how to develop IP

policies that encourage academic research and lower the barriers between the campus and the corporate sector. After many years of frustration and failure, it is surely time to reach agreement on a European-wide patenting system.

The second broad area of EU responsibility concerns the mutual recognition of qualifications and competencies – and here Brussels needs to tread lightly. The Bologna process is being driven at a national level and would be stopped in its tracks by a heavy-handed attempt to set quality standards from the centre. Here, the EU is moving along broadly the right tracks. Networks of quality-assurance agencies have been set up – each covering either an individual country or a particular discipline – with some general agreement on the criteria required for the recognition of academic qualifications across European borders. This is also roughly the approach being adopted under the Bologna process.

Make students and teachers move

Finally, the EU needs to redouble its efforts to encourage academics and students to move around Europe. This is not just for ideological reasons. Greater mobility will bring two significant benefits to Europe's higher education system. The first is that it will strengthen competition among universities, with the best brains being attracted to the best institutions. Those that find themselves losing out – at an institutional or national level – will be forced to address their own shortcomings. The second benefit is that top researchers will seek the opportunity to work alongside their peers wherever they happen to be located – and that is how great research departments are built. So the EU needs to strengthen its existing schemes – such as the Marie Curie programme for researchers, and the Erasmus scheme for students and their teachers.

It should also encourage the portability of student financial support across member-states, especially at the masters level. And the EU should encourage a debate about how to share out the financial burden of educating students from other member-states.

The UK provides an extreme example of what is at stake here. Under its current system, its universities have no financial incentive to recruit students from, say, Poland, who have to be taught on the same financial terms as British citizens. Applications from Polish students have risen sharply since accession because they can now come in without fees. But the universities now have much more of an interest in students from Ukraine, who can be charged the full cost of their tuition. This is an absurd imbalance. Another example is the influx of German medical students into Austria, which is raising the question about why Austrian taxpayers should pay for the next generation of German doctors.

The Graduate Management Admission Council suggests that Europe should learn from the way the Nordic countries dealt with the problem of one country effectively subsidising the higher education of another. Under the ‘Nordic agreement’ of 1996, Denmark, Finland, Norway and Sweden all grant equal access to each others’ students while at the same time allowing money from the country of residence to follow the student. Each country pays an annual sum for students studying in one of the other countries (approximately €3,000 in 1999). GMAC suggests that a ‘balance of education payments system’, based on the Nordic approach, could be established at a European level. The system would be designed to prevent ‘education tourism’ and compensate countries that support large numbers of non-domestic students in their state higher education system.

The EU could do a lot to help secure the future of Europe’s universities. In the words of President Barroso: “Universities have never featured so high on the Commission’s agenda.” That enthusiasm now needs to be turned into practical action.

5 Conclusion

The EU’s challenge is to build on Europe’s strengths while confronting its obvious problems. It should focus on four principles:

★ Diversity in place of conformity

Europe needs all types of higher education institutions: colleges offering life-long learning, business schools, teaching universities, outfits specialising in research of regional importance, and world-class research universities. The EU would be wrong to try and rank their different activities on a single scale, since excellence can be measured in so many ways. Too many European universities believe that all that stands between them and the status of Harvard is a large bundle of cash. But they should focus on their respective strengths. Such a spirit of diversity and independence should extend to the development of new links, partnerships and, where necessary, consolidations. The merger of Manchester University and the University of Manchester Institute of Science and Technology, backed by substantial public funding and with the stated aim of becoming one of the world’s top 25 universities within ten years, is an exciting and important example of the kind of ambition that can be developed within Europe.

★ Higher benchmarks and ambitions

The absence of incentives for success, and of penalties for incompetence, has undermined the quality of higher education in some parts of Europe. Too many students are forced to tolerate substandard teaching. EU countries need to do more, not only to recognise and reward excellence but

also to identify and correct under-performance. Failing institutions may need to close as a last resort, while successful ones should be rewarded with a greater share of the available resources. But this is not a zero-sum game: a more dynamic education system would be less prone to wasting resources.

★ Good governance

Good governance means a simple structure of management in which roles and responsibilities are clear, and within which different institutions can pursue self-defined missions in order to escape from the uniformity of bureaucratic culture. Good governance will advance both freedom and accountability, and it is a prerequisite for increased funding from both the public and the private sector. It is the responsibility of policy-makers to initiate such a change since universities cannot reform the way they run themselves without political support.

★ Adequate funding

The promise of higher education for ever larger numbers of students will prove a cruel disappointment if they are not backed by new money. In a global market, the best students and the best academics could be tempted away by the promise of greater resources. Standards of teaching and research would decline. Private sector investment in research would shift even more decisively towards US institutions.

Significant additional funding from the taxpayer is unlikely to be forthcoming, given the multiple pressures on public spending. Other sources of funding, however, are available. Those who benefit from higher education should be prepared to pay for at least part of the service they are receiving. Business also gains from a thriving higher education sector and should be encouraged and incentivised to invest in both research and teaching. And governments, as well as the EU, can help by

channelling existing funds more effectively. The funding of high-level research on the basis of peer-reviewed excellence would strengthen those institutions capable of competing with the best in the world. The EU should use structural funds and loans from the European Investment Bank to assist the development of university infrastructure more generally.

For many centuries, Europe's universities have helped to shape the quality of life and economic performance of the continent. With intensifying global competition, their role has never been more important.



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THE FUTURE OF EUROPEAN UNIVERSITIES

Renaissance or decay?

Richard Lambert and Nick Butler

Knowledge is an increasingly critical factor in shaping economic life. But in Europe, the institutions that should be the main sources of knowledge are failing to meet the challenge. Among the world's top ten universities, only two are in the EU. Europe's higher education institutions are slow-moving and under-funded. If Europe wants to stop falling behind and stem the 'brain drain' across the Atlantic it must act now. It needs to devote more resources to research, improve its teaching record, build up centres of excellence, strengthen links between education and business, and give its universities more autonomy.

Richard Lambert will take over as Director General of the Confederation of British Industry in July 2006.

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ISBN 1 901 229 67 X ★ £10/€16