Chapter 5

Develop, attract, and retain a high quality scientific and managerial talent base

EXECUTIVE SUMMARY

Maintaining sustainable competitive advantage in the UK bioscience sector will depend on successful management of IP in novel and sophisticated technologies, then developing and commercialising this IP. A pool of highly talented bioscience professionals (both scientific and commercial) is vital for such leadership. Creating this pool has two elements: attracting and retaining the best current talent, and building a robust pipeline of skilled individuals for the future who are excited by the whole commercial pathway to success. Developing scientists and engineers who combine knowledge of bioscience with the necessary numeracy and physical science skills is also crucial. The provision of training and career development will be a key role for the sector.

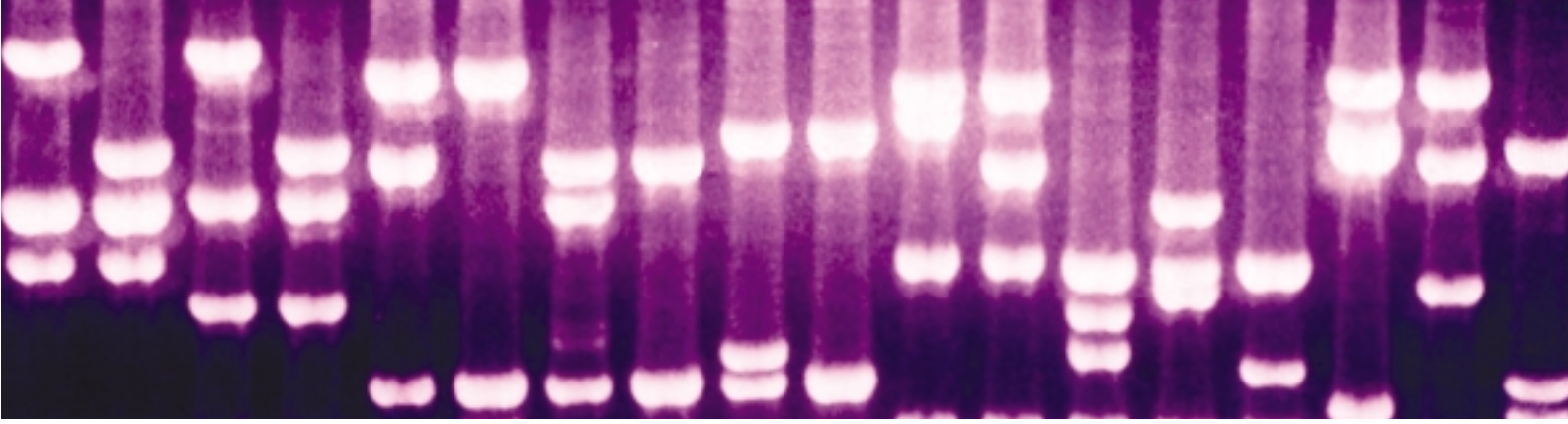
Recommendations fall under three priority areas:

5.1 Initiate two new programmes to support dual, interdisciplinary education essential to the bioscience sector.

5.1.1 Create a programme to fund combined Bachelor of Medicine Mb-PhD qualifications, with 30 studentships at selected HEIs, rising to 100 in equilibrium.

5.1.2 Introduce a programme to fund post-PhD scientists and engineers undertaking formal business education, ranging from modular courses to full MBAs.

5.2 Support and extend existing initiatives to broaden and deepen interdisciplinary education and training.



5.2.1 Encourage interest and excitement in the biosciences and their relation to the physical sciences from a young age through:

- An Interdisciplinary Education Scheme,
- Further support of bioscience-focused science centres.

5.2.2 Increase programmes and initiatives that provide interdisciplinary training at the postgraduate level (i.e. Masters and Doctoral), such as:

- Encourage Research Councils to increase support for doctoral training in key interdisciplinary fields (e.g. the EPSRC scheme for four year PhD training in Interface Interdisciplinary Centres);
- Encourage the establishment of competitive schemes for prestigious, well supported interdisciplinary Masters courses in priority fields.

5.2.3 Extend and support the provision of business exposure opportunities (e.g. Biotechnology Young Entrepreneurs Scheme (YES)) amongst science and engineering students at university and encourage greater involvement.

5.2.4 Encourage the pharmaceutical and bioscience industries and SEMTA to drive sector specific vocational training of technical staff.

5.3 Enhance incentives to existing talent by removing targeted barriers.

5.3.1 Extend Approved Share Option limit from £30,000 to £100,000.

5.3.2 Amend the calculation of the £100,000 limit on Executive Management Incentive (EMI) option grants to remove anomalies around unexercised options.

5.3.3 Abolish the £8,000 tax-free ceiling on relocation expenses, and instead make all reasonable relocation expenses tax-deductible.

THE CRITICAL IMPORTANCE OF TALENT

A world leading bioscience sector is undeliverable without the talent and technological expertise to underpin it. Indeed, the success of every recommendation in this report will only be realised if the sector possesses relevantly trained and experienced individuals. Bioscience is more intimately dependent on basic research than most other sectors. Therefore, maintaining a high quality science base in many relevant disciplines and interdisciplinary areas is very important. Overall, the UK still holds its own in terms of citations compared to the US today per head of population.[1]

Research and education in biology, medicine and the classic physical sciences is largely strong. However, the span of the bioscience sector across disciplines and the speed of technology development present special challenges for building a skilled pool of human capital and pipeline of future talent. The UK bioscience sector needs world-class individuals throughout academia, commercial research and management if it is to rise to these challenges and emerge as a globally competitive industry.

The bioscience sector acknowledges that the Government has been active in looking at this area, commissioning reports (e.g. the Roberts Report, Biotechnology Skills Review[2]) and launching a number of initiatives in response to the need for skills and talent. The BIGT supports the efforts of the Lambert Review[3] and recommendations of the Roberts Report to improve career balance and progression for academic scientific talent engaged in development and commercialisation activity. The Lambert enquiry, as part of its broader investigation into the long-term links between universities and industry in the UK, is currently investigating ways of reducing or resolving the tension between publishing research and other uses of time (e.g. commercialisation activity) in evaluations for academic career progression.

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It is crucial that whatever recommendations are produced and adopted, they are aimed at aligning the goals and incentives of the different activities undertaken by academics (e.g. research, teaching, commercialisation). Academics involved in commercialisation activity are more likely to meet their multiple commitments if they are supported by effective business managers and administrators (see recommendation 3.2.1 in *Chapter 3*).

Broader policy areas (e.g. low personal taxation rates relative to Europe, cost of housing) are also important factors in the battle for talent. However, a number of further steps can be taken now to influence the ability of the UK to attract the best talent (e.g. extend the share options limit, raise the tax-free limits on relocation expenses).

1 'Productivity and competitiveness indicators: 2002 update', DTI. www.dti.gov/competitiveness/indicators2002
2 Roberts Report : 'SET for success,' April 2002; "Biotechnology Skills Review" ANGLE Technology Ltd, March 2002. www.hm-treasury.gov.uk/documents
3 Lambert Review of business-university collaboration. www.lambertreview.org.uk

Despite the large number of pre-existing education schemes, which though welcome are often generic in nature, there is a need for additional, more focused initiatives if the UK is to maintain and develop its top tier position in the global bioscience sector. Talent is the key rate-limiting factor in the UK sector's growth. The bioscience industry is one sector where a small number of key individuals can have a massive impact – creating novel products.

The industry and Government can take specific actions in two broad areas:

- Building the interdisciplinary talent pipeline;
- Attracting and retaining the best current talent.

BUILDING THE INTERDISCIPLINARY TALENT PIPELINE

The UK has historically been poor at the type of interdisciplinary training required for the bioscience industry:

Commercial: A pool of professional managers skilled at both science and business is crucial for the development of the UK bioscience sector. However, the crossover between science and business education and training has traditionally been very weak. There are a number of initiatives currently underway to fill this gap, but these are typically local or small-scale. Examples include:

- The Science Enterprise Challenge Scheme, which raises the awareness of the importance of business enterprise at all levels within universities;
- MPhil offered in Bioscience Enterprise by Cambridge MIT.

Scientific: The rapidly developing technologies of the bioscience sector call for a variety of disciplinary skills across the physical, life and engineering sciences, as well as in information technology: biologists skilled at engineering to innovate in bioprocessing; physicians with the biological research experience to lead in tissue engineering; and computer scientists with doctorates in molecular biology to break new frontiers in bioinformatics.

There are notable examples where a cross-disciplinary approach is being taken, such as at the new EPSRC-supported four year interdisciplinary PhD training offered at Oxford and Warwick; Interdisciplinary Research Centres such as those for medical imaging and biophysics; and biomedical and biochemical engineering undergraduate degree courses. However, there has been little crossover between physical and biological sciences at any level – undergraduate, PhD or amongst academics. Recent moves by the Research Councils to encourage cross-council interdisciplinary research should be applauded but this must be sustained and expanded.

ATTRACTING AND RETAINING THE BEST CURRENT TALENT

The future of the UK bioscience sector depends on offering effective incentives to attract the best scientific and managerial talent.

Incentives for scientists: Concern has been expressed by many academics regarding the long-term quality of UK researchers. Many UK postgraduates are put off a career in academia by uncompetitive salaries, the lack of career structure and the uncertainty of having to gain a new post every three years.

A number of measures are being taken by Government to address these problems. For example, Work Permits UK is liaising with the Small Business Service and employers' groups to broaden the scope, and ease the route for attracting high quality foreign scientists to the UK. The UK Government is also seeking to address the salary gap by committing to increasing Research Council post-doctorate salaries by an average of £4,000 by 2005/06, in areas with recruitment and retention problems. However, it is primarily academic staff who help create spin-out companies, and their salaries are currently very uncompetitive.

The problems of short-term research posts may be addressed with the introduction of EU legislation on fixed-term contracts. Nevertheless, many potential scientists still opt for a more attractive career path away from scientific research. Further incentives may need to be considered to encourage talented individuals to undertake postgraduate research. These could include reimbursement of university fees, and other financial incentives, such as those offered to trainee teachers.

Incentives for managerial talent: To build a sustainable bioscience sector, the UK needs talented, experienced entrepreneurs and commercial managers. Availability of this kind of talent remains one of the major constraints on growth for UK bioscience companies of all sizes.

There are a large number of incentive factors affecting an individual's choice of job. Many are outside the influence of Government e.g. challenge, promotion prospects, family circumstances. However, a clear lever where Government can have an influence is the impact of taxation on remuneration. Although actions in this area are potentially difficult, given the current public focus on executive pay, the immediacy of influence and the size of impact mean tax incentives should be considered.

Whilst financial incentive levels for bioscience managers and employees in the UK are, on average, good relative to other European nations, the British bioscience sector is a distant second as 'destination of choice' to the US for the best people. In the bioscience sector, a survey of European biotech CEOs in 2002[4] found that average cash compensation (salary plus cash bonus) was €295,000. A similar study in the US[5] found that US biotech CEOs were paid an average salary and bonus of $513,000, a premium of 48% even under today's weak dollar.

4 "European Biotechnology CEO Compensation Survey: Facts and Findings" Egon Zehnder International, 2002. www.egonzehnderknowledge.com
5 "The BioWorld Executive Compensation Report 2002" BioWorld Today, 2002. www.bioworld.com

To attract and/or retain the right kind of people, the UK needs to change the risk/reward equation. Rewards must be offered that are more commensurate with the personal and professional risk assumed in leading innovation. The UK is unlikely to reach US levels of reward to innovators, but the Government could try to redress the worst imbalances by selectively amending personal tax legislation.

Scientific areas with skill shortages

The areas of clinical research and bioprocessing that both currently suffer from shortages of relevantly trained scientists are covered in *Chapters 1* and *4*.

Many stakeholders are also concerned with the lack of scientists trained to conduct whole animal research. Opportunities for undergraduate and graduate biologists to gain experience and understanding of animal experimentation within HEIs have diminished significantly over the last 10 years. A similar situation pertains for post-graduate and post-doctoral training, with few HEIs offering *in vivo* experiments.

The high quality of *in vivo* research in the UK has been a significant factor in its success discovering and developing new drugs. The UK also has the highest standards in the world for the regulation of animal experiments. It is essential that these skills and standards are supported. If they are lost, then an inevitable consequence will be that a key aspect of drug discovery and development will be transferred to other countries, where skills in animal research have been maintained.

THE ROLE OF INDUSTRY

Training is a joint responsibility between industry, academia and Government. Industry has a direct interest in investing in the training of its future employees, often in partnership with Government schemes or academic courses. The Biotechnology Skills Review[6] found that in general companies do not appreciate the role that they can play in shaping the skills base of the labour market. Closer links between industry and the HEI base need to be promoted to enable them to meet their individual needs, and for their mutual benefit. Initiatives supported by industry, such as university gap year industrial placements, should be encouraged and extended through incentives which encourage companies to offer opportunities of this type or to extend their involvement. Many of the recommendations made to Government below can only be successful if performed in partnership with industry.

ACTION REQUIRED

5.1 Initiate two new programmes to support dual, interdisciplinary education essential to the bioscience sector.

There is currently a lack in the UK of individuals who combine business acumen with the ability to understand and interact with the scientific and clinical aspects of the bioscience sector. Developing interdisciplinary education programmes to address this gap will provide the sector with the individuals required to achieve sustainable success.

6 Roberts Report – 'SET for success,' April 2002; "Biotechnology Skills Review" ANGLE Technology Ltd, March 2002. www.hm-treasury.gov.uk/documents

5.1.1 Create a programme to fund combined Bachelor of Medicine Mb-PhD qualifications with 30 studentships at selected HEIs, rising to 100 in equilibrium

Current situation: The combined Bachelor of Medicine Mb-PhD qualification would be similar to the US MD-PhD, a qualification held by many US biotech managers, which equips them to deal effectively with both the scientific and clinical aspects of the industry. At present intercalated PhDs are not generally funded for medical students, and are only offered at a small number of HEIs such as Cambridge and UCL.

The recommendation: Funding for a programme to offer the combined Mb-PhD qualification should be agreed between OST (ultimately through the MRC) and Higher Education Funding Council for England (HEFCE).

Medical students during their undergraduate studies would be eligible to apply for the programme. The pilot scheme would support 30 studentships initially, with the aspiration of 100 after several years, in three HEIs across a four-year period. The HEI administering the qualification would cover academic teaching costs through its own budget. The PhD element should constitute research that can help facilitate the translation of basic bioscience into viable treatments or procedures. The scheme should select those universities that demonstrate organisation capable of supervising such intercalated studies, with the appropriate interdisciplinary links between clinicians, scientists and engineers.

Scheme funding would amount to an annual commitment of £615,000 per year assuming a cost of £20,500 per student.

5.1.2 Introduce a programme to fund post-PhD scientists and engineers undertaking formal business education, ranging from modular courses to full MBAs.

Current situation: There is a lack of entrepreneurial, business-trained scientists in the UK, particularly relative to the US. There are currently a number of not-for-profit and Government initiatives underway which support science graduates and postgraduates who wish to undertake business school education. These include:

- Gatsby Life Science Fellowships;
- The £43 million Government-funded Science Enterprise Challenge Scheme;
- London Business School offers sponsored places on a selection of entrepreneurial elective courses;
- A life science MBA which is currently being developed with pharmaceutical companies and the Open University.

There is a need to increase support in this area if the UK is to increase the commercial skill levels amongst scientifically qualified, potential bioscience leaders.

The recommendation: Introduce a programme to fund post-PhD life scientists and engineers undertaking formal business education, ranging from modular courses to full MBAs. Most doctoral level scientists do not instinctively reach out for a business education, and the lack of standard Research Council funding for business studies presents an additional disincentive.

The scheme would be open to people with PhDs across the physical, life or engineering sciences, and ideally with over two years post-doctoral work experience.

A modular scheme would be attractive to many researchers at this stage of their careers, as they would still be free to pursue their scientific work alongside their business education. Others wishing to make the switch from academia to a commercial career, may favour the intensity of a full-time MBA.

5.2 Support and extend existing initiatives to broaden and deepen interdisciplinary education and training.

Despite the positive moves being made, current education and training is not producing or retaining enough high quality scientists and engineers relevant to the bioscience industry. Although the teaching and training of individuals within individual scientific disciplines remains strong, the necessary interdisciplinary skill sets for bioscience have traditionally been poorly served.

5.2.1 Encourage interest and excitement in the biosciences and their relation to the physical sciences from a young age, through an Interdisciplinary Education Scheme, and further support of bioscience-focused science centres.

Current situation: The Government's Roberts Review "*SET for success*", (April 2002) comprehensively addressed the issue of science teaching and profile raising in schools. Post-Roberts, there have been a number of useful developments aimed at improving the quality of science teachers; increasing the relevance of the science curriculum; encouraging young people into science; and enhancing the perception of careers in science. During recent announcements of new and improved initiatives in these areas, the Government also highlighted the importance of participation by industry and professional bodies, e.g. the AstraZeneca Teaching Trust Science Forum.

Sparking an interest in bioscience is important for planting the seed of excitement at the earliest stages. However, unless this is linked with a similar interest in mathematics and the physical sciences, those people training to enter the sector will be unable to address the increasingly quantitative and systems-oriented bioscience that is needed. Although it may seem extreme to connect outreach to junior and secondary schools in order to attract people towards a career in bioscience, it is an important mechanism for building pull-through to relevant degree courses.

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This is a recognised route, followed by more established sectors, e.g. the Royal Academy of Engineering and the Royal Society of Chemistry. These initiatives are broadly aimed at capturing a share of young minds, and draw on the funding and infrastructure of long established industries e.g. scientific societies and institutes. However, the industries of tomorrow, such as bioscience, currently have neither the funds nor the infrastructure to take their messages to the potential employees and leaders of tomorrow.

The recommendation: An Interdisciplinary Education Scheme outreach programme, similar to those pursued by the industry bodies above, should be implemented by the bioscience sector.

In addition, more Government support should be provided to museums and education centres focused on the biosciences. These centres should also emphasise fun.

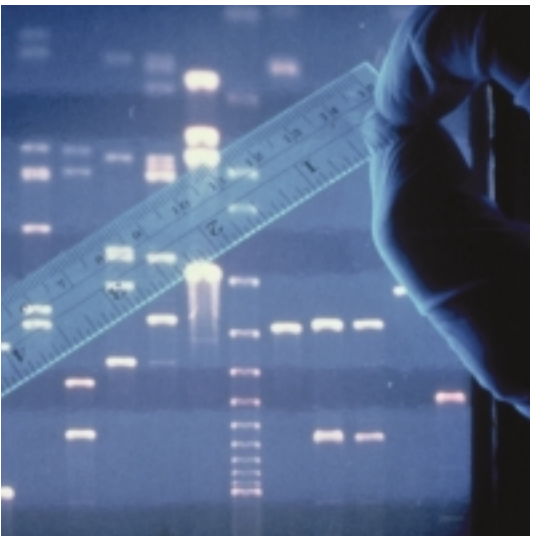
Interdisciplinary Education Scheme

The Interdisciplinary Education Scheme follows on the experience of the Engineering Education Scheme (EES)[7], and involves a representative from a designated 'link' company liasing and advising a team of students and their contact teacher, as they work on a real project. The scheme provides a launch, a residential university workshop, and an assessment and celebration day. Involvement in the scheme satisfies many key skills for the pupils. Company staff participation qualify for IPD/CPD, and teachers can be assessed by the College of Teachers for accreditation.

Each link between a company and a school in the EES costs around £2,300-2,600, of which company's themselves are asked to contribute £1,400. The BITG suggests an initial 80% subsidy of the company contribution and a programme of 30 links, plus an estimated £20,000 initial marketing spend. This implies a year one funding requirement of £90,000, and would be required for four years.

Further support of bioscience-focused education centres

Government should also provide greater support for science museums and education centres for high quality institutions with a substantial bioscience focus. The Department of Culture, Media and Sport should aim to give centres such as these 'museum status'.



Wellcome Photo Library

A scientist examining an analytical gel used to separate DNA on the basis of size. Each column represents an individual persons 'pattern'.

Pharmaceutical and life science companies should be encouraged to liaise with and run programmes in local schools and universities to increase skill levels; to drive the local economy (e.g. Pfizer's relationship with University of Greenwich); and to take part in existing programmes such as Science and Engineering Ambassadors. Whilst pharmaceutical companies typically have the money and people to devote to this kind of activity, bioscience companies (which are overwhelmingly SMEs) do not – yet they have an important role to play. Central 'pump priming' funding and assistance is required. The bioscience units of Regional Development Agencies (RDAs) could play an important role here, given the value of a trained local workforce for potential foreign inward investors.

7 "Overcoming the barriers affecting the future competitiveness of the UK Biosciences sector with the Engineering Education Scheme", Engineering Education Scheme in England, Royal Academy of Engineering, 2003. www.raeng.org.uk

5.2.2 Increase programmes and initiatives that provide interdisciplinary training at the postgraduate level (i.e. Masters and Doctoral):

a) Encourage Research Councils to increase support for doctoral training in key interdisciplinary fields (e.g. the EPSRC scheme for four year PhD training in Interface Interdisciplinary Centres).

Current situation: Effective doctoral training in interdisciplinary fields would require longer than usual courses. While the "*Investing in Innovation*" report stated that funding would be provided to extend the average length of Research Council PhD's to 3.5 years, no specific funding was provided for this in the 2002 spending review.

Funding for studentships is provided by the EPSRC to HEIs in the form of a Doctoral Training Account (DTA), which is a payment of funds based on the level of current grants support. The DTA allows flexibility for the HEI to provide funding over four years but this is rarely utilised. In addition, the Life Science Interface Programme of the EPSRC has recently funded seven Doctoral Training Centres (DTCs) at leading physical science departments, which all provide four-year PhD funding (MRC and IPEM also contribute). The DTCs provide training in a core discipline, combined with exposure to and collaboration with life science research areas. For example:

- University of Oxford: imaging and nanobiotechnology,
- University of Warwick: mathematical-biology and biophysical chemistry.

The recommendation: The EPSRC should be applauded for their four-year PhD scheme, and support should be provided for its expansion. The other Research Councils should be encouraged to introduce similar schemes, linking biological to physical science and engineering, through specific funds allocated for this purpose. The BIGT supports proposed moves by BBSRC to increase PhD stipends in key areas, such as the physical and biological sciences interface.

The EPSRC DTCs, and other interdisciplinary programmes like them, provide an important opportunity not only to train students across a number of disciplines, but also form an opportunity for academics to work together, exchange knowledge and best practice and form interdisciplinary communities.

In addition, the Research Councils should be encouraged to think through the length and types of post-graduate training, e.g. four-year PhDs with a year in the US. Though there is a risk of losing students to US (there is less chance if they go in their third year) those that return are likely to come back better trained.

Four-year doctoral courses, jointly funded by Government and industry, and involving at least a one-year placement with the industrial partner, should be encouraged for all Research Councils. The Engineering Doctorate scheme, which is designed along these lines, has proved to be particularly successful.

b) *Encourage the establishment of competitive schemes for prestigious, well supported interdisciplinary Masters courses in priority fields.*

Current situation: Masters level courses can provide an opportunity for students educated primarily in one field to gain a good grasp of a second. This is especially valuable given the cultural divide in the UK between bioscience, physical sciences and engineering. In this context it is unfortunate that the Masters courses have often been seen as a route for those who were not initially qualified to proceed to research doctorates. Priority studentships, such as those for the above interdisciplinary doctorates and for engineering doctorates, have attracted very high calibre applicants. BBSRC is currently reviewing a proposal for special support of Masters courses in priority fields through the use of differential stipends. This review should be encouraged to include interdisciplinary areas linking bioscience with the physical sciences and engineering.

The recommendation: Similar reviews should be encouraged within the other Research Councils in order to develop prestigious, well-supported interdisciplinary Masters courses in priority areas of relevance to the bioscience sector. Such initiatives could be particularly important potentially for the interdisciplinary training of those entering the biopharmaceutical field.

5.2.3 Extend the provision of business exposure opportunities (e.g. Biotechnology Young Entrepreneurs Scheme (YES)) amongst science and engineering students and encourage greater involvement.

Current situation: The Biotechnology Young Entrepreneurs Scheme (YES) is an annual competition, which aims to provide students with an opportunity to develop their own start-up bioscience business plan. As with the Bioscience Business Plan Competition – a scheme run for researchers (to be expanded to the Research Councils Business Plan this year), the students have investor/industry mentors to advise them. Regional heats are held, followed by a national final. Most plans are imaginary, but the scheme has been successful in developing real commercial awareness. The Biotechnology YES is run by the BBSRC, while the new Research Councils Business Plan is a cross-council scheme.

The competitive framing of the Biotechnology YES has generated excitement and interest among students in commercialisation of innovation, and has even inspired some to form spin-out companies. The project structuring, team working and, most notably, the direct interaction with current industry or investor practitioners, has provided the students with exposure and insight into business that would be difficult to replicate in an academic environment.

The recommendation: Additional funding (currently £110,000 for 144 students from 22 HEIs) should be provided to extend the Biotechnology YES to more universities, and support the increased infrastructure such an extended competition would require, e.g. events, mentor network, administration, etc. The profile and scope of the event could be extended to match that of the Bank of England's Target 2.5 scheme. This is a national

competition with the best teams presenting to the Bank of England board. The current Biotechnology YES is operated and judged by those primarily concerned with discovery, yet it is also important to embrace the further stages of development that are crucial to underpinning commercial success.

5.2.4 Encourage the pharmaceutical and bioscience industries and SEMTA to drive sector specific vocational training of technical staff.

Current situation: The role of the Pharmaceutical Industry National Training Organisation[8] (PhINTO) has recently been encompassed by the employer-led Science, Engineering and Mathematics Training Alliance (SEMTA), part of the network of Sector Skills Councils (SSC)[9], covering *inter alia* biotechnology, nanotechnology, mathematics and forensic science, and the sector training organisation aimed at the chemical industries. SEMTA was established on 8th April 2003 with a five-year operating licence, and a remit to reduce skill gaps, improve productivity, improve access to learning, and promote/ develop national occupational standards, qualifications and apprenticeship frameworks at all levels. ABPI, BIA and a number of their members are already engaged in a project to undertake a Biotechnology and Bioscience Occupational and Functional Mapping exercise.

The recommendation: ABPI and BIA should investigate the scope for SEMTA becoming a focal point and catalyst for the development of a pharmaceutical/ bioscience industry vocational training strategy for the short, medium and long-term, in partnership with interested stakeholders – in particular, DfES, the Learning and Skills Councils and the RDAs. The agreed strategy should be employer-led and should aim to:

- Set a strategic national training and education agenda for the life science industries;
- Develop appropriate vocational training courses;
- Monitor strategic changes within the bioscience industry and advise on their implications for training needs;
- Develop and produce a "Sources of help and advice on training available for those pursuing careers in the Life Sciences".

5.3 Enhance incentives to existing talent by removing targeted barriers.

A number of steps can be taken immediately to influence the ability of the UK to attract and retain high quality managerial talent.

5.3.1 Extend Approved Share Option limit from £30,000 to £100,000.

Current situation: Whatever the state of the stock market, encouraging employee shareholding is the right way to achieve longer participation and greater productivity from workers at all levels. Achieving a fairer tax treatment is an essential part of encouraging take up of share incentives. Share option plans also play a critical part in helping UK companies to compete for talent in the global marketplace. They also help 'buy-out' the existing packages of senior recruits from previous employers.

The recommendation: Increasing the current £30,000 limit for Approved Share Options to £100,000 would have the effect of reducing the tax

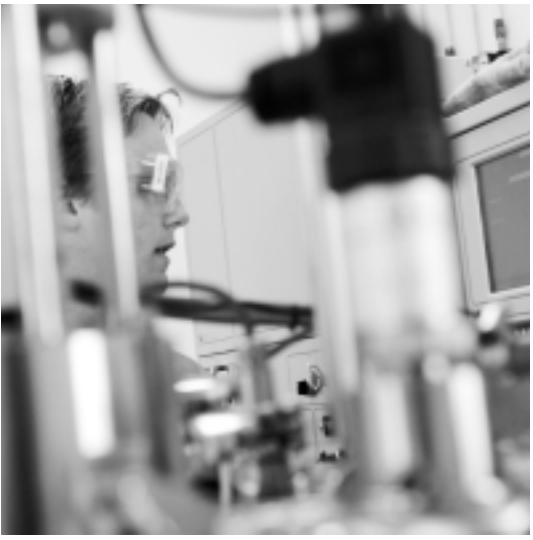
8 National Training Organisations (NTOs) took a primary role in pulling together employer involvement in the development and uptake of education, training and qualifications to help businesses improve competitiveness at home and abroad. They replaced the former Industry Training Organisations, Lead Bodies and Occupational Standards Councils

9 Overseen by the Sector Skills Development Agency (SSDA), which has responsibility for establishing and monitoring the SSC network, for supplying basic services to sectors not covered by an SSC, and for the provision of cross-sector support in generic areas. www.ssda.or.uk

and National Insurance (NI) burden on individuals at the point of exercise, increasing the reward payable to the individual. This step would also increase share retention, and thus improve employee retention and productivity. Under the current rules, people usually need to sell shares on exercise of options to fund the tax and NI liabilities. With those liabilities reduced, share retention would improve.

5.3.2 Amend the calculation of the £100,000 limit on Executive Management Incentive (EMI) option grants to remove anomalies around unexercised options.

Current situation: The Executive Management Incentives (EMI) scheme, which was first introduced under the 2000 Finance Act, is specifically targeted at small, higher-risk trading companies. The scheme is designed to help small companies attract and retain the people they need, and to reward these employees for taking a risk and investing their energy and skills in helping the company achieve its potential.



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At present, there is a limit of £100,000 on the value of EMI options. Once this limit is reached, no more may be issued for three years from the last grant. This restriction produces two anomalies.

Where people have smaller grants, they can be topped up or re-priced to reflect market conditions. This is not permitted for those who have the maximum (even if they tear up their existing options). Thus only those with small option numbers can be helped in difficult times.

At the current limit level, no further options can be issued unless existing EMI options are exercised. This produces the regressive outcome that a really wealthy option holder will simply exercise EMI options so as to be able to get more, but a less well off one will not be able to do so.

The recommendation: The current limit should be amended so that once the exercise date is reached (subject to a minimum period of three years), unexercised options would drop out of the calculation of the £100,000 EMI limit.

5.3.3 Abolish the £8,000 tax-free ceiling on relocation expenses and instead make all reasonable relocation expenses tax deductible.

Current situation: There is a perceived shortage of experienced talent in the UK to fill CEO and Head of Business development roles. One way to fill this gap is to follow the lead of countries such as Denmark, Canada, China and Singapore, and provide incentives for citizens

to return to their home country. For example, Singapore offers tax holidays and exemption from some expenses. In reality, this will mean extracting UK nationals back from the US.

British Expats in Life Sciences (BELS) facilitates a network of around 550 UK bioscience (largely pharmaceutical and biotech) professionals working in the US. BELS estimates that around 20% of these Britons hold senior posts i.e. at executive management committee or board level. Many of these individuals have been able to gain hands-on experience in well-established but still fast growing companies. Often they are in capability areas (such as launching biopharmaceutical products) that would be difficult to replicate in the UK, but which would be very valuable to UK companies today.

Executive search consultants in the bioscience area acknowledge that attracting US nationals to Europe is difficult but not impossible. A much more fruitful route is to attempt to attract UK nationals, and make a priority to build databases of such individuals. Even for these individuals, however, an issue such as the relative vibrancy of the UK sector is seen as a negative factor. The key reason many individuals moving back to the UK is actually family issues, e.g. children's schooling, ageing parents, etc. Greater incentives are required to make the decision to return to the UK a positive, proactive one.

The recommendation: Abolish the current £8,000 tax-free ceiling on relocation expenses, and instead make all reasonable relocation expenses tax-deductible. This would save a substantial amount of money for the company relocating staff to the UK. The disincentive of the huge costs currently associated with relocating talented employees would be greatly reduced, and lead to more companies seeking highly trained management abroad.

Excell Biotech