
Agenda 2030: One Nation Labour's Plan for Science

Green Paper, June 2014

**Rt. Hon Liam Byrne MP
Shadow Minister for Universities, Science & Skills**

Foreword

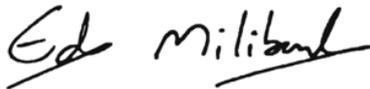
The biggest challenge facing Britain today is the disconnect between the overall wealth of the nation and the living standards of millions of hard-working families. This cost of living crisis has deep roots, but it has worsened in recent years.

Our ability to tackle this crisis depends on whether we choose to compete in the world on high skills and high wages, or follow a strategy built on low skills and low wages.

Support for science is crucial to building an economy that works for working people. Advances in research and technology are a source of new jobs and innovation, and the key to generating new answers to the wider challenges facing society, from climate change to health and wellbeing in an ageing society.

Britain needs a long-term vision for science. That means creating certainty through a long term strategy to unlock investment. It means creating the pathways to ensure the scientific community has the skills it needs to succeed. And it means strengthening the institutions that drive scientific innovation. That has to include supporting the role of universities in driving innovation in technology, products and services across the economy.

Labour wants to listen to the science community. We want to hear your views on the priorities and strategy for science as part of a national mission to build a new economy. This paper is the opportunity to open up that discussion.



Rt. Hon Ed Miliband MP
Leader of the Labour Party

The Need for a Knowledge Economy

“Science is primarily motivated by curiosity—a desire to learn more about the world. The accumulation of new knowledge is recognised as a public good in and of itself, but science proceeds in the understanding that this curiosity bears fruits which are of wider economic and social benefit.”

THE ROYAL SOCIETY, ‘THE SCIENTIFIC CENTURY’ (2010)

Britain’s extraordinary history of scientific endeavour helped create the modern world. Over the centuries, our scientists and engineers have not only transformed our knowledge of the world around us. They have transformed our nation’s prosperity. Britain’s scientists today stand on the shoulders of giants.

Past glories, however, are not enough. We need bigger ambitions for the future, because in the 21st century science and innovation are crucial to earning our way to a better standard of living. Innovation is the only way out of austerity. Innovation is the only way to build a stronger, fairer economy based on higher skill, higher wage jobs.

This paper explores the role of science in driving a new economy. It sets out a bold vision for science that builds on the strong foundations laid when Labour was last in office; a holistic plan to inspire, nurture, train and sustain British talent in science, technology, maths and engineering (STEM) skills; and long-term certainty to support our science base.

Lord Adonis’ independent review for Labour Party is developing an economic strategy to drive greater productivity and innovation across the regions in an era where there is less money around, while Executive Director of Jaguar Land Rover Mike Wright is examining how to strengthen supply chains in manufacturing. This paper seeks to explore the role of an effective science strategy in the context of these wider reviews.

Science is a public good in its own right; but we know too that science and innovation is crucial to Britain earning its way to a better standard of living.

Our goal is to build an economy that succeeds in the world, creates good jobs and allows people to make the most of their potential. A plan for science is essential to that goal. This benefits not just researchers and university departments but the whole of society.

New ideas, new technologies, new jobs, new answers to some of our greatest challenges like health and climate change. All of these are the rewards of science and innovation.

To gain these rewards governments must support science. Governments can set the conditions for scientific success and encourage companies to invest, while public money funds the exploratory research that markets can't justify and the risky ideas that the market won't pay for. Governments can also see the big picture and support ideas over 5 years, 10 years or longer.

That is why a plan for science is a crucial part of our plan for the economy.

In office, Labour transformed the strength of British science and innovation.

After 1997 Labour reversed the decline of British science that took hold in the 1980s.

Under Lord Sainsbury, Labour created the long term 'Science & Innovation Investment Framework' which ran from 2004 to 2014.

This 10-year framework for public funding, developed by Lord Drayson, sparked real-terms increases in the government science spend through research councils, set clear goals for attracting inward research and development (R&D) investment, set out a strategy for raising the R&D intensity of mid-sized firms and boosted spending from venture capital on British technology.

The UK Innovation Investment Fund was created to back technology entrepreneurs; the Science Research Investment Fund (SRIF) to tackle the backlog of under-investment in facilities and The Higher Education Innovation Fund to incentivise universities to transfer their knowledge into industry.

We strengthened and modernised existing institutions and created others.

Labour created the Technology Strategy Board (TSB), created R&D tax credits and the Patent Box. We created the blue-prints for today's Catapult Centres (based on successful approaches taken in Germany and South Korea).

The numbers of STEM graduates grew and developed.

Under this government that momentum has faltered.

The Coalition government has done too little to build on the legacy left by Labour. Much of Labour's approach has been kept, but the Tory-led government has made damaging mistakes.

The government's approach to the science budget—with cuts to science capital followed by unplanned and ad hoc top-ups—has created uncertainty for the sector. Decisions have reflected minister's discretionary choices, not a bigger blueprint for sustained investment.

Gross R&D expenditure has fallen by £856m in real terms, its lowest level since 2001/02. In 2012 the UK, for the first time since 1995, decreased its percentage of GDP spent on R&D from public and private sources. The UK's level of private sector R&D investment has fallen behind our key international competitors by a significant margin and not enough has been done to attract private investment.

The next Labour Government will put science and innovation at the heart of a long-term plan for growth.

Uncertainty in science and innovation policy today is creating the wrong kind of recovery. The Tory-led government has set course for a low pay, low tech, low skill economy. Seventy seven per cent of jobs created since 2010 has been in industries where average pay is under £7.95 an hour.

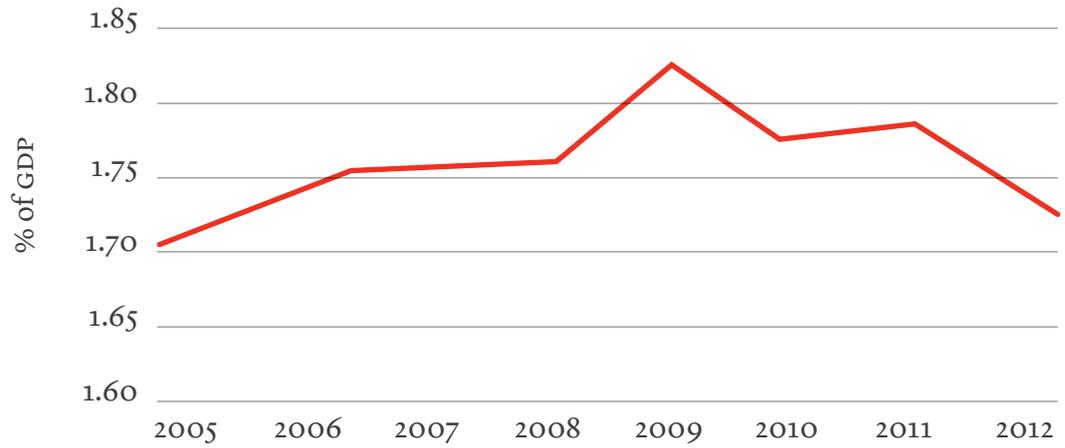
UK productivity has seriously lagged behind our competitors and the average pay packet is £1,600 a year smaller than it was in 2010.

This is part of a wider story where growth in high-skilled, high-pay jobs is flat, R&D is falling and exports are weak as can be seen from the charts below.

An 'hour-glass' labour market is taking shape in Britain, with low-paid, low-skilled work growing, a handful of jobs at the top and a hollowing out of jobs in the middle. This isn't the way we earn our way to a better standard of living.

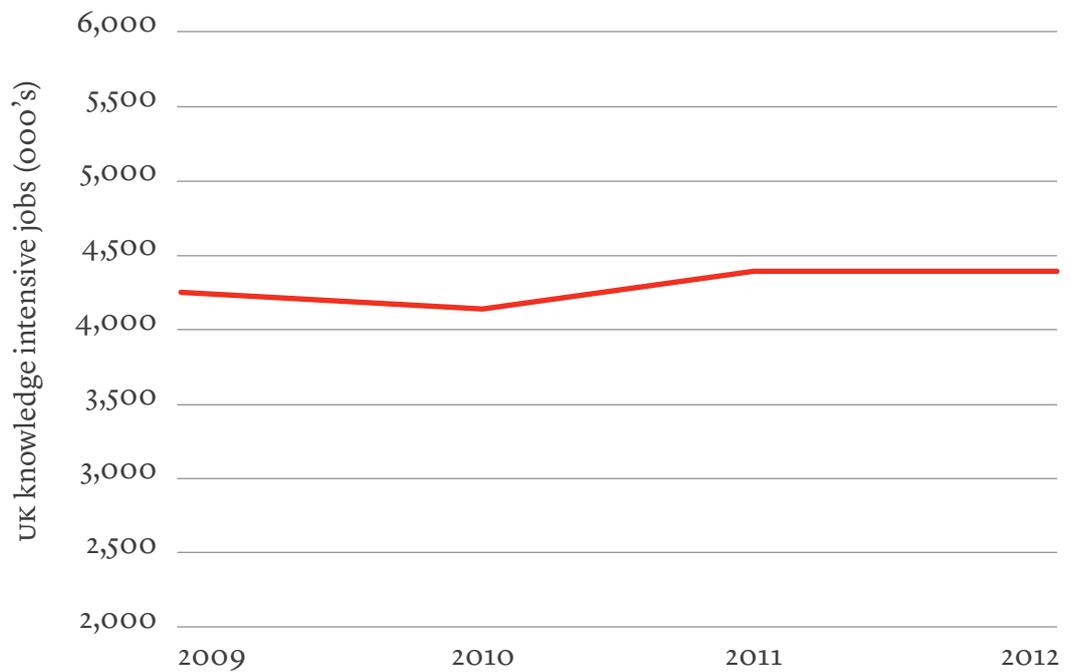
R&D Spending as % of GDP

Source: Gross Domestic Expenditure on Research and Development, 2012, ONS



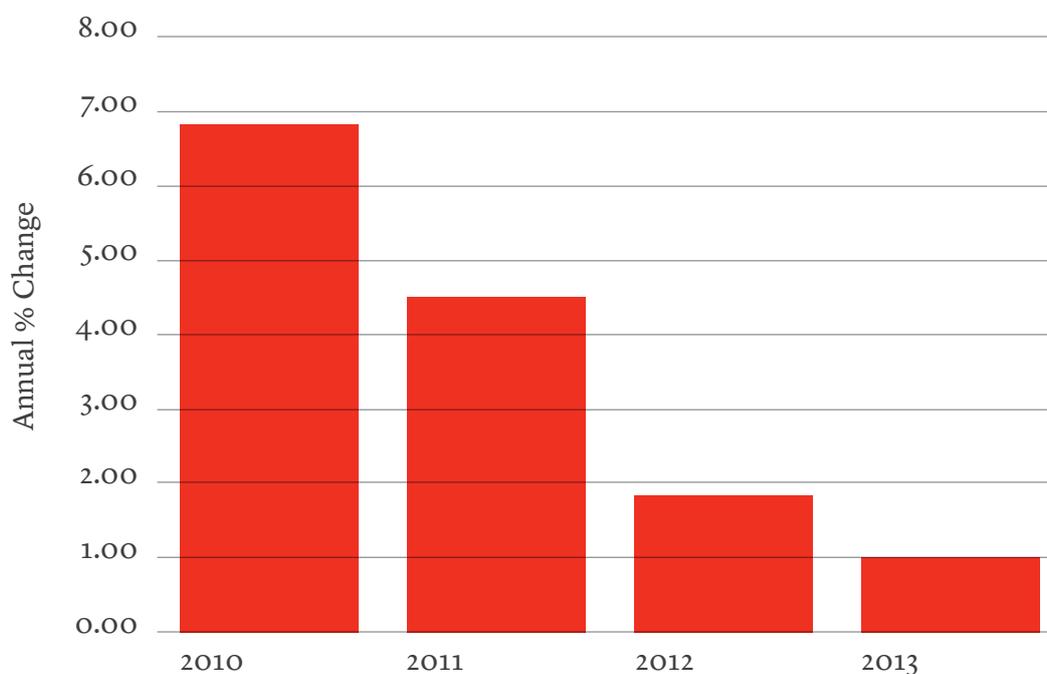
Number of Knowledge Intensive Jobs (κ)

Source: ONS, Business Register and Employment Survey 2013



Export Growth — 2010 to 2013

Source: ONS Services KH2R and OBR Fiscal Outlook, March 2014



To win a race to the top, Britain needs a bigger knowledge economy;

A knowledge economy is based on ideas and skills rather than on our physical resources. This can be a source of growth and also for high-skilled, high-pay jobs in industries that can expand through investment and trade. Quite simply, wages for jobs in the knowledge economy are higher – in 2013 they were 40% higher in fact.

Today, the UK's knowledge economy accounts for around a third of our economic output (£350bn), a third of our businesses (650,000) and a fifth of jobs (4.2m).

If the knowledge economy made up one-third of jobs in Britain, they would be 2.4 million extra better paid jobs to go round.

But, in an era where there is less money around, we won't be able to rely on the same tools that were available in the past. Building a higher wage, higher skill economy will require us to make better use of resources and to put in place the reforms to drive a fairer and more innovative economy.

A long term vision for science and innovation, not just for next year or the next parliament but for the next fifteen years, has a crucial role to play in achieving this.

Agenda 2030

That is why Labour has launched Agenda 2030, our long-term plan to earn and grow our way to a higher standard of living for all. It sets a new direction for sustainable, balanced and inclusive growth by:

- **Investing in the talents of all.**
Supporting everyone to fulfil their aspirations because, in a world where competition is rising, we can't afford to waste the talents of anyone. This means quality apprenticeships providing the skills for a career, not just a job; it means real support for entrepreneurs; and it means giving cities and localities real power to control their economic futures.
- **Solving tomorrow's problems today.**
Putting Britain in the vanguard of innovation by investing in our science base and our national system of innovation, and supporting the transition to a low carbon economy
- **Backing business.**
setting clear direction and providing active support to encourage long-term investment, with an ambitious, cross-government industrial strategy, giving business confidence to invest
- **Looking outward.**
Engaging with the world beyond our shores to boost our exports by reforming the EU so that it is more focused on growth, and using our EU membership to gain access to new markets and boost our exports

Science policy is key to this mission for 2030.

Thanks to Labour's sustained investment in the early 2000s, the UK has the world's most productive research base. This gives the UK a head start in the economic race to the top.

The UK's universities are second only to those in the US in terms of their research. Some British universities also grow our regional economies by forming strong links with industry and building a number of high-tech clusters.

Yet, despite the strong foundation of British science, financial uncertainty in higher education and research mean that the UK is in danger of being left behind other leading economies such as the USA, France and Germany.

We want Britain to be the world's favourite place to do science and innovation and to remain one of the greatest centres of engineering and innovation.

This goal matters because keeping Britain's competitive edge will be essential in order to respond to the trends that will reshape the 21st century.

- Globalisation means that all countries are involved in a 'race to the top'.
- As a result of China's shift to a market economy and India's dismantling of its command-and-control economy, 1.5 billion new low-paid workers entered the world's labour market, almost exactly doubling it.
- The only way that developed countries can compete is by competing in higher value markets that compete on quality, underpinned by well-paid and skilled workers, and growing high value-added industries that require innovation and a highly skilled workforce, such as IT, aerospace and pharmaceuticals.
- Countries like China are determined not to remain a low-cost manufacturer for the world, and are putting huge resources into moving into higher value-added areas.
- We need a good science and innovation base to help us deal with many of our major problems such as climate change and an aging population.

These challenges demand a big, broad view of just what innovation means. Innovation can't be confined to laboratories and start-ups. Innovation must power the whole economy, not just some of it.

Our global competitors know the importance of supporting science and innovation. China is aiming to spend 2.5% of its GDP on research by 2020, South Korea is targeting 5% by 2022 and Brazil 2.5% by the same year. The UK has a great record of scientific discovery and innovation even though our the government spending on R&D currently stands at 1.72%. In the face of international competition there are important questions about how we can keep maintain our edge. There are also big questions to ask about how we can back our growing high-tech companies and also encourage other countries to put more of their high value-added jobs in research and development in this country.

Investing for 2030 also requires that we appreciate the opportunities for open innovation as a new source of growth. Open innovation involves businesses using external as well as internal ideas to develop new products and technologies.

In order to win the race to the top the UK needs to recognise that open innovation is not just something done by the producer for the consumer, nor should it be simply a cover for downsizing. In fact open innovation has the potential to deliver positive transformations in the delivery of public services as the work of Labour's Digital Government Review has explored.

Between now and 2030 we know what we need to get ready for; big trends that will shape the 21st century, supporting innovation in all our companies, and getting more countries to locate their high value-added jobs in science and innovation here in the UK. In the next section we will explore the role of a long term strategy for science in supporting this vision.

The Changes We Need

Big changes are needed to underpin Labour's strategy for science and innovation. These should sit as part of our broader strategy for growth, which will be further developed in the work of Lord Adonis and Mike Wright. In terms of science, there are four areas where changes are needed.

The first change is from short-term policy making to an active government promoting long-term certainty on investment.

The next government should be planning for the world of 2030 when it comes to science.

This means giving certainty to the science base over the longest possible period, respecting the Haldane principles by giving British science stability well beyond the life of any single parliament.

The long-term plan should be backed by coherent, joined-up action in government. This is especially needed for R&D intensive sectors such as pharmaceuticals and defence.

A long-term vision for science must also identify the big challenges we want technology to address. We cannot support all areas of science and innovation and we need to focus our technological efforts where they are more likely to support key industries or where we have social problems which need to be addressed. Many of our global competitors prioritise government spending by focusing on 'grand challenges' that affect society. We could do the same. Our strategy for these grand challenges needs to be long term, stable, and independent.

Organisations like the European Union, the Royal Society and our own Research Councils already take this approach. Examples of issues that could form the basis of a big challenge approach in the UK are health and whole-person care, sustainability and environmental resilience or data and digitalisation. But there needs to be a way of getting widespread input on what these challenges should be.

Under the current government the long-term vision for science has often been over-taken by a short-term mindset, with decisions about funding taken on an ad hoc basis.

The Coalition has also missed opportunities to use public investment to further British innovation. Departments and major public bodies such as the NHS should be connected to the science sector, particularly since we know that public spending leverages greater private sector investment. Yet the government allowed NHS England to cancel its innovation fund last year, sending the wrong signal to the UK's life sciences sector.

The second change requires the UK to adopt an outward facing, engaged approach to the world.

The UK needs an international strategy for science and innovation. In the future even more of the funds, talent and ideas we need will come from overseas. Much of the funds available for research will come as foreign countries and companies increasing their budgets. That is why we need to pull a bigger share of global R&D spending away from other markets and to UK.

That means having a strong dialogue with key countries like China—where R&D spending is growing at 36% a year—joined up to our plan for science. It also means that our skills base needs to improve so that potential investors see the UK as a leading destination for science spending. Britain's world class system of higher education is also a massive export opportunity, but it will only remain so if we see it as part of an international agenda.

When it comes to the knowledge economy we want to attract more investment here at the same time as boosting our exports.

The third change is to ensure that science and innovation are powering growth in our regional economies.

Britain's knowledge economy is already highly clustered—and some parts of Britain, like Cambridge—are experiencing very high levels of growth. Strong clusters have strong universities at their core and today many of our universities are engines of a regional growth. Hundreds of companies and 1000s of jobs have already been created by university spin-out companies. But this model of knowledge clusters needs to be extended across the UK, particularly outside the South-East.

The fourth change is to set out the foundations for a digital future.

Digital technology has already transformed our day-to-day lives. In the years to come 'big data', and the way businesses and governments choose to use it, will have a major impact across society. The challenge for Britain is to ensure that these developments in technology are empowering citizens.

Big data can unleash innovative ways for government to deliver public services of for business to interact with their customers. But it also raises questions around privacy, information and security. Labour's review of digital government will be an important step in answering many of these vital questions. The potential is not limited to the role of government however. We need to ensure that the big data revolution is making its impact felt across the UK economy which is why work such as John Woodward's review of the role of digital technology in the creative industry is vital.

Balanced growth means having all parts of society and all regions of the country plugged in to the digital economy. That means, for example, ensuring that broadband is accessible for all particularly in rural areas. It also means ensuring that we have the training structures in place which is why the work of Maggie Philbin's taskforce on youth digital skills is so important.

Strengthening British Science

In an era where there is less money around, the challenge is how to make better use of existing resources to support innovation. The UK's approach to science and innovation must be delivered through strong institutions and infrastructure. This next section outlines what this would look like in practice.

Strong institutions are needed to support innovation: From ideas to application.

A long-term plan for science and innovation needs to support innovation across the whole economy. That means having a well-integrated system of first-rate institutions.

Labour has already set out views on how the right institutions can drive balanced growth elsewhere in the economy, including strong employer-led sector bodies to set vocational standards and develop plans to drive growth, innovation and apprenticeships in their sectors and supply chains, and reformed FE colleges with a specialist vocational focus. Lord Adonis' review is also due to set out how to build effective local institutions to promote regional growth and innovation across the country.

This same approach is needed for science. It is not enough to support research and education infrastructure where good ideas can be created. To benefit from these new sources of growth the UK must also be able to take innovative ideas from the lab and the classroom to the market place.

The last Labour government set up an effective system. The Technology Strategy Board, the Higher Education Innovation Fund, the initial models of Catapult Centres, R&D tax credits and the Patent Box for example help industry by closing the gap between research and commercialisation when it comes to new technologies.

A future Labour government will build on these institutions so that they add up to a national system of innovation that works at the regional and sectoral level.

Strong universities are key to the strength of Britain's institutional framework.

Universities must play a major role in the UK's national system of innovation.

Good science and a supply of good researchers need sure foundations but that is not the where HE sector is headed today.

Wrong-headed decisions by BIS have made HE finances unsustainable. This has created a budgetary black hole, currently estimated to be £90bn by 2042 (and already likely to be around £20bn). Despite trebling fees to £9,000, the amount of student loans being written off means that the new funding system is nearing the point when it will become more expensive than the system it replaced.

Regional growth through science.

A bigger knowledge economy will boost all parts of Britain - but only if universities become engines of regional growth.

Key to this will be creating jobs by getting businesses to sit alongside universities. Across the UK many universities and businesses are collaborating already by building links between researchers and employment prospects and spinning out companies into entrepreneurial opportunities. Universities have the opportunity to ensure that their students graduate with more practical expertise and entrepreneurial experience.

But this is a two way street. Not only should universities create more and more accessible jobs in the regional economy, they should also be an accessible destination for local skills. In particular apprenticeships should be supported as another route into university.

A rebalancing of the economy is essential. That means a focus on small cities as well as big ones and having a growth strategy beyond London and the South East.

Two specific examples of where this is happening already can be found in Cambridge and Manchester. The Cambridge Cluster has become Europe's most successful technology centre. The Cluster's top 50 companies employ 29,000 people and have hired 6,000 people in the last year.

The Greater Manchester Strategy (GMS) also provides an important example of what a long-term plan for science and innovation could achieve. The GMS aims to transition the region into a knowledge economy through innovation, technology, competition and investment, in large part based on the use of university assets particularly along the Oxford Road corridor.

But London still remains a vital hub for digital innovation. Recent reports show that the capital's tech hub could add £12bn to the economy and as many as 46,000 jobs over the next decade. Oxford Economics also expect that the industry centred around 'silicon roundabout' could grow by 5% per year between now and 2025.

Q What more can be done to improve the way science is driven by British universities?

Global collaborations for science.

The quality of the UK's science base depends on international collaboration. The EU in particular, is a critical source of funding and researchers for UK science. The Horizon 2020 programme is the biggest EU Research and Innovation programme ever put together with nearly €80 billion of funding available over seven years (2014 to 2020), and in addition the European Research Council (ERC) grants support to individual researchers and UK science is a major beneficiary.

Since 2007, more than 4,500 projects have been selected to receive ERC funding throughout the EU. There will be even more opportunities for the world's biggest single market to unlock sources of science and innovation in the future. For example, the EU's ambitious policies on tackling climate change through binding emissions targets and the emissions trading scheme are designed to encourage industry to invest more in developing cleaner and more sustainable technology.

Currently this country benefits directly from £1.2 billion annually in European research funding and is the largest beneficiary of EU research funds to universities, with the UK receiving nearly a quarter of all European Research Council (ERC) funding during the course of FP7. By putting our future in the EU in doubt the Coalition has damaged our ability to lead Europe's agenda for science and innovation. That is why for Labour the UK would lead in the European debate not only to benefit British science but also to ensure our continent is the world's favourite place to invest.

International collaboration should not just be limited to the EU however. The UK already has a number of bilateral science partnerships with key emerging economies and these 'Science Bridges' should be extended. UK Research Councils also already engage in international collaboration with offices in Brussels, Washington, New Delhi and Beijing. Our science policy should have a similarly global outlook in order to deliver the changes the UK economy needs.

With strong links both to the USA, other European countries and fast-growing developing countries, the UK has the opportunity to become an Innovation Hub in the world where other countries site their high value-added Research and Development activities.

Building a knowledge economy also creates opportunities to export high-value products and services. The UK has the opportunity to expand its export of world-class education and creative services from legal to advertising and financial services. Some of this has begun already, such as the work of the University of Nottingham Ningbo in China.

Q What more can the UK do to ensure that science is embedded in our international relationships?

Science must be put at the heart of government and policy making.

Labour believes that science must be at the heart of government and evidence-based policy making. In 2010 we called for a Chief Technology Officer for the Department of Business, Innovation and Skills. Departmental R&D budgets should be maintained and spent both to support innovation in the industries they sponsor and to provide a strong evidence base for policy making. Labour would also restore the dignity of social science and improve the use of scientific evidence in policy making.

A government committed to building a knowledge economy must also invest to help early stage technology overcome the valley-of-death ensuring that the short-termism of the market does not prevent innovation reaching commercial viability stage. For this reason another more direct way that government could support new sources of growth is to explore how our annual procurement budget can better support the development of innovative products and services. Labour have also made the case for a British Investment Bank that could also play an important role.

Q What does the UK need to do more to place science at the heart of government and policy making?

Q What steps would help deliver a joined-up approach to science that plans for the world of 2030?

The Rungs on the Ladder

Plans to strengthen science won't work unless the sector is able to attract the highly-skilled and socially mobile workforce it needs. We want to strengthen every rung on the ladder up into a science and engineering career for our young people.

By 2020 there will be 2 million additional highly skilled jobs according to EPSRC. Ensuring that these are accessible opportunities at all levels will require targeted investment in training and skills. Yet less than one in 10 employers currently offer apprenticeships.

Labour has already set out plans to tackle the lack of high quality, accessible apprenticeships, meeting employers' skills gaps and the needs of young people. Professor Chris Husbands' work for Labour's Skills Taskforce has identified the need for a joined-up approach to further education, qualifications and apprenticeships through strong employer-led sector bodies, with the power and resources to invest in high quality training and apprenticeships that meets their needs.

In 2010 Labour pledged to work with industry to identify STEM skill gaps in sectors which we expect to grow in the next 20 years. Many of these challenges are just as pressing today as they were at the time of the last election.

The Coalition's approach to education policy has harmed ambitions for British science. The way science is taught has a major influence on the number of young people that take up STEM subjects through to FE and HE levels. Yet the government is damaging the supply of inspired, well-trained young people.

Allowing unqualified teachers into the classroom on a permanent basis harms the quality of science teaching. The destruction of Information, Advice and Guidance services puts students on the wrong track. The recent decision by Ofqual to remove the examination of practical work from A-level science grades also means that crucial aspects of a scientific education will go missing in school labs.

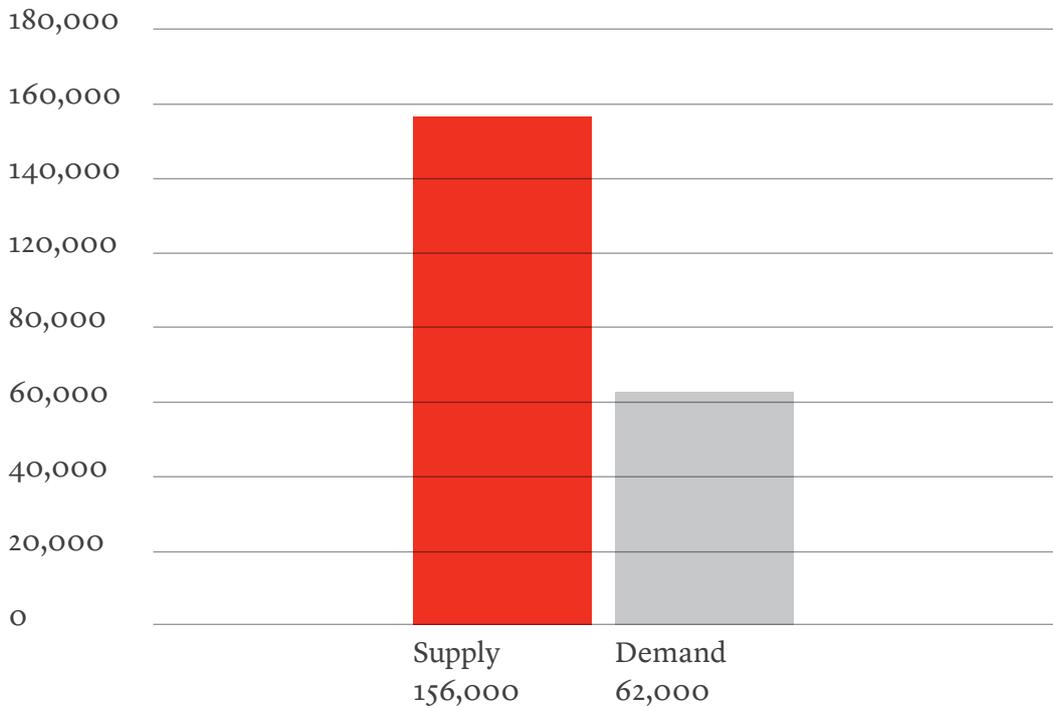
We currently rely on inward migration for much of our STEM skills. Today non-EU immigrants account for 20% of professions in knowledge-intensive sectors such as oil & gas, aerospace and computer, electronic and optical engineering and half of the 117 job titles on the Tier 2 skills shortage list are engineering jobs.

That needs to change. In particular, the UK needs to do more to ensure that there is a home-grown pipeline of STEM skills, through more high quality apprenticeships. That's why Labour would require all firms applying for a Tier 2 visa to provide apprenticeships. However, world class universities and research labs must also be able to attract the best talent from around the world.

Britain's policy for skilled immigration risks real damage to our science base. We need to do more to grow talent in the UK, but attracting the best foreign talent is also vital for our science base. The decision of this government to include international students in the net migration target is short-sighted, and means many of the best researchers are taking their skills to places like Australia and the USA instead of Britain.

All of this means that we are not on track for the high-skilled workforce that we need for the world in 2030.

Supply of STEM apprentices, per year vs anticipated demand on apprentices, per year (until 2020)



An inclusive knowledge economy will be one with diverse and accessible routes into high-skill, high-pay jobs. But today, Britain's STEM workforce is not a true meritocracy.

The gender balance in science has not changed in 25 years. Women are under-represented in the latter stages of scientific careers, especially in physical sciences. Only 35% of all researchers just 11% for professors are female. The UK also has the lowest proportion of female engineers in the EU.

At GCSE girls and boys are equally likely to study STEM subjects but by A-levels female participation drops off dramatically. Nearly half of all comprehensive maintained schools in England do not even send one girl into A-level physics.

This choice between triple and dual science is also a major issue of social mobility. Compare boys and girls or comprehensive and selective schools and you will see markedly different enrolment rates.

There is also widespread concern that the removal of the Education Maintenance Allowance (EMA) will harm Black & Minority Ethnic (BME) enrolment in science study-paths.

All of this damages inclusive pathways into the jobs in science that the UK needs in the future.

- Q What additional policy measures are needed to ensure the UK has a strong pipeline of STEMs skills?
- Q How can the UK ensure there are inclusive routes into STEMs careers?

Science Investment

The need for long term certainty.

The foundation of Labour's plan for science and innovation will be a strategic, stable joined up plan in government. A long-term approach to science gives stability to universities and research councils and provides certainty to scientists. In a difficult economic context, however, the challenge will be how we can make better use of existing resources to support innovation.

The 2004–2014 spending plan gave a secure base to UK science and it is important to learn the lessons of how that approach delivered a strong foundation for British research and innovation.

- Q How can we make better use of the UK's resources to support science and innovation?
- Q Do you believe the previous Labour government's 10 year approach was a success and how can we learn from this in the future?

Unlocking private sector investment.

In addition, more can be done to unlock greater levels of private sector spending in R&D. In the UK the level of private sector investment only stands at 1.1% of GDP which puts the UK below our key competitors by quite a significant margin.

Spending on science is an investment in future growth. Yet the UK is in danger of being significantly left behind in the global race to the top. We have a much less R&D intensive economy than was the case 30 years ago and in fact the UK has seen its spending on R&D fall whilst other OECD economies like the France and Germany are increasing theirs. The UK's investments in science are not just being overtaken by our competitors in Europe. Emerging markets are in danger of overtaking UK's R&D edge. China is now the world's 2nd largest investor in R&D after the USA.

The last Labour government introduced a system of R&D tax credits that have help to shift us towards a knowledge economy. Today between a third to a half of all government spending on R&D in OECD countries is through tax credits and they have been shown to be an effective way to help companies to grow. It is important to ensure that R&D tax credits also work well for smaller firms since many new and growing companies will have different needs compared to larger, established firms.

The last Labour government also introduced the Small Business Research Initiative (SBRI), which provides grants for innovative small companies (although under this government's management of the system the amount of money generated to companies has been relatively small). This serves as another example of how new sources of growth can be harnessed when a government sets out a clear plan to invest in a knowledge economy.

Q How can we unlock greater levels of private sector investment?

Conclusion

This paper has set out Labour's direction on science policy. Now we ask for your views.

Britain has all the fundamentals it needs to win in the global race to the top. From our world class universities to our strong historical record of scientific achievement, we are well placed to build an ambitious knowledge economy between now and 2030. The prize is not just a larger economy but an economy that creates more high-skilled and high-pay jobs.

To get from where we are to where we want to be will require a long-term, joined-up plan for government. That will mean having a clear plan for spending and a plan for training and skills. It will also mean a plan for undertaking the necessary changes in our economy.

Above all it will require a government that seizes the initiative by building the right institutions that support new sources of growth.

Consultation Process

We welcome your feedback on this document and Labour's approach to science and innovation. You may wish to structure your feedback by responding to some or all of the specific questions below. **Responses should be sent by email to charlie.samuda@parliament.uk by Friday 1st August.**

Science Investment

- Q How can we make better use of the UK's resources to support science and innovation?
- Q Do you believe the previous Labour government's 10 year approach was a success and how can we learn from this in the future?
- Q How can we unlock greater levels of private sector investment?

Strengthening British science

- Q What more can be done to improve the way science is driven by British universities?
- Q What more can the UK do to ensure that science is embedded in our international relationships?
- Q What does the UK need to do more to place science at the heart of government and policy making?
- Q What steps would help deliver a joined-up approach to science that plans for the world of 2030?

The Rungs on the Ladder

- Q What additional policy measures are needed to ensure the UK has a strong pipeline of STEMs skills?
- Q How can the UK ensure there are inclusive routes into STEM careers?

