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Innovation and Industry: The Role of Government

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Executive Summary

There is widespread agreement that the UK needs to boost manufacturing at a time when the financial services industry is unlikely to sustain recent growth rates. There is, equally, a consensus that it can do this only by moving up the value chain into advanced manufacturing and high technology products. Rather than returning to the failed industrial activism of the 1960s and 1970s, government's role should be to create the right environment for innovation to flourish in the UK. To that end, this Research Note makes a series of recommendations for improving the tax system, access to finance, public procurement and regulation.

Tax:

The system of allowances that allows businesses to claim tax relief for their capital spending is complex and arbitrary. In some cases, it is too generous – for example, for investments the government wants to encourage; in most cases, however, it can take decades to write off investments in plant and machinery. The latter is particularly damaging for manufacturers, who often invest heavily in high tech equipment that is obsolete in a few years – and the system has become less generous at a time when credit is hard to obtain.

We recommend that the tax allowance system should reflect more closely the real cost of investment at a time when new technology is accelerating the pace of change in manufacturing. Businesses should be allowed to write off capital expenditure in full over eight years or less, instead of over decades. The cost would be more than covered by abolishing the annual investment allowance, introduced after the 2007 Budget.

Tax stability and fairness are also important to manufacturers who need clarity , predictability and certainty to invest for the long term. Yet there has been a continual upheaval in many aspects of business taxation in recent years, combined with growing attacks on legitimate tax-planning strategies. We recommend a new concordat between the tax authorities and industry to provide the greater stability and predictability needed in tax policy for long-term business planning.

Research & Development:

The UK has one of the most generous incentives for Research &Development (R&D) in the world, in the form of the R&D tax credit. Introduced in 2000 for small companies, it was extended to large companies in 2002. It now costs more than £730 million a year, yet has led to no increase in the level of R&D. Much of the money goes to companies that were already carrying out R&D in the UK - and it is, in any case, not clear that the UK is lagging behind other countries in the level of R&D. We therefore recommend the phasing out of the R&D tax credit for large businesses, releasing over £500 million a year to promote innovation in more effective ways, including strengthening the research base that makes the UK an attractive place to do R&D.

Access to Finance:

Innovators and entrepreneurs complain of the difficulties of raising finance for start-ups and growing businesses. The UK has an established venture capital industry, but it has shifted from early financing to management buyouts and private equity deals. While there are growing numbers of business angels who

invest in innovative early stage companies, there are still not enough of them. There is also a funding gap when companies need venture capital investments of typically more than £1 million. Several government schemes have tried to address these problems – with varying degrees of success.

To encourage more business angels, we recommend changes to the Enterprise Investment Scheme and the Enterprise Management Initiative, and the provision of more funds for government-financed Early Growth Funds which partner angels to invest in start-ups and growth firms. To improve access to venture capital, we recommend the strengthening of Enterprise Capital Funds (ECFs) which have been successful at leveraging in private sector funds and expertise. Any new government venture capital funds should be invested through ECFs and they should be allowed to make a wider range of investments. We also recommend that Regional Venture Capital Funds, which have too little to invest and whose regional mandate means they do not always invest optimally, should be pooled into Enterprise Capital Funds.

Government Procurement:
The government could do much more to support innovation and industry by better procurement policies - which would also benefit users of public services. A US scheme that mandates government agencies to contract out a share of their external R&D budgets to small businesses has been enormously successful in supporting innovation and creating world-beating companies. The UK Small Business Research Initiative (SBRI), which is modelled on it, has struggled to get off the ground in the UK, though it has generated some promising results from recent pilot projects.

We believe that the SBRI has the potential to make a real contribution to innovation in the UK and therefore recommend strengthening it by setting Whitehall a target of spending £250 million a year of its external R&D budget through the scheme. To provide a carrot, a minimum of £100 million from the savings on the phasing out of the R&D tax credit should be allocated to the SBRI which could use it to match partly or wholly spending by Whitehall departments through the scheme.

Regulation:
While the government has taken steps to reduce the administrative burden of red tape, the flow of new regulations continues apace, and is particularly damaging to manufacturers and innovators. Regulation affects employment policies, business processes and product requirements, and the visible presence of manufacturing makes it an easy target for officials. The next wave of regulation on carbon emissions is a new concern for industry that is supportive of such policies but fears there will be unrealistic targets.

We recommend as a first step the re-introduction of plans for regulatory budgeting abandoned by the government shortly before the 2009 Budget. Departments would be allocated budgets on how much they can cost the economy in regulation, and additions that exceed the budget would require cuts elsewhere. This would provide a system for stemming the flow of new regulation and reducing the existing stock of red tape by ratcheting down the overall Whitehall total.

We also recommend a new partnership between government and industry on regulation: businesses should be involved from the inception of proposals for new regulations, invited to propose solutions to problems regulation is designed to address rather than having simply to react to Whitehall initiatives. Businesses should also be closely involved in assessing the impact of proposed new regulations and examining alternatives to regulation.

Introduction

Industrial activism has become the policy flavour of the moment. The financial services sector is in the doldrums and while it may recover in the long term, the immediate future appears difficult. After a lengthy period in which manufacturing has been eclipsed by the City, it is clear that its role in the national economy needs to increase, a realisation that has generated interest across the political spectrum in strategies to boost industry and encourage innovation.

The government has accepted the case for action, led by Peter Mandelson, the Business, Innovation and Skills Secretary. Announcing a package of support for the car industry in January 2009, Lord Mandelson famously said: "For the future, Britain needs an economy with less financial engineering and more real engineering." A series of speeches in the following months culminated in a policy statement published in April 2009 entitled *Building Britain's Future - New Industry, New Jobs.* It pledged a "new activism" that would complement markets, support innovation, target government policy and change Whitehall's culture to support growth.

Apart from reciting previous initiatives that might have helped industry and listing a series of Whitehall reviews on aspects of competitiveness, the statement promised further detailed statements later in the year. Large sums of money have been allocated in recent months, including a £750 million "Strategic Investment Fund" announced in the 2009 Budget to help business through the recession, a £150 million UK Innovation Investment Fund in June and a £151 million package of support for advanced manufacturing at the end of July.

There has also been a chorus of praise from ministers for the French government's approach to industrial policy which has long combined protection against foreign takeovers with significant ownership of or support for chosen industries. This is reminiscent of the 1970s, when many British politicians were taken with France's "indicative planning" system and the Labour government took control of large sections of manufacturing industry such as shipbuilding, aerospace and steel. Lord Mandelson has insisted that there will be no return to public ownership or centralised planning, but added in March on a visit to Paris: "We have something to learn from continental practice without falling into the pitfalls of second-guessing business."

While there have been some successes, government interventions have cost French taxpayers dear and had a mixed record – for example, the failed efforts to preserve its consumer electronics sector. They have also created an economy in which the percentage of gross domestic product that comes from manufacturing is no higher than in the UK[1] and which has a much poorer record of innovation. This has been recognised in the last four years by French government reports that have advocated policies to make the country more like the UK in research excellence and entrepreneurship.

This paper will examine the role of government in encouraging enterprise, innovation and industry. It starts with two fundamental propositions on the government's role, drawn from the history of industrial policy over the last half century. The first is that government attempts to "pick winners" by throwing resources behind particular sectors, technologies or companies have failed in the past and will fail again. Examples such as Concorde, Upper Clyde Shipbuilders and British Leyland are case studies in egregious waste of taxpayers' money. Yet for all the talk about not picking winners in the new industrial activism, it is not clear why ministers think they can do better than market investors in choosing the technologies of the future for a low carbon economy, for advanced manufacturing industry or for an ageing society.

Inmos – Case Study in Government Failure in Picking Winners

Seductive though it is to believe that Whitehall can identify the trends of the future, the history of Inmos is a cautionary tale. Backed by the 1974-79 Labour government, it developed an early form of semi-conductor called the "transputer". The government put more than £200 million into the enterprise without ever earning a profit, and it was eventually sold to Thorn-EMI for £192 million in 1984 by the Conservative government led by Margaret Thatcher.

Many of those who worked for Inmos went on to success in private sector businesses and aspects of its technology survive in modern products. But while semi-conductors were undoubtedly a technology of the future, the Inmos transputer chosen for UK government support was not part of it.

The second fundamental proposition is that the government can clearly prevent the emergence of successful sectors, technologies and companies with badly thought-through policies – tax and regulation chief among them. In contrast, support for high level research, education systems that produce skilled workers and incentives for early stage investors all have the potential to address market failures that might otherwise mean that, from the point of view of society as a whole, research is at too low a scale or is not best directed.

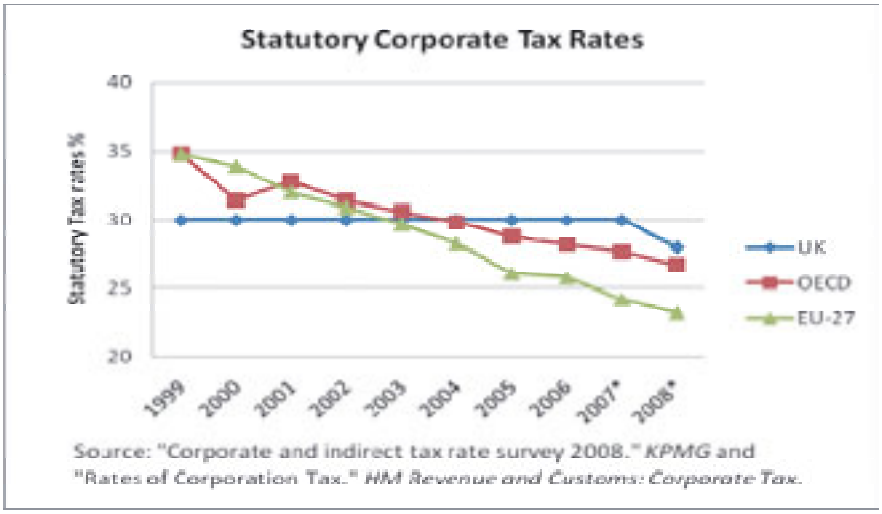
But other state action can undermine such policies – the inexorable growth in red tape and the increasing tax burden, for example, have a high opportunity cost in the form of less industrial activity. A government wishing to encourage innovation and enterprise must minimise the barriers to increased industrial activity created by regulation, high tax and an increasingly complex taxation system. It should also create conditions in which innovators, entrepreneurs and businesses can flourish, and leave it to the markets to pick the winners.

The Tax System

Britain's manufacturers are not a homogeneous group. They include businesses fabricating products such as vehicle parts and foodstuffs, those that have offshore production but carry out research and development in the UK and companies that are part of the global supply chain for high tech products. Some are very large businesses employing thousands, while others are much smaller – even tiny manufacturers can compete globally. But there are several characteristics that distinguish manufacturing from other sectors:

- Manufacturers are usually competing in a global marketplace – in most cases on quality and customer service, as well as on price;
- British manufacturers rely increasingly on innovation and R&D for their competitive advantage as international competition intensifies and low-cost output from China, India and other rapidly developing economies comes at ever higher quality and reliability;
- They often invest substantial amounts of capital, sometimes over very long periods.

These are characteristics which the tax system needs to accommodate if the UK is to remain a manufacturing powerhouse and increase the size of the sector. If it fails to do so, manufacturing is increasingly mobile and able to locate in the most hospitable tax regimes. With leading economies such as Germany and France reforming their tax systems to be more attractive to innovative manufacturers, the UK system as it applies to manufacturing therefore needs to reflect these differentiating aspects of the sector.



Manufacturing is not alone in raising issues about the competitiveness of the UK tax system: the business community as a whole has lobbied with increasing volume on the need to keep the UK corporation tax rate competitive and the need for a sensible policy on the taxation of foreign profits. However this Note will focus on the two issues identified by manufacturers as central to encouraging their sector's growth: a tax system that recognises the importance of capital expenditure; and a stable and predictable regime to reduce the risks of long-term investment.

Capital Allowances

When businesses calculate their profits, they can deduct as expenses the cost of current expenditure such as wages and raw materials but not capital expenditure in buildings and machinery that will be of use over several years. Instead, the cost of capital expenditure is spread over the expected lifetime of the investment by an annual deduction from profits known as depreciation. This gives a much more accurate picture of annual profits, even though it involves a big cash outlay in the year in which the investment is made.

The tax authorities also recognise such investments through capital allowances, deductions from taxable income of a proportion of capital expenditure. The current system is complex and somewhat arbitrary, favouring some types of investment and businesses above others and frequently changing at the whim of the Chancellor of the Exchequer of the day.

For most types of machinery and equipment, for example, a maximum of 20% of the remaining balance of an investment can be written off each year. But there are 100% allowances that allow the full cost of certain types of capital expenditure favoured by the government to be written off in the first year – they include energy-saving investments, low carbon vehicles and flat conversions over commercial premises. There are also special rules for industrial buildings which have a longer life-cycle than most equipment, cars and so-called "short-life assets".

To further complicate matters, governments that want to stimulate economic growth have at times temporarily raised the maximum amounts of capital allowances to encourage capital spending. This happened in the 2009 Budget when first-year allowances for machinery and equipment were raised to 40% for one year

only. However, this temporary increase in 2009 came only a year after the first-year rate for most types of machinery and equipment had been reduced from 25% to 20%. Meanwhile, the industrial buildings allowance is being phased out as part of the same series of cuts announced in the 2007 Budget.

The 2007 Budget cuts in capital allowances were part of a package to reduce the rate of corporation tax from 30% to 28%. The same Budget also raised the corporation tax rate for small companies from 19% to 22% over three years – producing an outcry from smaller companies. To compensate for this, the government introduced yet another type of capital allowance: an annual investment allowance allowing 100% of capital expenditure up to £50,000 a year to be written off against tax – a concession of greatest benefit to small and medium-sized enterprises.

In general, reducing tax allowances to cut the rate of corporation tax is desirable because it brings more income into taxation and allows the same amount of revenue to be raised at lower tax rates. However, lower capital allowances reduce the incentive to invest, because they mean it takes longer for a company to set off the entire cost of the investment against tax. If the tax system allows 25% of the cost to be written off in year one and 25% of the remaining balance each year to be written down, it takes around 22 years before the whole cost has been set against tax. With a rate of 20% it takes 30 years. Given that the business will have to invest up front, there is a significant cash hit in the first year, with only a fifth of it allowed to be set off against tax – at a time when the credit crunch is already squeezing manufacturers' cash-flow.

In practice, the lifetime of much capital investment is shortening rather than lengthening, as the pace of technological change causes equipment to become obsolete more quickly. The EEF, manufacturing's trade body, says members are replacing machinery and equipment, on average, every seven to eight years – and the life cycle of some high-tech information technology equipment is even shorter.[2] The new machinery is much more productive, but if it has to be written off over 30 years there is a heavier than necessary cash-flow hit. The EEF calculates that the cash-flow impact of reducing the capital allowance from 25 to 20% a year is the equivalent of adding 2.2% to the cost of capital investment over 10 years.

At the same time, offering 100% allowances - no doubt welcome to the businesses that can claim them - may be no more sensible than allowances that take decades to offset investments. Allowing the full cost of capital expenditure to be written off in the first year is a form of subsidy that narrows the tax base - and may also encourage excessive investment that misallocates resources.

It would be desirable if capital allowances more closely reflected the realities of business investment. In an ideal world, capital allowances should reflect the depreciation rates used in the accounts to set off the cost of capital expenditure but this would bring increased complexity to the system and increase the burden of tax compliance on smaller companies. The restoration of the 2007 cut in capital allowance rates would be an alternative way to help companies that invest, but that would cost around £2.5 billion a year.[3] We therefore recommend the adoption of reforms put forward by the EEF for a simpler and less costly approach to making capital allowances reflect better the realities of modern manufacturing.[4]

Under the EEF proposals, businesses would be able to write off capital expenditure in full over eight years – the average life of modern machinery and equipment – by choosing to treat investments in equipment that become obsolete over such a period as "short-life assets". The rate of capital allowance for such assets would

remain 20%, but if the item was sold or scrapped within eight years, any part of the investment not yet written off could be claimed as a tax allowance.

It is impossible to calculate the cost of this proposal, because it depends on the extent to which businesses take advantage of it, and the additional cost is deferred until the assets are sold or scrapped. However, we also recommend that the annual investment allowance be abolished at the same time, saving the Exchequer £1.6 billion a year[5] - which we anticipate should be more than enough to cover the cost of the new "short-life asset" tax rules.

Recommendation: Businesses should be able to write off capital expenditure in full over eight years – the average life of modern machinery and equipment – by choosing to treat investments in equipment that will swiftly become obsolete as "short-life assets". This change should be funded by savings made from abolishing the annual investment allowance at the same time.

Tax Stability and Fairness

Having just advocated a radical change to capital allowances, it might seem perverse to call for greater stability in the corporate tax regime. Yet the last 12 years has seen a continual upheaval in many aspects of the UK tax system affecting business that disrupts planning and incurs compliance costs. It is essential to mitigate the damage done by ill-considered and unpredictable tax changes but the aim must be to establish a business tax regime with the attributes of clarity, predictability and certainty. While this is important for all business sectors, it is particularly vital in manufacturing which must plan for the longer term.

The permanent revolution sponsored by the Treasury in recent years has led to policy-making on the hoof and poorly drafted legislation. One case study is the introduction in April 2000 of a 10% lower rate of corporation tax for companies with less than £10,000 of taxable profits – a rate cut to zero two years later. The result was a flood of self-employed people registering as companies to reduce their tax liabilities, and the government reversed the move in two steps in 2004 and 2005. Misuse of the concession was estimated to be costing the exchequer more than £1 billion a year in lost revenues.

Other long-running sources of uncertainty include the taxation of foreign profits, and cuts and increases in the small companies rate of corporation tax. These constant changes have also been accompanied by repeated crack-downs on what the government describes as tax evasion, aggressively attacking tax planning measures adopted by companies as part of their long-term business strategy. As the EEF remarks in its tax study: "Recent changes in the business tax regime have saddled manufacturers with rising costs, complexity, inconsistency and ultimately uncertainty around the direction of tax policy."[6]

Too often business is seen as a convenient source of additional tax revenues by a government that is reluctant to ask individual taxpayers to pay for its vastly increased spending on public services. Business recognises its responsibility to pay an appropriate share of the tax bill to pay for public services it benefits from. But governments see raising business taxes – for example to pay for higher health spending – as easier than increasing personal taxes on the people who will get the benefits.

We therefore recommend the development of a new concordat between the tax authorities and industry that will give business the stability and predictability that is essential for long-term planning. The new relationship must include better consultation with industry, with sufficient time to explore proposals and clear responses to submissions. When problems emerge in business taxation, business leaders should be invited to propose workable solutions, rather than having arbitrary measures imposed. The framework should explicitly recognise the importance to industry of stability – avoiding surprise changes that then require further adjustments or even prove unworkable.

One key area that needs urgent attention and is likely to be revisited in the current economic climate is the relative taxation of debt, equity, and recycled profits. There is a growing perception that Gordon Brown's "Surplus Advance Corporation Tax" reforms of the late 1990s have established a regime in which debt was under-taxed relative to equity. Clearly such a significant reform would, itself, need to involve extensive consultation with industry, but it is perhaps only realistic to anticipate that the stability and predictability of the tax system for long-term investment can only be achieved in the context of a new and settled business taxation regime.

Recommendation: A new concordat between the tax authorities and industry should be developed that will give business the stability and predictability that is essential for long-term planning.

R&D Incentives

When Labour was elected to power in 1997, the then Chancellor Gordon Brown set as a priority the aim of closing the productivity gap between the UK and other leading economies. One element in achieving that aim was to be encouragement of greater investment in research and development, to promote innovation. International comparisons showed the UK spent a smaller percentage of gross domestic product on R&D than other advanced economies such as the US, Japan, France and Germany. Given that businesses can find it hard to capture the economic benefits of R&D which spill over to the wider economy and to competitors, Mr Brown saw a case for public support that reduced the post-tax cost of R&D.

In 2000, he introduced an R&D tax credit for small and medium-sized enterprises, which allowed them to set R&D costs off against tax – and to claim a cash payment if they did not pay tax. Announcing the new tax credit in the 1999 Budget, the Chancellor said it would give "new business and small business - the biggest source of innovative ideas - cash help to research and develop their innovations even before they make their first profits."[7] However, following extensive lobbying by the CBI and trade associations, Mr Brown accepted the need for further incentives and extended the scheme to large companies in 2002 – though they could not claim a cash payment. There were subsequent changes in the 2007 Budget to make the scheme more generous.

It is now one of the most generous schemes for supporting R&D by international standards. The R&D tax credit, which was originally expected to cost £50 million a year, cost £100 million in its first year and £150 million in year two. It now benefits more than 6,000 companies at a cost of £730 million this year – much of it going to large companies.[8] The CBI estimated recently that the large company scheme had been worth more than £2 billion since its inception, the lion's share of the cost – and it now accounts for more than two-thirds of the cost of the R&D tax credit.[9] A survey of 70 companies by the CBI found that the companies had doubled their savings under the scheme between 2005 and 2008, from 4 to 8% of their R&D expenditure.

Not surprisingly, the CBI survey found that business confidence in the tax credit had grown "dramatically" in the last three years. Just over a third of businesses (37%) claimed that they had increased their R&D spending as a result of the credit, up from 18% in 2005. Half said the credit helped them keep R&D in the UK, and three-quarters said it helped maintain UK R&D in more indirect ways. Yet, even if one believes these claims, the ballooning cost of the R&D tax credit and the fact that 63% of even this tiny survey said it had not led them to increase their R&D spending must raise questions about whether this is the best use of the money.

Initial scepticism about the value of the tax credit included fears that it would carry a high dead-weight cost – with much of the money going to reduce the cost of R&D already being carried out in the UK. Other countries such as the US award their tax credits on the basis of incremental additions to R&D, rather than the absolute levels – the basis the Treasury initially favoured but which involves difficulties in judging what is incremental. The fact that two-thirds of the companies in the CBI survey do not even claim to have increased their R&D following the introduction of the tax credit suggests the Treasury may have been right.

More important, there appears to have been no impact on the level of R&D in the years following the tax credit's introduction. R&D accounted for 1.8% of gross domestic product in 2001, and for 1.79% in 2007, the most recent year for which figures are available.[10] Meanwhile countries with higher percentages of GDP devoted to R&D mostly offer much less generous incentives. A 2006 study also found that there was no simple correlation between R&D spending and the generosity of tax incentives.[11]

It is not, in any case, clear that the existence of the tax credit is factored in when making decisions about R&D expenditure and its location. It is paid in arrears and is often seen as a bonus when calculating the financial results, rather than an enduring incentive that informs strategic decision-making.[12] A study by Professor Francis Chittenden and Mohsen Derregia found that businesses tended to leave the tax calculation to their accountants, suggesting that it did not feature in a detailed or explicit way in their budgetary decisions. The tax credit was more likely to influence the location than the level of R&D.[13] The CBI survey found that companies see the tax credit as an offset for the cost of other tax and regulatory burdens in the UK.[14]

A more fundamental issue is whether the UK was underperforming on R&D when the tax credit was first mooted. A research paper prepared by the Department for Innovation, Universities and Skills in 2007 suggested that the level of R&D in the UK is lower than in other leading economies because of the industrial sectors in which Britain excels.[15] When levels of R&D in particular sectors is compared internationally, the UK is not an underperformer. In pharmaceuticals and health for example, UK-owned firms have among the highest R&D to sales ratios. The ratio is also high – surprisingly – in engineering and chemicals, industries in which Germany, for example, is a global leader.

The dependence of the UK economy on services also drags down the R&D figure compared with some competitors, since service industries spend much less on recordable R&D than manufacturers. Furthermore, the internationalisation of the British economy also makes comparisons difficult: the UK leads the OECD in private sector R&D financed from abroad, but also on the degree to which R&D is performed abroad.[16] As the OECD said in a recent report, internationalisation of a firm's R&D produces substantial benefits: "a more cost-efficient innovation process, better ability to learn about R&D conducted by other companies/institutions, a quicker road to commercialisation and a positive impact on the firm's own innovation capacities."[17]

There have been fears that there is a loss of core skills in the UK when R&D is offshored by multinational companies based in the UK or foreign businesses that have either set up production in Britain or acquired British companies. However, there is no evidence that R&D is a zero-sum game that involves fixed amount of activity in which doing more R&D abroad means less at home. Companies that do more R&D abroad also do more at home, possibly because the innovative activity abroad generates more additional applied development work at home.[18]

Another important question is whether conventional R&D measures in the national accounts represent the scale of innovative activity. The UK's strengths in knowledge-intensive services and creative industries are based on forms of investment that do not show up in GDP statistics as R&D. Nor do design, marketing and training – also British strengths. The 2007 Innovation Survey suggested that business R&D constituted around a third of the £40 billion a year UK business spends on innovation, with 20% being marketing expenditure.[19]

The main argument for retaining an R&D tax credit is that many governments offer R&D tax incentives and that to curtail the UK scheme would cause research-intensive companies to relocate from Britain or to choose other countries for new ventures. A paper prepared for the Mirrlees Commission on reforming the tax system for the 21st century points out that there had been no great demand for a tax credit from industry before its introduction.[20] Once in place, trade associations pushed for its costly extension to large companies – an expensive move because of the dead-weight cost of including existing R&D. Having offered an excessively generous concession, withdrawing it or watering it down could produce a backlash.

Yet the cost of the R&D tax credit is large and its effect is not discernable, so it must be asked whether more could be achieved by spending the money differently. As one policymaker involved in the introduction of the tax credit said, there are many drivers of R&D investment decisions that come before tax efficiency.[21] The US, for example has some of the strongest R&D activity in the world, with one of the least generous systems of tax incentives. Businesses locate there because of the access to the world's leading research and innovation community. Providing greater incentives for UK-based researchers – in universities and elsewhere – to remain in Britain might slow the brain-drain caused by poor pay and unstable career prospects.

And if the tax credit is seen as necessary to offset other UK disadvantages as a business location, it would be better to tackle those other disadvantages. This would not only be attractive to research-intensive companies, but to all businesses. In the larger scale of things, what attracts R&D-focused international businesses to the UK is in the end the UK's excellent record for science and technology research and innovation. Bolstering the science and technology base, strengthening skills, cutting red tape and making the UK tax system competitive on the key international comparison methods should be the priorities.

We therefore recommend phasing out the R&D tax credit for larger businesses. The small firms' tax credit – which costs around £200 million - should be retained: it can play a vital role for entrepreneurs as part of the government incentive package for such innovation. Scrapping the large firms' tax credit is unlikely to be welcomed by industry, but it would release more than £500 million a year to spend on promoting innovation in ways proposed elsewhere in this Research Note and on improving the attractions of the UK as a place to do R&D in the ways discussed above.

Recommendation: The R&D tax credit for larger businesses should be phased out.

Access to Finance

For many decades, there have been complaints from UK innovators and entrepreneurs about the difficulty of raising finance in the early years of a business. This is particularly relevant in technology innovation and advanced manufacturing, where inevitably there is much more risk than in investing in or lending to established businesses with assets as security and a flow of cash to service debt. This has led governments in recent years to intervene to support growing businesses in various ways and to encourage business angels and venture capitalists to invest.

The picture on access to growth finance for entrepreneurial high-tech businesses in the UK is a complex one. Owners of high-tech businesses often speak of the difficulty in raising funds, yet statistics show that the UK has one of the most highly-developed venture capital industries in the world.[22+23] The reality is that there has been a change in the funding patterns of the British venture capital industry. The larger investment houses have shifted out of the early stage financing stage and focused on less risky later-stage management buyouts and private equity deals.[24] The most telling example is 3i, but even renowned early stage investors such as Index and Atlas have turned at least part of their attention to the later stage.

3i: The Drift from Venture Capital to Private Equity

The Industrial and Commercial Finance Corporation (ICFC) was created in 1945 by the Bank of England and the large British banks to provide long-term investment for small and medium-sized enterprises. It became the largest provider of venture capital for unquoted companies in the UK, but in the 1970s began funding larger companies as Finance for Industry.

In 1987, it was renamed Investors in Industry, commonly known as 3i, and was listed on the London Stock Exchange in 1994. Since then it has expanded internationally, financing buyouts, infrastructure investments and private equity transactions. In the last financial year, an organisation created to provide venture capital for British businesses deployed the majority of its funds outside the UK – and with less than 10% of the total in its venture portfolio, no longer invests in new early stage technology.

The flight to later stage is perfectly rational on the part of the investors, as the returns to early stage and high technology deals compared with those to late-stage buyouts show (see Table 1).

Table 1: Returns on UK private equity funds from 1996 onwards[25]

Category	Annual return
Venture capital	***-1.8%***
Small management buy-out (MBO)	6.5%
Mid-sized MBO	14.9%
Large MBO	21.5%
Total	17.2%
Sectors	
Technology	***-0.6%***
Non-technology	17.8%

Yet these returns do not prove that venture capital is a flawed model. The returns on venture investing in the US are positive and reasonably high – 18.1% on all-venture 10-year vintages to end 2007.[26] The dotcom crash may have had a large effect on British performance, since the majority of all historic UK venture capital investment was made during the dotcom bubble – funds that escaped this period are showing reasonable returns.[27] However there are other factors at work in the UK market that contribute to poor returns for investors in early stage ventures and high technology innovation.

One is the shortage of investment managers in the UK with the skills to pick the best investments. In an interview done for this research, an early stage venture capital investor explained that UK venture capital firms are staffed largely by those with experience in investment banking, whereas early-stage technology investing requires a significant technological and entrepreneurial understanding.[28] Another factor behind poor returns could be the size of venture capital funds: there is evidence that UK companies receive smaller venture capital investments than those in the US and Israel, the two leading venture capital markets.[29] Interviews with experts and fund managers suggest that the small amounts available at each funding round in UK early stage venture capital investment cause companies to spend inordinate amounts of time chasing the next round. Larger funds have the firepower to provide the level of investment required for their companies, freeing up managers to develop their product rather than chasing further funds.

Whatever the difficulties in the venture capital stages, one notable success in financing innovation in the UK is that of business angels, individual investors working either alone or as part of a network to invest in innovative early-stage companies. Recent research has shown that in the UK they make a highly creditable average internal rate of return (IRR) of 22%, earning back 2.2 times the original amount invested. This rate of return is not dissimilar to that experienced in the US, where the investee companies have the scale economy advantage of a very large home market.[30]

Angels have become more important as a source of early-stage financing in the UK[31] and have been shown to contribute positively to the businesses in which they invest, especially when they have experience of the sector in which the company operates. But by the standards of the US, there are simply not enough of them, and they are not investing enough. An estimate in 2000 put the number of business angels in the UK at between 4,000 and 6,000, investing up to £1 billion annually. In the US, by comparison, there are approximately 250,000 business angel investors who invested over $26 billion (£18.3 billion) in 2007 - seven to nine times more business angels per capita than the UK, investing three to four times more per capita.[32]

Government interventions in the early stage financing market have had mixed results. Those that have provided a nudge to private investors by reducing the risks of investing at this end of the market, but letting those private investors pick the right investments, have been the most successful. Examples of astute intervention include:

- The Enterprise Investment Scheme (EIS), which allows investors with stakes in a start-up company of less than 30% to write off 20% of the value of it against their income tax bill each year. This has clearly been of benefit, as around a quarter of angel stage investments would not have happened without it.[33]
- Early Growth Funds (EGFs), which provide a maximum of £100,000 for start-ups and growth firms, providing they raise at least as much funding from the private sector from angels. Managed on a commercial basis by fund managers, they have helped finance university spin-outs, innovative businesses and manufacturers needing fresh investment to pursue new opportunities. ECFs can bring together

networks of angels and top up their investments so the angels can invest in bigger projects and bring their skills to bear on them.

- Enterprise Capital Funds (ECFs) which invest a maximum of £2 million in growing companies – with an average of around £1 million a company being the target. The government provides finance to professional fund managers selected by competitive bidding who must raise a minimum percentage of the fund from private venture capital investors or business angels (who can also be involved in the companies invested in).

Government schemes that have been less successful include Regional Venture Capital Funds (RVCFs), run by private sector fund managers in each region, investing up to £250,000 per project. Investment on this scale is generally filled by the private sector in the form of angels who bring their expertise into the businesses. The RVCFs fail to leverage in the funds and expertise of the angels, and may even crowd them out. They also address the wrong problem: it is larger sums that are hard to raise. The cap of £250,000 stops RVCFs investing in some potentially good opportunities or means that some businesses in which they invest do not get sufficient funding.[34]

Another problem with government intervention of the kind exemplified by RVCFs is that it often has confused and even conflicting objectives. Regional development is one such example, where funding is earmarked by region rather than according to the quality of the individual investment opportunities. In these circumstances, fund managers have been under pressure to "spend the money" and have thus invested in companies that do not necessarily fit under the target description of early stage and innovative. Policies to facilitate and encourage R&D need to be clear in their objectives, focused on changing the calculation for private investors, not other policy goals better addressed by separate regional or social policy initiatives.

In the recommendations that follow, we aim to develop further the models that allow the market to pick those opportunities in which it wants to invest and encourage private sector investment by using taxpayer-supported funds to change the risk-reward ratio. There may be a role for government intervention here, because private investors cannot always capture the social returns from investments in early stage technology whose benefits may accrue to the area or the sector.

First, the gap in raising finance for innovation is at the business birth stage when venture capital is reluctant to become involved. Indeed, UK policymakers may be guilty of overplaying the significance of this type of investment as a factor in the success of US high technology sector.[35] Second, given the important role now played by business angels, further measures are needed to increase the supply of capital they provide. We therefore recommend:

- An extension of the Enterprise Investment Scheme (EIS) so that it provides tax relief on preference shares. These are less risky than equity for angels, who can later sell them on to venture capitalists when they become interested – preference shares are financial instruments they themselves use.
- Reform of the Enterprise Management Incentive (EMI), which currently allows tax relief for angels – but only if they work more than 26 hours per week in an investee company. Research shows that interaction by an angel with relevant industrial experience improves significantly the chances of success of that company, so long as the angel does not become an executive but acts as a board member – which is likely to be much less than 26 hours a week.[36] We therefore recommend that the 26-hour threshold to qualify for EMI tax relief is removed.

- Further financial support of the Early Growth Funds, which have proved effective at using public funds to leverage private capital and angel expertise into start-ups and growing businesses.

The UK venture capital market, in terms of investments in early stage companies, is actually still relatively immature compared with that of the US. Experienced early stage technology investors are few and far between. The more investment opportunities a manager appraises, the better his skills at evaluating them.[37] This is particularly true in early-stage technology investing, which is characterised by high levels of uncertainty and imperfect information. Higher levels of fund manager competence should in time lead to better selection of investments, leading directly to more capital becoming available for good ideas and also to better returns, which will further lead to more capital being allocated to the asset class.

However, with the dotcom bust and the credit crunch making investors hostile to early-stage technology investments, there is a danger of a lost decade for venture capital investment. Two proposals have recently emerged to increase the supply of capital. One is the British Venture Capital Association's £1 billion fund-of-funds initiative – a public sector fund that would invest in existing private sector venture capital funds to boost their funds and enable them to make larger investments.[38] The other proposal from the EEF is for a new Bank for Industry capable of financing medium to long-term industrial investments and providing venture capital.[39]

Given current funding constraints, we believe it is unlikely to be possible to implement both proposals at the same time, so we recommend achieving the objectives of the two schemes by strengthening the role of Enterprise Capital Funds (ECFs). Like other successful public sector interventions, they use government finance to draw in private capital and angel expertise, spreading risk and creating the larger funds needed for successful venture capital investing. We therefore recommend:

- Any increase in public sector venture capital funding be directed to ECFs to minimise the administration costs of setting up yet another new scheme.
- Other publicly funded venture capital style institutions such as RVCFs be pooled into the ECF scheme.
- Funds with ECF status be given the freedom to make investments in the form of preference shares, convertible loans and subordinated or mezzanine debt – recognising the value of non-equity instruments, as the EEF's Bank for Industry does.
- The investment limit for an individual investment be raised to £10 million, in recognition of where the funding gap actually lies.

Recommendations: The Enterprise Investment Scheme (EIS) should be extended so that it provides tax relief on preference shares.

The 26-hour threshold to qualify for Enterprise Management Incentive (EMI) tax relief should be removed.

Further financial support should be provided to the Early Growth Funds (EGF), which have proved effective at using public funds to leverage private capital and expertise into start-ups and growing businesses.

Any increase in venture capital funding should be directed to Enterprise Capital Funds (ECF), with other publicly funded venture capital institutions such as RVCFs pooled into the scheme. ECFs should be given the freedom to make investments in the form of preference shares, convertible loans and subordinated or mezzanine debt. The investment limit for an individual investment should be increased to £10 million.

Public Procurement

The UK government spends more than £150 billion a year buying goods and services,[40] including 55% of all information technology products and services.[41] It could therefore play a vital role in stimulating innovation and promoting R&D in purchasing goods and services, to the benefit of both users of public services and British industry. Yet it currently does not play this role effectively.

This problem was recognised in a 2007 report by Lord Sainsbury, which noted that despite attempts to improve procurement practices in Whitehall, government departments were "failing to meet the challenge".[42] New proposals were put forward by the Department for Innovation, Universities and Skills in a 2008 White Paper[43] which promised a series of strategies, initiatives and pilot studies to improve government procurement with Whitehall departments instructed to produce innovation procurement plans, which are now appearing. But perhaps the most important step forward after the Sainsbury report was a second relaunch for the UK's Small Business Research Initiative (SBRI), an attempt to mimic the successful Small Business Innovation Research (SBIR) programme in the USA.[44]

In the US the SBIR programme mandates federal government departments to allocate 2.5% of their external R&D budgets to US-owned small businesses for innovative procurement. Most significantly exceed this target, and many states have adopted similar policies. The purchases made are contracts for the development of solutions to problems, allowing the department or agency to find innovative solutions it had not conceived of itself. First round financing is typically $100,000, so the scheme can involve financing more than one solution to any problem through the exploratory development phase before picking the best solution to fund through scalable production.

Each year, the SBIR programme makes over 4,000 awards to small businesses totalling over $2 billion in value. The winners are often "soft" companies based around talented innovators or new technologies which have yet to be converted into standard products. Total funding averages around $850,000 per project, enough to allow innovators to develop their solutions as well as being attractive to smaller existing companies. As they carry out the R&D contracts, they hone their technical skills and develop technologies that can go on to form the backbone of a continuing business and generate more R&D. It has helped thousands of academics become entrepreneurs and created more than 300 publicly listed companies, including the likes of Qualcomm, Amgen, Symantec and Genzyme - creating five times as many jobs as companies financed by alternative sources.

Soft companies have emerged in the UK despite the absence of such government contracts, by courting the corporate R&D sector. In the successful Cambridge Silicon Fen cluster, Cambridge Consultants has spun out several companies including Cambridge Silicon Radio, one of the most successful technology start-ups in the UK which is now a listed company and a world leader in Bluetooth technology. The Technology Partnership has spun out eight companies, including TTP Labtech which has generated 1,000 jobs from an initial investment of just £2 million.[45]

The history of the UK SBRI programme is a parable of good intentions failing upon the stony ground of the public sector. First launched by Lord Sainsbury in 2001, it was entirely voluntary, resulting in a total of only £2 million being spent and virtually no departments taking it up. From 2005, departments were set a target of spending 2.5% of their external R&D budgets through the SBRI, but with no real process in place, little progress

was made. Junior procurement officials were appointed as departmental coordinators of the scheme and often simply rebadged existing R&D programmes to fit into it.[46]

After the 2007 Sainsbury report, the scheme began to get a little more traction under the aegis of the Technology Strategy Board and some pilot schemes are beginning to demonstrate its potential. For example, the Department of Health tendered for R&D to find a solution to the spread of hospital-acquired infections and was presented with a surprising range of products, including Radio Frequency Identification (RFID) technology that warns a doctor when he/she is about to enter an infected area. Traditional procurement is more likely to have sought bids to supply, for example, anti-bacterial handwash.[47]

The fact that British healthcare is dominated by public sector buyers should mean that the scheme could achieve even greater results than the US version where healthcare is largely privately provided. However, the slow evolution of the SBRI scheme by government departments demonstrates what Richard Lambert, in a Treasury report he wrote before becoming Director-General of the CBI, referred to as "a risk-averse, non-innovative approach to purchasing in the UK, particularly by the government".[48] A 2009 report into the UK civil service confirmed that Whitehall culture remains risk-averse, favouring defined ways of working and seemingly unable to incorporate ideas outside the accepted mould.[49]

To further strengthen the SBRI, we recommend setting a target for Whitehall to spend at least £250 million a year of its external R&D budget through the SBRI scheme – this would be equivalent to what the US spends on its SBIR programme after adjusting for the different sizes of the two economies. Individual departments should each be set their own targets to achieve this total, since some will not have much scope to procure viable contracts, while others such as Defence and Health could make a bigger contribution.

This target should be phased in over three years, however, to allow experience to develop and to avoid wasteful target-driven procurement. In the short term, we recommend providing a minimum of £100 million of new funding for the SBRI which it could use to match partly or wholly what departments spend through the scheme. This would provide an incentive for departments to do more than simply re-label existing procurement programmes and encourage them to use the scheme to make their budgets go further. This additional funding should be drawn from some of the savings generated by phasing out the R&D tax credit for large companies as previously advocated.

Such a financial incentive should help overcome resistance to new methods of R&D procurement, but we also recommend one further change in Whitehall to provide added impetus. A senior business executive should be appointed to ensure that the programme is driven through – ministers in business departments are moved too frequently. A good precedent is provided by Sir William Sargent who chaired the Better Regulation Executive (BRE) at part-time permanent secretary level and effectively drove its programmes forward.

Recommendations: Government should set a target, phased in over 3 years for Whitehall to spend at least £250 million a year of its external R&D budget through the Small Business Research Initiative (SBRI) scheme. In the short term, a minimum of £100 million of new funding should be provided for the SBRI which it could use to match partly or wholly what departments spend through the scheme.

Due to the frequent changes of Ministers in Business Departments, a senior business executive should be appointed to ensure the programme is driven through.

Regulation

The burden of regulation is a perennial gripe for businesses operating in the UK, and one that the government has made repeated ineffective attempts to deal with. Manufacturers are particularly hard hit by red tape, which not only affects their employment policies but also their business processes and the use to which their products are put after sale. Unlike most service industries, manufacturing has a very visible presence in the areas where it is located that make it a target for regulatory intervention by officials who fail to recognise the sector's importance to the economy.

Successive deregulation drives to reduce the stock of red tape have proved ineffective. The flow of red tape continues apace, fuelled by European Union legislation (sometimes gold-plated when implemented in Britain) and latterly in response to the economic crisis. Since 2005 the BRE has been coordinating centrally a government programme to challenge proposals for new legislation and reduce the burden of compliance. But the BRE's proposal to introduce "regulatory budgeting" for departments – restricting the growth of red tape – was vetoed shortly before the 2009 Budget by Lord Mandelson. To the dismay of business leaders, he said: *"Given the economic situation, it is important that Government focus on delivering real help for business now. Following the consultation launched last year, the Government have therefore decided not to implement a system of regulatory budgets at this stage. Rather we will undertake a programme of better regulation measures tailored to the present exceptional economic circumstances."*[50]

When challenged about the failure to deal with red tape, ministers are wont to cite the World Bank's judgment[51] that the UK is the sixth easiest country in which to do business. However, looking at the individual indicators, it becomes clear that the UK's high ranking is a result of the sophistication of its financial markets rather than an appropriate regulatory environment. While it ranks second for ease of getting credit, eighth for starting a business, ninth for protecting investors and ninth for closing a business, it shows relatively weak performance in those areas affected by regulation: 28th for ease of employing workers (down from 22nd in 2008), 22nd for ease of registering property and 61st for ease of dealing with construction permits. Indeed, between 2008 and 2009 it fell in the rankings on 5 indicators and rose on just one.

The UK has a substantial lead over other European countries in certain aspects of the regulatory environment – Germany for example is ranked 163rd in terms of ease of employing workers. But it is particularly important for the UK to have the most competitive regulatory environment given its other disadvantages as a European industrial centre. One is the still persistent productivity gap, with Britain still lagging behind France and Germany in output per hour worked and per active worker.[52] Another is the UK's position on the periphery of Europe, dependent on often poor transport links for access to the European market. To persuade manufacturers to choose the UK means offering substantial incentives to offset the attractions of more centrally located countries - and excessive red tape will not contribute to that.

Finally, even if it is accepted that the UK has some regulatory advantage over other European countries, the burden of red tape is clearly weakening its lead. Britain has fallen from fourth to 12th over 10 years in the World Economic Forum's Global Competitiveness Rankings.[53] The British Chambers of Commerce (BCC), meanwhile, estimates that new regulations introduced since 1998 have cost £76.8 billion[54], or a massive 5.3% of GDP.

The most successful attempt to deal with the UK burden has been the BRE's recent programme to reduce the administrative costs imposed on business in dealing with regulation. Launched in 2007, it set a target of reducing this burden by 25% by 2010 and, although claimed savings are difficult to verify, the National Audit Office's last report on progress said the programme was on track to deliver the target savings.[55]

Yet the administrative burdens programme does not focus on the policy costs of regulation – such as its tendency to deter new entrants and innovation that could benefit customers, businesses, workers and investors; it deals only with the narrow bureaucratic costs of proving compliance with the regulation. For example, the European Union agency workers' directive requiring employers to pay agency workers the same as directly employed staff will reduce the flexibility of the labour market and impose a policy cost on business of at least £1.5 billion.[56] The administrative burden of this regulation would be the cost of filling in any forms on weekly payroll to submit to inspectors or regulators to prove that the law has been observed – a small proportion of the overall cost.

Estimates vary, but it is clear that administrative burdens do not represent the majority of the cost of regulation to business. The National Audit Office (NAO) recognised this when it first assessed the implementation of the administrative burdens reduction programme.[57] Separate estimates by Sir David Arculus, the former chairman of the government's Better Regulation TaskForce,[58] and Tim Ambler, Francis Chittenden and Asif Bashir[59] put the total cost of regulation that can be attributed purely to administrative burdens at approximately one-third of the total. Reducing the administrative burden by 25% thus means a cut in the total cost of barely one-twelfth.

Interviews with business leaders showed that they had welcomed the progress made by the BRE under the leadership of Sir William Sargent, who was part-time chairman while continuing to run the successful media business he created. With powerful backing from Tony Blair when he was still Prime Minister and Gordon Brown in the Treasury, Whitehall had been galvanised into action. But there has been some disillusion with the results, especially the claims for cash savings from measures that are hard to quantify, such as introducing a simple model employment contract - estimated as saving £400 million but never quantified.

One business leader acknowledged that attempts to repeal old regulations had not been able to solicit many suggestions from business about candidates for the red tape scrap-yard. Most businesses had adapted to the stock of existing legislation, and what most concerned business was the flow of new regulation, he said – and there had been no let-up in that flow. All the manufacturers we spoke to echoed this, saying that the greatest concern was the continuing growth in employment legislation which had the greatest impact on industry. While many of the new employment rights appear desirable in general terms, they impose costs on business that may lead to a reduction in activity that imposes still greater costs on the country and its people.

A growing concern was the threat of a swathe of legislation to meet arbitrary targets for reducing carbon emissions. Business is largely behind measures to combat climate change, and sees significant opportunities for new technologies and products to reduce greenhouse gases. But regulations must recognise that it takes time for manufacturers to move towards a low carbon economy – and that excessive speed would simply drive big carbon emitters offshore to less responsible countries.

A new framework is needed that will allow the consequences of new regulations to be better evaluated, provide greater opportunities for industry to respond to proposals for new regulation and put stronger constraints on Whitehall departments to avoid constantly adding to the regulatory burden.

At present, the main method of assessing the cost of new regulations is the Regulatory Impact Assessment (RIA), introduced just over 10 years ago as part of a previous campaign to improve the quality of regulation. The main result of their introduction appears to have been to highlight their failure to apply the brakes. A recent report analysed more than 2,000 RIAs and found that the cost of regulation was continuing to rise – from £16.5 billion in 2005 when the latest reforms were launched, to £28.7 billion in 2008.[60]

National Audit Office (NAO) reviews of RIAs have found they are drawn up late in the process and are not used extensively by parliamentary committees in discussing proposals.[61] The 2007 NAO review found that the "do nothing" option was not even considered in 18 out of 19 cases and that alternative options were considered in only a minority of cases. Although the quality of impact assessments has improved slightly since the introduction in 2007 of a new standard format, the NAO reports a persistent variation in the quality of the analysis. In 2007, a report from the Small Business Council highlighted two regulations – the *Employment Equality (Age) Regulations 2006* and the 2005 regulations implementing the Licensing Act 2003 – in which the RIAs had seriously underestimated both the level and recurrence of the cost to business.[62]

Business, meanwhile, is given its opportunity to participate in the regulatory process through the 12-week public consultation period mandated by the BRE's code of practice. The results of this requirement have been seen by the NAO in its reports on RIAs as a step forward, and each department now has staff dedicated to better regulation. However, all too often, this change has been one from "regulate first, ask questions later," to "decide to regulate, consult to tick the BRE box, then go ahead and regulate." The better regulation departmental staff often see their role as persuading business that regulations are not bad for them, rather than providing an internal challenge function representing the views of business to the regulators.

A better approach would be to involve business from the earliest stages of the regulatory process in a manner analogous to that recommended for procurement of innovation through the Small Business Research Initiative, discussed in the previous section. Rather than prescribing regulatory solutions, we recommend that departments should invite business and other stakeholders to submit proposals for dealing with the problems that regulation is designed to tackle. Organisations representing a wide range of businesses should be asked to work with government departments in producing impact assessments on each of the separate proposed ways of dealing with a problem – ensuring that the need for new regulation is challenged at the earliest stages. The result would be RIAs better informed on the consequences as well as level of costs of regulation – and better feedback from businesses once they have become involved in the process.

Finally, the incentives for looking for alternatives to regulation and for eliminating redundant regulations need to be improved. We recommend the proposals to introduce regulatory budgeting,[63] drawn up by the BRE and recently abandoned by Lord Mandelson, should be re-introduced as a matter of urgency. Under the proposals, Whitehall departments would be allocated a budget for how much they were allowed to cost the economy in regulation. If they wanted to add more than their budget allowed, they would have to cut regulatory costs elsewhere. Over the initial years of regulatory budgeting, the total Whitehall allocation should be subject to annual reduction targets, in the same way that privatised utilities were required to cut consumer costs year by

year. The performance pay of senior departmental civil servants should be tied to success in meeting regulatory budget targets.

We are of course aware that, when proposing policies to improve the regulatory environment in the UK, the European Union cannot be ignored. The BCC estimates that the EU has accounted for 69.4% of the regulatory cost imposed on the UK economy over the last decade. Furthermore, the embedding of impact assessments is even less developed in the EU than in the UK.[64] The European Commission, too, has set itself a target of reducing the cost of administrative burdens of regulation by 25%. In many cases, it takes this target more seriously than some UK government departments, but similar processes to ensure a much stronger role for business should be introduced to ensure that regulation does not remain the default and uncosted option in Brussels.

Recommendations: Businesses should be involved from the earliest stages of the regulatory process. Government departments should invite business and other stakeholders to submit proposals for dealing with the problems that regulation is designed to tackle. Organisations representing a wide range of businesses should be asked to work with government departments in producing impact assessments on each of the separate proposed ways of dealing with a problem – ensuring that the need for new regulation is challenged at the earliest stages.

Proposals to introduce regulatory budgeting should be re-introduced immediately, with targets to reduce the overall burden annually.

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This Research Note is the first in a series of reports on innovation and industry. Future work will cover the role of higher education and the science and technology skills base in achieving the objective of an industrial sector flourishing through its leadership in high technology and advanced manufacturing and the future of manufacturing in the UK.

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