

Designs for Innovation

A consultative note



HM TREASURY



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FOREWORD

Encouraging innovation is a vital component of the Government's strategy for improving the UK's productivity performance and competitiveness. However, the Government can only deliver this strategy effectively through working in partnership with business. The Government can help by creating a business environment and framework that are internationally competitive, giving businesses the platform from which to innovate. But it is businesses that must rise to the challenge of making the most of these opportunities.


The Government has taken steps to boost innovation and encourage research and development, which are important catalysts for future success and growth. Building on the existing R&D tax credit for small and medium-sized enterprises, the Government announced in Budget 2001 that it was considering a complementary R&D tax credit for larger companies. Details of the proposals were set out in the consultation document "Increasing Innovation".

We have been very pleased by the positive engagement of business and by the response to the consultation, which was overwhelmingly in favour of a new credit. In confirming our commitment to providing this boost to UK innovation, the Pre-Budget Report signalled the Government's intention to take forward a version of a volume-based credit, which was the design favoured in the responses.

We believe that the best way of increasing innovation and R&D is to work in partnership with business to design a tax credit that delivers the greatest incentive for new R&D. That is why we are pleased to publish this note, which seeks the views of business and other interested parties on three variations of a volume scheme suggested by respondents to the previous consultation. The views received will inform the Government's policy on the final design of the tax credit and so we look forward to a broad response to this consultation.



The Rt. Hon. Gordon Brown MP
Chancellor of the Exchequer



The Rt. Hon. Patricia Hewitt MP
Secretary of State for Trade and Industry

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INTRODUCTION

1.1 Research and development (R&D) is an important driver of productivity growth, acting to open up new markets and new opportunities for companies. Furthermore, the benefits of R&D spread across the economy as knowledge spills over from the companies undertaking it to the rest of the country. Evidence from other countries suggests that high levels of R&D have been crucial factors in maintaining high and stable growth rates.

1.2 The Government believes that the R&D tax credit for large companies will play an important role in boosting business R&D expenditure. A tax credit has been chosen because it provides companies with an incentive to increase R&D spending, while leaving the decisions on individual projects in their own hands. International evidence suggests that R&D tax credits can be effective at increasing levels of business R&D expenditure¹. Therefore, the Government intends to introduce such a credit in the 2002 Finance Bill.

1.3 In the consultative document “Increasing Innovation”, published in March 2001, we set out two initial approaches for an R&D tax credit:

- an incremental scheme – based on a company’s additional R&D activity; and
- a volume scheme – based on a company’s total R&D activity.

1.4 There was widespread support for extending R&D tax credits to larger companies. The responses to the consultation, summarised in section 2 and detailed in Annex A, strongly supported a volume scheme. **In light of this, the Government has decided to adopt a version of a volume based tax credit.**

1.5 This document presents three volume based options. The Government believes that the most effective way to increase innovation is to work in partnership with business. It is seeking the views of business and interested parties as to which option is likely to be the most effective in increasing innovation. The deadline for comments in response to this consultative note is 18 January 2002.

¹ Bloom, Griffith and Van Reenen (2001), “Do R&D Tax Credits Work? Evidence from a Panel of Countries 1979-97”, IFS Working Paper and forthcoming Journal of Public Economics.

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RESPONSES TO INCREASING INNOVATION

2.1 There was widespread support for extending R&D tax credits to larger companies. Almost all respondents indicated they were strongly in favour of an R&D tax credit.

AN INCREMENTAL TAX CREDIT

2.2 The incremental option set out in the consultation document was seen as less attractive than a volume based scheme. The principal concerns centered around the fears that:

- it is too complex, especially the group rules, the rolling base and the debit bank;
- the amount of relief depends upon the total annual increase, so it is difficult to predict the extent of tax relief at the time that investment decisions are made; and
- it does not reward companies that maintain high but relatively stable levels of R&D.

A VOLUME TAX CREDIT

2.3 In contrast, respondents were attracted to a volume based scheme because:

- it is simple and predictable. Respondents thought this would make a volume credit more effective in providing an incentive to increase R&D;
- it would be fairer to companies with a long record of sustained R&D effort; and
- it would fit better with the existing SME scheme, helping to smooth the transition for growing companies.

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MECHANISMS TO DELIVER THE LARGE COMPANY R&D TAX CREDIT

3.1 As a result of this consultation the Government has rejected the incremental approach and decided to focus on three volume based schemes.

- option 1: **A simple volume scheme** in which the R&D tax credit is given on all qualifying R&D expenditure. This is similar to the existing SME scheme;
- option 2: **A two-tiered volume scheme** in which tax relief is set at a higher rate on R&D expenditure up to a threshold, say £100m, and a lower rate on additional R&D expenditure above this level; and
- option 3: **A baseline volume scheme** in which the credit has a group specific baseline, for example 50% of its R&D expenditure in 2000, above which a simple volume credit is paid on R&D expenditure. No credit would be paid on R&D below the baseline.

3.2 The Government believes these mechanisms are likely to represent the most effective methods of delivery, addressing concerns raised by respondents to the consultation. To facilitate discussion this document summarises the relative advantages and disadvantages of each scheme.

3.3 In addition, Box 1 describes the operation and costings for these three schemes for four example companies. For the purposes of this example we have demonstrated the operation of each scheme per £100m of Exchequer expenditure.

3.4 To provide an international comparison, Box 2 describes the system of R&D tax credits in the other G7 countries. This focuses on the two important dimensions of any R&D tax credit – the simplicity and certainty of the scheme, and the effective marginal subsidy.

3.5 As a result of the initial consultation the Government has also decided upon some **common features** that will be adopted by any of these three schemes:

- the definition of R&D will be the same as that for the SME R&D tax credit, as set out in guidelines issued by the Secretary of State for Trade and Industry²;

² Broadly, to qualify activities must be creative or innovative work in the fields of science or technology undertaken with a view to the extension of knowledge. For further details see the DTI's guide on http://www.dti.gov.uk/support/taxcredit_b.htm.

- unlike the SME R&D tax credit, ownership of the intellectual property arising from the R&D will not be required;
- the credit will operate as a super-deduction against taxable profits. All credit rates refer to this rate of super deduction;
- the government is considering how it can ensure that it rewards companies for the R&D they carry on themselves. For example, within groups a company subcontracted to undertake R&D would be rewarded rather than the company financing the R&D; and
- an exception to the above will be made for R&D carried on in collaboration with universities, scientific research organisations or charities, recognising the important benefits that derive from collaborative research.

ADDRESS FOR RESPONSES

Please send responses by the 18 January 2002 to:

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THE OPERATION OF THE THREE VOLUME CREDIT SCHEMES

4.1 To facilitate consultation we have laid out below what we perceive to be the relative advantages and disadvantages of each scheme. We welcome comments on these or any additional points.

OPTION 1: A SIMPLE VOLUME SCHEME

4.2 A simple volume scheme rewards all R&D within each year using an R&D super-deduction. A super-deduction allows companies to deduct more than 100% of their R&D expenditure from taxable profits.

4.3 The simple volume scheme has two main **advantages**:

- the simple volume scheme is the most transparent and predictable of the three options. Companies will be able to predict with certainty how much additional tax relief they will get as a result of each new R&D investment. The response from consultation suggests that this element of predictability is important for the success of any R&D tax credit. Evidence from the US supports this view; and
- this is also the simplest of the three schemes to operate, reducing compliance costs for companies.

4.4 However, the two principal **disadvantages** are:

- this scheme offers a lower headline rate of credit than the baseline scheme and a lower rate of credit than the two-tier scheme for companies below the threshold; and
- much of the relief rewards existing R&D rather than new R&D.

OPTION 2: A TWO-TIERED VOLUME SCHEME

4.5 A two-tiered scheme provides a higher rate of volume credit on R&D expenditure below a threshold, say £100m, and a lower rate on spending above this. Compared to the simple volume scheme, a two-tiered approach based on a £100m threshold can offer a rate of relief that is about 50% higher for the first £100 million of R&D and about 50% lower thereafter.

4.6 The two-tiered scheme has one main **advantage**:

- it offers a better rate of R&D subsidy for the majority of companies that spend less than £100 million a year on R&D. This will provide support to medium and smaller qualifying companies who may face greater constraints when investing in R&D.

However, the two-tiered system has two main **disadvantages**:

- the two-tiered scheme is more complex. In particular, it requires the relief to operate at the group level. The implications of a group basis computation were set out in detail in the consultation document “Increasing Innovation”. Operating this scheme alongside an approach which grants the credit to the company that undertakes the R&D, rather than the one that finances it, is likely to introduce further complexity; and
- companies above the £100m upper tier will receive the lower rate of relief at the margin, but receive the higher rate for their first £100m of R&D. For these companies, the two-tier scheme is a less efficient way of providing a marginal incentive. Furthermore, much of the relief rewards existing R&D rather than new R&D.

OPTION 3: A BASELINE VOLUME SCHEME

4.7 Under this option, which has recently been put to us by a business representative, a baseline level of R&D expenditure is determined by reference to the previous R&D expenditure levels of the specific company. The company would then be eligible for an R&D tax credit on all expenditure above this baseline. One example, which has been evaluated in Box 1, would assign a baseline of 50% of a company’s R&D expenditure in its accounting period ending in the year 2000. A credit is then paid on all R&D expenditure above this base, which would be at least 50% higher³ than the simple volume credit rate. In this example the base is set at 50% of 2000 R&D for all companies, but this could be tapered so that large R&D spenders face a higher baseline percentage.

4.8 This baseline scheme has two main **advantages**:

- it delivers the highest marginal rate of subsidy on additional R&D. Marginal rates of subsidy play an important role alongside average rates of subsidy in encouraging companies to increase their level of R&D expenditure; and

³ The extent to which the rate is enhanced depends upon the extent to which the baseline is increased with time, as well as its initial level. If the baseline is set at 50% and linked to an index, such as nominal GDP or company level sales, the rate of relief could be higher.

- the rate of relief will be predictable so long as companies' R&D expenditure is not close to their baseline and a baseline update is not anticipated.

4.9 However, the baseline scheme has two main **disadvantages**:

- it is the most complex scheme. Like option 2, it requires a group basis of computation, requiring all of the special group rules that were set out in the "Increasing Innovation" consultation document. Operating this scheme alongside an approach which grants the credit to the company that undertakes the R&D, rather than the one that finances it, is likely to introduce further complexity. Additional rules would also be required: to determine the initial baseline; to index the R&D base; and to define an emergency base for new companies or those involved in mergers or disposals; and
- this option would require some mechanism for updating the baseline. A pre-announced update may create incentives for companies to reduce their R&D in the new baseline year. An alternative would be infrequent unannounced updates.

5

COMPLIANCE ASSESSMENT

5.1 The publication of the final design of the scheme will be accompanied by a detailed Regulatory Impact Assessment. The Government is seeking views on the preliminary assessment of the compliance costs of each scheme summarised below.

5.2 We would particularly welcome views concerning the impact of the potential compliance costs on the take up of each scheme.

SIMPLE VOLUME SCHEME

5.3 Under this scheme, companies calculate their tax relief as a fixed proportion of their own R&D expenditure without reference to other group companies. This is a simple calculation, and it is unlikely that the administrative costs will be high either in absolute terms or in relation to the value of the relief.

TWO-TIERED VOLUME SCHEME

5.4 This scheme will require group rules. A company's tax relief will depend not only on its own R&D but on the R&D of other group members. The definition of "group" – which was discussed in "Increasing Innovation" - will be more complex than is commonly used for other tax purposes. The Government is considering how it can ensure that the scheme rewards the company undertaking the R&D, rather than the company financing the R&D. This will be difficult to reconcile with the group basis of computation.

BASELINE VOLUME SCHEME

5.5 This scheme also requires the full set of group rules discussed under the two-tiered volume scheme above.

5.6 This scheme is the most complex of the three, as in addition further rules are required: to determine the initial company specific fixed baseline; to index the R&D base; to update periodically the R&D base; and to define an emergency base for new companies or those involved in mergers or disposals.

6

SUMMARY

6.1 Evidence from other countries suggests that R&D plays an important role in increasing productivity and growth. R&D tax credits offer a market driven mechanism for increasing the level of business expenditure on R&D. The Government intends to introduce an R&D tax credit for large companies in Finance Bill 2002.

6.2 As a result of the responses to “Increasing Innovation”, the consultative document issued in March 2001, the Government has decided to introduce a version of a volume credit rather than an incremental credit. This consultation indicated that volume credits were preferred by companies because they are simple, certain and effective.

6.3 The Government has concentrated on three volume options:

- a simple volume credit;
- a two-tiered volume credit; and
- a baseline volume credit.

6.4 Views are sought from businesses and interested parties on the relative advantages and disadvantages of each option. We also welcome views on the potential compliance costs of each option.

6.5 This document outlines the Government’s view on the comparative advantages and disadvantages of each option:

- the simple volume credit has the advantage of being simple, certain, and transparent, but has a lower marginal rate.
- the two-tiered volume credit targets companies with lower R&D investment, but is likely to be less effective at increasing overall R&D. It is also more complex to administer and could involve greater compliance costs.
- the baseline volume credit has a higher headline rate but is more complex to administer and could involve greater compliance costs.

Box 1: Operation of the Three Schemes for Four Example Companies

Company 1: Large Growing Company. In 2003 spends £1 billion on UK R&D, up from £700 million, £800 million and £900 million in 2000, 2001 and 2002 respectively.

Company 2. Large Declining Company. In 2003 spends £400 million on R&D, down from £1 billion, £800 million, and £600 million in 2000, 2001 and 2002 respectively.

Company 3: Medium Sized Growing Company. In 2003 spends £120 million on UK R&D, up from £50 million, £60 million and £90 million in 2000, 2001 and 2002 respectively.

Company 4. Small Rapidly Growing Company. In 2003 spends £2 million on R&D, up from £0.1 million, £0.2 million and £0.4 million in 2000, 2001 and 2002 respectively. Until 2002 this company was receiving the SME tax credit.

One way of examining the three different options is to compare the total amount of credit the four example companies would receive in 2003 under each option (see Table 1). Another approach is to examine the incremental credit each company would receive on every additional £100 it spends on R&D (see Table 2). This provides an indicator of the incentives companies have to increase their R&D expenditure.

Table 1. Total tax credit value per £100m exchequer cost

	Simple Volume	Two-tiered Volume	Baseline Volume
Company 1	£10.50m	£5.55m	£10.73m
Company 2	£4.20m	£2.85m	£0.00m
Company 3	£1.26m	£1.59m	£1.57m
Company 4	£0.02m	£0.03m	£0.03m

Table 2. Incremental tax credit value per £100m exchequer cost

	Simple Volume	Two-tiered Volume	Baseline Volume
Company 1	£1.05	£0.45	£1.65
Company 2	£1.05	£0.45	£0.00
Company 3	£1.05	£1.50	£1.65
Company 4	£1.05	£1.50	£1.65

Box 2: R&D Tax Credits for Large Companies in the Other G7 Countries

Among the other G7 countries there is a range of R&D tax credit systems which vary in their operation and generosity

Canada has a simple volume credit which provides both a high level of marginal subsidy and also a high level of average subsidy.

France, Japan and the US have incremental systems which have high levels of marginal subsidy, but lower levels of average subsidy because only incremental R&D is eligible. These incremental systems are also more complex and uncertain than simple volume schemes.

Germany and Italy have no national R&D tax credits for large companies but do have either some regional incentives or measures for small companies.

Country	Simplicity & Certainty	Effective Marginal Subsidy ¹	Notes
Canada	Good simple volume	12%	Simple volume credit with 20% headline rate. The credit is effectively subject to corporation tax.
France	Mixed capped inflation indexed rolling base	0% to 3.5%	Incremental two year real rolling base with 50% headline rate. There is a FF40m cap, providing no marginal incentive for medium or large companies spending more than this.
Germany	N/A	0%	Some regional measures but no national credit.
Italy	N/A	0%	Tax credit for small and medium sized enterprises only.
Japan	Mixed maximum base	0% to 1.8%	The base is the previous highest level of R&D expenditure. The credit is also limited to 10% of corporate tax.
US	Mixed sales indexed rolling base	0% to 13%	Incremental credit, set at 20% but effectively subject to corporation tax. The base is set on 1984 to 1988 R&D levels, indexed by reference to average sales for the 4 years preceding the credit year. Companies which have fallen outside the system may apply to use the alternative incremental research credit, which has rates from 2.65% to 3.75%.

¹ A marginal subsidy measures the percentage reduction in cost for one extra £1 of R&D spending by companies. This is a measure of the incentives for companies to undertake additional R&D spending.

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ANNEX A: COMMENTARY ON CONSULTATION RESPONSES

VOLUME OR INCREMENTAL

A .1 The response was overwhelmingly against an incremental credit, and in favour of a volume based one. A number of strong arguments were advanced to support a volume based credit. An incremental credit was thought to be complex because of the need for the credit to be given at the group level, the debit bank, the rolling base, and the need to compute relief for one year at a time when the R&D spend for previous years is unlikely to have been agreed. A number of respondents also argued this would make an incremental credit uncertain.

A .2 While acknowledging the complexities of an incremental system some saw advantages in its more targeted approach and felt that a volume based system would not be worthwhile if the tax credit was spread too thinly. A proposed solution to this was the use of thresholds to make sure that most of the money available was not swallowed up by the existing big spenders.

A .3 The alternative proposals on which we are now consulting may be able to address these concerns while keeping, as far as possible, the advantages of a volume based credit.

R&D DEFINITION

A .4 A number of respondents felt that the new definition was too narrow. It was suggested that the definition of R&D should be widened to include:

- a greater element of product development;
- market research; and
- advances in manufacturing technology.

A .5 We recognise that there are concerns with the new R&D definition, which is based on accounting policy and the internationally accepted Frascati manual. DTI and HM Treasury will continue to keep the new definition of R&D under review.

ELIGIBILITY

A .6 We asked whether the new relief should be restricted to companies. Of those who commented, half thought it appropriate to restrict relief to companies. The rest thought it should either be available to any business regardless of its legal form, or to any unincorporated body within the charge to corporation tax.

A .7 There is no evidence that unincorporated bodies or self employed persons undertake significant R&D. Therefore we believe the credit should remain restricted to companies.

QUALIFYING EXPENDITURE

A .8 We also asked whether we should adopt a credit similar to the Netherlands R&D tax incentive scheme, which offers relief calculated with reference purely to the tax paid in respect of R&D employees in the Netherlands. There was no support for this suggestion.

A .9 We do not intend to follow the approach used in the Netherlands of linking the credit to labour costs.

DOUBLE CREDIT

A .10 We asked how to address the situation where a group receives both the new UK large company tax credit and an R&D tax incentive from another tax authority for the same expenditure. Of those who commented, a large majority thought the UK should not be concerned about treatment in other jurisdictions. A few suggested relief should be restricted to R&D in the UK, removing any problem.

A .11 Most other countries which operate R&D tax credits only give them for activity that takes place within their borders. So the majority of “double dipping” would comprise foreign activity, already eligible for a foreign R&D tax credit, to which the UK would then be adding a further credit.

A .12 We think that this would represent poor value for the UK, and are inclined to deny relief where a company receives a similar foreign tax credit.

SUB-CONTRACTED COSTS

A .13 Where one company (“the principal”) pays another (“the subcontractor”) to carry out R&D on its own behalf, a rule is needed to determine who should be entitled to claim the credit, to prevent double credit.

A .14 Some of those who responded thought that relief should be claimed by the principal not the subcontractor. Other respondents thought that the subcontractor should be able to claim relief. Among the first group, several multi-nationals added the caveat that where the principal is a non-UK company, then the highest UK company in the chain should get relief.

A .15 The Government is minded in such cases to allow the company actually carrying out the work to claim the credit.

INTELLECTUAL PROPERTY RIGHTS (IPR)

A .16 We set out our view that work eligible for the new credit should lead to the resulting intellectual property being owned by the claimant company, as the SME R&D tax credit requires. A large majority of respondents were against having a link. They felt that it would discriminate against multi-nationals. For example groups may have cost-sharing arrangements where IPR is owned economically by more than one company but where legal ownership vests in just one company. Or a group may have an overseas IPR holding company which subcontracts R&D to a UK subsidiary.

A .17 We have listened to these views and we are convinced that this requirement would be onerous for large companies, compared to the benefit it would bring.