

**Revenue Guidelines**  
**for**  
**Research and**  
**Development**  
**Tax**  
**Credit**

*While every effort is made to ensure that the information given in this guide is accurate, it is not a legal document. Responsibility cannot be accepted for any liability incurred or loss suffered as a consequence of relying on any matter published herein.*

**Updated February 2009**

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## **1. Introduction.**

Section 766 TCA 1997 provides for a tax credit of 20% of incremental expenditure by a company, or group of companies incurred wholly and exclusively on research and development (R&D). Section 34 Finance (No2) Act 2008 increased the rate of the tax credit from 20% to 25% of incremental expenditure.

Expenditure on buildings is not taken into account in calculating the incremental expenditure. Section 766A TCA 1997 contains separate rules for the treatment of expenditure on buildings. See paragraph 3.

## **2. Research and Development Expenditure. S 766 TCA 1997.**

The principal features of relief under Section 766 TCA 1997 are as follows:

- The tax credit is available to all companies, within the charge to Irish tax, who undertake research and development activities within the European Economic Area (EEA). In the case of an Irish tax resident the expenditure must not qualify for a tax deduction under the law of another territory.
- The tax credit is available on incremental R&D expenditure. The Finance (No 2) Act 2008 set 2003 as the base year for all accounting periods.
- For expenditure incurred in accounting periods commencing on or before 31/12/08 the relief is calculated as 20% of the qualifying expenditure. For expenditure incurred in accounting periods commencing on or after 1/1/2009 the relief is calculated as 25% of qualifying expenditure. The credit is then used to first reduce the liability to Corporation Tax for that accounting period.
- Where a company has insufficient corporation tax against which to claim the R&D tax credit in a given accounting period, the tax credit may be carried forward indefinitely, or if a member of a group, allocated to other group members. See Section 5. Changes introduced in the Finance (No.2) Act 2008 allow a company, on receipt of a claim, to use any excess credit in a different manner. See paragraph 2.2 below.

- The tax credit is in addition to any allowable deductions for R&D expenditure in the accounts of the company.
- Expenditure incurred under cost sharing or pooling arrangements will qualify for the tax credit only to the extent that the expenditure is incurred by the company in the carrying on by it of qualifying research and development activities. Reimbursements or sharing of costs incurred by another company in the carrying on of research and development activities would not qualify.
- Companies claiming the R&D tax credit are not required to hold the intellectual property rights resulting from the R&D work.

**EXAMPLE No. 1 PRE 2009**

ABC Ltd incurred qualifying R&D expenditure in year ended 31/12/03 of €10,000. In y/e 31/12/06 the company incurred qualifying R&D expenditure of €30,000. The tax credit available in 2006 is based on the increase in the amounts of qualifying expenditure in 2006 over the amount of qualifying expenditure in 2003.

	€
Qualifying expenditure 2003	10,000
Qualifying expenditure 2006	<u>30,000</u>
Incremental amount	20,000

ABC Ltd can claim a tax credit in 2006 of €20,000 @ 20% = €4,000.

ABC Ltd can now use €4,000 as a credit against its Corporation Tax liability.

**EXAMPLE No. 2-INCLUDING 2009 CHANGES**

CBA Ltd incurred the following amounts of qualifying R&D expenditure.

YEAR	€
2003	100,000
2004	300,000
2005	400,000
2006	500,000
2007	NIL
2008	200,000
2009	250,000

Tax credits are calculated as follows.

YEAR	R&D spend	Calculations	Tax Credit
2003	100,000		NIL
2004	300,000	(300,000-100,000) @ 20%	€40,000
2005	400,000	(400,000-100,000) @ 20%	€60,000
2006	500,000	(500,000-100,000) @ 20%	€80,000
2007	NIL	N/A	NIL
2008	200,000	(200,000-100,000) @ 20%	€20,000
2009	250,000	(250,000-100,000) @ 25%	€37,500

**2.1 Grants payable**

Any expenditure which is met directly or indirectly by any grant from the State, any board established by statute, any public or local authority or any other agency of the State will not qualify for relief.

**EXAMPLE No. 3- INCLUDING 2009 CHANGES**

If in the case of CBA Ltd in example No. 2 the company was entitled to the following grants.

YEAR	Grant €
2003	40,000
2004	60,000
2005	100,000

2006	NIL
2007	NIL
2008	40,000
2009	20,000

Tax credits are calculated as follows.

YEAR	R&D spent	Grant	Net Cost	Calculations	Tax Credit
2003	100,000	40,000	60,000		NIL
2004	300,000	60,000	240,000	(240,000-60,000) @ 20%	36,000
2005	400,000	100,000	300,000	(300,000-60,000) @ 20%	48,000
2006	500,000	NIL	500,000	(500,000-60,000) @ 20%	88,000
2007	NIL	NIL	NIL	N/A	NIL
2008	200,000	40,000	160,000	(160,000-60,000) @ 20%	20,000
2009	250,000	20,000	230,000	(230,000-60,000) @ 25%	42,500

## 2.2 Use of Unused Credits- 2009

The Finance (N0.2) Act 2008 changed the way unused tax credits may be used.

- In respect of claims made on or after 1 January 2009 the company may first offset that unused portion of the credit against the corporation tax of the preceding accounting period.
- Where a company has offset the credit against the corporation tax of the preceding accounting period or where no corporation tax arises for that period, and an excess still remains, the company may make a claim to have the amount of that excess paid to them by the Revenue Commissioners in 3 instalments.
- The 3 instalments will be paid over a period of 33 months from the end of the accounting period in which the expenditure was incurred. The first instalment to be paid will amount to 33 per cent of the excess.

- The remaining balance will then be used to first reduce the corporation tax of the next accounting period and if any excess still remains, a second instalment amounting to 50 per cent of that excess will be paid to the company.
- Any further excess will then be used to reduce the corporation tax of the following accounting period and if an excess still remains, that amount will be paid to the company as the third instalment.
- Section 36 Finance (No.2) Act 2008 introduced a limit on the amount of tax credits payable to a company by Revenue. The limit refers to amounts payable under both S766 and S766A. The amount cannot exceed the greater of;
  - The corporation tax payable by the company for the 10 years prior to the accounting period preceding the period in which the expenditure was incurred, or
  - The amount of PAYE, PRSI and levies, which the company is required to remit in the period in which the expenditure was incurred.
- In the absence of such a claim for payment, the excess will be carried forward for offset against corporation tax in the subsequent accounting period.

**EXAMPLE No. 4- 2009**

In the accounting period ended 31/12/2009 PQR Ltd incurred €400,000 qualifying expenditure (after deduction the threshold amount) on research and development. The following shows the company's corporation tax liability.

<u>Accounting Period</u>	<u>Liability</u>
12 months ended 31/12/2008	€30,000
12 months ended 31/12/2009	€10,000
12 months ended 31/12/2010	€15,000

12 months ended 31/12/2011

€10,000

The tax credit due in respect of the accounting period ended 31/12/2009 is (€400,000 @ 25%) €100,000.

€10,000 of the available tax credit is first used to reduce to Nil the corporation tax liability for the accounting period ended 31/12/2009. The remaining balance of €90,000 may be carried forward and used to reduce the corporation tax of the next accounting period.

Alternatively the company may make a claim to:

1. Offset a further €30,000 of the remaining balance against the liability for the accounting period ended 31/12/2008. That liability will be reduced to Nil and a refund may be made.
2. Revenue will pay 33% of the remaining balance to the company as a first installment. That payment of (€60,000 @ 33%) €19,800 will be paid no earlier than 21/9/2010. €40,200 of a balance now remains.
3. €15,000 of the remaining balance is offset against the liability for the accounting period ended 31/12/2010, leaving a balance of unused tax credit of €25,200.
4. Revenue will pay 50% of the remaining balance to the company as a second installment. That payment of (€25,200 @ 50%) €12,600 will be paid no earlier than 21/9/2011.
5. €10,000 of the remaining balance is offset against the liability for the accounting period ended 31/12/2011, leaving a balance of unused tax credit of €2,600.
6. Revenue will pay the balance of €2,600 to the company as the third installment no earlier than 21/9/2012.

### **3. Expenditure on Buildings or Structures used for R&D activities.**

#### **S 766A TCA 1997.**

**NOTE: OTHER THAN THE TIME LIMIT INTRODUCED IN FINANCE (No 2) ACT 2008, OTHER CHANGES TO S 766A COME INTO OPERATION ON SUCH DAY OR DAYS AS THE MINISTER FOR FINANCE MAY BY ORDER**

**APPOINT. AT THE TIME THESE GUIDELINES WERE PUBLISHED NO SUCH ORDER HAD BEEN SIGNED.**

- Section 766A TCA 1997 deals with the tax credit for expenditure on buildings or structures used for research and development. This section was inserted by Finance Act 2004. To qualify the company must be entitled to claim industrial buildings capital allowances on the building/structure.
- The incremental basis does not apply for expenditure on buildings. There is no base year for Section 766A.
- The relief is calculated as 20% of the qualifying expenditure. The Finance (No.2) Act 2008 increased the rate of the tax credit from 20% to 25%. The credit is then used to reduce the liability to Corporation Tax for the accounting period in which the expenditure was incurred.
- Prior to the changes introduced by the Finance (No.2) Act 2008 relevant expenditure by a qualified company was claimed over 4 years on a straight -line basis. Following changes introduced by the Finance (No.2) Act 2008 the full amount of the credit may now be claimed in the accounting period in which the relevant expenditure is incurred.
- Where a company has insufficient corporation tax to claim the tax credit in that accounting period, the tax credit may be carried forward indefinitely. Changes introduced in the Finance (No.2) Act 2008 allow a company, on receipt of a claim, to use any excess credit as set out in paragraph 2.2 above.
- The tax credit is in addition to Capital Allowances.
- Any expenditure which is met directly or indirectly by the State will not be treated as qualifying expenditure.

- Where a building or structure to be used for R&D is part of a building or structure, or is one of a number of buildings in a single development, such apportionments as is necessary should be used to determine the expenditure on R&D. (See example No. 5 below)

The company should maintain records to show:

1. computation of any apportionment, and
  2. the rationale for the use of such basis of apportionment.
- The Finance (No.2) Act 2008 has provided that the credit will now be available in respect of new expenditure on the construction, including refurbishment, of a building or structure, where the research and development activities carried on by a company in that building or structure over a period of 4 years (referred to as the “specified relevant period”) represents at least 35 per cent of all activities carried on in the building or structure. The credit is calculated by reference only to the portion of the building or structure to be used for research and development activities.

**EXAMPLE No. 5-PRE 2009**

XYZ Ltd incurred qualifying R&D expenditure in 2006 of €100,000 on an R&D building. The total relief due is (100,000 @ 20%) €20,000. This relief will be allowable over the four years 2006-2009 inc. The relief for each year will be (20,000/4) €5,000. For each of the four years XYZ Ltd can use the credit of €5,000 to reduce its Corporation Tax liability.

**EXAMPLE No. 6-PRE 2009**

If in the above example No. 4 part of the building was to be used solely for qualifying R&D activities, an apportionment of cost is necessary. If the total floor area of the building was 2,500 sq ft, and 1,500 sq ft of that area was used for R&D activities, XYZ could decide to use floor area as a basis of apportionment as follows:

	€
Expenditure incurred	100,000

$$\text{Qualifying expenditure} = 100,000 \times \frac{1,500}{2,500} = 60,000$$

The total relief due is (60,000 @ 20%) €12,000. This relief will be allowable over the four years 2006-2009 inc. For each of those four years XYZ Ltd can use the credit of €3,000 to reduce its Corporation Tax liability

**EXAMPLE No. 7-PRE 2009**

ZYX Ltd incurred qualifying expenditure on R&D buildings as follows:

YEAR	Expenditure €
2003	500,000
2004	1,000,000
2005	600,000
2006	1,200,000 (Relief due up to 2009)
2007	NIL
2008	40,000 (Relief due up to 2011)

Tax credits are calculated as follows.

YEAR	Expenditure	Calculations	Tax Credit
2003	500,000		NIL
2004	1,000,000	¼ (1,000,000) @ 20%	50,000
2005	600,000	¼ (1,000,000+600,000) @ 20%	80,000
2006	1,200,000	¼ (1,000,000+600,000+1,200,000) @ 20%	140,000
2007	NIL	¼ (1,000,000+600,000+1,200,000) @ 20%	140,000
2008	40,000	¼ (600,000+1,200,000+40,000) @ 20%	92,000

NOTE: Relief in respect of expenditure incurred of €1,000,000 in 2004 is granted in full over the four years 2004-2007 inclusive.

**EXAMPLE No. 8- 2009**

Rev Ltd incurred relevant R&D expenditure in the accounting period ended 31/12/2009 of €1,000,000 in respect of a building. The research and development activities to be

carried on by the company in that building over the specified relevant period will represent 40 per cent of all activities carried on in the building or structure. The tax credit under S766A is calculated as follows.

Specified Relevant Expenditure = €1,000,000 @ 40% = €400,000

Tax Credit = €400,000 @ 25% = €100,000.

The full amount of tax credit of €100,000 is used to first reduce the corporation tax liability in respect of the accounting period ended 31/12/2009. If any excess remains it may be carried forward to reduce the corporation tax of the next accounting period, or alternatively if a claim is made, it may be used as set out in paragraph 2.2 above.

### **3.1 Building or Structure sold or ceases to be used for R&D activity.**

The tax credit is clawed back if, within 10 years of the accounting period for which a credit is claimed, the building or structure is sold or commences to be used for purposes other than the carrying on by the company of R&D activities.

Following changes introduced in the Finance (N0.2) Act 2008, the claw-back provisions will apply where the building or structure is sold or ceases to be used by the company for research and development activities or for the purpose of the same trade that was carried on by the company at the start of the “specified relevant period”.

#### **EXAMPLE No. 9-PRE 2009**

In 2004 DEF Ltd incurred relevant R&D expenditure of €100,000 on the construction of a building to be used wholly and exclusively for R&D activities. The building was sold in 2006.

Tax credits granted 2004-2005 are as follows:

2004 (100,000/4) @ 20% = 5,000

2005 (100,000/4) @ 20% = 5,000

Total granted 10,000

In 2006 DEF Ltd will be taxed on the following amount under Schedule D Case IV.

Total relief granted as above 10,000

Multiply by 4 = 40,000

Taxed @ 25% = (40,000 @ 25%) = €10,000

NOTE: The net effect is that the total relief granted 2004-2005 inclusive is clawed back.

**EXAMPLE No.10-PRE 2009**

The charge to tax under Schedule D Case IV is based on “the aggregate amount by which corporation tax of the company or another company was reduced”.

If in the example at No. 7 above DEF Ltd used the credits due for 2004-2005 as follows:

2004 Used credit of €3,000 and carried forward €2,000.

2005 Used credit of €6,000 and carried forward €1,000

The “the aggregate amount by which corporation tax of the company or another company was reduced” amounts to (3,000 + 6,000) €9,000.

In 2006 DEF Ltd would be taxed as follows under Schedule D Case IV:

Total relief granted		9,000
Multiply by 4	=	36,000
Taxed @ 25%	= (36,000 @ 25%) =	€9,000

**4. Subcontracting Research and Development Activities Out.**

There are two situations where the law provides for relief for a company that has not carried out the research and development itself:

1. A company, which incurs expenditure on research and development, and pays a sum to a university or institute to carry out such activities in a relevant Member State, can claim relief. Relief will be restricted to 5% of the expenditure incurred by the company itself on research and development activities
2. A company, which incurs expenditure on research and development, and pays a sum to another person (other than in 1 above) who is not a connected person, in order for that person to carry on research and development activities, can claim relief. Relief will be restricted to 10% of the expenditure incurred by the company itself on research and development activities. Relief will only be granted where

the subcontracted person does not claim this relief. (No. 2 effective for accounting periods ending on or after 1 January 2007, in respect of expenditure incurred on or after 1 January 2007)

**EXAMPLE No. 11**

RD Ltd incurred €250,000 expenditure on R&D activities in the period ended 30/6/2007. In addition it paid €10,000 to a university to carry out R&D activities. RD Ltd also subcontracted some of its R&D work to JK Ltd. They paid an additional €28,000 to JK Ltd (unconnected person).

- a) As the €10,000 paid to the university is less than €12,500 (250,000 @ 5%), this amount will also qualify for relief.
- b) As the €28,000 subcontracted out exceeds €25,000 (250,000 @ 10%) by €3,000, then the total claim must be restricted to €285,000.  
[250,000+10,000+(28,000-3,000)]

## **5. Group Expenditure on R&D**

Companies will be regarded as members of a group if one is a 51 per cent subsidiary of the other, or both are 51 per cent subsidiaries of a third company, irrespective of the country of residence of each company. In determining whether this is the case, ownership of shares by a company dealing in the shares is to be ignored.

**EXAMPLE No. 12**

ABC Ltd own 60% of the shares of DEF Ltd. DEF Ltd own 90% of the shares of XYZ Ltd. As ABC Ltd effectively controls 60% of DEF Ltd, and 54% (60 @ 90%) of XYZ Ltd, all three companies are members of a group for the purpose of claiming the R&D tax credit.

In the case of a group of companies the tax credit is available on a group basis in respect group expenditure on R&D. The principal features of this provision are as follows:

- Group expenditure is defined as “*the aggregate of expenditure on R&D incurred by member companies of a group in a relevant period*”.
- The base period (threshold period) is referred to as the *first relevant period*. Generally this will be the first period of one year, ending at the end of the first common accounting period of the member companies of the group, that commences on or after 1<sup>st</sup> January 2004. If the companies do not have a common accounting period, they must jointly elect which accounting date should be used.
- For all relevant periods commencing at any time after 31 December 2003 the base period is one year ending on a date in 2003 that corresponds with the end of the relevant period. (See Example No. 11)
- The members of the group that incur expenditure on R&D in the relevant period may allocate the expenditure to group members, in a manner as decided by them. A joint written application must be made to the appropriate Inspector. In the absence of an application, the Act sets out a formula to be used in the allocation of the expenditure.
- Where the group has insufficient corporation tax to claim the tax credit, the credit may be carried forward indefinitely.

**EXAMPLE No. 13**

A group of companies had an aggregate R&D expenditure of €500,000 in the 12 months ended 30/9/2006, and an aggregate R&D expenditure of €30,000 in the 12 months ended 30/9/2003.

The incremental amount for the 12 months ended 30/9/2006 is therefore (500,000 – 30,000) €470,000.

The members of the group who have incurred the R&D expenditure may allocate the tax credit of (470,000 @ 20%) €94,000 to group members, in a manner decided by them.

#### **EXAMPLE No. 14**

AB USA Corp, AB Ire Ltd and BA Ire Ltd are all members of a group according to S 766 TCA 1997. AB USA Corp is not within the charge to Irish tax, while the other two members of the group are. They incurred R&D expenditure as follows:

	2003	2007
AB USA Corp	€40,000 ***	€75,000 ***
AB Ire Ltd	€30,000	€65,000
BA Ire Ltd	€10,000	€32,000

\*\*\*As AB USA Corp is not within the charge to Irish tax their R&D expenditure incurred is not taken into account for the purpose of calculating qualifying group expenditure on R&D activities.

Qualifying group expenditure in 2007 is €7,000, calculated as follows:

2007 (65,000 + 32,000)	=	€97,000
2003 (30,000 + 10,000)	=	<u>€40,000</u>
Incremental expenditure 2007		€7,000

### **6. Research and Development Activities**

Essentially only expenditure on Research and Development activities may qualify for the tax credit. Qualifying activities must satisfy all of the following conditions. They must be:

1. Systematic, investigative or experimental activities
2. In a field of science or technology
3. One or more of the following categories of research and development:
  - o Basic research,
  - o Applied research, or
  - o Experimental development.
4. Seeking to achieve scientific or technological advancement and involve the resolution of scientific or technological uncertainty

## 6.1 Systematic Investigative and Experimental Activities

- The Act requires research and development activities to be systematic, investigative or experimental in nature. It is expected that activities be to a planned logical sequence, generally to a recognised methodology, with detailed records being maintained.
- Each project should be documented showing clearly why each major element is required, and how it fits into the research activity as a whole. To build on the results of testing in a systematic way requires the organised documentation of work undertaken by way of experimentation or investigation.
- It is important for a company to maintain dated documents of the original scientific or technological goals of the activity, the progress of the work and how it has been carried out, and the conclusions.
- Indicators or measures to be used to determine if the scientific or technological objectives of the research and development activity are met should be identified when forming the concepts for the research and development activity. These measures should also be documented at the early stages of the program. Failure to have such documentation may indicate the absence of a systematic, investigative or experimental approach.

The following are indicative of the existence of a systematic process:

- the work is carried out or led by trained or experienced personnel;
- the work is conducted under a development protocol or under the direction of a project manager;
- the work is documented;
- the process by which the work is performed is documented.

## **6.2 Field of Science & Technology**

The categories of activities that qualify for relief are set out in S.I. No. 434 of 2004, Taxes Consolidation Act 1997 (Prescribed Research and Development Activities)

Regulations 2004. The categories are:

1. Natural Sciences
2. Engineering and Technology
3. Medical Sciences
4. Agricultural Sciences.

The regulations define each category. Further details are contained in Appendix 3.

## **6.3 Types of Research**

**Basic research** means “experimental or theoretical work undertaken primarily to acquire new scientific or technical knowledge without a specific practical application in view”.

**Applied research** means, “work undertaken in order to gain scientific or technical knowledge and directed towards a specific practical application”. Applied research is usually undertaken either to determine possible uses for the findings of basic research or to determine new methods or ways of creating practical applications.

**Experimental development** means, "work undertaken which draws on scientific or technical knowledge or practical experience for the purpose of achieving technological advancement and which is directed at producing new, or improving existing, materials, products, devices, processes, systems or services including incremental improvements thereto".

## **6.4 Scientific or Technological Advancement**

An advance in science or technology means an advance in the **overall knowledge or capability** in the field of **science** or **technology** (not a company’s own state of knowledge or capability alone). The test relates to knowledge or capability reasonably available to the company or to a competent professional working in the field. Where knowledge of an advance in science or technology is not reasonably available, for example, where it has not been published, is not in the public domain or it is a trade secret of a competitor, companies would not be disqualified from claiming the credit

where they undertake activities seeking to independently achieve the same scientific or technological advancement.

A scientific or technological uncertainty may exist for one company although a competitor has resolved that uncertainty but retained the resulting knowledge as a trade secret or proprietary information. A number of companies may be working to resolve the same scientific or technological uncertainty at the same time. Reasonably available scientific or technological knowledge or experience includes information, which is reasonably available to a company from both internal and external sources. Thus if the solution to a scientific or technological uncertainty is reasonably available to a competent professional working in the field, lack of knowledge by a company due to lack of diligence in seeking that solution or lack of appropriate expertise within the company does not constitute scientific or technological uncertainty.

**6.4.1.** The Act requires that the activity must **seek** to achieve as opposed to succeed in achieving scientific or technological advancement. Even if the advance in science or technology sought by a project is not achieved or not fully realised, R&D still takes place. For example, a particular research and development activity may cease or radically change if the advance originally sought becomes available from a scientific journal or newly published patent. This does not undermine the validity of the activity from the perspective of this test. Equally determining that a hypothesis is incorrect may advance scientific knowledge. Similarly, in experimental development, discovering that a certain technological alternative does not work can advance the technological knowledge base. Such a result would not of itself preclude a claim being made for the R & D credit.

**6.4.2** Where a research and development activity is shown to be systematic, investigative or experimental and is undertaken to resolve a clearly defined scientific or technological uncertainty, the requirements of attempting to achieve scientific or technological advancement will generally be met.

Work carried out in incremental stages, the aim of which is the achievement of scientific or technological advancement and involves resolution of scientific or technological uncertainty will qualify as R & D.

**6.4.3 New materials/products/systems.** Systematic, experimental or investigative activities directed at producing new or improved materials, products, devices, process systems or services can qualify for the tax credit provided the activities seek to achieve the goals set out at 6 above. However a process, material, device, product, service or source of knowledge does not become an **advance in science or technology** simply because **science or technology** is used in its creation. Work which uses **science or technology** but which does not **advance** scientific or technological capability as a whole is not an **advance in science or technology**. Normal technology transfer, or making improvements to materials, products, devices, processes, systems or services through the purchase of rights or licence, or through the adaptation of known principles or knowledge, would not represent scientific or technological advancement. Neither would solving technical problems or trouble shooting using generally available scientific or technological knowledge or experience meet this test. In addition work in the development of a new or improved product will not of itself constitute research and development activities. The work may, for example, entail the resolution of extensive design issues but may not involve a scientific advancement.

#### **EXAMPLE**

1. A project which seeks to, for example:
  - (a) extend overall knowledge or capability in a field of science or technology; or
  - (b) create a process, material, device, product or service which incorporates or represents an increase in overall knowledge or capability in a field of science or technology; or

- (c) make an **appreciable improvement** to an existing process, material, device, product or service through an advance in science or technology;or
- (d) duplicate the effect of an existing process, material, device, product or service in a new or appreciably improved way through an advance in science or technology(e.g. a product that has exactly the same performance characteristics as existing models, but is built in a fundamentally different manner),  
  
will therefore be R&D.

**6.4.4 Scientific or technological uncertainty** arises in two situations viz.

- a) uncertainty as to whether a particular goal can be achieved or
- b) uncertainty (from a scientific or technological perspective) in relation to alternative methods that will meet desired cost or other specifications such as reliability or reproducibility.

If, on the basis of reasonably available scientific or technological knowledge or experience such technological or scientific uncertainty exists, research and development activity would aim to remove that uncertainty through systematic, investigative or experimental activity.

Uncertainty as to whether new materials, products, devices, processes, systems or services will be commercially viable *is not scientific or technological uncertainty*. In commercial settings, however, a reasonable cost target is always an objective. As mentioned above, attempting to achieve a particular cost target can require the resolution of a scientific or technological uncertainty. Cost targets may require that scientifically or technologically uncertain alternatives, approaches or configurations etc. have to be attempted, although more costly alternatives exist. A scientific advance always resolves uncertainty.

**6.4.5 Software** The OECD Frascati Manual states “for software development to be classified as R&D, its completion must be dependent on the development of a scientific and/or technical advance, and the aim of the project must be resolution of a scientific and/or technical uncertainty on a systematic basis.

Listing software functions and features at an “end-user” level can rarely describe advancement in technology. Advances are typically made through innovation in software architectures, designs, algorithms, techniques or constructs.

To develop software at the leading edge of today’s technologies generally requires the developer to come up with new constructs, such as new architectures, algorithms or database management techniques (i.e., make Technological Advancements), and there are then specific uncertainties as to the viability of these (i.e., Technological Uncertainty). If the software’s competitive edge stems from advance in an area other than technology, such as business management, or improvements in financial management techniques, the project is unlikely to be eligible. Almost any software developed for sale is developed systematically and the uncertainties are systematically resolved (i.e., Technical Content).

## **6.5 Categories of Activity that are not research and development activities**

- (a) S.I. No. 434 of 2004 specifies a non-exhaustive list of categories of activities, which are **not** research and development activities. Further details are contained in Appendix 4.

## **7. When a Research and Development activity ends**

The resolution of scientific or technological uncertainty is a determining factor when considering where a research and development activity ceases and activity associated with commercial exploitation begins. *Generally this point is reached when the scientific or technological uncertainty, which the research and development activity sought to resolve, has been resolved.* The basic criterion for determining when a scientific research and experimental development project has been completed is reaching the point at which the project's initial technological objectives have been achieved. Generally, this occurs

when the application of standard operating practices will permit the achievement of the technological performance objectives, which were established for the project.

## **8. Plant and Machinery**

Section 66(1)(b) of FA 2006 provides, for accounting periods ending on or after the 2<sup>nd</sup> February 2006, that where plant and machinery which is used for R&D and other purposes form part of the claim, the cost of the plant and machinery should be apportioned on a just and reasonable basis.

If an apportionment that has already been made in this manner is later shown not to be “just and reasonable” a revised apportionment must be made. The new apportionment then supersedes the previous apportionment. The revised apportionments may give rise to an underpayment or overpayment of corporation tax.

### **EXAMPLE 15-PRE 2009**

QE Ltd had expenditure on R&D of €150,000 in the 12 months ended 30/9/2007. This figure includes plant and machinery at cost of €100,000 to be used for R&D activities and production processing. QE Ltd have analysed the plant and machinery usage on a “machine hour basis”. They found that in a typical week it is used 25 hours for R&D and 30 hours for production processing. The plant and machinery is expected to have a useful life of 10 years. Therefore they should apportion the cost of the plant and machinery as follows:

Cost €100,000

Cost relevant to R&D  $€100,000 \times \frac{25}{55} = €45,455$

Tax credit due  $€45,455 @ 20\% = €9,091$

## **9. Qualifying Expenditure**

### **9.1 Activities undertaken in-house by the claimant company**

The tax credit will be available in respect of expenditure incurred in the carrying on of research and development activities under the usual tax rules relating to such expenditure.

Under these rules expenses such as staff and overhead costs can be apportioned and the

credit will be available for the portion expended in the carrying on of the research and development activity.

Allowable expenditure would include the cost of the following activities:

- (a) engineering, design, operational research, mathematical analysis, computer programming, data collection, testing, or psychological research;
  - (b) indirect supporting activities such as maintenance, security, administration and clerical activities, finance and personnel activities;
  - (c) ancillary activities essential to the undertaking of research and development activities such as taking on and paying staff, leasing laboratories and maintaining research and development equipment including computers used for research and development activities;
  - (d) the cost of plant and machinery used wholly and exclusively for R&D activity.
- Please also refer to 8 above.

Expenditure on research and development will qualify for the tax credit even though it may be brought into account for accounting purposes in determining the value of an asset.

Interest will not be taken into account as expenditure on research and development for the purposes of the tax credit even though, for accounting purposes, it may be included in the value of an asset.

## **9.2 Royalty payments**

Expenditure on research and developments shall not include a royalty or other sum paid by a company in respect of the user of an invention:

- a) If it is paid to a person connected with the company and the royalty is exempt from tax in the hands of the recipient,
- or
- b) The payment is not an arm's length fee

Royalty payments not subject to the above exclusion would qualify provided they are incurred in the carrying on of research and development activities as defined in the law.

## **10. Information to be retained by the Company in support of claims**

To avail of the R&D tax credit the company must be in a position to demonstrate that its claim can satisfy two essential tests.

**The Science Test** - That the activities under review are consistent with the statutory definition of research and development activities.

**The Accounting Test** - That the expenditure claimed as being laid out on qualifying research and development activities are correctly so claimed.

### **10.1 Records Required To Be Maintained To Satisfy The Science Test**

- a) A description of the research and development activities, the methods to be used and what the company seeks to achieve by the undertaking the activities concerned
- b) The field of science and technology concerned
- c) \* The scientific or technological advancement that is the goal of the research and development activities, and
- d) \* The scientific and technological uncertainty the company is seeking to resolve by those activities,
- e) details of systematic investigation outlined at paragraph 6.1 including
  - the hypothesis advanced
  - the series of experiments or investigations undertaken to test the hypothesis
  - documentary evidence of the necessity for each major element and how it fits into the project as a whole
  - dated documents of the original scientific or technological goals, the progress of the work, how it was carried out and the conclusions
  - indicators or measures identified at the commencement of the project to determine if the scientific or technological objectives of the research and development activities are met

- f) the qualifications, skill and experience of the project manager
- g) the numbers, qualifications and skill levels of other personnel working on the project

Given the high cost of research and development activities and the requirement for ongoing monitoring inherent in such projects, the records required for Revenue purposes should generally be available within a company for its own internal purposes. The company will, in any event, need to document the project and the information required may be contained in:

- status and/or progress reports
- notebooks, lab reports, patents, and patent applications
- notes of problems encountered in the course of the project that identified areas of technological uncertainty and experimental development
- feasibility plan and/or outline methodology adopted
- files on personnel involved in the project

### **10.2 Records Required To Be Maintained To Satisfy The Accounting Test**

Sections 886 and 903 of Taxes Consolidated Act 1997, Section 16 VAT Act 1972 and VAT Regulations 1979 all impose obligations on a taxpayer to keep certain books and records. The maintenance of these records is required to enable a taxpayer to make true tax returns and in the event of Revenue audit to demonstrate that the credit claimed is correct.

### **10.3 Claiming the Credit.**

Where a company is satisfied that it can comply with the requirements, a claim to relief may be made by completing *Section 9* (headed *Research And Development Tax Credit*) of the form CT1. It is important to note that no supporting documentation is required to be submitted with the return. In this respect, claiming a research and development tax credit is no different from claiming any other corporation tax relief or tax credit.

From 1/1/2009 all claims for research and development tax credit must be made within 12 months from the end of the accounting period in which the expenditure was incurred.

### **11. Consultation with other persons (Experts)**

To ensure compliance with legislation, Revenue may examine the entitlement of certain claims to tax credit for R&D activities. For this Revenue normally require the assistance of qualified individuals with specialised knowledge in the relevant field of science or technology. That individual acts on a consultancy basis for Revenue. They report to Revenue as to whether, in their opinion, the activities examined constitute R&D activities, as defined. Where the opinion of such expert is disputed by a claimant company, the expert may be required to give evidence before the Appeal Commissioners or a court of law.

Before disclosing information to that person, Revenue will notify the company of:

- The identity of that person, and
- The information they intend to disclose.

And

- Obtain a signed confidentiality agreement from the expert.

The claimant company may object to the use of that particular expert where they can demonstrate a genuine conflict of interests. In any case of dispute the claimant company will have the right of appeal to The Appeal Commissioners, against the use of a particular expert.

### **12. RTI Grants**

As, in broad terms, the definition of R & D contained in S 766 TCA 1997 and used by Enterprise Ireland Research Technology & Innovation (RTI) Grants Scheme are similar, it has been decided that Revenue will not, as a rule, seek to have a claim in respect of smaller projects examined by an expert where an Enterprise Ireland RTI Grant has been approved in respect of the project.

This practice will apply where.

- The project has received an RTI grant, and
- The R & D tax credit claimed for an accounting period (of not less than 12 months) is €50,000 or less, and

- The project is undertaken in a prescribed field of science or technology, as defined in regulations (S.I. No 434 of 2004).

This practice applies only to RTI Grants administered by Enterprise Ireland and not any other grant, whether they are for R & D or otherwise.

As mentioned in 2.1 the amount of the RTI Grant will not qualify for relief.

(See extract from Tax Briefing No 67 at Appendix No. 2)

### **13. Advance Opinion**

The Revenue Commissioners would be prepared to give an advance opinion as to whether a proposed project would satisfy the requirements of the legislation. When such requests are received Revenue normally engage an expert under the conditions set out at paragraph No. 11. It is envisaged that such opinions will only be given in respect of projects that have commenced within the last 12 months.

Applications for an advance opinion containing the information as outlined in paragraph 10 should be made to:

Isolde Hampson

Corporate Business & International Division,

Stamping Building,

Dublin Castle,

Dublin 2. Phone 01 6748103

<mailto:ihampson@revenue.ie>

## **Appendix No. 1**

### **Extract from Tax Briefing No. 66, July 2007.**

#### **Claiming a Tax Credit for Research and Development.**

*Section 33 of the Finance Act, 2004* introduced a 20% tax credit for companies for expenditure on research and development (R&D) activities. The credit is available on incremental qualifying expenditure over the amount spent in a base year. It has come to Revenue's attention that some uncertainty exists regarding the procedures for claiming such a credit - in particular, the level of documentation required to be submitted with a claim. The procedures were put in place with a view to making the claiming of an R&D tax credit a straightforward process. The purpose of this article is to clarify those procedures.

#### **Definition**

The relevant legislation contains a specific definition of research and development, in line with international practice, which is designed to focus the relief on activities involving a high level of innovation across a broad range of industries.

*'Research and development activities'* is defined as *'systematic, investigative or experimental activities in a field of science or technology, being basic research, applied research or experimental development'*. A key provision is that activities will not constitute research and development activities for the purposes of the relief unless they:

Seek to achieve scientific or technological advancement and

Involve the resolution of scientific or technological uncertainty.

Claimant companies are themselves best placed to evaluate whether their activities come within the definition. However, if a company has concerns about a particular aspect of their claim, Revenue is prepared to give an advance opinion as to whether the activities of a specific project constitute research and development activities.

#### **Claiming the Credit.**

Where a company is satisfied that it can comply with the requirements, a claim to relief may be made by completing *Section 12* (headed *Research And Development Tax Credit*) of the form CT1. It is important to note that no supporting documentation is required to be submitted with the return. In this respect, claiming a research and development tax credit is no different from claiming any other corporation tax relief or tax credit.

#### **Examination by Revenue**

Revenue may examine any aspect of a return, including a claim to a research and development tax credit, within four years of the end of the accounting period in which the company has made the

return. Revenue may, if necessary, refer the project to an expert in the field of science and technology for an opinion as to whether the activities constitute research and development activities, as defined.

It is the claimant company's responsibility to maintain records which provide sufficient evidence that a project entails research and development activities. The types of records which are required include:

- project title and description
- purpose of the project undertaken (i.e. the hypothesis advanced)
- technologically feasible plan and/or methodology adopted
- status and/or progress reports
- problems encountered in the course of the project that identified areas of technological uncertainty and experimental development
- personnel involved in the project
- notebooks, lab reports, patents, and patent applications

In order to reduce the administrative burden on claimant companies, no particular format is specified. Given the high cost of research and development activities and the requirement for ongoing monitoring inherent in such projects, the records required for Revenue purposes should generally be available within a company for its own internal purposes.

Where expenditure is not wholly incurred for research and development purposes, Revenue will accept reasonable apportionment.

#### Further Information

Please see Revenue Guidelines for Research and Development Tax Credit

<http://www.revenue.ie/doc/r&d.doc>

## **Appendix No. 2**

**Extract from Tax Briefing No. 67, December 2007.**

### **Claims for Research and Development (R&D) tax credit in respect of projects approved for Research Technology & Innovation (RTI) grants from Enterprise Ireland.**

#### **Background**

Section 766 TCA 1997 provides for a tax credit of 20% of incremental expenditure by a company or group of companies on research and development (R&D). Expenditure on buildings is not taken into account in calculating the incremental expenditure. Section 766A contains rules for the treatment of expenditure on buildings. The purpose of this article is to simplify administrative procedures, for smaller claims in receipt of Research Technology & Innovation (RTI) grants from Enterprise Ireland.

#### **Definition**

“Research and development activities” is defined as “systematic, investigative or experimental activities in a field of science or technology, being basic research, applied research or experimental development”. A key provision is that activities will not be research and development activities for the purposes of the relief unless they:

- Seek to achieve scientific or technological advancement and
- Involve the resolution of scientific or technological uncertainty.

#### **Examination of a Claim**

The process of examining a claim can be divided into two areas:

The Science Test - That the activities under review are consistent with the statutory definition of research and development activities.

The Accounting Test - That the expenditure claimed as being laid out on qualifying research and development activities are correctly so claimed.

Experts within a claimant company should have no difficulty in deciding whether the Science Test is satisfied. Given that there is no in-house expertise in particular fields of science and technology it has been necessary for Revenue to employ experts, to provide opinion as to whether an activity would satisfy the Science Test.

#### **Compatibility with RTI Grants**

In broad terms, the definition of R&D contained in S766 TCA 1997 and the Enterprise Ireland grant aided scheme for RTI grants are generally comparable and are both based on the OECD Frascati definition. Unlike the tax credit relief, the RTI scheme does not explicitly require that activities seek to achieve scientific or technological advancement. However, a requirement that a project must represent an advance in the level of technical innovation relative to the company's

current products/processes is quite similar. The receipt of such a grant is thus a strong indicator of eligibility for the tax credit.

To simplify administrative procedures for smaller claims and to minimise the need to engage experts, to verify tax credit claims, it has been decided that Revenue would not, as a rule, seek to independently/separately have a claim, in respect of smaller projects examined, by an expert, where an Enterprise Ireland RTI grant has been approved in respect of the project. This practice will apply where:

- The project has been the subject of an RTI grant, and
- The R&D tax credit claimed for an accounting period (of not less than 12 months) is €50,000 or less, and
- The project is undertaken in a prescribed field of science or technology, as defined in regulations (S.I. No. 434 of 2004).

### **Limits to Practice**

This treatment applies only to RTI grants administered by Enterprise Ireland and not any other grant, whether they are for R&D or otherwise. Companies may claim a tax credit, up to and including the amount indicated, in respect of activities arising in a number of projects. Not all of those activities or projects will be grant aided. Therefore the receipt of a grant would not be an indication that the entire claim qualifies for the credit.

Moreover, in respect of grant aided and other projects, all the claimed cost will not necessarily qualify. Where an R&D tax credit is claimed for an accounting period all claims examined, in the course of a Revenue audit, must be subjected to the accounting test to ensure that costs correctly attributable to other activities are not included as R&D costs and that any allocations of cost are reasonably and correctly so allocated.

Revenue may from time to time check a number of claims supported by RTI grants on a risk basis.

### **Further Information**

Please see Revenue Guidelines for Research and Development Tax Credit.

<http://www.revenue.ie/doc/r&d.doc> or contact

*Isolde Hampson,  
Direct Taxes Interpretation and International Division,  
Stamping Building,  
Dublin Castle,  
Dublin 2.*

e-mail: [ihampson@revenue.ie](mailto:ihampson@revenue.ie)

## **Appendix 3**

### **Field of Science & Technology**

#### **Natural Sciences**

1. Mathematics and computer sciences, including mathematics and other allied fields, computer sciences and other allied subjects, software development,
2. Physical sciences including astronomy and space sciences, physics, and other allied subjects,
3. Chemical sciences including chemistry and other allied subjects,
4. Earth and related environmental sciences including geology, geophysics, mineralogy, physical geography and other geosciences, meteorology and other atmospheric sciences including climatic research, oceanography, vulcanology, palaeoecology, and other allied sciences,
5. Biological sciences including biology, botany, bacteriology, microbiology, zoology, entomology, genetics, biochemistry, biophysics, other allied sciences, excluding clinical and veterinary sciences.

#### **Engineering and Technology**

1. Civil engineering including architecture engineering, building science and engineering, construction engineering, municipal and structural engineering and other allied subjects,
2. Electrical engineering, electronics including communication engineering and systems, computer engineering (hardware) and other allied subjects,
3. Other engineering sciences such as chemical, aeronautical and space, mechanical, metallurgical and materials engineering, and their specialised subdivisions; forest products; applied sciences such as geodesy and industrial chemistry; the science and technology of food production, specialised technologies of interdisciplinary fields, *e.g.* systems analysis, metallurgy, mining, textile technology and other allied subjects.

### **Medical Sciences**

1. Basic medicine including anatomy, cytology, physiology, genetics, pharmacy, pharmacology, toxicology, immunology and immunohaematology, clinical chemistry, clinical microbiology, pathology,
2. Clinical medicine including anaesthesiology, paediatrics, obstetrics and gynaecology, internal medicine, surgery, dentistry, neurology, psychiatry, radiology, therapeutics, otorhinolaryngology and ophthalmology,
3. Health sciences including public health services, social medicine, hygiene, nursing, epidemiology.

### **Agricultural Science**

1. Agriculture, forestry, fisheries and allied sciences including agronomy, animal husbandry, fisheries, forestry, horticulture, and other allied subjects,
2. Veterinary medicine.

## **Appendix 4**

### **Categories of Activity that are not research and development activities**

- (a) research in the social sciences (including economics, business management, and behavioral sciences), arts, or humanities;
- (b) routine testing and analysis for purposes of quality or quantity control;
- (c) alterations of a cosmetic or stylistic nature to existing products, services or processes whether or not these alterations represent some improvement;
- (d) operational research such as management studies or efficiency surveys which are not wholly and exclusively undertaken for the purposes of a research and development activity;
- (e) corrective action in connection with breakdowns during commercial production of a product;
- (f) legal and administrative work in connection with patent applications, records and litigation and the sale or licensing of patents;
- (g) activity, including design and construction engineering, relating to the construction, relocation, rearrangement or start-up of facilities or equipment other than facilities or equipment which is to be used wholly and exclusively for the purposes of carrying on by the company of research and development activities;
- (h) market research, market testing, market development, sales promotion or consumer surveys;
- (i) prospecting, exploring or drilling for, or producing, minerals, petroleum or natural gas;
- (j) the commercial and financial steps necessary for the marketing or the commercial production or distribution of a new or improved material, product, device, process, system or service.
- (k) administration and general support services (such as transportation, storage, cleaning, repair, maintenance and security) which are not wholly and exclusively undertaken in connection with a research and development activity.

## **Appendix 5-Revenue e Brief No 63/2008**

*21 November 2008*

### *Finance (no.2) Bill 2008 - Research and Development*

Finance (no.2) Bill 2008 provides for a time limit in respect of claims made on or after 1 January 2009 under sections 766 and 766A Taxes Consolidation Act 1997. Such claims must be made within 12 months from the end of the accounting period in which the expenditure on research and development/relevant expenditure, giving rise to the claim, is incurred.

Revenue wishes to advise practitioners and other interested parties of the option available to them to lodge protective claims to repayment on or before 31 December 2008, in respect of research and development expenditure incurred in periods ending on or before 31 December 2007. The normal provisions in relation to a repayment will then apply to such claims.

Specific details in relation to the claim should be submitted shortly thereafter.

Any queries should be addressed to:

Isolde Hampson  
Corporate Business & International Division  
New Stamping Building  
Dublin Castle,  
Dublin 2

[ihampson@revenue.ie](mailto:ihampson@revenue.ie)

## **Appendix 6-Revenue e-brief No.02/2009**

*09 January 2009-Research and Development protective claims – follow up to eBrief 63/2008*

Revenue [e-Brief No. 63/2008](#) advised of the new time limit in respect of research and development tax credit claims and of the administrative arrangements in relation to protective claims lodged in certain cases where the new time limit prevents a claim for a prior year. This follow-up e-Brief sets out the specific details that must accompany any claim made in accordance with eBrief No. 63/2008 and the timeframe within which those specific details must be submitted in order to convert the protective claim into a valid claim. The information set out in Annex 1 to this e-Brief must, on or before 30 April 2009, be submitted by claimant companies in respect of each research and development project carried on by the company. It is important to note that:

- Where a company carried on more than one such project, separate information must be provided in relation to each one;
- Claimant companies must submit a computation of the tax credit claimed in respect of each accounting period, showing clearly the threshold amount and outlining how this amount has been calculated;
- Any claims submitted with incomplete information, will not be considered; supplementary information received after 30/04/2009 will not be considered;
- Generic information, which is not project specific or which does not address the scientific issues in a specific and precise way, will not be accepted.

Summary guidance on what constitutes qualifying Research and Development activities is given in Annex 2 to this eBrief. More detailed guidelines are available at [www.revenue.ie](http://www.revenue.ie). (Taxes & Duties – Corporation Tax)

Given that companies who have made protective claims in respect of prior years may have previously judged that they did not qualify for the credit, those companies should not now make a claim unless they can be fully satisfied that they:

- Satisfy the requirements in relation to scientific advance and resolution of scientific uncertainty;
- Have sufficient documentary evidence available to support their claim; and
- Can provide sufficient documentary evidence in relation to the costs claimed.

Claims for tax credits in respect of research and development will be subject to audit in accordance with the Code of Practice for Revenue Auditors and the Revenue Commissioners may consult with an expert in the relevant field of science and technology, as provided for in section 766(7).

Any queries should be addressed to:

Isolde Hampson or John O'Neill  
Corporate Business & International Division  
New Stamping Building  
Dublin Castle  
Dublin 2

[ihampson@revenue.ie](mailto:ihampson@revenue.ie)

[joneill@revenue.ie](mailto:joneill@revenue.ie)

## **Annex 1: Information to be submitted by claimant companies**

The information to be provided is as follows:

1. The field of science and technology concerned.
2. A detailed description of:
  - The research and development activities,
  - The methods used (i.e. the systematic investigative or experimental activities within the given field of science and technology). This must include details of the series of experiments or investigations undertaken to test the hypothesis.
  - The objective of the research and development.
3. The specific scientific or technological advancement that the company sought to achieve.
4. The specific scientific and technological uncertainty the company sought to resolve by those activities.
5. The date the research and development activity began.
6. The date the research and development activity ended, or state if it is still ongoing.
7. Amount of R&D expenditure (if any) paid to a university or institute, or to external subcontractors.
8. The amount and type of any grants received.
9. The qualifications, skill and experience of the project manager.
10. The numbers, qualifications and skill levels of other personnel working on the project.
11. A separate itemized analysis of qualifying cost for each accounting period in relation to each project.
12. Where cost has been attributed to research and development activities by apportionment of a greater cost, the method of and basis for such apportionment must be disclosed.
13. The computation of the tax credit claimed in respect of each accounting period, showing clearly the threshold amount.

## **Annex 2: Summary guidance**

The legislation has very specific requirements as to what constitutes R&D activities for the purposes of the credit. Section 766 TCA 1997 provides that R&D activities means systematic, investigative or experimental activities in a field of science or technology, being one or more of the following:

- Basic Research,
- Applied Research, or
- Experimental Development.

Each project should be documented showing clearly why each major element is required, and how it fits into the research activity as a whole. To build on the results of testing in a systematic way requires the organised documentation of work undertaken by way of experimentation or investigation. Failure to have such documentation may indicate the absence of a systematic, investigative or experimental approach.

A key provision is that activities will not be R&D activities for the purposes of the relief unless they:

- Seek to achieve scientific or technological advancement; and
- Involve the resolution of scientific or technological uncertainty

An advance in science or technology means an advance in the overall knowledge or capability in the field of science or technology (not a company's own state of knowledge or capability alone). Work which uses science or technology but which does not advance scientific or technological capability, as a whole, is not an advance in science or technology for the purposes of the tax credit.

Scientific or technological uncertainty would arise where on the basis of reasonably available scientific or technological knowledge or experience there is uncertainty as to whether a particular goal can be achieved.