

The European TREND CHART on Innovation

Thematic Report: “Innovation Finance”

Covering period:
May 2001 – September 2001

INBIS Ltd

<p>EUROPEAN COMMISSION ENTERPRISE DIRECTORATE-GENERAL INNOVATION/SMEs PROGRAMME</p>
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The European Trend Chart on Innovation

Innovation is a priority of all Member States and of the European Commission. Throughout Europe, hundreds of policy measures and support schemes aimed at innovation have been implemented or are under preparation. The diversity of these measures and schemes reflects the diversity of the framework conditions, cultural preferences and political priorities in the Member States. The 'First Action Plan for Innovation in Europe', launched by the European Commission in 1996, provided for the first time a common analytical and political framework for innovation policy in Europe.

Building upon the Action Plan, the *Trend Chart on Innovation in Europe* is a practical tool for innovation policy-makers and scheme managers in Europe. Run by the Innovation Directorate of DG Enterprise, it pursues the collection, regular updating and analysis of information on innovation policies at national and Community level, with a focus on innovation finance; setting up and developing innovative businesses; the protection of intellectual property rights; and the transfer of technology between research and industry.

The Trend Chart serves the "open policy co-ordination approach" laid down by the Lisbon Council in March 2000. It supports policy-makers and scheme managers in Europe with summarised and concise information and statistics on innovation policies, performances and trends in the European Union. It is also a European forum for benchmarking and the exchange of good practices in the area of innovation policy.

The Trend Chart products

The Trend Chart on Innovation has been running since January 2000. It tracks innovation policy developments in all EU Member States, plus Bulgaria, Cyprus, Czech Republic, Estonia, Hungary, Iceland, Israel, Latvia, Liechtenstein, Lithuania, Norway, Poland, Romania, Slovak Republic and Slovenia. The Trend Chart website (www.cordis.lu/trendchart) will provide access to the following services and publications, as they become available:

- a database of policy measures across Europe;
- a 'who's who?' of agencies and government departments involved in innovation;
- a series of six-monthly country reports for all countries covered;
- a series of six-monthly trend reports covered on each of the four main themes;
- a number of benchmarking reports;
- the European Innovation Scoreboard and other statistical reports;
- a news service and thematic papers;
- the annual reports of the Trend Chart.

The present report was prepared by John Clifford, INBIS Ltd. The information contained in this report has not been validated in detail by the Member States or by the European Commission.

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1. Executive Summary

As was the case with the previous report on this topic, only a small number of new measures have been introduced in the field of Innovation Financing during the period covered by this report (May – September 2001). The apparent trends identified in that report seem, however, to be continuing.

Analysis of the measures currently in the Trend Chart database shows that the proportion of active measures dealing with direct financing continues to fall, now accounting for 50% of measures. The percentage of enabling measures introduced since the beginning of 1996 is 45%, whereas this had only been 20% for the period 1991-1995. Direct financing measures show a decrease over that same period from 45% to 30%.

This is the second innovation finance thematic report to include a section focusing on a specific aspect of the topic. The previous report in this series took the topic of seed finance. In this report, the subject of tax incentives for R&D has been examined. The survey on this type of measure was conducted among the Trend Chart correspondents in the EU Member States to analyse the current trends in policy towards tax incentives for the stimulation of R&D and innovation activity.

The general trend is towards the greater use of the taxation system as an instrument of innovation policy, though the precise operational mechanism may vary. Ten of the Member States have some form of tax incentive specifically targeted at R&D with others considering the adoption of such incentives. In some Member States, however, no such measures are in place or anticipated.

Data on evaluation and benchmarking is insufficient, though studies have been undertaken which have identified some positive outcomes from the use of tax incentives. However, the case for this type of policy measure is not definitively proven.

It is also unclear at present to what extent policy makers are ‘transferring’ measures from one country to another, or using existing measures in other countries as a basis for new measures in their own countries, i.e. what level of cross-fertilisation of policy is taking place.

2. Introduction

This report continues the series that investigate policy trends in the financing of innovation in the Member States of the European Union and in the accession States. It covers the period from May to September 2001. As in the previous report in this series¹ one specific topic has also been considered in further detail. In this report, the featured topic is **Tax incentives for R&D**.

The second and third quarters of 2001 have seen continuing decline in industrial production and stock markets around the world. Technology stocks have continued to suffer heavily in the international bear markets, with an increasing number of investors taking the view that many of these stocks have been overpriced, and that telecomms companies have paid too much for third generation wireless licences. Although these developments relate directly to large established companies, the general loss of confidence in the sector has also affected the attitude towards financing innovation at all levels. The attack on the World Trade Center in September and its aftermath have only served to increase the degree of risk aversion amongst investors.

In the light of this, the role of government in stimulating investment in innovation, particularly in areas perceived as high risk, is now more important than ever. Access to finance remains a critical issue for young innovative companies and is still widely cited as the most significant barrier to development and constraint to growth for such companies. The boom and bust of much of the 'dot com' sector earlier in the year serve as a reminder, however, that access to finance is not in itself a sufficient condition for success. A sound business plan and competent management remain key success factors for all businesses, whether innovative or not.

Innovation finance policies should therefore be considered in this context, with several issues in mind. Among them:

- What is – and should be – the role of government in the stimulation of innovation finance?
- How do the innovation finance support measures of the Member States contribute to the overall stimulation of innovation and economic development?
- What improvements can be made to innovation financing and/or R&D financing, and how can such improvements be implemented?
- To what extent can and should public and private sectors work together?
- What mix of financial and fiscal measures is desirable?

This last question is directly addressed in this report in the survey on tax incentives for R&D. This issue is covered in section 4.

Section 3 continues the general analysis of innovation finance trends. Using the framework of the previous report, it also includes the new measures introduced during the six-month period covered by this report.

¹ European Innovation Trend Chart Thematic Report: Innovation Financing December 2000 to April 2001

3. Policy analysis

3.1 Analysis of existing and new measures

Innovation finance remains a fairly high priority area of policy in most EU Member States. The table below shows the relative priority accorded to this policy area in the country reports for the period May-September 2001. Though the numbers only measure relative positions and thus have no absolute meaning, they can be considered to be a fair indicator of policy priorities. The table also includes the priority accorded to taxation measures, both by way of contrast and in the context of the focus on tax incentives in this report.

Table 1. Relative priorities of innovation finance and taxation in EU Member States

Policy area	A	B	D	DK	E	FIN	F	GR	IRL	I	L	NL	NO	P	S	UK	Average
Innovation finance	4	4	2	5	4	4	4	4	3	3	2	2	4	3	2	2	3.25
Taxation	2	1	3	0	4	1	1	1	2	1	1	2	3	2	1	2	1.69

Source: European Trend Chart on Innovation. Country Reports May-September 2001

Note: A value of 4 or greater is indicative of a high or very high priority in the policy area. 1 or 0 indicates a very low level of priority accorded to the area.

The overall analytical framework remains the same as in previous thematic reports. For the sake of brevity, this framework will be repeated only in summary here. Over 100 policy measures gathered by the Trend Chart under the heading of innovation finance have been analysed.

The measures in general cover a wide range of activities which aim to facilitate the financing of companies – especially SMEs – to carry out RTD and innovation activities.

Most measures are aimed at the innovative firms themselves. The second grouping targets the enablers such as investors and intermediaries. It is noticeable, when examining the newly introduced measures (described in section 3.2), that these measures – with one possible exception – are not really new but rather a new implementation of an established policy instrument. Indeed, it could be argued that there is no longer anything really innovative about innovation financing support measures.

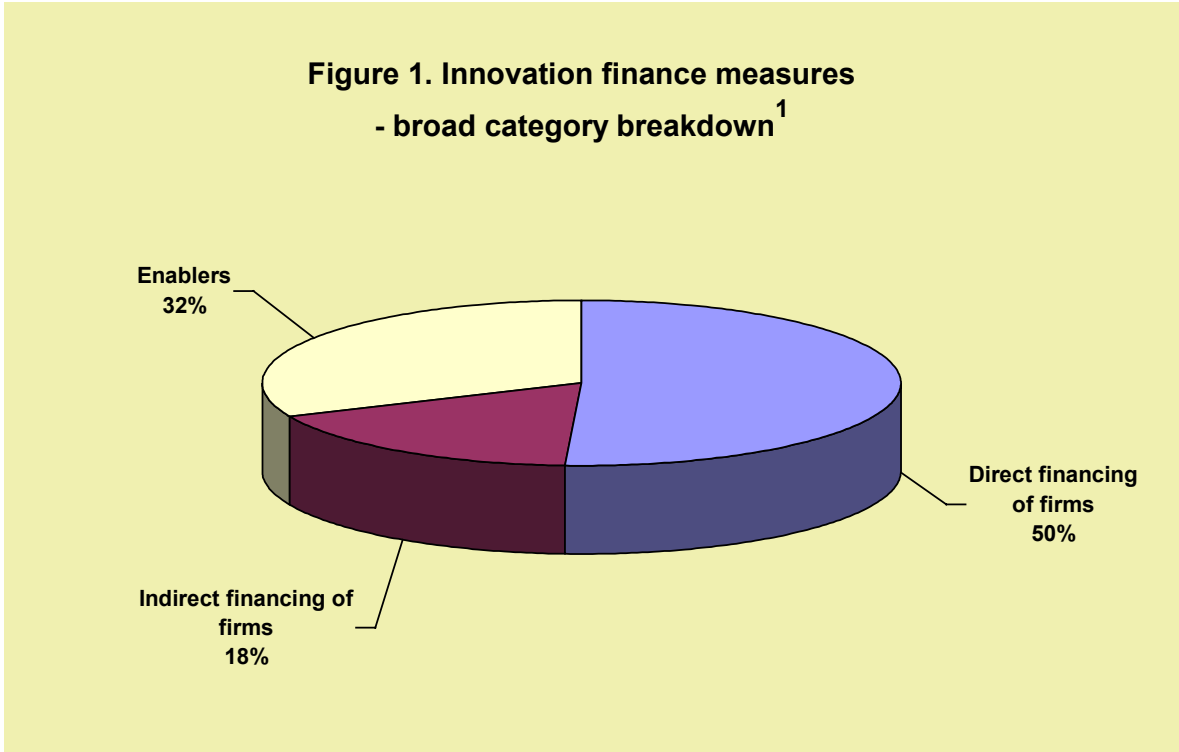
The measures may be divided into three broad categories:

- direct financial support to firms;
- indirect support to firms;
- support to enablers.

The breakdown² given in figure 1 of the measures in the Trend Chart database shows that providing financial support to firms remains the preferred mechanism for innovation

² Many of the measures have several aims, hence are included in several different categories

financing measures, accounting for 68% of the total. At least half of these aim to provide direct financial support to firms (50%). Although the proportion of financial support measures has fallen, this is more a result of the consolidation of programmes than an indication of any move away from this type of support.



3.1.1 Direct financial support

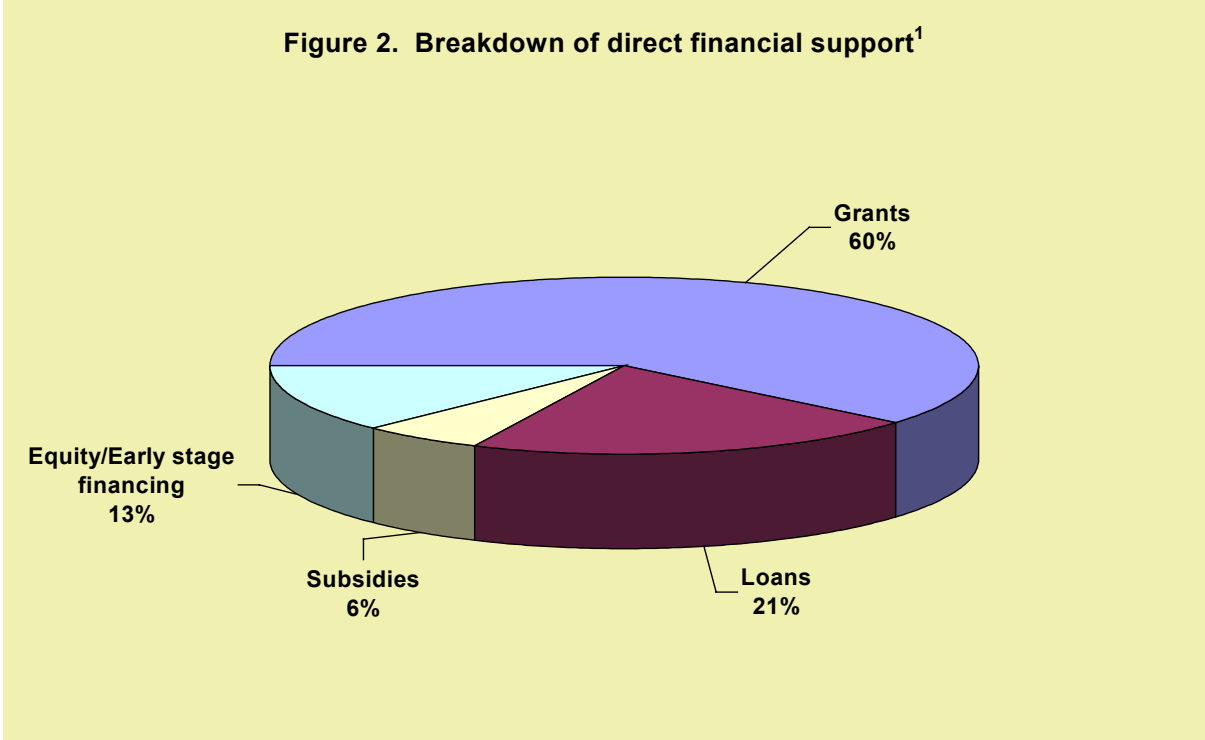
Direct financial support to firms covers:

- **Grants** for R&D or innovation projects.
- **Loans** for investments or the costs of RTD projects, usually at preferential interest rates.
- **Taking equity in companies** – Government-backed provision of capital to companies undertaking innovative activities. As shown in the previous report, there is a consensus that seed and pre-seed capital is the priority area for government intervention.
- **Subsidies** for capital goods investment, projects, etc.

Grants retain their popularity as the most frequently used measure (60%, see figure 2) to support R&D and innovation activities. The main beneficiaries are generally SMEs or public institutions (universities, research centres, etc.). This mechanism is applied at both national and regional level with an important macroeconomic impact on economic development and employment levels. In recent years there has been an increase in the allocation of available support funds through some form of competitive process. The newly introduced Irish Advanced Technologies Research Programme is typical in this regard in that proposals are judged on a competitive basis against each other in order to try to maximise the benefit of the support by picking ‘winners’.

Loans, accounting for 21% of the direct support measures, are the next most popular approach to financial support. A distinction is commonly made between financing newly established companies and supporting those companies of longer standing that are embarking on specific

innovation projects with a perceived high risk of failure. Several Member States have set up public or publicly supported institutions to provide loans, often together with equity, for the very early stages of high-tech firms. This support is often tied into other indirect support mechanisms such as mentoring or other management support to the young company.



Loans to established companies are more likely to be made at subsidised interest rates or over an extended period in return for a commitment from the recipient to exploit the technology in future, if successful. There is also the loan/grant mechanism, whereby a loan is only to be repaid in the event of a successful outcome to the project for which the loan was granted.

Seed-financing programmes generally take an equity stake and account for 13% of the direct support measures. There is a view that this form of state intervention distorts the market and generates unfair competition with financial institutions. The opposing view, however, is that such government support addresses a failure of the market at the high-risk end.

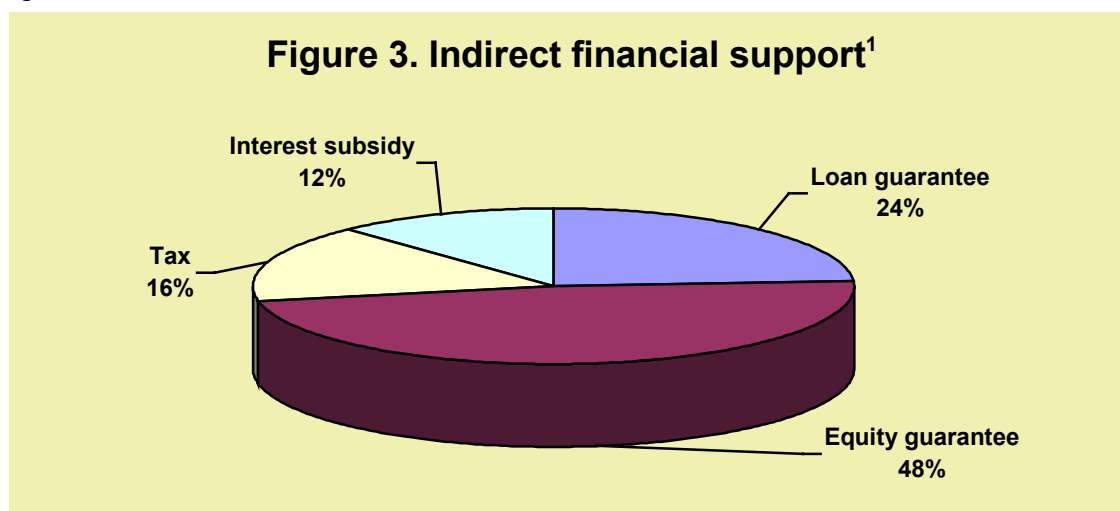
3.1.2 Indirect financial support

Indirect financial support to firms typically comes in one of the following forms:

- Provision of **loan and equity guarantees** for lenders/investors, making it economically profitable for the financiers to provide loans or equity to innovative firms.
- Providing **tax incentives** for innovation.
- **Interest rate subsidies** on loans to firms from financial institutions.

Guarantees are applied in 72% of the measures in this category (see figure 3). Equity guarantees make up 48% of the indirect financial support measures, and loan guarantees (amongst the oldest measures to facilitate the provision of finance to SMEs, especially to start-ups) cover 24%.

Tax relief is mainly used to stimulate R&D and innovation in firms, and in effect to subsidise high-risk capital investments. There is a considerable divergence in views on the effectiveness or desirability of this mechanism as a stimulant to innovation, but there is no doubt that it will continue to play a significant role in the policy portfolio of some Member States. 16% of the indirect financial support measures fall into this category. Section 4 of this report examines this mechanism in further detail.



The final category, interest subsidy measures for SMEs (usually provided by regional development banks or agencies) accounts for 12% of the total.

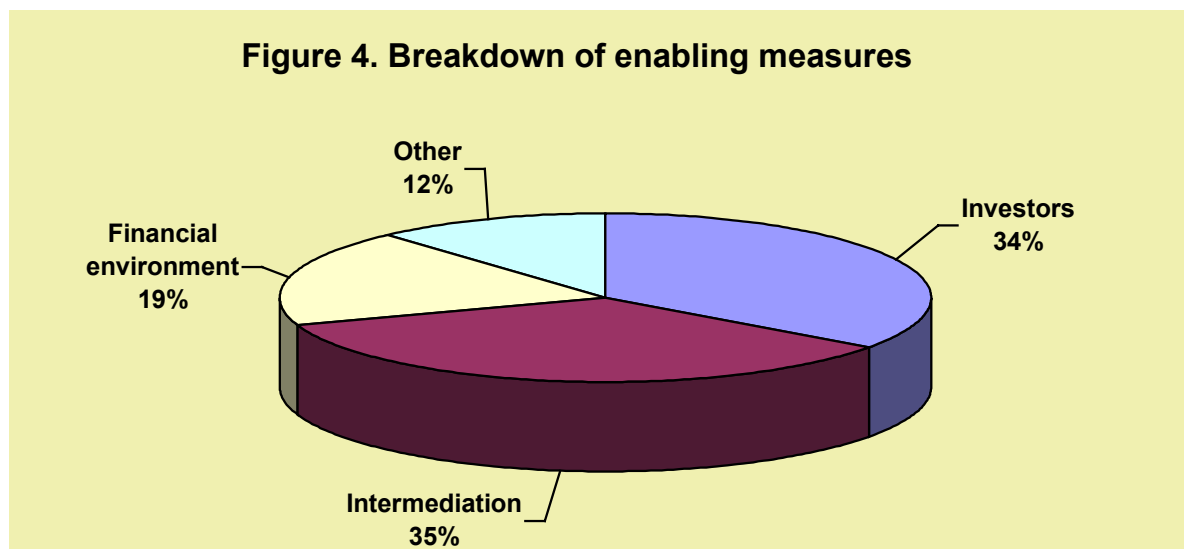
3.1.3 Enablers

The main enabling measures can be classified as follows.

- Measures aimed at investors:
 - **Tax relief for investors in innovative companies.**
 - **Equity investment in financial organisations.** The State contributes towards the capital of a fund which itself invests in companies of a predefined profile (e.g. technology start-ups).

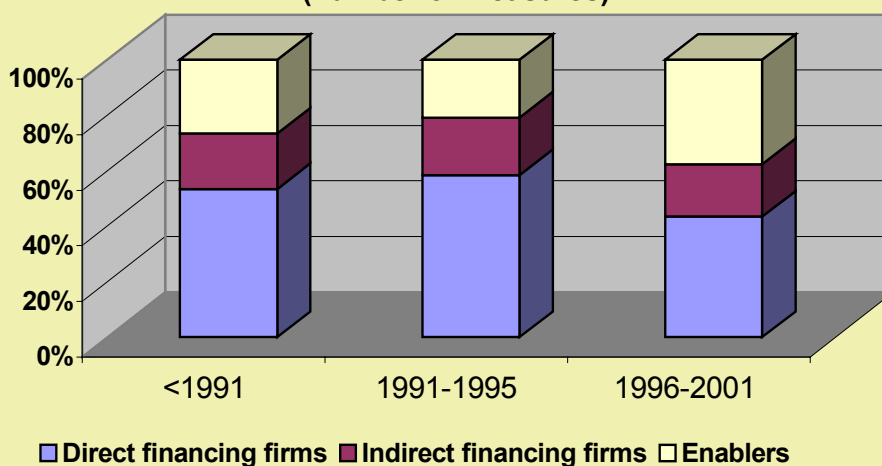
- Measures aimed at improving **the financial environment**, in particular by fostering the development of the ‘supply’ side – financial institutions capable of dealing with technologically innovative firms, stock exchanges adapted to the needs of start-ups, etc.
 - Creation of a professional infrastructure of investors.
 - Other more regulatory measures, such as changes in the fiscal and legal environment, have also been used to channel funds towards financing technology start-ups.
 - Development of stock markets adapted to innovative/high technology projects. These measures, also of a largely regulatory nature, complement the first ones by providing an exit route for investors.
- **Intermediation**, in a situation where money seems plentiful, one route for action in order to exploit that money has been to develop structures and actions to improve the links and understanding between investors and entrepreneurs through training and reciprocal provision of information.
- Measures which have a stronger focus on the **creation and support of new technology-based firms (NTBFs)** but are relevant to financing such as:
 - **Consultancy services**
 - **Incubators**
 - **Administrative simplification**

The largest two categories (see figure 4) of measures – those aimed at reinforcing the position of investors through tax relief and equity stakes (34%) and intermediation (35%), show the clear trend of measures in the most recent years.



In fact there is a shift towards enabling measures in general, which can be seen in the chart given in figure 5.

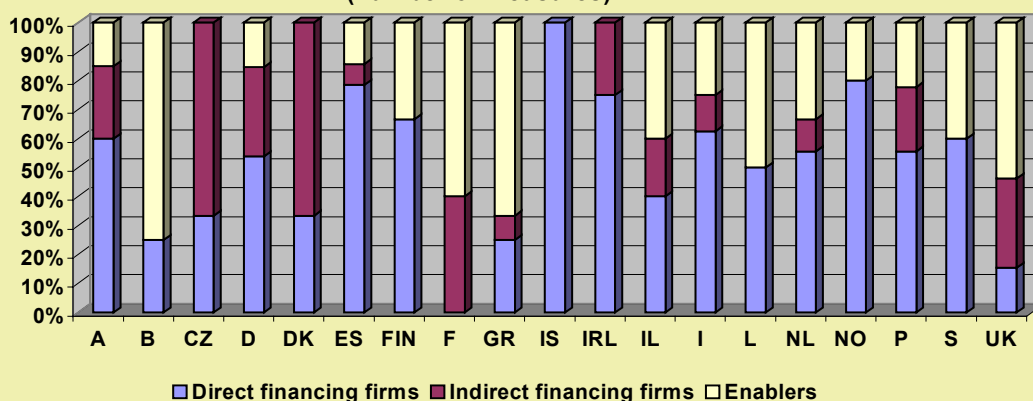
**Figure 5. Relative distribution per broad category per period
(number of measures)**



This chart shows that the percentage of enabling measures has increased from less than 20% in the period 1991-1995 to almost 45% in the period following 1996, with the largest increase coming after 1998. The percentage of direct financing measures has decreased over the same period from 45% to about 30%.

The breakdowns per country of the chart given in figure 6 can only be indicative. Too few measures have actually been introduced in some countries to permit a full comparison.

**Figure 6. Relative distribution per broad category per country
(number of measures)**



3.2 Analysis of newly introduced measures

Five new measures in all are reported as having been introduced during the period covered in this report. It is interesting to note, however, that in a number of other cases, existing measures have been modified in the light of operating experience in order to increase their effectiveness. No detailed analysis of these changes has been undertaken as they were operational changes which did not materially alter the relevant policy aims.

The most recent development in German innovation policy in the area of innovation financing is the new **BTU-Early Stage scheme** (DE 66), which started in July 2001. The scheme is a direct funding measure that provides pre-seed and seed venture capital up to €150,000 for technology start-up companies, especially science-based start-ups. This programme is interesting in the respect that the capital comes with a requirement for the recipient company to co-operate with a ‘coaching investor’. The role of this investor is to provide management support and to seek additional investors. The programme is co-ordinated by the tbg bank.

In Spain, the Ministry of Economy has introduced a **Plan for the strengthening and competitiveness of SMEs (PYME)**, ES 27). Although not targeted primarily at innovation finance, the measure provides 50% funding for innovative projects undertaken by SMEs. This measure replaces two earlier policy initiatives (ES 3 and ES 5).

The Irish Government has recently introduced the **Advanced Technologies Research Programme** (IE 27). The object of this programme is to generate technologies, products and processes that can provide the basis for new start-up companies in Ireland or improve the competitiveness of Irish companies. 100% direct funding support is provided to companies and research organisations (up to a maximum of IR£400,000 (€507,895) for specific projects approved by the co-ordinating body, Enterprise Ireland.

The Netherlands launched the **TOP programme** (NL 34) in May as a replacement for three separate earlier schemes (NL 2, NL 10 and NL 28). TOP is a direct funding measure which provides an interest-free credit for up to ten years to companies undertaking innovative R&D projects with high levels of technical (and hence financial) risk.

The final new initiative in the innovation-financing field during the six months covered by this report is the United Kingdom’s **Corporate Venturing ‘matchmaking’ project** (UK 56). This enabling initiative was developed in response to research undertaken by the government and business which revealed the difficulty of matching small innovative businesses with larger corporate partners. This initiative is being implemented jointly by the government’s Small Business Service (SBS) and the National Business Angels Network (NBAN).

4. Tax incentives for R&D

4.1 Introduction

This section of the report focuses on the provision of tax incentives by EU Member States to promote R&D in the private sector. The survey is based upon the information contained in the Trend Chart country reports, on additional information provided by Trend Chart correspondents (through a short questionnaire, a copy of which is given in section 8) and the database of innovation policy measures maintained by the Trend Chart. This report provides an overview of the results of the survey, putting them into a wider context.

Table 1 in section 3.1 would indicate that taxation is not a high priority in most EU Member States in relation to innovation policy, though there are some exceptions. Nevertheless, the recent conclusions of the European Industry Council of 5 December 2001 have stressed the increasing importance of taxation as an innovation policy instrument.

The arguments for and against the use of tax incentives to stimulate R&D spending can generally be categorised as follows:

- **For:** relatively easy to administer for both government and industry, and can be easily targeted at certain sizes of company if required.
- **Against:** tendency to favour large companies (which do not need assistance) over small companies (which do), and merely subsidises expenditure which would have been made anyway.

Table 2. EU Member States with current tax incentives for R&D

Country	Primary measure(s)
Austria	Tax allowance for all R&D spending, with an additional allowance for 'rapidly increasing' expenditure.
Belgium	Increased tax deduction for R&D or patent investment, especially for SMEs. Tax deduction for employment of R&D personnel with plans to extend this scheme.
France	Tax credit for increased R&D expenditure.
Ireland	Tax deduction for additional R&D expenditure (recently discontinued).
Italy	Tax deduction for specific R&D items identified in company statutory accounts.
Luxembourg	Accelerated depreciation rates for equipment used in research.
Netherlands	Reduced payroll taxes and social contributions for R&D staff
Portugal	Tax credit for companies performing R&D with a higher rate for incremental expenditure.
Spain	A range of tax credits for a number of activities and costs associated with R&D.
United Kingdom	Tax credit to SMEs for R&D expenditure, subject to this exceeding a threshold level. Reform and simplification of tax regime related to intellectual property.

The outcome of this particular policy debate in different countries is sometimes seen as a measure of the relative strengths of the Ministries responsible for Finance and Innovation. Opinion on the effectiveness and desirability of tax incentives for R&D is split, though the balance appears to be in favour. At present, ten EU Member States have put specific measures in place (summarised in table 2 above) which provide for tax incentives as a means

of promoting higher levels of R&D spending in industry. The arguments within each country follow the general outline given above.

4.2 Tax incentive policy in Europe

4.2.1 Tax credits and allowances

It is clear from what has been said above that most tax incentives offered to companies for undertaking R&D fall into two categories of credits or allowances: one for all R&D-related expenditure and one providing only for incremental increases in expenditure on R&D. In addition to these two primary instruments, there is a third approach, which essentially provides a subsidy to the employment costs of staff engaged upon R&D activities.

In Austria (AT 26), this approach has been combined in such a way that all R&D expenditure qualifies for an allowance of 25% against the company's tax liability, with a 35% allowance granted on expenditure which is above the average for the previous three years. The intention of this measure is to provide a particular incentive for any young companies, i.e. technology-based start-ups, which have high levels of expenditure on research and development. Interestingly, a recent report³ on this tax incentive made a number of criticisms of the policy. However these did not concern the basic concept of tax concessions but rather some specific points on the way that the policy had been implemented in practice. The key critical points raised were that:

- the policy provides no particular advantages to SMEs or start-ups over those available to large corporations;
- the tax allowance only benefits enterprises if they are making profits, thus its impact on start-up companies is reduced;
- the tax allowance is only granted when patent protection is granted as a result of the work undertaken or if 'social returns' are forthcoming; this approach neglects the difficulties and costs associated with measuring such 'social returns'.

The report made recommendations on all of these points and also suggested how the administration of the measures might be simplified. Perhaps the most significant proposal is that effectiveness should be evaluated after a period of three years. Discussion continues, with a further report expected to be published shortly by the Austrian social partner, the Beirat für Wirtschafts- und Sozialfragen.

Portugal operates a system very similar to that of Austria, with a 20% tax credit on R&D expenditure and a 50% rate applied to incremental expenditure. This programme was modified during 2001 to increase the credit rates and to expand the range of eligible expenditure to which the credit could apply. These changes are part of an apparent trend in Portuguese innovation policy towards the greater use of fiscal stimuli in place of direct financial incentives. The operation of the Portuguese policy also shows up a key shortcoming in the Austrian system in that the tax credit in Portugal can be carried forward for up to six years and be offset against future profits, rather than having to be used up in the year of expenditure.

³ Hutschenreiter, G., Aiginger, K., *Steuerliche Anreize für Forschung und Entwicklung*, Internationaler Vergleich und Reformvorschläge für Österreich, Wifo, 2001.

Spain operates a similar, but somewhat more complex, system, with tax deductions available against numerous different categories of R&D costs and external spending. The rate applied varies between 10% and 60% depending on the category of expenditure, but the overall scope of the measure is very broad, even covering some aspects of software acquisition and quality certification. Tax allowances given under this programme depend on the relationship between the level of the current year's spending with the average level of spending over the two previous years.

Luxembourg does not provide tax relief on R&D spending as a whole, but offers accelerated rates of depreciation on equipment items that are used for scientific or technical research. This has a similar effect to other allowances but clearly favours capital investment over other spending, such as current spending on researchers' salaries, for example. One advantage of this approach is that it makes it easier to identify the eligible costs against which the tax allowances can be granted.

The French experience is a little different, with the *Crédit Impôt Recherche* (CIR) providing for tax credits on eight categories of R&D expenditure. This scheme was originally launched in 1988 as a horizontal measure applicable to all industrial sectors. The tax credit granted is 50% of the difference between the current year's R&D expenditure and the average of the two previous years. Studies of this scheme have produced inconsistent results, though an average of just under 7000 companies have applied annually for tax relief under the scheme since 1986. It appears that the scheme has been especially advantageous to SMEs, with the financial benefits being concentrated at the lower end of the range of expenditure.

One significant negative factor to have emerged during the operation of this scheme is that companies which are unable to maintain the levels of their R&D spending accrue negative tax credits. These companies therefore drop out of the scheme and are unable to take full advantage in later years when their spending levels rise again. New measures to remedy this situation are expected to be introduced in the near future.

The final member of the group of countries operating a scheme of tax relief on general R&D spending is the United Kingdom. Historically, the UK has been somewhat sceptical about the benefits of any special form of tax relief for R&D, but the current Labour administration has recently introduced the *Small Firms' Tax Credit* scheme, which provides for tax relief to SMEs (as normally defined by the EU) at a rate of 150% of their current R&D spending. Although no direct evidence is available, it is thought that this measure was probably introduced after an assessment of other countries' experiences with tax credits. Following submissions from employers' organisations, the government is considering extending the tax credit to larger companies and it issued a consultation paper⁴ earlier this year.

4.2.2 Other tax incentives

Both Belgium and the Netherlands have adopted a slightly different approach to using fiscal measures to stimulate R&D efforts. Here, tax relief has been directed specifically at the costs of staff employed in R&D functions.

In Belgium, a fixed deduction of €11,006 is allowed from the taxable profits of a company for each additional staff member recruited into an R&D role. If the person is especially highly qualified, this deduction is doubled. The main advantage of this scheme is its relative

⁴ HM Treasury/Inland Revenue, *Increasing Innovation – A Consultation Paper*, Budget 2001

simplicity; the disadvantage for companies is that the allowance is a one-off reduction which applies for one year only and which cannot be carried forward if the company does not record a profit in the year of recruitment. The programme has been running since 1992, and consideration is currently being given to some relaxation of eligibility criteria for spin-off and start-up companies.

The Dutch approach is much broader in its application. The WBSO scheme (NL 05) allows for a tax deduction of 40% on R&D-related wage costs up to €68,000 per year with a 13% deduction on all costs above this level up to a ceiling of €6.8 million per company. The scheme entered into operation in 1994 and is considered a success, not least because of the simple administration procedures and ease of accessibility to SMEs. Two reports published in 1998⁵ considered the effectiveness of the measure and established the following points:

1. There is a high correlation between the level of WBSO per employee and the intensity of R&D activity.
2. Firms using the WBSO spend more on R&D than those that do not use the scheme.
3. WBSO has led to higher numbers of R&D employees..

Interestingly, the evaluation was unable to determine the direction of the causality for points 1 and 2 above.

4.2.3 Member States not using tax incentives

The other Member States of the EU do not at present use tax incentives that are specifically directed towards R&D spending as a means to stimulate innovation. The position of Swedish policy-makers in this regard is that R&D expenditures are tax-deductible, like any other business expense, and hence no special treatment is required. Similarly, in Germany there is a view that market forces are generally sufficient to stimulate R&D in larger companies, and that specific market failures are better addressed through providing direct subsidies and other innovation-financing mechanisms rather than fiscal incentives. In both these countries, as in others, tax allowances are available for certain types of investment expenditure, hence some of this benefit will accrue to companies that are making investments for R&D purposes. Denmark and Finland subscribe essentially to the same view as Sweden and Germany, with this aspect of innovation policy having a very low priority.

Other countries are not so firm in their opposition to tax incentives for R&D. In Norway, the Hervik Commission proposed in 2000 that state subsidies should be provided to companies making expenditures on certain types of R&D project. The committee majority recommended that such subsidies should be provided in the form of a tax credit, but the Finance Ministry was successful in opposing this and a more modest scheme was subsequently introduced. Recent moves in Parliament, however, suggest that the proposed tax incentives may still be introduced in the near future.

Greece offers a further indication that fiscal incentives are gaining in popularity. A wide-ranging study has been made into a possible overhaul of the whole taxation system. It is

⁵ Bureau Bartels, *Evaluatie van de wet vermindering afdracht loonbelasting en premie volksverzekeringen, onderdeel speur- & ontwikkelingswerk (voorheen de WBSO) – Deel I*, Amersfoort, 1998
Van den Hove *et al.* *Evaluatie van de effectiviteit van de Wet vermindering Afdracht, S&O-vermindering (WVA/S&O, voorheen WBSO), Deel II*, Voorburg: Centraal Bureau voor de Statistiek, 1998

anticipated that, as part of this review, tax incentives for stimulating R&D and innovation will be studied with a view to their introduction.

5. Conclusions

Developments in the field of innovation financing continue to be slow but steady. While, as observed earlier, it would be premature to attempt to draw definite conclusions about policy trends in this area, it is possible to identify some emerging trends in innovation financing.

Only five new measures having an impact on innovation financing were introduced during the six-month period covered by this report. Some of these measures replace earlier measures or consolidate previous schemes. Although direct financial support continues to account for 50% of the total measures, this proportion continues to fall slowly, as greater use is made of enabling measures and fiscal incentives.

One emerging trend goes in the direction of consolidation, amalgamation and simplification of the administration of innovation support measures, which is in keeping with the philosophy of reducing the burden of government on business. However, it is clear that there is, at present at least, little innovation in how policy is applied in this area of innovation finance. Policy measures are quite stable, with greater emphasis on changing the way they are operated rather than any significant changes in direction.

There is some indication that fiscal measures are increasing in popularity amongst governments as a means of promoting certain types of innovative behaviour. Using the tax system as a policy instrument is not a new phenomenon, but in many countries its use as a vehicle for innovation policy implementation is relatively new. It is possible to target tax measures quite accurately if desired, or to provide the benefits of reduced tax to companies across a very wide range of sizes and activities.

The experience gained by governments in operating tax incentives suggests that these measures do have a place in the innovation policy-makers toolbox, but reveals many potential pitfalls at the operational level. Evaluation of the effectiveness of these measures shows that they contribute positively to the level of R&D activity and also the clear correlation between uptake of the tax incentives and levels of R&D activity. This does not, however, answer the criticism that the tax regime merely rewards companies for undertaking activities that they would have carried out anyway, i.e. that the effect on the total R&D effort is marginal.

Overall, there is still insufficient information on the evaluation of measures, forcing policy-makers to continue to rely on largely anecdotal indicators of the effectiveness and efficiency of measures.

Much greater effort is required, both to analyse the impact of policy measures on their intended targets and to gather the baseline data that will be required to facilitate such analysis ahead of implementing new policy measures.

6. Annex – Distribution of innovation-financing measures by country/theme

General measures

	f 1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Financial environment									DE50 DE40 AT15 AT 6		AT48 GR36 GR39 ES17 IT21	
	UK 2	IT17 IL 3 UK 4			IE 8		UK 5 FR16				IT21	FI13
Intermediation							UK 6 UK 5 NL 9 FI 3					
		IL 1				SE 8	AT 4	ES 9	BE11	BE53 BE28	ES17 ES13	
Loan guarantee	DE10 UK 8		DK 1		PT 3 NL 3					CZ 4	CZ 8	
Equity guarantee	IL 2 DE13 FR 9 AT 5											
					DK 2	DE12		AT12	AT 7			

Investors

	f1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Equity investment	DE11 GR13	IT17 IL 3			PT 3	DE12		NO 5 GR 5	NL15 LU 2 FR15	UK11 FR13		
								PT 4 FR10			UK31	
Tax relief							NL23					

Firms

	f 1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	
Tax relief								IT 7			UK35	DE14	
Loans	ES 1 NO 8 AT 3						FI 4 NL28 IS 1 FI 2	NL10 NL2 DE20		BE46 SK 1	DE 56	NL33 NL34 ES24	
					NO25			AT29 ES 3	AT 7				
Interest rate subsidy	ES 3 AT14									CZ 4			
Equity Investment	DE11 AT14				NL16		AT13	DE20 AT11		BE46		DE66	
Grants	AT 3 AT 5 ES 4 SE 3 SE 2 NO18 NO 8 NO 2 IT19 IL 4 GR 1												
						IL 4 PT10						ES27	
					ES 8 SE 1 PT 9	PT3 IT 4	IT20	UK 5 NL 9	ES 9 ES 6		AT39 DE26	PT15 UK10 ES19 ES17	ES24 IE27 NO27 IT36
				LU 1	PT 3	IT 4	AT 8	DE 8	IT 1	IE 7	AT 9	ES12	FR34
		IL 1	IT16	AT10								DE20	FI13
	VC Programme												

7. Table of measures

The measures highlighted in bold have been added since the last report

TREND CHART ON INNOVATION INNOVATION FINANCING

<i>Coverage</i>	<i>Measure</i>	<i>Website</i>	<i>Date</i>	<i>Content summary</i>	<i>Mode of operation</i>	<i>Targets</i>
Austria	AT 3 Seed Financing Programme (Venture Capital Programme)	www.innovation.co.at	1989	Provides quasi-equity (up to €728,000) to technology-based start-ups and new ventures promising to offer superior know-how (products, processes or services), and provides investment to support the coaching of entrepreneurs.	Grants – firms Loans – firms	SMEs/Industrial SMEs
Austria	AT 4 I2 - Ideas and Investments	www.innovation.co.at	1996	Creating links between entrepreneurs with good ideas or existing products and investors able to support them with capital and management (business angels)	Intermediation	Large companies/ Large industrial companies Managers SMEs/Industrial SMEs
Austria	AT 5 BÜRGES/ Young Entrepreneurs Programme and Equity Capital guarantees	www.buerges.com/en/naviset/f_f_ord.html	1977	Supports the build-up of equity capital for founding new enterprises, using grants for interest on private savings for capital resources, and guarantees of equity holdings in SMEs for minority participation in cash, for a minimum of 10 years	Grants – firms Equity guarantee	Individuals SMEs/Industrial SMEs
Austria	AT 6 Vienna Stock Exchange: exchange for SMEs – FIT	www.wbag.at	1998	Targets SMEs with growth potential in promising sectors, or innovative niche players that have expansion plans.	Financial environment	Innovative SMEs with a growth potential, investors
Austria	AT 7 Technology financing programme for SMEs – ERP	www.fgg.at/	1998	Supports the development of technology-oriented SMEs by providing risk sharing guarantees and loan guarantees to companies also using Venture Capital co-financing funds	Equity guarantee Loans – firms	Venture Capital Funds, technology-orientated SMEs
Austria	AT 8 ERP Technology programme/ SME technology programme/ Special programme on Growth and Technology	www.erp-fonds.gv.at/erp/	1995	Provision of low-interest loans to stimulate RTD projects. Support for the creation of new enterprises, processes and products. Support to mobilise equity capital and extend the equity capital base for technology-based SMEs.	Grants – firms	Individuals Large companies/ Large industrial companies SMEs/Industrial SMEs
Austria Tyrol	AT 9 Tyrolean impulse Package	www.tirol.gv.at/wirtschaftsfoerderung/impulspaket.html	1999	Subsidies (up to 15%) to companies (mainly SMEs) with projects with technological content and likely positive impact on Tyrolean economy.	Grants –firms	Tyrolean SMEs Larger enterprises for projects having a clear technological content

<i>Coverage</i>	<i>Measure</i>	<i>Website</i>	<i>Date</i>	<i>Content summary</i>	<i>Mode of operation</i>	<i>Targets</i>
Austria Tyrol	AT 10 Directives for the promotion of research and development, innovation		1993	Financial promotion measure (subsidies) for industrial research and development, innovation and flexible automation in SMEs.	Grants – firms	Tyrolean SMEs
Austria Styria	AT 11 Regional Initiatives Styria	www.sfg.co.at	1997	Grants and participation for setting up and developing SMEs. The scheme provides in particular a 'silent participation' of up to 75% of eligible costs (€728,000 maximum) over five to ten years.	Grants – firms Equity – firms	SMEs/Industrial SMEs
Austria Vorarlberg	AT 12 Saving for the creation of an enterprise		1997	A guarantee to up to 50% of equity investment in enterprises with growth potential in international markets. Duration up to years. Maximum granted is 25 million ATS (€1,817,000).	Equity Guarantee	Enterprises located in Vorarlberg with innovative products and services and potential for growth
	AT 13 Young Entrepreneurs Programme	www.ooe.gv.at/foerderung/wirtsc/haft/index.htm	1995	Supports the costs of external consultancy in connection with the formation of new enterprises. Support goes up to €1,090 maximum. Supports SMEs to strengthen their equity capital base. €72,000 – €363,000 participation between 10 and 20 years.	Consultancy services Equity – firms Early stage financing	Individuals SMEs/Industrial SMEs
Lower Austria	AT 14 Lower Austria participation model, business start ups	www.noel.gv.at/service/WST/AV/ST2/index.htm		Financial participation and subsidies for existing companies and start-ups in Lower Austria	Equity – firms Interest subsidy – firms	Start-ups Innovative enterprises
Austria	AT 39 Technologies for sustainable development	www.fff.co.at	1999	The programme aims to strengthen research in the field of sustainable development and to facilitate the implementation and diffusion of the technologies involved	Grants	SMEs Universities Large firms Research institutes
Austria	AT 40 Impulse Programme Mobility and Transport Technologies	www.erp-fonds.gv.at	1999	To promote innovative activities in the Austrian transport sector in order to improve the resource efficiency and quality of transport	Grants	SMEs Universities Large companies Research institutes
Austria	AT 48 REG Plus	www.tig.or.at		A major funding module within RIF 2000, intended to increase the performance of the Austrian Technology and Innovation Centres.	Grants Subsidies	Technology and Innovation Centres

<i>Coverage</i>	<i>Measure</i>	<i>Website</i>	<i>Date</i>	<i>Content summary</i>	<i>Mode of operation</i>	<i>Targets</i>
Austria Carinthia	AT 15 Equity capital guarantee scheme		1998	Guarantees equity holding in SMEs for minority participation in cash and for a minimum of 10 years. Maximum guarantee offered by the Carinthian Government goes up to 100%	Equity guarantee	SMEs and investors
Brussels region	BE 11 Business Angels Connect	www.eebic.be/	1998	Network of business angels aiming to match supply and demand for risk capital; contributes to the quality of business proposals.	Intermediation	Large companies/ Large industrial companies SMEs/Industrial SMEs
Belgium Flanders	BE 28 Business Angel Networks		1999	Subsidies for the launch and operation of five Business Angel Networks: 50% of feasibility study and 50% of the pilot phase if financed by the EU.	Intermediation	All Flemish companies
Belgium Wallonia	BE 46 Fund for the industrialisation and commercialisation of the results of research - FIRD		1999	Fund co-financed by the Walloon region, aiming to provide equity and loans to companies wishing to exploit the results of research co-financed by the region.	Equity – firms Loans – firms	Enterprises in the Walloon region having benefited from regional co-financing for research projects.
Belgium Wallonia	BE 53 Business Angel Networks		1999	Subsidies (70% ERDF, 30% region) go to a Business Angel Network.	Intermediation	Walloon SMEs
Denmark	DK 1 Business Development Finance	www.vaekstifonden.dk/uk/	1992	Autonomous public organisation having the status of a private venture capital company, and providing loans, bank loans guarantees or direct guarantees to SMEs for their development projects	Loan guarantees Loans – firms	Large companies/ Large industrial companies Research institutes SMEs/Industrial SMEs
Denmark	DK 2 Equity guarantee programme		1994	Selected venture capital companies receive a 50% guarantee on investments made in emerging growth companies (on a case by case basis) from seed/start-up stage to a later developmental stage	Equity guarantee	SMEs/Industrial SMEs
Finland	FI 2 Finnvera Small Loan Programme	www.finnvera.fi	1996	Provision of small and micro loans for start-up and small operating businesses, including those in the service sector, with a special credit line for companies owned and managed by women	Loans –firms	Graduates Other Researchers
Finland	FI 3 SITRA Matching Service	www.sitra.fi/matching	1996	Business Angel Network.	Intermediation	Private investors and SMEs
Finland	FI 4 Capital funding for companies' product development activities	www.tekes.fi	1996	Low interest loan to finance equity to start-ups and growing technology intensive SMEs. No guarantee. Up to 50% of equity given for up to 8 years with 5 free years.	Loans – firms	SMEs/Industrial SMEs

<i>Coverage</i>	<i>Measure</i>	<i>Website</i>	<i>Date</i>	<i>Content summary</i>	<i>Mode of operation</i>	<i>Targets</i>
Finland	FI 13 Pre-Seed Finance	www.sitra.fi	2001	This initiative aims to bridge the gap between start-up companies and venture capital financing markets. The object is to encourage: (1) the birth and accelerated early stage growth of new technology-based companies, (2) increase the commercialisation of technology and knowledge from universities and research institutions, and (3) new private capital investments in technology-based companies in their earliest stages.		Individuals Researchers
France	FR 9 SOFARIS guarantee scheme for venture capital companies	www.education.gouv.fr/technologie/mesur/assemnat.htm	1982	The scheme provides a guarantee to venture capitalists who make equity investments in higher risk or start-up businesses (up to 50% of equity investments, 70% for new companies). Guarantees are limited to €750,000 for each company.	Equity guarantee	Venture capital companies and innovative start-ups
France	FR 10 Mutual Fund for Innovation (FCPI)	www.education.gouv.fr/technologie/mesur/fcpi.htm www.industrie.gouv.fr/accueil.htm www.anvar.fr	1997	Provides tax advantages to individual investors who invest in FCPI reserved for equity investments in innovative enterprises.	Tax relief – Investors	Individuals
France	FR 13 Support for the creation of seeds capital funds	www.education.gouv.fr/technologie/mesur/incub5b.htm	1999	Creation of seed capital funds on major areas of technology with a partnership of public research institutions and private investors. Development through regional incubators regional funds to invest 75% of its funds in firms linked with public research.	Equity – Investors	Research Institutes
France	FR 15 The Public Venture Capital Fund (FPCR)	www.caissedesdepots.fr	1998	Public fund which can take a participation of 20% in private funds with a limit of €9,2 million. Private funds must invest in equity capital of new innovative companies (i.e. less than seven years old).	Equity - investors	Venture capital funds, Innovative SMEs
France	FR 16 The 'Nouveau Marché'	www.nouveau-marche.fr www.anvar.fr	1996	Part of Euro Nouveau Marché network. No specific conditions required for companies less than two years old. Equity capital necessary 9 MF. Minimum market value €5 million	Financial environment	Large companies/ Large industrial companies Managers SMEs/Industrial SMEs
Germany	DE 8 INSTI SME Patent initiative	www.insti.de/ www.patente.bmbf.de	1996	Improve the use of patent system by SMEs. SMEs receive coupons through which they can pay for consulting, searches, patent application assistance, etc. Subsidy up to 50% of total costs. Maximum DM15,000 (€7,700) per applicant	Grants – firms	SMEs/Industrial SMEs

<i>Coverage</i>	<i>Measure</i>	<i>Website</i>	<i>Date</i>	<i>Content summary</i>	<i>Mode of operation</i>	<i>Targets</i>
Germany	DE 10 European recovery Programme fund	www.kfw.de	1997	Provision of soft loans or guarantees/refinancing (up to 85% in the new Länder) for the easier development of innovative/high growth firms with innovative products, enabling them to enter the market within a shorter timeframe.	Loan guarantee	Individuals Large companies/ Large industrial companies Managers SMEs/Industrial SMEs
Germany	DE 11 DtA-Technology Venture Capital Programme (tbg)	www.tbgbonn.de/finance/index.phasen.html		Equity for (a) Developing business plans, creation of organisational structure for product and process development at early stages of investment projects ; (b) R&D and introduction to market; (c) Introducing the company to a capital market. Equity investment possible up to €125,000, €2.5 million for 'hidden venture capital'	Equity – firms	Large companies/ Large industrial companies Managers SMEs/Industrial SMEs
Germany	DE 12 BTU-Investment Capital for small and medium sized companies		1995	Mobilisation of up to DEM6 million (€3million) (with a co-investor) to finance spending on R&D and changes in existing technology or marketing.	Equity – firms Equity guarantee	SMEs/Industrial SMEs
Germany	DE 13 Venture capital Programme of the KfW	www.kfw.de		The KfW is able to cover the risks of investments in technology SMEs (up to 50% in new Länder). Its annual commission lies between 0.45% and 2.2%.	Equity Guarantee	Technology SMEs, venture capital funds/companies
Germany	DE 14 Principles for strengthening resources for innovation	www.bmwi.de www.bundesfinanzministerium.de		Corporate taxes are to be reduced to 25% by 2001 to improve investments made by firms.	Taxation – Firms	Large companies/Large industrial companies, Public Authorities/ Organisations, Research institutes, Researchers, SMEs/Industrial SMEs, Universities
Germany New Länder	DE 20 FUTOUR	www.vfivde-it.de	1997	Subsidies , venture capital, consulting and technical support for financing and implementation of R&D projects up to market entry. Subsidies and venture capital may not exceed €750,000 (up to 90% of project costs) over 10 years.	Loans – firms Equity – firms	SMEs/Industrial SMEs Young, technology-oriented very small firms (not more than 10 employees and not older than three years) and start-ups in the New Länder

<i>Coverage</i>	<i>Measure</i>	<i>Website</i>	<i>Date</i>	<i>Content summary</i>	<i>Mode of operation</i>	<i>Targets</i>
Germany	DE 26 InnoNet	www.vdivde-it.de/inmonet www.bmwi.de	1999	Improves co-operation between small & medium-sized companies and research establishments as early as the R&D phase through subsidising up to 90% of the project expenses of the research establishments to a level of up to €1.5 million over a maximum period of three years.	Grants – firms	Research institutes , SMEs/Industrial SMEs
Germany	DE 40 Innovation Market	www.venture-management-services.de/innovation	1998	Market place for innovators to find companies, financing and assistance with bringing their products to the market through an Internet site	Intermediation	New and recent firm founders in search of assistance and resources for their businesses
Germany	DE 50 Business Angel Network of Germany (BAND)	www.business-angels.de	1998	Provides a platform for contacts between business angels and potential start-ups and young firms. Presentation through the Internet; legal aid is provided through the network.	Intermediation	Large companies/ Large industrial companies SMEs/Industrial SMEs
Germany	DE 56 Employment and Qualification	www.kfw.de	2000	Creation of new jobs related to SME activities	Loans - firms	SMEs
Germany	DE 66 BTU - Early Stage	www.tbzbonn.de	2001	The BTU Early Stage programme provides financial support for pre-seed and seed stages of technology-oriented start-ups.	VC Investment	Individuals Researchers Other bodies
Germany	DE 67 Direct Research Promotion - Natural Sciences, Climate, Environment, Energy	www.bmbf.de	1957	Grants-in-aid for R&D projects are provided in the following fields: oceanography - polar research; earth science - socio-ecological research; regional sustainability - business-related sustainability - integrated ecological techniques - research concerning climate and the atmosphere - research concerning energy and energy techniques	Direct grants for R&D projects	Individuals Large companies/ Large industrial companies Research institutes Researchers SMEs/Industrial SMEs Universities
Germany	DE 68 Direct Research Promotion - New Technologies	www.bmbf.de	1969	Grants-in-aid for R&D projects are provided in the following fields: physical and chemical technologies - production technologies - nanotechnology - new materials for key technologies - micro systems technique - research on lasers, sub-micron-silicon technology	Direct grants for R&D projects	Individuals Large companies/ Large industrial companies Research institutes Researchers SMEs/Industrial SMEs Universities

<i>Coverage</i>	<i>Measure</i>	<i>Website</i>	<i>Date</i>	<i>Content summary</i>	<i>Mode of operation</i>	<i>Targets</i>
Germany	DE 69 Direct Research Promotion - Information and Communication Technology	www.bmbf.de	1967	Grants-in-aid for R&D projects are provided in the following fields: information technology systems - basic technologies of information techniques - information as a raw material for innovation - multi-media - telematic application	Direct grants for R&D projects	Individuals Large companies/Large industrial companies Research institutes SMEs/Industrial SMEs Universities
Germany	DE 70 Direct Research Promotion - Life Sciences, Design of Working Conditions	www.bmbf.de	1970	Grants-in-aid for R&D projects are provided in the following fields: biotechnology - research on health - innovative working arrangements	Direct grants for R&D projects	Individuals Large companies/Large industrial companies Research institutes Researchers SMEs/Industrial SMEs Universities
Germany	DE 71 Direct Research Promotion - Transportation, Astronautics, Construction	www.bmbf.de	1962	Grants-in-aid for R&D projects are provided in the following fields: research on space and space techniques - research on civil aeronautics and aeronautics technology - mobility and traffic - navigation and marine techniques - construction and residence	Direct grants for R&D projects	Individuals Large companies/Large industrial companies Research institutes Researchers SMEs/Industrial SMEs Universities
Greece	GR 1 Investment Law		1990	Supports expenses for the creation of a prototype for any innovation patented in Greece, together with the costs of its international registration (including renewal)	Grants – firms	Large companies/ Large industrial companies SMEs/Industrial SMEs
Greece	GR 3 Financial incentives for SMEs		1997	Support to SMEs through venture capital operators, provision of capital (seed, start up, expansion and replacement). Subsidises interest rates.		SMEs/Industrial SMEs
Greece	GR 5 Funds / Companies of Mutual Guarantees (CMGs)		1997	Supports the creation and development of CMGs, in co-operation with banks and co-operative credit institutions, to provide SMEs with the guarantees needed to obtain loans	Equity – investors	SMEs/Industrial SMEs
Greece	GR 13 Venture Capital companies			Supports the establishment of new venture capital companies to complement the Greek market.	Equity – investors	New venture capital companies
Greece	GR 36 Fund for the development of the new economy	www.ypetho.gr/ypetho/index-en.htm	2000	This fund aims to provide financial support to venture capital companies and fund early-stage ventures, together with the development of prototype.	Competitive grant	Venture capital companies

<i>Coverage</i>	<i>Measure</i>	<i>Website</i>	<i>Date</i>	<i>Content summary</i>	<i>Mode of operation</i>	<i>Targets</i>
Greece	GR 39 Development of spin offs/Support of young researchers and scientists	www.ypan.gr	2001	Finances the development of new high-tech enterprises including the exploitation of research results.	Grant	Research institutes Researchers Universities
Iceland	IS 1 Job Creation Initiative for SMEs		1996	Supports the integration of technologies and know-how with subsidies of 25% of the total project cost, for companies that can themselves raise 50 %	Loans – Firms	SMEs/Industrial SMEs
Ireland	IE 7 Research, Technology and Innovation (RTI) Support for Industry Scheme	www.enterprise-ireland.com	1998	Direct grants to R&D projects in Irish-based firms involved in manufacturing and internationally traded services. 50% of project costs must be provided by the small firm recipients themselves, while the proportion is 65%+ for other recipient firms.	Grants – firms	SMEs active in significant R&D strategies.
Ireland	IE 8 Seed & Venture Capital Measure		1994	This set of initiatives was put in place to address the shortage of venture capital, particularly early stage/seed capital, for innovation. So far, the State acts as catalyst and/or co-funder with private sector sources of finance.	Equity – investors Financial environment	Banks, venture capitalists SMEs Managers Individuals
Ireland	IE 25 R & D capability initiative	www.enterprise-ireland.com/rti	2000	The R&D Capability Initiative is part of the National Development Plan 2000 - 2006. The Initiative supports the building up of a company's R&D infrastructure in the context of a development plan for growing the business. Proposals for investment must therefore represent a clear 'step-up' in the development of the R&D function when compared to the company's current situation.	Grant	Large companies/ Large industrial companies SMEs/Industrial SMEs
Ireland	IE 26 RTI competitive grants scheme	www.enterprise-ireland.com/rti	2000	The Scheme is a key action under the Government's National Development Plan 2000 – 2006 It supports projects that are commercially focused and industry-led in product and process development.	Grant	Large companies/ Large industrial companies SMEs/Industrial SMEs
Ireland	IE 27 Advanced Technologies Research Programme 2001	www.enterprise-ireland.com	2001	The Advanced Technologies Research Programme 2001 is a new programme that evolved from the Programmes in Advance Technology (PATs). The objective of the new programme is to generate technologies, products or processes that could provide the basis of new start-up companies in Ireland, or otherwise improve industrial competitiveness in Ireland.	Grants	Medium-large firms as the final target Universities and other research bodies as the intermediate target
Israel	IL 1 Technology incubators		1991	General assistance for entrepreneurs, including assistance in obtaining financial resources and raising capital	Incubators Grants – firms Intermediation	Individuals

<i>Coverage</i>	<i>Measure</i>	<i>Website</i>	<i>Date</i>	<i>Content summary</i>	<i>Mode of operation</i>	<i>Targets</i>
Israel	IL 2 INBAL Government guaranteed research and development			Supports the Research and Development Funds by purchasing 80% of the shares from any investors wishing to sell their investment.	Guarantee – equity	Individuals, SMEs/Industrial SMEs, Private investors
Israel	IL 3 YOZMA		1991	Draws on foreign capital to invest in the Israeli hi-tech industry by co-investing in Israel high-tech industry, either directly or through the creation of new venture capital funds.	Equity – investor Financial environment	
Israel	IL 4 Encouragement of Industrial R&D	www.itamas.gov.il/root/meida_lef_i_nosim/jpc.htm	1984, revised 1995	Grants up to 66% of costs (or up to €280,000 per year) for two years, including feasibility studies, and 50% or 30% for the stage between R&D and marketing. The grants are repaid as royalties out of the revenues in the event that the R&D effort results in commercial sales.	Grants – firms	Start-ups, SMEs, and other companies engaged in R&D on industry-oriented products.
Italy	IT 1 Special applied research fund	www.murst.it	1997	Subsidises projects carrying out industrial research activities and/or pre-competitive development research.	Grants – firms	Large companies/Large industrial companies, Public Authorities/ Organisations Research institutes, SMEs/Industrial SMEs
Italy (Obj.1 & 2)	IT 4 Autonomous research projects in the regions that are lagging behind	www.murst.it	1995	Same as IT 1	Grants – firms	Large companies/Large industrial companies , Research institutes, SMEs/Industrial SMEs
Italy	IT 7 Measures aimed at sustaining innovation		1997	Automatic tax incentives to support industrial research and development. Amounts depend on localisation and the size of the company.	Tax relief – firms	Large companies/ Large industrial companies SMEs/Industrial SMEs
Italy (ERDF-supported area)	IT 16 Investments in the depressed areas of the national territory		1992	Encourages business enterprises to make investments linked to introducing technological innovation to the regions that are lagging behind.	Grants – firms	Large companies/ Large industrial companies SMEs/Industrial SMEs
Italy	IT 17 Innovation and SMEs		1991	Includes possibility to set up financial intermediaries (financial company for development and innovation, SFIS) capable of sharing the enterprise risks of SMEs.	Equity – investors Environment	SMEs/Industrial SMEs
Italy	IT 19 Research programmes within international co-operation	www.murst.it	1987	Subsidises (up to 50%) the participation of Italian enterprises in applied research projects carried out in co-operation with other enterprises at international or community level.	Grants – firms	Large companies/ Large industrial companies SMEs/Industrial SMEs

<i>Coverage</i>	<i>Measure</i>	<i>Website</i>	<i>Date</i>	<i>Content summary</i>	<i>Mode of operation</i>	<i>Targets</i>
Italy	IT 20 Incentives for the acquisition of new machinery		1995	Provides incentives to firms acquiring new machinery. The law enables the financing of total costs of new machinery, including financial charges, assembly, transport and testing.	Grants – firms	Large companies/ Large industrial companies SMEs/Industrial SMEs
Italy Obj. 1	IT 21 Community Support Framework Objective 1 2000-2006: PIA		2000	A single point of reference through which an enterprise need make only one single application to obtain grants for a number of purposes, such as the acquisition of equipment, the setting-up of networks, the purchase of services and consultancy, and building necessary common infrastructure.	Administrative simplification	Universities
Italy	IT 34 Support to the electronic commerce		2001	Mainly supports the diffusion of electronic commerce through the creation of thematic/sectoral portals	investments	Large companies/ Large industrial companies SMEs/Industrial SMEs
Italy	IT 35 Procedures for the implementation of the FIRB		2001	Determines (according to article 104, para 3 of Law 388/2000) the criteria and procedures for allocation of resources of FIRB, which was set up by the Ministry for University, Scientific and Technological Research (MURST)	Contribution: 70% of eligible costs	Graduates Other bodies Research institutes Researchers Universities
Italy	IT 36 Decree for the implementation of the Fund for Research Support		2001	Determines the forms, criteria and procedures for MURST to intervene in support of the activities indicated in article 3 of the Decree 297/99	Grants	Large companies/ Large industrial companies Other bodies Research institutes SMEs/Industrial SMEs
Italy	IT 37 Decree for the implementation of the Fund for Technological Innovation		2001	Regulates the fund for technological innovation (FIT) managed by the Ministry of Industry, in order to harmonise its funding with the Decree 297/99.	Grants	Large companies/ Large industrial companies Other bodies Research institutes SMEs/Industrial SMEs Universities
Luxembourg	LU 1 Research and development incentive scheme	www.etat.lu/ECO	1993	Subsidises (up to 100%) pre-competitive development, industrial research and basic research carried out by companies and research centres.	Grants – firms	Large companies/ Large industrial companies, Research institutes , SMEs/Industrial SMEs
Luxembourg	LU 2 SME Capital-Development Company (CD-PME)	www.snci.lu/CD-PME.htm	1998	Public/private joint venture (50/50) providing participatory loans of up to 25 – 30 million LUF (€62,000 - €74,400) and two-thirds of the total cost of the project.	Equity - Investors	SMEs/Industrial SMEs

<i>Coverage</i>	<i>Measure</i>	<i>Website</i>	<i>Date</i>	<i>Content summary</i>	<i>Mode of operation</i>	<i>Targets</i>
Netherlands	NL 2 TOK – Technical Development Credit	www.minez.nl www.syntens.nl www.novem.nl	1997	Supports technically and financially risky projects in application of industrial research, by providing loans covering 2.5% to 40 % of the total project costs, with a 10-year redemption term and no reimbursement in case the project commercialisation fails.	Loans – firms	Large companies/ Large industrial companies SMEs/Industrial SMEs
Netherlands	NL 3 BBMKB – SMEs Credit Guarantee	www.syntens.nl	1994	Provides banks with a credit guarantee of 90% (100% for start-up firms) up to a maximum of €900,000 per company and for a maximum period of 6 years (12 years for innovative companies)	Loan guarantee	SMEs/Industrial SMEs
Netherlands (Obj. 1 regions)	NL 9 MKB – SME Initiative	www.minez.nl/subs	1996	Subsidises (up to 80%) to intermediaries working with SMEs in products, production systems and technical innovation. Projects should be 50-50% co-financed by the intermediary.	Grants – Intermediaries	Intermediaries who work with SMEs in ERDF regions
Netherlands	NL 10 KREDO - Credit facility development of electronic services	www.minez.nl/subs www.novem.nl	1997	Forgivable loans to companies that aim to develop electronic services for commercial purposes for a maximum of 40% of project costs, with a ceiling of €1.8 million per project.	Loans – firms	Multimedia and IT companies based in the Netherlands
Netherlands	NL 15 Twinning Centres	www.twinning.com www.syntens.nl	1998	Incubator functions and provision of seed capital (<€150,000) and growth capital (co-investment up to €900)	Equity financing Incubators Early-stage financing	Start-up firms in the ICT sector
Netherlands	NL 16 Industry facility	www.minez.nl/subs	1994	Public/private provision of structural risk-bearing capital (€4.5 million – €22.5 million).	Equity – firms	Medium-sized and large companies
Netherlands	NL 23 Aunt Agatha scheme		1996	Tax exemptions on revenues (up to €2275) and deduction (up to €227,500) on losses for informal investors when investing in new companies (up to eight years old) or on funds invested in such companies.	Tax relief – investors	Business angels, informal investors and new entrepreneurial firms
Netherlands	NL 28 Credit facility environmental product development (MPO)	www.minez.nl/subs/fs_subs.htm www.novem.nl	1996	Forgivable loans (up to of 40% or a maximum of €226,890) per project, including the preparation for commercialisation.	Loans – firms	SMEs/Industrial SMEs
Netherlands	NL 34 Technical Development Projects	www.ez.nl/subs	2001	Provides stimulus to innovative development activities in firms. In this context the government provides risk capital for technically risky development projects.	Subsidy	Large companies/ Large industrial companies SMEs/Industrial SMEs

<i>Coverage</i>	<i>Measure</i>	<i>Website</i>	<i>Date</i>	<i>Content summary</i>	<i>Mode of operation</i>	<i>Targets</i>
Norway	NO 02 User driven programmes	www.forskningstradet.no		Subsidises those industrial enterprises which set the priorities and manage to raise on average 35% – 40% of the R&D funding required for high-risk projects.	Grants – firms	Individuals, Research institutes, Researchers, SMEs/Industrial SMEs, Universities
Norway	NO 05 The Seed Capital Funds	www.snd.no	1997	Five seed funds established in co-operation (50/50) with private investors for investment in high-risk projects with a high potential for wealth creation.	Equity – investors	Large companies/ Large industrial companies SMEs/Industrial SMEs
Norway	NO 08 Innovation funds	www.snd.no		High-risk loans and grants for innovative projects, from the development of an idea, through the stages of planning and analysis, business and market development to establishment and commercialisation.	Grants – firms Loans – firms	Individuals Large companies/Large industrial companies, SMEs/Industrial SMEs
Norway Rural areas	NO 18 Regional Development Grants			Grants to promote competitive, profitable commercial enterprises in rural areas.	Grants – firms	Large companies/Large industrial companies SMEs/Industrial SMEs Venture capital companies Credit and financial institutions.
Norway	NO 25 Venture Capital Loans		1994	Soft loans to restructure debt (up to 50% of overall capital requirement).	Loans – firms	Individuals Large companies/Large industrial companies, SMEs/Industrial SMEs.
Portugal	PT 3/1 SINFEPEDIP Financial Engineering – Support for Risk Capital		1994	Eased access to and improves the quality of risk capital, with up to 50 % participation in the company capital (new funds) or in its enlargement (existing companies). No longer into force	Equity – investors	Large companies/Large industrial companies, SMEs/Industrial SMEs, Venture capital companies. Credit and financial institutions.
Portugal	PT 3/2 SINFEPEDIP Financial Engineering – Promotion of		1994	Shared the risk with the beneficiaries through providing guarantees: up to 65 % of the issues by credit and financial institutions and by institutional investors. No longer into force	Loan guarantee	Large companies/Large industrial companies, SMEs/Industrial SMEs, Venture capital companies. Credit and financial institutions..

<i>Coverage</i>	<i>Measure</i>	<i>Website</i>	<i>Date</i>	<i>Content summary</i>	<i>Mode of operation</i>	<i>Targets</i>
Portugal	PT 3/3 SINFEPEDIP Financial Engineering – Establishment of a Mutual Guarantee Scheme		1994	Established a company with a mutual counter-guarantee fund of a least four times the initial capital subscribed by IAPMEI, and non-refundable aid to support the establishment of and technical assistance to a mutual guarantee. No longer into force	Equity – investors Environment	Large companies/Large industrial companies, SMEs/Industrial SMEs, Venture capital companies. Credit and financial institutions.
Portugal	PT 3/4 SINDEPEDIP – Industrial Company Strategies		1994	Provided non-refundable aid of 70% of eligible costs, with a threshold of €50,000, to help companies to diversify their financial resources and to support their active participation in the second capital market. No longer into force	Grants – firms	Large companies/Large industrial companies, SMEs/Industrial SMEs, Venture capital companies. Credit and financial institutions.
Portugal	PT 4 Tax incentives for company investments in R&D		1997	Aims to stimulate R&D led by Portuguese companies. It consists of a tax credit granted to companies performing or contracting R&D activities.	Tax incentive credit	Large companies/ Large industrial companies SMEs/Industrial SMEs
Portugal	PT 9 PEDIP Financial incentives		1994	Provided non-refundable support to R&D industrial projects (up to 70%). No longer into force	Grants – firms	Large companies/ Large industrial companies SMEs/Industrial SMEs
Portugal	PT 10 PEDIP – technological, innovation and transfer measure		1995	Provided non-refundable (up to 75%) financial support to R&D projects. No longer into force	Grants - firms	Large companies/ Large industrial companies SMEs/Industrial SMEs
Portugal	PT 15 Promoting small company initiatives	www.iapmei.pt	2000	Targets micro and small firms and small investment projects, giving out non-reimbursable grants corresponding to 40% of eligible expenditure	Grants	SMEs Industrial SMEs
Portugal	PT 16 Company Modernisation Incentive System (SIME)	www.icep.pt	2000	Promotes company development by supporting modern and competitive company strategies, and stimulating strategic competitiveness factors (namely in the areas of quality, internationalisation, innovation, environment, energy and upgrading of human resource skills).	Loans Grants	Large companies/Large industrial companies SMEs Industrial SMEs
Sweden	SE 1 SNITS - Small and New companies' development of innovations, and Technology	www.nutek.se/teknik2/teksprid/snits.html	1994	Provides financial support to SMEs, up to 50% of eligible costs, for feasibility studies and development of advanced R&D work on commercially successful innovations (part of a larger concept of seed financing)	Grants – firms	high- and medium-tech firms, with no more than 50 employees

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Sweden	SE 2 Seed Financing	www.nutek.se		Provides either high-risk loans with interest and conditional repayment, or grants with a royalty clause, to SMEs (small technology-based firms) for innovation projects in pre-commercial stages (including national support to EUREKA)	Grants – firms	Very small firms, primarily new technology-based firms
Sweden	SE 3 Product Advisory Committees			Advice, service and seed financing for inventors and small businesses. Advice, service, and small financial support (less than 50,000 SEK, €6,000).	Grants – firms Intermediation	SMEs.
Sweden	SE 8 NUTEK Investment Forum CapTec	www.nutek.se	1995	Provides an annual investment forum for young technology-based firms (TBFs) and the venture capital. The main goal is to fund the selected young technology-based firms.	Intermediation	
Sweden	SE 13 Database to access to risk capital companies	www.nutek.se	1999			
Spain	ES 1 CDTI Financial Support	www.cdti.es	1978	Provides loans with low or no financial costs (to be reimbursed in full only if commercialisation is successful) to finance R&D projects (including preparation costs of Community projects), technology promotion and integration, and innovation projects, mainly in Objective 1 regions	Loan – firms	Large companies/ Large industrial companies Managers SMEs/Industrial SMEs
Spain	ES 3 Financing Programme of the SME Initiative for Industrial Development	www.ipyme.org	1997	Subsidises the interest rates of guaranteed or participative loans used to acquire or improve competitiveness in the framework of a strategic management plan	Interest subsidy – firms	SMEs and interface organisations.
Spain	ES 4 ICO financing action lines	www.ico.es	1971	Subsidised grants to industrial SMEs for financing up to 70% of their R&D.	Grants - firms	SMEs/Industrial SMEs
Spain	ES 6 Support to Industrial technology, security and quality (ATYCA)	www.mcytes	1997	Provides grants to companies and research institutions to carry out R&D and innovation activities	Grants – firms	Large companies/Large industrial companies , Public Authorities/ Organisations Research institutes, SMEs/Industrial SMEs, Universities
Spain	ES 7 Projects for Encouraging transfer of Research results	www.seui.mec.es	1995	Grants for adapting pre competitive results to company needs.	Grants – firms	Large companies, SMEs Research institutes and Universities.

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Spain	ES 8 Concerted and co-operative industrial research and development projects	www.seui.mec.es www.cdii.es	1994	Grants (up to 60%) to support co-operative research between companies and public research centres	Grants – firms	SMEs or large companies universities Public research centres Innovation and technology centres
Spain Objective 1 & 2	ES 9 Fostering R&D and Innovation in Objective 1 & 2 regions	www.seui.mec.es	1997	Grants to public research centres for R&D co-operation and technology transfer	Grants – intermediaries	Public research centres
Spain	ES 12 Co-operation projects	www.seui.mec.es	2000	Grants to support technology transfer and co-operative research	Grants – firms	Research institutes, SMEs/Industrial SMEs, Universities
Spain	ES 13 Applied research projects	www.seui.mec.es	2000	Grants to research and technology organisations to foster technology transfer and co-operative research with industry	Grants – intermediaries	Research institutes , SMEs/Industrial SMEs, Universities
Spain	ES 17 Development of technical Research (PROFIT)	www.mcyt.es/	2000	Subsidies to R&D, technology centres and companies to carry out technology transfer and innovation activities	Grants – intermediaries	Large companies/Large industrial companies Public Authorities/ Organisations Research institutes SMEs/Industrial SMEs
Spain	ES 19 The Information society for all	www.mcyt.es/	2000	Subsidies (including equity provision in firms) to promote the use of information society in companies	Grants – firms	Individuals Public Authorities/ Organisations Researchers Students in upper secondary schools
Spain	ES 22 ARTEPYME II: Subsidies for projects of advanced telecommunication services for SMEs	www.setsi.mcyt.es	2000	This measure is under the initiative INFO XXI ‘The Information Society for all’ (ES 19). Its main goal is to encourage the use of telecommunication technologies and e-commerce by SMEs. The programme finances projects for the adoption of new technologies and the introduction of products in the market through telematic instruments.	Public tenders for competitive grants	SMEs/Industrial SMEs

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Spain	ES 23 Credits for Scientific and Technological Parks	www.mcyt.es	2000	This measure supports S&T Parks' promoting entities through financing equipment and infrastructure acquisition: scientific infrastructure, telecommunications infrastructure or infrastructure for services provided in the scientific park. The measure was launched at the end of year 2000 for actions developed during this year	Reimbursable credits	Science & Technology Parks
Spain	ES 24 PIIC-Projects for industrial and concerted research	www.cdti.es	2001	The aim of the Projects for industrial and concerted research (PIIC) is to fund pre-competitive research carried out by companies in collaboration with Research Centres (both public and private) or Universities. Projects must have high technical risk and results must not be immediately marketable. This new measure tries to improve existing co-operation between firms, research centres and universities in order to achieve a more efficient transfer of knowledge.	Subsidies and reimbursable credits	Large companies/ Large industrial companies SMEs/Industrial SMEs
Spain	ES 27 Plan for the strengthening and competitiveness of SMEs	www.ipyme.org	2001	The PYME plan works towards two main goals: a) the full integration of SMEs in the Information Society, and b) the integration of innovative management techniques in SMEs.	Subsidies	Other SMEs/Industrial SMEs
Sweden	SE 13 The Venture Capital Database	http://www.nutek.se/	1999	The Venture Capital Database is a database on the Internet which can be accessed by start-ups and SMEs looking for venture capital, enabling them to find the most suitable risk capital companies to contact.		SMEs/Industrial SMEs
UK	UK 2 Liaison at Ministerial and Official Level with Private Sector Providers of Finance to Address Concerns about financing			Helps private finance providers to understand the needs of innovative SMEs and how to match them. Improves the business skills of SMEs and eases their access to appropriate finance	Financial environment	SMEs/Industrial SMEs
UK	UK 4 R&D Scoreboard		1991	A document containing financial data, designed to encourage more effective investment in R&D by stimulating informed debate within and between companies and their investors	Financial environment	
UK	UK 5 Biotechnology Mentoring and Incubator (BMI) Challenge		1996	Stimulates the start-up of new high-quality biotechnology companies which will contribute to the growth of the UK biotechnology industry. Runs a competition to encourage intermediary organisations to support such start-ups through the provision of grants.	Grants – intermediaries Financial Environment	Large companies/Large industrial companies, Public Authorities/ Organisations Research institutes SMEs/Industrial SMEs, Universities

<i>Coverage</i>	<i>Measure</i>	<i>Website</i>	<i>Date</i>	<i>Content summary</i>	<i>Mode of operation</i>	<i>Targets</i>
UK	UK 6 Biotechnology Finance Advisory Services		1996	To improve awareness of, and access to sources of finance for biotechnology SMEs, in order to develop the UK biotechnology sector. Identifies potential sources of private sector funds or appropriate government grants in all business development phases.	Intermediation	Individuals Large companies/Large industrial companies SMEs/Industrial SMEs
UK	UK 8 Small Firms Loan Guarantee Scheme		1981	Provides 70 % guarantees on loans from banks and other financial institutions for small businesses with viable business proposals which have already tried and failed to obtain a conventional loan due to lack of security	Loan guarantee	SMEs/Industrial SMEs
UK	UK 10 National Endowment for Science, Technology and Arts (NESTA)		2000?	Helps talented individuals to develop their full potential in science, technology and the arts. Helps turn inventions into products or services. Contributes to public knowledge, and appreciation of science technology and the arts	Grants – firms	Individuals
UK	UK 11 University Challenge		1999	Runs a competition among UK universities for getting seed capital funds. Entrants should have a range of viable projects, a proper organisation to manage the fund, and entrepreneurial staff to support the commercialisation of the results	Equity – Investors	Universities
UK	UK 31 Corporate venturing tax relief	www.inlandrevenue.gov.uk/hom/e.htm	2000	Relief on corporation tax payable by companies at 20% of the amount invested in specific economic activities	Taxation – investors	Larger companies wishing to invest in smaller companies.
UK	UK 35 New Tax Incentives for SMEs	www.inlandrevenue.gov.uk/hom/e.htm	2000	Provision of tax relief (up to 150% of expenses) to improve the quality and quantity of R&D undertaken by British firms	Taxation –firms	SMEs
UK	UK 53 Regional Venture Capital Funds	www.businesslink.org	pending	Regional Venture Capital Funds are intended to make risk finance available to growing SMEs	Venture capital funds	SMEs/Industrial SMEs
UK	UK 54 UK High Technology Fund	www.businesslink.org	2000	The UK High Technology Fund, is a 'fund of funds'	Commercial investments	Other
Czech Republic	CZ 4 Capital Programme	www.mpo.cz	1999	Guarantees bank loans (up to 70%) and interest subsidies for SMEs over a five-year period.	Loan guarantee Interest rate subsidy	SMEs/Industrial SMEs
Czech Republic	CZ 8 Credit Programme	www.mpo.cz	2000	Provides government-guaranteed, low-interest short-term bank loans for innovative business projects in SMEs up to Kc10 million (€330,000) at a rate of 7% per annum over six years.	Loan guarantees	SMEs/Industrial SMEs
Slovakia	SK 1 Micro-loan programme	www.nadsme.sk	1999	Low interest loans ranging between 50,000 - 500,000SK (€1,100 - €11,300) (11.3% over 3 years) for companies with fewer than 10 employees.	Loan – firms	SMEs/Industrial SMEs

8. Questionnaire

COUNTRY:

With regard to **Topic 1 ‘Tax incentives for R&D’**, please provide information on the following questions:

1. Does this topic form an area of *innovation policy concern* in your country? For example, is it the subject of policy debate, or have measures been introduced to address it? (If “YES”, please give brief details but see 3 below for the specific details of any relevant measures).
2. Have there been any specific *studies or reports/documents* produced on this topic. Please give brief reference and description of main objectives/findings.
3. Are there any *existing policy measures* which directly or indirectly address this topic? (Please give reference numbers and names of relevant datasheets, or a brief description)

For each measure described please provide the following details:

Name of scheme and reference number:	
Brief description of scheme (or refer to country report/datasheet)	
a) Target of the measure: (e.g. SMEs, large companies, PSREs, all companies)	
b) Level of operation of measure: (e.g. industry sectors, Regions,)	
c) What is the primary objective (e.g. to stimulate R&D investment, to promote new R&D activity)	
d) Does the scheme have any particularly novel or interesting aspects?	

4. Have any of these measures a) formed the *subject of evaluations* or b) *been transferred* (with or without modification) to/from another country? Please give details, particularly of possible ‘good practice’ examples.
5. Are there plans to introduce *new policy measures*, which directly or indirectly address this topic? What is the likely time scale for their introduction?