European Trend Chart on Innovation

Thematic Report:
Start-up of Technology-Based Firms

Covering period:
October 2002 – September 2003

European Commission
Enterprise Directorate-General

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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 organisation 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 organisation 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, Israel, Latvia, 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 is 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 Giles Brandon of INBIS Ltd (www.inbis.com). The information contained in this report has not been validated in detail by either the Member States or the European Commission.

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Executive summary

The main findings of this Thematic Trend Report are as follows:

- The report covered 150 measures in 27 countries (out of the 30 countries covered by the Trend Chart; three countries reported no measures).
- The pace of introducing new measures relating to NTBFs has not evolved significantly from July 2000 to September 2003. In the 12 months to September 2003, only ten new measures were introduced.
- There has been no major variation in policy priorities towards NTBFs during the period July 2000 to September 2003. The average priority score for the 29 countries (one country did not report the score) has hovered around 3.0 only fluctuating by +/- 0.1 points from one reporting period to the next.
- There is a gap between policy rhetoric on the need to foster NTBFs at EU level and the actual policy effort at national level. This is based on the idea that the priority score ‘reflects the relative amounts of ‘effort’ expended on the promotion of measures’ and the fact that the average priority score is quite low (3.0).
- The current EU-15 Member States have a significantly higher average number of measures per country than the Acceding and Candidate Countries (7.2 versus 2.3). This disparity suggests that more action is required to support NTBFs by the Acceding and Candidate Countries.
- The most popular mode of delivery of support to NTBFs remains direct grants/loan funding (47%) and SMEs/industrial SMEs are the most popular targets (27%). Conversely, tax deductions are the least popular mode of support (3%) and investors the least popular target (3%).
- Budgetary information on funding for NTBF support schemes is currently only available for two-thirds of the policy measures (98 out of 150). Based on the available data, it can be argued that large-scale programmes have been established in ten countries including France, Germany, Holland, and the United Kingdom. Medium-size projects have been mainly developed in Estonia, Norway and Spain, while the smallest ones have tended to be adopted in countries with relatively small populations such as Cyprus, Iceland, Luxembourg and Slovenia.

Observations made with regard to improving the monitoring of NTBF support policies are as follows:

- Information on the financing of policy measures related to NTBFs is insufficient for any deep analysis and robust conclusions to be made. Although reporting has improved, there is a need for further effort on the part of national correspondents to collect data on the funding of programmes.
- Thematic trend analysis is made more difficult by clearly diverging approaches to completing datasheets and country reports. Issues requiring attention include country report sections on NTBFs that mention specific measures which are then not classified as NTBF-related measures (and vice-versa) and some incorrect categorisation of targets and measures (e.g. measures that are clearly aimed at funding incubators have not been classified as such in terms of their mode of delivery).

1 Introduction and policy context

The objective of this report is to present a comprehensive review of trends in policy measures supporting the creation and development of New Technology-Based Firms (NTBFs), which can be defined as new or very young business enterprises whose core activities are developing, marketing or exploiting technology.[1]

This report adopts a similar analysis approach to that of the previous Thematic Trend Report[2]:

In Section 1, the rationale for public policy support to NTBFs is outlined in terms of intervention logic and available data on their importance in the economy. Major EU level policies are also discussed in order to place in context the Member State-level policy trends described in Section 2.

In Section 2, a cross-country analysis of current policy trends is provided with respect to NTBFs as identified via the Trend Chart Country Reports.

1.1 The need for NTBF support policies

EU policy makers increasingly understand the need to support the creation and development of NTBFs since firms of this kind are frequently linked to technological innovation, market share gains, creation of new product markets and employment growth. NTBFs are also often associated with high value-added production and success in global markets. Additionally, the RTD performed by these firms also generates spill-over effects benefiting other industrial sectors that lead to further new products and processes, create productivity gains and business growth[3]. The effect of innovation on employment is not easy to understand because many factors play a role. However, in general, product innovation is believed to increase employment as it helps to stimulate new demand. Not only that, the greater the impact of economies of scale achieved within a company, the more likely it is that innovation will increase labour demand, as internal cost reductions due to innovative processes contribute to increased market share[4].

More and more it is new and small firms, rather than large ones, that are the major providers of new jobs.[5] During the 1990s, fast-growing firms contributed considerably to job creation. In the Netherlands, for example, 8% of fast-growing firms between 1994 and 1998 created 60% of employment growth within existing enterprises[6]. The Global Entrepreneurship Monitor recently published similar statistics based on a broad survey involving 37 countries[7]. Out of 9 615 start-ups identified, 926 were classed as ‘high-potential innovative ventures’ since they used new technology, had no competitors and/or low product awareness amongst consumers. However, 89% of such firms expected to have created 20 or more jobs in five years compared to only 22% of the other start-ups, and exports were expected to be between 51-100% of sales for 23% of the high-potential innovative ventures (compared to 2% of other start-ups). The GEM analysis suggests that ‘high-potential ventures represent a distinct facet of entrepreneurial activity’; which requires distinct policy responses, notably those related to IPR protection.

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1 Informal investors and high-tech entrepreneurship, 2001, Commission of the European Communities

2 Trend Chart Thematic Report – Start-up of Technology-Based Firms, October 2002, Publication of the Innovation Directorate of the Enterprise Directorate-General

3 Community Innovation Survey, 1/2001, Eurostat

4 Entrepreneurial Innovation in Europe, Innovation Papers N° 27, 2003, Publication of the Innovation Directorate of the Enterprise Directorate-General

5 Enterprise : A survey of the literature, David B. Audretsch, October 2002

6 Entrepreneurship in the Netherlands, Innovative entrepreneurship. New policy challenges!, Ministry of Economic Affairs and EIM, February 2002

7 Global Entrepreneurship Monitor, 2002, www.gemconsortium.org

On the other hand, it should be recognised that there are considerable obstacles that need to be surmounted in order to create NTBFs. The three biggest barriers to spin-off creation are thought to be a poor entrepreneurial culture, lack of training in entrepreneurial skills and the lack of venture capital[8]. Innovation is most effectively undertaken within the context of a group interconnected by a set of common features, such as geographical location. Certainly, few universities have sufficient resources to sustain an entrepreneurial culture, and most spin-off businesses are generated by industry. Overall, the single most important factor contributing towards spin-off creation is the stimulation of a social culture that leans towards innovation and entrepreneurship. However, creating a risk-taking culture is easier said than done. A recent EU Green Paper noted that, compared to the EU average of 45%, as many as 67% of US citizens would prefer to be self-employed.[9] As Paul Reynolds, Professor of Entrepreneurship at the London Business School, pointed out 'The problem in Europe is that entrepreneurship is not seen as an appropriate career choice.'[10].

Further obstacles to the creation of NTBFs include the time and cost of fulfilling initial administrative and funding requirements. Data from the recent World Bank survey *Doing Business in 2004*[11] provide some pointers to the difficulties encountered by new start-up firms in the EU-15, Acceding and Candidate Countries. In Table 1 overleaf, the Trend Chart countries are split between EU Member States (EU-14, 14 countries since Luxembourg was not included in the World Bank survey), Acceding and Candidate Countries (AC/CC-10, 10 countries since the survey did not include Cyprus, Estonia and Malta) and Associate Countries (AS-2, two countries since the survey did not include Iceland and Liechtenstein).

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8 Entrepreneurial Innovation in Europe, 2003, Innovation Papers N° 27, Publication of the Innovation Directorate of the Enterprise Directorate-General

9 Green Paper on Entrepreneurship in Europe, COM (2003) 27 final, Commission of the European Communities

10 Innovation & Technology Transfer, 4/03, Publication of the Innovation Directorate of the Enterprise Directorate-General.

11 *Doing Business in 2004*, 2003, The World Bank

Table 1: Administrative burden for start ups & venture capital availability

Country	Number of Procedures to Start a Company	Duration to Start a Company (days)	Cost to Start a Company (% of GNI per capita)
Austria	9	29	6.6
Belgium	7	56	11.3
Denmark	4	4	0.0
Finland	4	33	3.1
France	10	53	3.0
Germany	9	45	5.9
Greece	16	45	69.6
Ireland	3	12	10.4
Italy	9	23	24.1
Netherlands	7	11	13.7
Portugal	11	95	12.5
Spain	11	115	18.7
Sweden	3	16	0.8
United Kingdom	6	18	1.0
EU-14 mean	8	40	12.9
Bulgaria	10	30	8.3
Czech Republic	10	88	11.7
Hungary	5	65	64.3
Latvia	7	11	14.7
Lithuania	9	26	6.3
Poland	12	31	20.3
Romania	6	27	11.9
Slovak Republic	10	98	10.2
Slovenia	10	61	15.5
Turkey	13	38	37.1
AC/CC-10 mean	10	48	19.9
Israel	5	34	5.0
Norway	4	24	3.9
AS-2 mean	5	29	4.5
Mean of the 26 countries	**8**	**42**	**14.8**

Source: *Doing Business in 2004*, The World Bank

In terms of the number of procedures to start a company in the EU-14 countries, Sweden and Ireland have the least ‘red-tape’ followed by the Scandinavian countries of Denmark and Finland. On the other hand, Greece imposes the highest number of procedures on entrepreneurs, followed by the southern European countries of Portugal and Spain. The length of time needed to start a company amongst the EU-14 follows a similar pattern to the number of procedures with perhaps the exceptions of Denmark and Spain. In Denmark, the period is particularly short at 4 days (half the EU-14 mean) whereas in Spain at 115 days it is exceptionally time-consuming (nearly three times the EU-14 mean). The cost of starting a company also correlates reasonably well with the number of procedures, with the exception of Greece. In Greece, the cost is nearly 70% of gross national income per capita and just over five times greater than the EU-14 mean.

Moving on to consider the AC/CC-10 countries, it is encouraging to note that the mean values for the number of procedures and the time needed to start a company are only 20% or so greater than those for the EU-14. Additionally, the values for AC/CC-10 countries are less widely dispersed than those of the EU-14 countries. However, the mean cost of starting a company for the AC/CC-10 countries is still over 50% greater than that of the EU-14 mean. More specifically, Hungary imposes the least bureaucratic obstacles in terms of procedures but is something of a negative performer when it comes to duration and costs of starting a company. Notably, Latvia, Lithuania and Romania outperform the AC/CC-10 mean in all three categories. Finally, no AC/CC-10 country underperforms all three means.

Data was only available for two Associate Countries (Israel and Norway), therefore it is hard to draw any general conclusions. Individually, the countries perform better than the EU-14 means for the number of procedures and time period to start a company.

In conclusion, NTBFs are viewed as a source of innovation and economic growth. However, would-be entrepreneurs face a whole series of entry barriers – cultural obstacles, lack of training in entrepreneurial skills and poor access to venture capital to name but three. In recognition of the importance and needs of NTBFs, EU policy makers are developing policies to support them. Their support measures tend to fall under one of three general headings – training and advisory services, infrastructure (incubators) and finance (grants, loans and guarantees). The aim of the rest of this report is to identify the trends in these support measures.

1.2 Current EU policies towards NTBFs

Innovation is regarded as a cornerstone of the 'Lisbon strategy' that was launched by the European Council in March 2000 with the aim of making the Union the most competitive and dynamic knowledge-based economy by 2010. This has been emphasised by subsequent European Councils, in particular at Barcelona in 2002.

Via the Communication on Innovation Policy[12], together with the Communication on Industrial Policy in an Enlarged Europe[13] and the Green Paper on Entrepreneurship[14], the Commission has put forward a framework for the development of an enterprise policy that nurtures competitiveness of companies and contributes to the growth of Europe's economy. With regard to encouraging NTBFs, the Commission has identified the following goals:

- Bring down barriers to business development and growth (e.g. via tax measures, loans, guarantees and public-private partnerships).
- Balance the risks and rewards of entrepreneurship (e.g. reduce tax burdens and increase social benefits for entrepreneurs).
- Develop a society that values entrepreneurship (e.g. via entrepreneurship training, media campaigns and award schemes).

1.3 Past trends and new developments in NTBF support measures

Against these broad and ambitious policy goals, the previous Thematic Trend Chart report noted that the pace of introduction of new measures relating to NTBFs had not significantly evolved from mid-2000 to September 2002 (only seven new measures were introduced in the 12 months to September 2002). Indeed, the report concluded 'there is a gap between policy rhetoric at EU and national levels on the need to foster NTBFs and actual policy effort'[15].

Since October 2002, ten new measures have been introduced, namely:

- in Latvia, 'Crediting Programme for Development of SME (phase two)' (LV 62),
- in Poland, 'Financial support for new investments' (PL 13) and 'Grants for entrepreneurship development' (PL 14),
- in Romania, 'Programme for development of technological and software parks' (RO 19),
- in Belgium, 'Venture Capital for university spin-offs' (BE 62),
- in Luxembourg, 'Ecostart' (LU 12),
- in Slovenia, 'Development of business incubators at universities' (SL 13),
- in Iceland, 'Impra Innovation Centre' (IS 15),
- in Italy, 'Support for the promotion and the development of new innovative enterprises foreseen' (IT 41),
- in Portugal, 'NEST – New Technology-Based Companies' (PT 34).

The first four measures are aimed at increasing the supply of grants and loans to start-up companies and SMEs. The new measures in Belgium, Luxembourg and Slovenia seek to facilitate the

12 Innovation policy: updating the Union's approach in the context of the Lisbon strategy, COM (2003) 112 final, Commission of the European Communities.

13 Industrial Policy in an Enlarged Europe, COM (2002) 714 final, Commission of the European Communities.

14 Green Paper on Entrepreneurship in Europe, COM (2003) 27 final, Commission of the European Communities.

15 Trend Chart Thematic Report – Start-up of Technology-Based Firms, October 2002, Publication of the Enterprise Directorate-General.

establishment of business incubators. The measures in Iceland and Italy are mainly focused on the provision of entrepreneurially related consultancy services. Finally, the last measure supports the investment participation of venture capital firms.

The long-term goal of Latvia's recently approved measure, 'Crediting Programme for Development of SME (phase two)', is to ensure SME development by enhancing the opportunities for receiving financing and to establish an effective SME support mechanism, useful for implementing various priorities set by the State. The provision is made for the State to offer a guarantee for the amount of €34.3 million to '*Latvijas Hipotēku un zemes bank*' (LHZB), so that it can take out a financial market loan to cover the resources necessary to provide credit to SMEs. LHZB will use the acquired financial resources to offer loans to SMEs on special conditions.

In Poland, the new law on 'Financial Support for New Investments' entered into force in late 2002. The law defines the types of state financial support for entrepreneurs making new investments, especially investment in technology innovations. The support takes the form of grants: investment grants covering up to 25% of investment outlays, employment grants — up to €4,000 per job created, training grants — up to €1,150 per employee, and grants for infrastructure development. Launched in 2003, the measure 'Grants for entrepreneurship development' is intended to provide support to SMEs by facilitating access to consultancy services and professional training on how to start-up technology-based companies. It is administered by the Polish Agency for Entrepreneurship Development (PARP) and is financed from the state budget and EU aid funds.

In Romania, the Ministry for Prognosis and Economic Development launched the measure 'Programme for development of technological and software parks' with a total budget of €18 million for the period 2002-2005. The following types of park will receive finance: industrial parks that are active in the field of scientific research and technological innovation and also software parks active in the development and sale of software products. The Romanian government has made the development of the ITC sector a strategic priority for the national economy, aiming to transform Romania into a high-tech area that will be used for outsourcing purposes in the Information Technology domain. The goal is to have a software park in every Romanian city that has a university centre. The first Software Park was established in Galati.

In Wallonia, the new measure 'Venture capital for university spin-offs' will provide €8 million over two years to two types of venture capital funds aimed at the early-stage creation and later development of university spin-offs. In the first case, the SOWALFIN (the regional finance and guarantee company for SMEs) will make €800,000 available to each of five new (or existing) joint university-Invest venture funds with a view to increasing the rate of commercialisation of university research. In the second case, €4 million will be invested in a new public-private partnership venture fund (SOWALFIN , private investors and the European Investment Fund) for development capital for spin-offs which, after two or three years of operation, still need to support their development through a second or third round of financing.

The 'Ecostart' measure was created at the end of 2002 in order to diversify the range of support services on offer to innovative businesses looking to locate in Luxembourg. The Ministry of Economic Affairs acquired a former industrial site and converted it into a business start-up support centre. Ecostart's objective is to support innovative projects from the initial idea up to the start-up phase and to provide temporary accommodation for domestic and foreign businesses at the development stage while seeking a temporary foothold in Luxembourg.

In Slovenia, the 'Development of business incubators at universities' measure is funding the establishment of a new office on university premises in order to help researchers find investors or interested strategic partners for their projects.

The 'Impra Innovation Centre' measure, replacing an older measure (Impra Incubator Centre), has been launched in accordance with new legislation on the organisation of research and technology policy in Iceland. The Impra Innovation Centre provides support services to entrepreneurs and SMEs, as well as initiating and supporting regional development agencies and local business advisers. A central goal is to coordinate national actions and initiate co-operat ion between support agencies. The overall budget is ISK 100 million (€1.25 million).

Finally, Portugal has a new programme designed to stimulate the creation and development of new technology-based firms in Portugal called '*NEST – Criação e Arranque de Novas Empresas de Suporte Tecnológico*'. NEST provides financial support for the creation, launch and development of technology-based firms that are closely related to domestic science and technology organisations and/or are expected to achieve major technological advances.

2 Analysis of policy trends

2.1 Trends in policy priorities towards NTBFs

The analytical framework adopted in this section is similar to that of previous Thematic Trend Reports on NTBFs. One hundred and fifty measures have been analysed under the Trend Chart category 'Start-up of NTBFs' (Action Line III.3).

Initially, it is worthwhile investigating the overall trend in terms of Government priorities on the basis of the analysis conducted in each national Trend Chart Report with respect to Government priorities for each of the 17 Action Lines. Based on the latest Trend Chart Country Reports (September 2003), Table 2 below presents an overview of the trend in priorities given to the action line 'Start-up of Technology-Based Companies'.

Table 2: Trends in priorities for Trend Chart category 'Start-up of NTBFs'

Country	July 2000	Sept 2001	Sept 2002	Sept 2003	July 00/ Sept 03 change	Oct 02/ Sept 03 change
Austria	3	3	3	2	**-1**	**-1**
Belgium	3	3	2	4	**+1**	**+2**
Denmark	5	4	4	3	**-2**	**-1**
Finland	3	3	2	3	0	**+1**
France	4	3	n.a.	2	**-2**	n.a.
Germany	3	3	3	3	0	0
Greece	3	4	4	4	**+1**	0
Iceland	n.a.	4	4	4	0	0
Ireland	2	2	3	3	**+1**	0
Israel	4	4	4	4	0	0
Italy	2	2	2	3	**+1**	**+1**
Luxembourg	4	4	4	4	0	0
Netherlands	3	3	4	4	**+1**	0
Norway	2	1	2	2	0	0
Portugal	3	3	3	3	0	0
Spain	4	4	5	4	0	**-1**
Sweden	3	3	3	3	0	0
United Kingdom	4	4	4	4	0	0
Bulgaria	2	2	3	3	**+1**	0
Cyprus	4	2	4	4	0	0
Czech Republic	4	4	4	4	0	0
Estonia	1	4	4	3	**+2**	**-1**
Hungary	1	1	1	1	0	0
Latvia	6	2	1	3	**-3**	**+2**
Lithuania	1	1	1	1	0	0
Poland	1	1	2	3	**+2**	**+1**
Romania	3	3	3	2	0	**-1**
Slovak Republic	4	4	4	4	0	0
Slovenia	2	2	2	3	**+1**	**+1**
Mean Totals	**3.0**	**2.9**	**3.0**	**3.1**	**0.1**	**0.1**

Source: European Trend Chart Country Reports (September 2003)

Comparing the points given to the NTBF priority[16] from July 2000 to September 2003, nine positive shifts in priority can be identified: in Belgium, Greece, Ireland, Italy, Netherlands, Bulgaria, Estonia, Poland and Slovenia. Each of these countries changed priority ranking by one point with the exception of Estonia and Poland which witnessed a two-point increase; in contrast, a negative change was seen in Austria, Denmark, France and Latvia. In the case of Latvia, innovation priority experienced a considerable downturn (minus five ranking points) between July 2000 and September 2002 followed by a recent relative upturn (plus two ranking points). This is possibly a reflection of 'stop-start' availability of funding for programmes specifically for NTBFs, but is difficult to determine conclusively.

In the reporting period from October 2002 to September 2003, positive changes are noticeable in Belgium, Finland, Italy, Latvia, Poland and Slovenia. In this case, only Belgium and Latvia changed their priority on NTBFs by two ranking points. Negative change is seen in Austria, Denmark, Spain, Estonia and Romania (by one point), whilst the remaining countries show no change.

Overall, Table 2 suggests that the creation and development of NTBFs has not been subject to major variations in policy trends over the period July 2000 to September 2003. The average trend score for the 29 countries (no priority score was reported for Liechtenstein) has hovered around 3.0 during the overall 39-month period, slightly dipping or increasing by 0.1 ranking points from one reporting period to the next. However, it is difficult to conclude whether the lack of change is due to the prior existence of NTBF support structures that function well or a relatively low priority given by Governments to support NTBFs, despite EU-level priorities.

Considering the average score for innovation priority over the four reporting periods amongst the EU-15, Spain ranks highest (4.3) followed by Denmark, Luxembourg and the UK (all 4.0). In Spain, the NEOTEC measure is the main national measure (ES 29) and is devoted to fostering the start-up of technology-based companies; it was developed by the Ministry of Science and Technology.

Norway, on the other hand, has the lowest score of the EEA countries with 1.8 despite on-going support schemes and the creation of an incubator grant scheme in 2001 (measure NO 47).

Amongst the Acceding and Candidate Countries, Poland has shown an encouraging positive trend in innovation priority (rising from 1 to 3). Part of the explanation for the trend is the increasing political awareness of the weakness of NTBFs in its economy. The current Trend Chart Country Report for Poland notes that, in early 2000, entrepreneurs who planned to start up technology-based companies only had consulting services available to them via measure PL 04 'National System of Services'. However, in 2003, access to such services and professional training for personnel has been significantly enhanced thanks to measure PL 14 'Grants for entrepreneurial development'. The report also notes, though, that a system for providing newly established companies with seed capital is urgently required but that the new measure PL 13 'Financial support for new investment' mainly targets medium to large companies and lacks sufficient financial resources.

[16] The priorities table in the national reports is a device intended to illuminate trends and differences between and across Member States. The table is meant to convey a sense of which Action Lines are viewed as important in terms of national policy formulation, and to reflect the relative amounts of 'effort' expended on the promotion of measures dealing with that Action Line. 'Effort' is an all-inclusive term incorporating funding and the allocation of other resources (e.g. staff resources, restructuring, etc.), government statements of intent or interest (e.g. specific studies), publicity and more general rhetoric. It should also be noted that policies might include both (a) activities already put in place and (b) activities to be developed in the future. The scoring system best described as 'a snap-shot of the relative importance of particular Action Lines as perceived by national policy makers'.

2.2 Modes and targets of current NTBF measures

Annex 2 provides a listing of all measures per country and classifies them in terms of mode of delivery (grants/loans, intermediaries, guarantees, consultancy services, university spin-offs/incubators, tax deduction, financial environment), and targets (SMEs, large companies, managers, individuals, investors, research institutes, students, public authorities, universities). This table covers 150 measures in total for 27 countries, not including the three countries (Liechtenstein, Lithuania and Slovakia) which have yet to introduce a measure in favour of NTBFs. The percentage distribution of measures by country is reflected in the pie chart below.

It is very difficult to draw conclusions from an analysis largely based on 'number-counting' policy measures. Firstly, there is a poor correlation between number of measures and priorities. For example, the UK has 11 measures and an average priority score of 4.0 while Spain has only three measures but a similar average priority score of 4.3. Secondly, there is little correlation between the size of a country and its number of measures. For example, Spain and Luxembourg have 3 and 4 measures respectively. The only notable observation is the difference between the average number of policy measures for the EU-15 (7.2) against that of eleven Acceding and Candidate Countries (2.3)[17]. As mentioned in the previous Thematic Trend Report, this might be considered to reflect a difference in level of sophistication of policies but such conclusions have to be drawn very carefully.

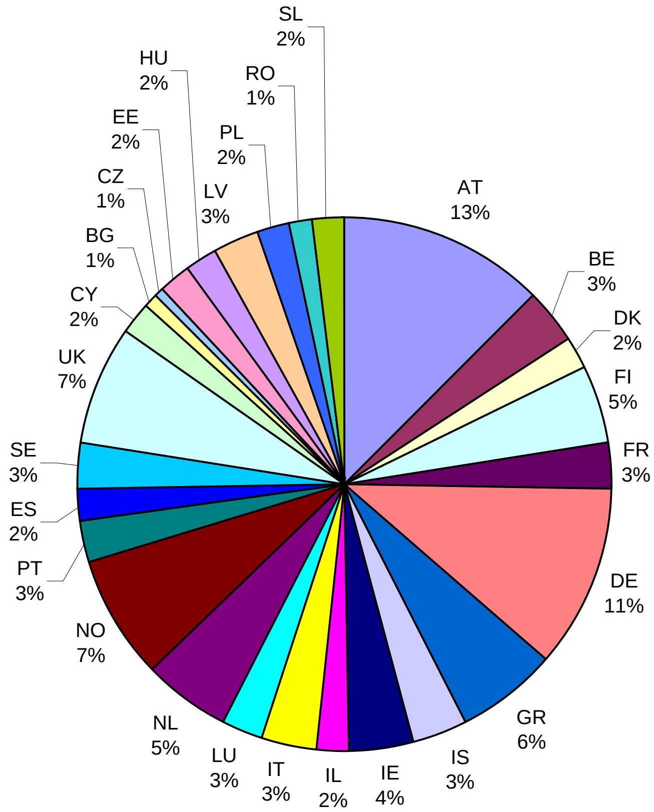
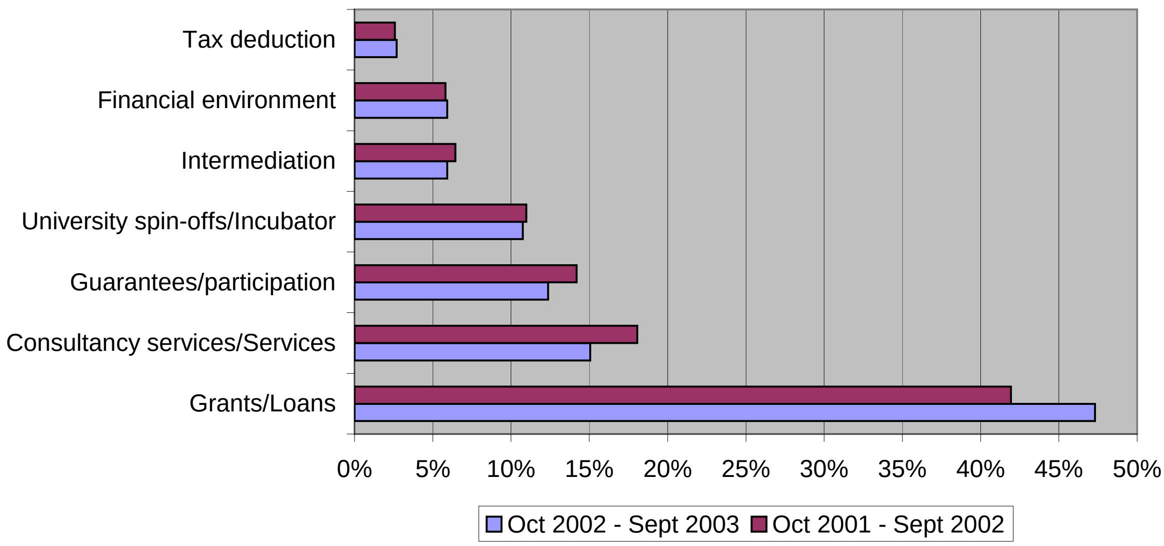


Figure 1: Distribution of Measures by Country (%)

17 Malta and Turkey are not covered by the Trend Chart project at the current time.

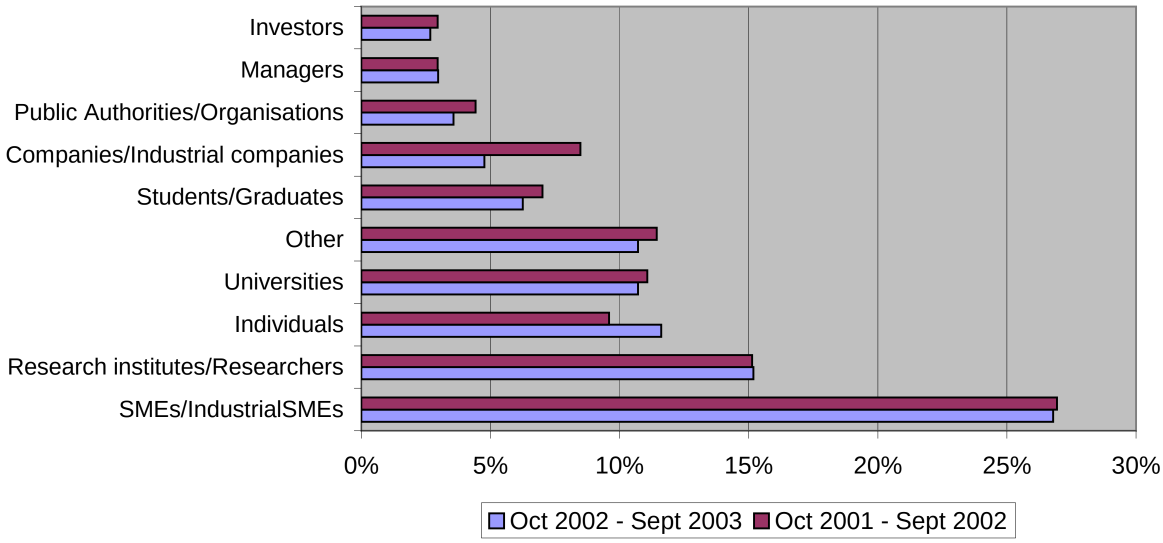
Overall, 'policy-mapping' needs to go far beyond simply identifying, describing and counting measures across countries as done here. Firstly, there are a number of issues that need to be resolved in terms of method of collection of data on measures (e.g. whether or not to use regional measures in Federal countries, organisation or laws identified as policy measures in some countries, etc.). Secondly, budgetary data relating to innovation measures needs to be systematically collected for each country in order to gain a more comprehensive understanding of policy priorities and trends (e.g. public/private expenditure for each measure weighted per capita or per GNP). As will be highlighted below, the current quality of information in the database of policy measures makes this difficult.

Figure 2: Modes of delivery of measures in favour of NTBFs



In terms of modes, the most frequent forms of delivery of measures during the period October 2002 – September 2003 were grants and loans (47% of all measures) followed by consulting services (15%), while modifications to the financial environment and tax deductions and were used least, 6% and 3% respectively. The percentage increase in grants/loans from the previous to the current reporting period (42 to 47%) is accounted for by updated reporting of existing measures and four of the new measures (LV 62, PL 13, PL 14 and RO 19). The percentage increase in grants/loans has mainly been counterbalanced by percentage decreases in consultancy services (3%) and guarantees (2%). The remaining four modes saw little change between the two reporting periods.

Figure 3: Targets of measures in favour of NTBFs



During the period October 2002 – September 2003, most measures targeted SMEs/Industrial SMEs (27% of all measures), followed by research institution/researchers (15%), Individuals (12%) and Universities (11%); while the most rarely targeted groups were public authorities and organisations (4%), managers (3%) and investors (3%). The percentage decrease for Industrial Companies (8 to 5%) and percentage increase for Individuals (10 to 12%) from the previous to the current reporting period is accounted for by updated reporting of existing measures. The remaining eight targets saw little change between the two reporting periods.

Surprisingly, 13 out of the 27 countries still do not have any schemes that target universities as a source of potential NTBFs and as a way of commercialising research results. These tend to be the Acceding and Candidate Countries (10 of them). On the other hand, Germany with 10 schemes and the Netherlands with 5 schemes appear to be more active in terms of targeting universities, but this would need to be confirmed with more in-depth analysis.

A number of interesting relationships emerge when considering the modes and targets together. For example, grants/loans are the most popular mode of delivery and SMEs/industrial SMEs are the most popular targets. This makes rational sense since grants/loans are mainly targeted at SMEs/industrial SMEs. Conversely, tax deductions are the least popular mode of delivery and investors are the least popular targets. Logically, one would expect tax deductions to target investors. The low relative importance given to tax deductions and financial environment is surprising at first sight but may reflect a trend towards generalised (neutral) tax deductions as opposed to fiscal incentives targeting specific sub-groups of enterprises.

In order to appreciate the difficulty of drawing conclusions from the results presented in Annex 2, it should be emphasized that the interpretation of the classifications used appears to vary from country to country. For example, there are a total of 88 measures using grants and loans, which seems to be a very broad and diverse group. Many country correspondents appear to have used this as a catch-all classification, for example, the Programme for development of technology and software parks measure in the Romania (RO 19) is classified under grants and loans, whereas it is essentially a provider of fund to incubator structures. Very few countries have schemes of the ‘intermediation’ type (8 out of 27) and this is probably due to a difficulty in understanding what should be classified under this category. Country correspondents who have used it tend to apply it to networks, clubs or forum type mechanisms.

Although the level of financial commitments to NTBF support policy clearly differs across Europe (Table 3), it is extremely difficult to draw firm conclusions. Information on funding for schemes is only available for two-thirds of the cases (98 out of 150 measures), although this is an encouraging progression from the previous reporting period (50 out of 128 measures). For the time being there are still too many data gaps to allow any form of weighted analysis (e.g. example total budgets allocated per country in relation to GDP or Government STI budgets).

Nevertheless, based on the available budgetary data, it can be argued that large-scale programmes have been established in ten countries including France, Germany, Holland, and the United Kingdom. Medium-size projects have been mainly developed in Estonia, Norway and Spain, while the smallest ones have tended to be adopted in countries with relatively small populations such as Cyprus, Iceland, Luxembourg and Slovenia.

In conclusion, it is hoped that future Trend Chart Data Sheets will include more comprehensive information regarding budget allocations in order to allow for weighted analysis and benchmarking of NTBF support measures.

Table 3: Financial allocation of budgets on NTBFs measures/schemes

Country	N° of measure	Start/end dates	Total Allocated Budget / MEUR (unless commented otherwise)	Comments
SE	SE 8	1994/ind.	0,03	2002
IS	IS 11	1998/ind.	0,05	
IS	IS 8	1996/2003	0,0525	2001
CY	CY 14	1999/ind	0,070	
GR	GR 37	1999/ind.	0,083	
IS	IS 9	1998/ind.	0,085	
IS	IS 13	1999/ind.	0,088	
AT	AT 43	1998/ind.	0,11	1999
SE	SE 13	1999/ind.	0,145	2000
AT	AT 41	1999/ind.	0,145	Annually
SL	SL 10	2000/ind.	0,2	
IS	IS 10	1998/2000	0,375	
UK	UK 06	1996/1999	0,404	
DE	DE 39	1995/2003	0,47	2000/2001
FI	FI 3	1996/2001	0,480	
IE	IE 22	1996/2006	0,6	Annually
IE	IE 24	1996/2006	0,6	Annually
GR	GR 45	2001/2006	0,607	
BE	BE 27	1994/ind.	0,75	
BE	BE 37	1999/ind.	1,09	1999
IS	IS 15	2003/ind.	1,25	
BE	BE 18	1998/ind	1,326	2003
SL	SL 11	1994/ind.	1,35	Annually
AT	AT 4	1996/ind.	1,36	
CY	CY 23	2002/open	1,73	
AT	AT 44	1975/ind.	2,06	1998/1999
LU	LU 2	1998/ind.	2,479	
GR	GR 53	2002/2006	3,6	
FI	FI 1	1990/open	1	2001
FI	FI 6	1993/open	1,65	Annually
FI	FI 17	1999/ind.	4,2	2002
NL	NL 40	2000/2003	4,538	
NL	NL 4	1996/open	5	Annually
PL	PL 01	1994/open	5	
NO	NO 47	2001/ind.	5,326	2001/2002
IE	IE 28	1996/2006	6	
DE	DE 60	1998/ind.	6,13	
NO	NO 35	1192/ind.	6,3	1998/2002
FI	FI 13	2001/ind.	6,7	
AT	AT 5	1977/ind.	7,5	Annually
SE	SE 3	1986/2004	7,7	Annually
UK	UK 05	1996/2000	7,9	
NO	NO 09	1999/ind.	8,1	1999/2001
DE	DE 22	1997/2005	8,2	1997/2002
AT	AT 13	1995/1999	8,32	
NL	NL 42	2000/2004	9	
NO	NO 06	1991/2002	9,8	1991/1998
BG	BG 03	2001/ind.	10	
EE	EE 21	2001	10,6	2001/2002
NO	NO 10	2000/ind.	11,2	2000/2001
NO	NO 39	1989	11,5	2001
NO	NO 11	1987/ind.	11,8	2001
ES	ES 39	2001/ind.	12	2002
DE	DE 12	1990/ind.	15	2001/2002
AT	AT 47	2001/2003	18	
GR	GR 48	2001/2006	20,542	
CZ	CZ 06	1995/2001	20,893	
PT	PT 07	1997/2001	21	
EE	EE 01	1999/2001	22,376	

FR	FR 12	1999/ind.	22,5	1999/2000
FR	FR 13	1999/ind.	22,9	
GR	GR 46	2001/2006	29,347	
NL	NL 15	1998/open	31	1998/2000
DE	DE 21	1998/2004	31,7	1998/2001
IL	IL 1	1991/ind.	34,5	1998
AT	AT 3	1989/2002	36,34	
FR	FR 11	1999/ind.	45	
NL	NL 39	2002/2004	45	
NL	NL 24	2000/2005	45	
ES	ES 32	2002/2003	48	
AT	AT 24	1999/ind.	50	
AT	AT 38	1997/ind.	52,69	1998/2000
PT	PT 31	2002/open	50	
GR	GR 14	1996/2000	56,4	1996/1997
GR	GR 39	2001/2006	66	
UK	UK 8	1981/1999	66,2	Annually
DK	DK 4	1997/open	67	1997/2004
GR	GR 45	2001/2006	68,9	
DE	DE 57	2001/2004	75	
UK	UK 46	2001/open	78	Annually
AT	AT 14	N/A	80	
UK	UK 11	1998/ind.	80	Annually
FR	FR 35	2002/2010	90	
NL	NL 23	1996/2001	101	1997
DE	DE 23	1997/2006	125	
UK	UK 53	pending/2011	127	
DK	DK 2	1994/open	134	
FI	FI 4	1996/open	146.4	1996/2001
PT	PT 16	2000/2006	179	2002
UK	UK 54	2000/2012	200	
DE	DE 20	1998/2005	201,48	
DK	DK 8	1973/open	213	1995/2000
FR	FR 1	1979/open	215	Annually
AT	AT 9	1999/2006	240	
DE	DE 16	1999/2005	250	
FI	FI 2	1996/open	277.6	1996/2001
GR	GR 36	2000/2004	300	
PL	PL 11	2001/open	320	

Source: Trend Chart Data Sheets

3 Conclusions

The main findings of this Thematic Trend Report can be summarised as follows:

- The report covered 150 measures in 27 countries (out of the 30 countries covered by the Trend Chart; three countries reporting no measures).

- The pace of introducing new measures relating to NTBFs has not evolved significantly from July 2000 to September 2003. In the 12 months to September 2003, only ten new measures were introduced; four were concerned with the supply of grants and loans, three with business incubators, two with entrepreneurial consultancy services and one with participation of venture capital firms.

- There has been no major variation in policy priorities towards NTBFs during the period July 2000 to September 2003. The average priority score for the 29 countries (one country did not report its score) has hovered around 3.0, fluctuating by only 0.1 to 0.2 ranking points from one reporting period to the next. This lack of change may be due to the prior existence of NTBF support structures functioning well or to the relatively low priority given by Governments to support NTBFs.

- There is a gap between policy rhetoric on the need to foster NTBFs at EU level and actual policy effort at a national level. This is based on the idea that the priority score 'reflects the relative amounts of 'effort' expended on the promotion of measures' and the fact that the average priority score is quite low (3.0).

- The current EU-15 Member States have a significantly higher average number of measures per country than the Acceding and Candidate Countries (7.2 versus 2.3). This disparity suggests that more action is required to support NTBFs in the Acceding and Candidate Countries.

- The most popular mode of delivery of support to NTBFs remains direct grants/loan funding (47%) and SMEs/industrial SMEs are the most popular targets (27%). Conversely, tax deductions are the least popular mode of support (3%) and investors are the least popular target (3%). The low relative importance given to tax deductions may reflect a trend towards generalised (neutral) tax deductions as opposed to fiscal incentives targeting specific sub-groups of enterprises.

- Budgetary information on funding for NTBF support schemes is currently only available for two-thirds of the policy measures (98 out of 150). Based on the available data, it can be argued that large-scale programmes have been established in ten countries including France, Germany, Holland, and the United Kingdom. Medium-size projects have been developed mainly in Estonia, Norway and Spain, while the smallest ones have tended to be adopted in countries with relatively small populations such as Cyprus, Iceland, Luxembourg and Slovenia.

The following observations have been made with regard to improving the monitoring of NTBF support policies:

- Information on the financing of policy measures related to NTBFs is insufficient for any deep analysis to be made or robust conclusions drawn. Although reporting has improved, there is a need for further effort by national correspondents to collect data on the funding of programmes.

- Thematic trend analysis is being made more difficult by the clearly diverging approaches to completing datasheets and country reports. Issues requiring attention include country report sections on NTBFs that mention specific measures which are then not classified as NTBF-related measures (and vice-versa) and incorrect categorisation of targets and measures (e.g. measures that clearly are aimed at funding incubators are not classified as such in terms of their mode of delivery).

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Annex 1 Extracts from September 2003 Country Reports

Austria

The importance of entrepreneurship has been recognised by Austrian policy makers under the employment aspect. Currently, three programmes at the federal level are especially designed for this propose: The Seedfinancing Programme (AT 3) and the Technology Marketing Austria (TecMa, AT 16), both in close co-operation, and the Young Entrepreneur's Programme (AT 12) by BÜRGES. While the Seedfinancing Programme and BÜRGES concentrate on financing, TecMa provides consultation with regard to the commercial exploitation of research results and inventions. The newly created *Austria Wirtschaftsservice GmbH* wants to upgrade the seed credits financially and a new 'Double Equity Fund' with a potential of €20 millions will be established by the end of 2003. The first concrete results of these efforts will be included in the next Trend Chart-Report.

The financing of start-ups is also closely related to other innovation financing schemes: The FFF general programme (AT 2) and the ERP (namely with the ERP SME Technology Programme (AT 8)) both offer favourable terms for start-ups within their programmes. Equity capital guarantees by the FGG (AT 18) and the I^2 programme (AT 4) are also interesting for technology-orientated start-ups. A strong start-up-aspect can also be found in the Tech Gate Vienna project (AT 24) which (partly) aims at promoting start-ups emerging from the Vienna universities. Moreover, financing of start-ups is also a important parts of initiatives at the provincial level (see AT 11, 12, 13, 14, 15, 43, 44, 46).

The 'A plus B' (academia plus business, AT 47) programme – managed by TIG - tries to stimulate the formation of university spin-off companies (see 4.4.). Only recently, the Chamber of Commerce announced that all inscription fees for start-ups would be abolished in 2001. As these inscription fees were quite significant in some cases, the move has significantly reduced the costs associated with the establishment of a new enterprise. This step came as part of a larger effort on the part of the Chamber of Commerce to cut costs and fees for members and to improve services.

As well as continuing its existing programme, the Council for Research and Technology Development announced in its paper '*Visions 2005 – Through Innovation Among the Best*" that the number of high tech start-ups should be doubled by 2005. This goal should be achieved by providing:

- increased incentives for start-ups;
- further administrative simplification and support;
- support to form equity;
- significant reduction of the tax burden during the start-up phase; and
- further tax reduction for patents and licences.

To achieve these targets a number of possible areas for action have been identified, e.g. intensified use of venture capital, further support for seed financing and early stage investment programmes, promotion of business angels and incubators, stimulation of networks and clusters. These recommendations were repeated in the 'National Research and Innovation Plan' published in December 2002, but measures to implement these targets have yet to be formulated.

Belgium

All governments in Belgium place strong emphasis on fostering entrepreneurship and the creation of new firms through measures aimed at: simplifying the procedures for registering and operating companies, one-stop-shops for financial aid and advice services, support for incubator type structures, etc. This policy emphasis has been reinforced by various international surveys such as the Global Entrepreneurship Monitor[18] which places Belgium at the bottom of the table in terms of total

[18] See : http://www.gemconsortium.org

entrepreneurial activity[19], with 5% compared to 11.3% for the North American countries or 18% for Mexico. Indeed, in a recent speech introducing the Federal Government's policy orientations for 2002-2003, the Prime Minister stressed the extremely poor comparative performance of Belgium in terms of the procedures and delays for the creation of start-ups[20].

Fiscal incentives for the creation of start-ups are a prerogative of the Federal government. Aside from specific fiscal aids for R&D mentioned in section 2.2 above, the Federal Government has also recently agreed a fiscal reform which will reduce the rate of corporate taxation for both large and small enterprises in Belgium, bringing it into line with that of European neighbours.

In the Brussels-Capital region, one of the main priorities of the Regional Development Plan (PRD, currently going through a process of adoption following a public consultation) is to create a more dynamic enterprise sector (priority 2 of the plan). The creation of new firms is a key part of this priority objective, which also includes actions in favour of administrative simplification and improving the diffusion of information and advice to firms. The creation of a one-stop-shop enterprise agency (the Brussels Enterprise Agency in January 2003, integrating the former ECOBRU and Technopolis agencies) meets this objective.

In terms of financing start-ups, the Government has reconfirmed the role of the regional investment company (SRIB[21]) and in particular its BRUSTART and Seed-Fund initiatives for supporting the creation, growth and development of enterprises, particularly those that permit a renewal of the productive fabric. Two other temporary funds (micro-credit and early-stage '*amorçage*') will be made permanent and the use of guarantee and equity capital funds will be encouraged. No mention is made of continuing support for the Business Angels Connect network (BE 11). Finally, a new subsidy for 'individual inventors' interested in developing an idea commercially was provided for in the 2002 Regional Order on encouraging scientific research and technological innovation.

In Flanders, government policy with respect to new firm creation has not changed significantly since September 2000. An important priority of Government policy affecting business start-ups and development is the creation of the 'Houses of Enterprise' (see section 2.2 above). The framework for investment and risk capital financing in Flanders has been in place for the last decade, the main mechanisms being the Investment Company for Flanders (GIMV), Guarantees on risk capital (BE 21) providing an incentive for the venture capital firms to take more risk capital in investments in SMEs as well as some support for private initiatives such as Business Angels Networks (BE 28).

In Wallonia, a number of measures have been taken in the last two years to support entrepreneurs in creating new firms and to provide a more favourable environment in terms of administrative simplification and financial instruments.[22] The Government's policy framework, the Walloon Contract for the Future (*Contrat d'Avenir pour la Wallonie*, or CAWA), sets as a first objective 'an increase of 15% in the number of firms between 2001 and 2004'. Many of the instruments identified as contributing to this objective are already in place or the process of being launched (see also section 1.4). Two important measures taken in the during the period 2001-2002 are the creation of a single entity responsible for financing SMEs, the SOWALFIN (www.SOWALFIN .be); and a Pre-activity grant (BE 48) which replaced the former grant for 'individual inventors'.

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19 TEA is defined by the number per 100 adult individuals who are trying to start a new firm or are the owner/manager of an active business less than 42 months old.

20 « Comme l'indiquent les études réalisées par les institutions internationales, nous avons perdu un peu de terrain en termes de compétitivité. Nous obtenons de bons résultats en termes d'ouverture de nos marchés financiers, de nos petites et moyennes entreprises, de collaboration entre les universités et les entreprises. Mais nous occupons une septantième place lorsqu'il s'agit du nombre de jours nécessaires à la création d'une entreprise, une soixante-neuvième place dès lors qu'il en va du nombre d'autorisations à obtenir pour créer une entreprise, une soixante-huitième lorsqu'il en va du niveau de l'impôt des sociétés. » (Speech given by Prime Minister Guy Verhofstadt on 23 January 2002 http://premier.fgov.be/topics/speeches/f-speech101.html)

21 See: www.srib.be

22 The Government has also taken the initiative of organising an annual 'Venture capital fairs' event since 2000 and created a single portal web site for information on creating a company: http://creation-pme.wallonie.be.

The decree creating the SOWALFIN was adopted by the Walloon Parliament in July 2002. This new structure brings together all the existing services which provide financial support to SMEs (guarantees and subordinated loans for which enterprises can apply directly through their own banks without any additional administration) and coordinates the activities of the sub-regional investment companies.

In terms of schemes, two main measures exist in favour of the creation of technology-based firms:
FIRST-Spin-off (BE 37), launched in 1999, which aims at assisting in the creation of spin-off enterprises by university researchers. The Walloon Region funds the salary costs of the researcher, and provides a subsidy to cover overhead costs of the research laboratory and funding of training costs for the researcher. The measure is part of one of the main axes (FIRST programme) of the research and technology policy of the Walloon government and translates the political will to promote research commercialisation, notably through spin-off companies.

In February 2001, the Walloon government adopted a ‘Pre-Activity Grant’ (BE 48) scheme. The scheme replaces a previous measure that favoured the creation of companies by individuals with patentable ideas. The aim of the new scheme is to extend the support to individuals with ‘novel ideas’ to help them create new companies. An interdisciplinary jury reviews projects proposed by individual inventors (or on the basis of a novel idea) in order to assess the feasibility of developing an economic activity. The role of the jury is to filter out only the projects that have a real chance of being viable. The individuals selected will be granted the sum of €12,395 (against real costs incurred) in order to allow them to finalise their ideas. It is foreseen that the inventors or creators will be able to benefit thereafter from existing aid schemes that subsidise consulting services to help in the development of credible business plans.

Denmark

No new measures have been introduced in this field during the period of this report.

On the basis of an evaluation dating from May 2000, the public co-financing of the Incubators (DK 4) has been extended until 2004. The measure originally started in 1998. The evaluation showed that not only had the Incubators contributed positively to the creation of new innovative projects, but also that the number of projects/companies continuing with private finance remained relatively high. The evaluation also showed that the number of research-based projects was too low in comparison with ‘company projects’. Therefore the Incubators are required to focus more closely on research-based projects in the future. Furthermore, the Incubators must ensure that capital is introduced into the projects at an earlier stage than is the case today.

In the period from 1998 to 2000 the Technology Incubators received DKK 310 million (€42 million). In 2000 the scheme was prolonged and appropriations from 2001 to 2003 amounted to DKK 360 million (about €48 million).

The Ministry of Science, Technology and Innovation has put out a new tender concerning the approval of four to eight Technology Incubators for a period of three to five years from 2004. The budgets for 2004 and 2005 are DKK 114 million (about €15 million) and DKK 75 million (about €10 million) respectively.

It is planned that the Incubators should become self-financing in the long run.

Finland

Initiatives aimed at starting up technology-based companies primarily relate to the venture capital industry and to various incubator schemes. The Finnish private equity and venture capital market has experienced significant growth in terms of both investors and operations. This growth has also resulted in an increase in the number of members of the Finnish Venture Capital Association (FVCA) (http://www.fvca.fi). Today the membership covers 50 private equity houses and venture capitalists, with 63 associate members. The real growth of the association began in the latter half of the 1990s. Despite a downturn in international economics, the Finnish private equity industry has remained vital.

Governmental agencies have pioneered Finnish private equity investing. At the end of the 1990s many private management firms had become prominent players. Today, the private sector accounts for most of the markets. The public sector focuses mainly on seed financing and rescue or turn-around.

The Finnish private equity market is becoming more international. For example, some Finnish venture capitalists and private equity houses have penetrated Scandinavian markets. On the other hand, international private equity houses have discovered Finland and have established themselves in the Finnish markets.

The most significant public venture capital organisations are Sitra and Finnvera. According to a recent study, Government funding, direct or indirect, is still a main contributor to the Finnish seed capital segment (seed capital investment in Nordic countries). Sitra played a significant role in the establishment of the Venture Capital Association in 1990. Sitra's own activities include technology transfer and venture capital investments in emerging and technology-based start-up companies, as well as spin-offs from large companies. Sitra's PreSeed service package (FI 03) has been created to accelerate the emergence of new technology-based businesses, improve capital management and introduce companies to the providers of further funding, including private venture capitalists. The PreSeed service consists of two measures: LIKSA and INTRO (FI 13).

LIKSA is a joint funding service operated by Sitra and Tekes that can be used to obtain information and services related to the commercialisation of technology and the development of relevant business plans. The INTRO service takes care of the efficient presentation of start-up enterprises so that they can find both institutional and private investors who might be prepared to provide simple, straightforward funding in the future.

LIKSA and INTRO are closely related to the Tekes TULI programme (FI 06) which was modified before the start of a new programme period in April 2002. The main goal of the TULI programme is to promote new, technology-based businesses arising out of applied research in Finland. The scheme focuses on R&D activities at universities and research institutes. In practical terms, the aim is to realise the commercial potential of research projects by forming new ventures.

Finnvera's domestic development and financing solutions are geared particularly towards SMEs, but help to promote regional policy objectives as well (http://www.finnvera.fi).

Incubator schemes have been established in close association with the regional technology parks and universities since the late 1980s. The more significant include the Spinno scheme (FI 01) in the Helsinki region and the technology or company centres in the larger cities of Tampere, Turku and Jyväskylä.

The Government's Entrepreneurship project (FI 14), started at the beginning of 2000, was completed in early 2003. It was implemented by co-operation between nine ministries and the Association of Finnish Local Authorities. Most of the over one hundred actions included in the project have been implemented. The project included various measures designed to increase the establishment of new firms and increase the growth and competitiveness of existing firms, focusing on different phases in company life cycles. Measures taken to improve the environment for entrepreneurship covered the administrative obligations involved in running a business, financing, competition, social security for the entrepreneur, counselling and development services for businesses, and later on improving the operating environment in terms of social welfare and health care services, the transfer of business ownership to successors and bankruptcy regulations.

To continue the former Government's Entrepreneurship project (FI 14), the new Government launched a new Entrepreneurship programme (FI 18) to foster company start-ups, growth and internationalisation. The most important goals are to secure economic growth, reasonable and stable interest rates and a low level of inflation, as these enable companies to invest and employ people in the long term. Efforts will be made to make entrepreneurship more attractive as a career. Legislation will be adapted to suit the needs of small and large companies. Administrative obstacles to entrepreneurship will be abolished and services for companies improved on the 'one stop service' principle.

Germany

The main activities of the Federal Government in the field of promoting technology-based start-ups are concentrated on three areas:

1. improving the financing conditions for start-ups, especially the access to venture capital,
2. improving the infrastructure and legal framework relevant to start-ups, and
3. improving the climate for entrepreneurship, with special emphasis laid on the higher education and public research sector.

The main new development in this action line refers to the introduction of the *'KfW Mittelstandsbank'* (SME bank) in July 2003 that combines all measures relating to start-ups of the former KfW and DtA banks and should contribute to higher transparency and better access of firms to the programmes. This includes venture capital (VC) programmes (DE 12), amongst others.

Several programmes are providing financial support to technology-based start-ups via venture capital. The most important VC programmes are the BTU-programme, the BTU-Early Stage programme, the TBG Programme and the KfW VC programme (see for all: DE 12) as well as the FUTOUR 2000 programme for Eastern Germany (DE 20). However, technology-based start-ups may also apply for promotion under general start-up programmes, e.g. various programmes previously operated by the DtA (e.g. DtA starting capital). Start-ups may also apply for funding under the various R&D programmes (see 3.2).

The BMBF operates a separate programme for the promotion of start-ups from higher education institutes (HEI) and public service research establishment (PSRE) called EXIST (DE 21). The programme aims to create a culture of entrepreneurship in teaching, research and administration at HEIs, increasing knowledge spill-overs into economic value-added, transferring of business ideas and entrepreneurial potentials at HEIs and PSREs into real business activities, and increasing the number of innovative enterprise start-ups from public research. The EXIST programme started in December 1997 with the launch of a competition of regional networks. From 109 proposals five winners were selected that now receive funding for infrastructure and network activities. The EXIST programme also provides direct support to start-ups through the sub-programme EXIST-Seed. This seed capital financing through grants is currently available to start-ups in EXIST regions only. 2001 saw the launch of a follow-up activity, EXIST-Transfer, building on the experience of EXIST. Another regional competition was started, and ten winning regions have been selected in Spring 2002 for public support.

The EEF-Fonds (Facilitating Start-ups from PSREs) provides funding for PSREs (HGF, MPG, FhG, WLG) in cases where a researcher plans to establish a new business. The funding is intended to cover the labour costs of these researchers for the first year of business operation while they formally remain committed to the research organisation. This allows the research organisation to finance other R&D personnel to replace these entrepreneurial researchers. Funding is also made available for external consulting, qualification, market analysis and patenting costs. Since 2001, about €7.5 million has been provided to support a total of 35 start-ups from PSREs. 29 spin-offs are currently in their foundation stage.

For certain fields of technology there are separate promotion programmes to stimulate new firm formation. In Biotechnology, the BMBF offers the ‘BioChance’ programme, but start-ups are also supported by the BioRegio and BioProfile programmes (DE 23, see 1.6). The BMWA launched a Multimedia start-up competition (DE 22) in 1996 with the goal of increasing the number of multimedia firms in Germany by 100% by the year 2001. This goal was clearly surpassed, with a growth rate of nearly 300% by 2000. In October 2001, a follow-up competition called MobilMedia was launched. Out of 137 proposals five have been selected for public support. Another activity in this area is the German Internet Award.

Technology-based start-ups are supported not only by direct subsidies but also by consulting measures. One example among several initiatives is the Business Angels Network (DE 50), which offers start-ups access to experienced managers who give advice to young entrepreneurs in the early stages of firm creation. Another area of policy action in the field of start-ups is the promotion of new professorships for entrepreneurship at German HEIs (DE 60) and the reform of university curricula with respect to the management of start-ups and young enterprises. So far, 14 such professorships have been established or are currently in the process of establishment with public support, and many more have been set up on the basis of private initiatives. At secondary school level, the JUNIOR project (DE 64) is trying to improve the entrepreneurial culture in Germany in general, but is also intended to stimulate awareness about technology-based start-ups amongst young people. Groups of school pupils receive support in establishing a 'mini start-up' for one year in order to learn the challenges of running their own firm, and also to see the possibilities of entrepreneurial initiatives. This project is part of the Young Enterprise Europe network, and the introduction of the project was stimulated by similar activities in other countries.

Technology-based start-ups are also a target group of programmes that stimulate regional innovation networks (DE 16, DE 57, see 1.6). Institutional reforms at PSREs also represent an attempt to improve framework conditions for start-ups (see DE 58, 2.4). Within the INSTI-Network, some sub-programmes also deal with the promotion of technology-based start-ups (DE 24, see 2.2).

Greece

There are mainly two schemes supporting the start-up of technology based companies:

Start-ups are supported by PRAXE, the academic spin-off support measure (GR 39), which started its first phase of operation in 2001 and exhausted its budget in 2003. The objective of this programme is the establishment and the development of new entrepreneurial activities aimed at the exploiting the knowledge produced in research laboratories with the support of private funds and financial organisations. This programme has two phases, the first addressing the preparation of the investment and the second going into implementation. At that stage there are no recorded success stories of phase B yet.

The scheme ‘Development of Incubators and S&T Parks in Greece – ELEFTHO’ (GR 45) was also slightly amended and came into full implementation during the current period.

Iceland

One new measure (IS 15) has been introduced under this heading within the period under review. However a re-examination of Icelandic research and innovation policy has revealed a number of measures not yet included in the Trend Chart. Under this heading there are five such measures, namely IS 8, IS 9, IS 10, IS 11 and IS 13.

In general there are no established rules or procedures to increase public sector co-operation with industry in field of technology transfer or spin-off. However single institutions have established guidelines and rules in specific areas. For instance, IceTec established clear rules regarding the ownership of research results. In the resulting contract between University of Iceland and the Ministry of Culture and Education it is also stated that that the University will increase R&D co-operation with other research institutions and companies.

Impra Innovation Centre (IS 15) was established in 2003 (under new legislation on support for technological development and innovation) to replace Impra Incubator Centre (IS 13), provide support services to entrepreneurs and SMEs, and also initiate and support regional development agencies and local business advisers. A central goal is to coordinate national actions and initiate co-operation between support agencies. Young people and women have been pointed out as special target groups. The overall budget is ISK 100 million (€1.25 million).

The 'Out of drawers' programme (IS 9) is a co-operative project between the Research Liaison Office of University of Iceland and the New Business Venture Fund. The main objective of the project is to encourage personnel from higher education and public research institutions to bring forward their R&D results for further exploitation of the industry. The project has been operational since 1998.

The 'Support to entrepreneurs and SMEs' programme (IS 10) is intended to provide information and guidance on possibilities for international co-operation for investors. The project was launched in 1998 and ended in 2000.

The Step Ahead project (IS 11) is intended to facilitate leaders of small firms (micro and spin-off) in seeking guidance on marketing, finance, environmental product management and organisational matters in order to increase the profitability of companies. The project started in 1998 and is expected to last at least until 2003. The overall budget is ISK 4 million (€50,000).

The Impra Incubator Centre (IS 13), established in 1999, has a capacity to host up to nine companies simultaneously. The companies must be founded on an innovative idea. Impra support the companies in the form of low rent housing and equipment, and other services. The overall budget is ISK 7 million (€87,500). The main indicator for success is the number of new jobs created by the incubator companies. In connection with new legislation on support for technological development and innovation passed in 2003, the Incubator Centre measure was replaced by the Impra Innovation Centre (see IS 15).

Ireland

Enterprise Ireland, the state agency for the development of indigenous industry, encourages and develops companies in new and emerging technologies such as software, digital content, biotechnology, photonics and nanotechnology.

The organisation provides a range of supports and services to companies in high technology sectors to assist early-stage growth. These supports include 'soft' supports such as mentoring and training and 'hard' supports such as direct financial assistance. Under its R&D Investment initiative, Enterprise Ireland can provide supports to client companies for investments leading to a sustainable and substantial increase in R&D spend as a percentage of sales.

According to its 2002 Annual Report, Enterprise Ireland has since 1998 assisted more than 200 start-up enterprises which together employ 3 600 people and had sales of €250 million in 2002. Its strategy is to increase the number of high potential start-ups by 50% per year over the next three years, particularly in regional locations. High potential start-ups are among the categories of client companies supported under this initiative.

One of the initiatives provided by Enterprise Ireland to support high potential start-ups is the Incubation Space/Centres (IE 28) which provides financial support for the construction of infrastructure to support the incubation of campus enterprises. In 2002, Enterprise Ireland approved funding for four incubators in Institutes of Technology, involving a commitment of €8.5 million. It is anticipated that, once operational, these incubator centres will cater for 80 companies and will be involved in 24 collaborative R&D projects.

Israel

The two main tools for this activity are the Technological Incubators Program (IL 1) and the special provisions for start-up companies in The Law for the Encouragement of Industrial R&D – 1984 (IL 4).
A new tool for increasing establishment of Start-up technology-based companies is the government Seed Fund (IL 6) (See 2.5).

Italy

This objective will be pursued through the D.L. 297/1999 (see *Innovation financing*).

Many of the reforms and simplified standards have made it easier to start new enterprises. According to some estimates (OECD, Regulatory Reform in Italy, April 2001), the number of administrative procedures that must be completed to start a new business has been reduced from 25 in 1998 to five in 2001. Furthermore, the maximum time needed to complete the entire process has been shortened from 22 weeks to 10. The total cost of starting up a new company has dropped from €7,700 to €3,500, while setting oneself up as self-employed has been reduced from €1,150 to €500.

The main instruments introduced under the previous government as incentives to create start-ups are the following:
- setting up one-stop shops (IT 29) for manufacturing – a single address for enterprises to contact with regard to everything concerning locating, building and restructuring manufacturing plants, with procedures completed quickly and within a specific time limit (see *Administrative simplification*);
- action to encourage women to become entrepreneurs (Presidential Decree No 314/2000);
- simplification of the rules for registering enterprises (Presidential Decree No 558/1999);
- various advantages, contributions, subsidies and benefits to assist in developing export markets and make manufacturing focus more on international markets (Presidential Decree No 161/2001);
- eliminating the requirement for court authorisation when setting up limited companies, resulting in lower costs;
- in-depth renewal of the interdepartmental conference (Law No 340/2000);
- eliminating the provinces' 'legal announcement form' (foglio degli annunzi legali -FAL), an outdated and ineffective way of making information public in the modern information society, resulting in savings for enterprises of approximately € 2,326.06 (Law No 340/2000).

In addition, Law No 388 of 23 December 2000 (Financial Law 2001) has set up a system of reduced taxation for new enterprises set up by entrepreneurs and for individuals setting up as self-employed. The goal of this law is to provide incentives for people as physical persons to be able to set up new enterprises or to become self-employed, and provides them with assistance during the early years of activity, where high start-up costs and a modest amount of business is typical. The reductions apply to the year in which the enterprise was set up, and the two following years. The two main measures in the system of reduced taxation are a tax that replaces 10% of the IRPEF and radical simplification of the accounting obligations.

It also includes measures to provide tax assistance to those who meet the requirements for eligibility for the tax reduction. The local office of the Revenue Agency covering the entrepreneur's fiscal domicile is available to provide assistance in meeting the simplified tax requirements. If entrepreneurs decide to avail themselves of this assistance, they must obtain the computer equipment which is needed to connect to the Revenue Agency's computer system.

With the Ministerial Decree 3rd February 2003 the Ministry of Productive Activities Financial regulated the support for the promotion and the development of new innovative enterprises foreseen by the L. 388/00 (IT-41°.

Luxembourg

First, Luxembourg provides several accommodation structures adapted to support project promoters, entrepreneurs in the start-up phase and heads of business wishing to set up or expand innovative businesses:

The '*Technoport Schlassgoart*' (LU 04) is a pilot project for the creation of a first group of technological companies, most of which operate in the data processing and communication sectors. Created in 1998, this start-up centre targets existing and future start-up SMEs by offering its features in an efficient business environment enhanced with timely added value such as secretarial services and internet connection.

September 2002- August 2003

As previously stated, a new accommodation structure ECOSTART (LU 12) was in place at the end of 2002, created by the government in order to diversify the range of support services on offer to innovative businesses in Luxembourg. The Ministry of Economic Affairs acquired industrial premises (area 3 915m²) at Foetz in the south of Luxembourg with the intention of converting it into a business support centre. Ecostart is also part of the government's plans concerning the Cité des Sciences, de la Recherche et de l'Innovation for high-tech companies at Belval-Ouest.

The mission of the Ecostart enterprise and innovation centre is twofold: to support promoters of innovative projects at the idea stage and to provide ongoing assistance up to the start-up phase; to provide temporary accommodation for domestic and foreign businesses at the development stage seeking a temporary foothold in Luxembourg.

Ecostart offers its services to newly formed, innovative industrial firms or service providers; growing Luxembourg firms already up and running and seeking temporary accommodation for their business; foreign firms seeking a temporary foothold for their business. Ecostart offers an extensive range of facilities and services to the companies that it houses (office space; initial-prototype or small-factory workshops) and support services such as financial, fiscal engineering and legal advice.

The second aspect referred to above is the networking of service providers and public advisers (financial, technological, training, logistics and management) through Luxinnovation GIE (LU 5), the National Agency for the Promotion of Innovation and Research, which acts as a first-stop-shop for entrepreneurs setting up technological companies.

The third aspect relates to the availability of development capital through participating loans of the CD-PME (LU 02).

Finally, in order to encourage the creation of businesses in the Greater Region, a non-profit organisation called Business Initiative asbl was created in March 2000 by the FEDIL (Federation of Luxembourg Industrialists) in collaboration with the Chamber of Commerce, the Chamber of Crafts and Luxinnovation (the Luxembourg Relay for Business Initiative). The Ministry of the Economy provides financial support for Business Initiative.

The association's goal is to promote entrepreneurial spirit in Luxembourg and to diversify its economy through the fostering of new potential. This objective is pursued through four concrete initiatives:

- in order to promote the transition from idea to business plan, a business plan competition called '1,2,3, go' (open to all comers) is organised within the Greater Region encompassing the Grand-Duchy and surrounding areas of Belgium, France and Germany.
- a framework for coaches and sponsors as well as a selected jury is provided in order to develop constructive recommendations for young entrepreneurs
- a follow-up of projects after their launch

Finally, a financing platform was created in May 2001 to help the best projects get access to potential financing. Representatives of the finance industry are: banks, venture capitalists and business angels.

Netherlands

With the publication of the EZ White Paper of EZ '*Scope for Industrial Innovation: Industrial Policy Agenda* ' (referred to as the 'Industry Letter'), improvement of the framework conditions for high-tech start-ups has become an important item on the policy agenda. [23] The issue had received little attention earlier.

After publication of the Industry Letter, EZ launched a number of schemes designed to increase the number of technology-based companies. Two important schemes in this area are Twinning (NL 15) and Biopartner (NL 24). In Twinning and Biopartner the Dutch government has adopted an integral approach for stimulating start-ups in ICT and Life Sciences, respectively. The schemes aim to improve the climate for entrepreneurship through provision of venture capital, housing and coaching. In the case of Biopartner, the scheme also tries to bring about a more favourable mindset toward entrepreneurship in universities. Dreamstart (NL 32) is a measure that aims to increase the number of technology-based companies in areas other than ICT and Life Sciences. Dreamstart is a foundation that serves to increase the transparency and accessibility of measures currently existing for start-up companies. Dreamstart also encourages universities/institutes of higher education and research institutes, and market organisations such as firms and financial organisations to build networks, for example to set up incubators in various technology areas. In this respect, Dreamstart is in line with the new technostarter scheme (NL 39). In March 2002, Dreamstart launched the first of its pilots for supporting technostarters. Through the pilots Dreamstart intends to help participating starters find support in various areas such as market analysis, intellectual property and product development.

A fourth scheme in the area of start-up of technology-based firms is STIGON (NL 43). This scheme, launched in 1998, aims to stimulate spin-offs from pharmacology. It is administered by the NWO Research Council Zon/Mw (Health Care Research and Development Agency/Council for Medical and Health Research).

The number of start-ups in ICT and life sciences (including pharmacology) has increased in recent years.[24] However this increase can only be partly attributed to these programmes. It is also (and probably to a considerable degree) due to the favourable business and investment climate. Given the current economic downturn, it remains to be seen whether this positive trend is going to be maintained in the following years. Another bottleneck for start-up of technology-based companies, that particularly affect life sciences and pharmacology, is the fact that universities in The Netherlands have only just begun to develop policies concerning commercialisation of their knowledge. As a result, there is little experience with technology transfer. An evaluation of the STIGON scheme (yet to be published) indicates that, both researchers and universities lack clear models for arranging the transfer of knowledge, intellectual property and possible commercial revenues in such a way that the institutes, the researchers as well as future participants in the spin-off (venture capital, possible CEOs) all receive fair compensation.[25] Policies of universities in this area are still at the stage of development.

In April 2002 the integral approach adopted in Twinning and Biopartner was also used in a new technostarters scheme. The subsidy scheme Infrastructure Technostarters (NL 39) aims to improve the orientation of knowledge institutes toward knowledge transfer and exploitation by encouraging them to offer technostarters a good infrastructure and support, in particular adequate accommodation, accessible equipment, and provision of support and coaching services. The objective is to create a

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[23] Ministry of Economic Affairs, *Ruimte voor Industriële Vernieuwing: agenda voor het industrie- en dienstenbeleid*, June 1999.

[24] See for example Boekholt, P. and Lankhuizen, M. Monitoring, updating and disseminating developments in innovation and technology diffusion in the Member States - The TREND CHART: The Netherlands, covering the period March 2002, April 2002, for a summary of the monitoring report of Biopartner's first year.

[25] Technopolis, *Stimuleringsprogramma Innovatief Geneesmiddelonderzoek en Ondernemerschap in Nederland: tussentijdse evaluatie*, Amsterdam: 2002

network of incubators linked to knowledge institutes.[26] However, the first round of programming that took place between 19 April and 19 July 2002 resulted in only 10 proposals for incubators from knowledge institutes. Universities largely refrained from submitting proposals because of the matching requirement, calling for this condition to be made more flexible. The Advisory Committee for Infrastructure Technostarters is currently discussing the possibilities for improving the measure, as published in '*De Staatscourant*', with the Ministry. An adjustment of this measure is not yet under consideration.

Other measures aimed at improving the climate for high-tech start-ups are the participation companies (PMTs) for new technology-based firms (NL 4), the 'Aunt Agatha' scheme (NL 23) and Entrepreneurship and Education (O&O, NL 40). The PMTs were designed firstly to boost the amount to be invested in the new technology-based firms and secondly to act as a financial incentive by offsetting the high costs of hands-on management and the increased risk associated with the financing of these firms. The Aunt Agatha scheme is a fiscal facility for stimulating business angels and informal investors to invest in new companies. The aim of the Entrepreneurship and Education measure is to stimulate entrepreneurship in education. With this scheme EZ hopes to increase the number of start-up entrepreneurs and to develop an entrepreneurial spirit among future employees. In January 2002 the third (and final) tender was launched with a closing date of 25 May 2002.

Given the change in economic climate surrounding start-ups and their support by venture capital, public funding schemes that match private risk capital appear to have more and more problems in finding private sector matches, particularly at the second phase of financing when start-ups begin to grow and need funding for expansion, even though market perspectives are still uncertain. The government is re-considering whether the public matching can be extended to second phase financing.[27]

Norway

The Science Parks play an important role in encouraging the establishment of new technology-based companies, including university and college spin-offs. They are the local representatives of the FORNY-programme (NO 11), which aims to improve the ability to commercialise research-based business concepts or ideas conceived at universities, colleges and research institutes.

The support to 'industrial gardens' *(Næringshager*, regional incubator parks) will continue under SIVA. Furthermore, SIVA is preparing a new regional program for incubators for industrial newcomers.

The Ministry of Industry and Trade will continue to allocate money to funds for start-ups and the EU programme INTERREG, various programmes for competence development under SND and the Research Council (including NO 30 MOBI and NO 04 FRAM).

2001 saw the birth of the Incubator grant scheme *(Inkubatorstipend* – NO 47*)*. The aim of the incubator grant, which is organised under SND, is to stimulate the increased establishment of competitive, future-oriented and innovative businesses contributing to innovation and business renewal in general. The incubator grant is a scheme for entrepreneurs located in an incubator. The grant is designated for start-ups with a high level of knowledge and technology.

Portugal

The promotion of technology-based entrepreneurship was envisaged under POE, POCTI, POSI and PROINOV. POE included one action line addressed to entrepreneurship including high-tech entrepreneurship – 'Mobilising new ideas and new entrepreneurs'. Under POCTI one action has the objective of providing support to the creation of incubators for firms launched by young researchers.

[26] The setting up of incubators is also incorporated in the Biopartner programme. At present 6 Biopartner Centres are in the process of being set up. It is not clear how these Centres fit into the new (generic) scheme.

[27] Onderzoek Nederland, 23 May 2003

However, these have not been translated into specific measures to support technology-based start-ups.

In the wake of PPCE, a new programme was designed to stimulate the creation and development of new technology based firms: NEST – *Criação e Arranque de Novas Empresas de Suporte Tecnológico* (Creation and Launching of New Technology-Based Firms). It is regulated by Ministerial Decree no. 1518/2002, of 19 December 2002.

The objective of NEST is to provide financial support to the creation, launch and development of technology-based firms which have a close relationship with domestic S&T organisations and/or are expected to reach a high level of technological capacity. Promoters should have a minimum stake of 5% in the new firm's equity. The remaining equity will be held by the Venture Capital Syndication Fund (with the same equity share of promoters, up to a maximum of 15% or €375000) and by a venture capital enterprise. Shares held by promoters provide an income more than double of that from the venture capital partners, while those held by the Fund will not raise any income. The excess dividends of promoters are intended to be used to purchase the shares held by the Fund, according to a timetable defined by the partners. The Management Board should have three members (two representing the promoters and one the venture capital firm), but will have the right of veto on all decisions.

Information recently disclosed by AdI indicates that so far 34 applications have been made to NEST, the proportion of refusals being around 40%. From our perspective, NEST suffers from two weaknesses. One is structural, associated with its design. It has become too cumbersome for promoters to create a firm according to NEST requirements, especially when the future of the initiative is still very unclear. Furthermore, dealing only with venture capital firms may be difficult, especially having in mind the track record of this activity in Portugal. The second weakness relates to the lack of seed capital instruments. As the situation is now, NEST requires projects to reach a mature stage that is not reached by many initiatives. To be effective it needs to be complemented by measures in the field of seed capital, in order to provide an effective response to the needs of entrepreneurs during the firm's development and financing life cycle.

Spain

For the first time the IV R&D&I NP has launched some mechanisms to promote the start-up of technology-based firms. The IV NP has designed different instruments intended to foster the emergence of new firms resulting from research centres or R&D spin-off enterprises. The INFO XXI programme also declared among its objectives the establishment of favourable conditions for the creation of firms related to the information and communication technologies. Next R&D&I National plan continues with this focus on R&D exploitation.

Nowadays a set of instruments is working with the generic goal of supporting spin-offs and promoting NTBF creation: NEOTEC (ES 29) has been until now the specific scheme designed by MCYT to pursue these objectives. But recently a new instrument was approved that ensures reimbursable credits for these venture-capital entities (ES 32). The development by public financial enterprises of traditional schemes (like ENISA loans) demonstrates the first steps taken on the path of promoting an innovation financing system devoted to these venture-capital projects.

The implementation of NEOTEC goes through three phases:

- Phase I (Promoting NTBFs): providing training and advice to new entrepreneurial projects;
- Phase II (Supporting start-ups): supporting new enterprises with seed-capital through interest-free loans;
- Phase III (Risk-capital): providing financial support to venture-capital entities that invest in NTBFs in their early stages.

NEOTEC has launched the following instruments:

1. Awards (economic aid) to entrepreneurial projects
2. Services of technological evaluation of new entrepreneurial projects (establishing a technology-rating methodology as a standard measure)
3. Financing risk-capital entities that invest in NTBF launches.
4. Promoting the NEOTEC Network and supporting the development of horizontal initiatives in a consortium between its members.
5. Raising the awareness of society, especially the scientific and technological community: advertising campaigns, websites, and workshops, etc.

The national scope of these initiatives will reinforce regional schemes that have recently been put into place by regional authorities in their Regional Development Programmes.

Also from a national policy perspective, the financial support to Scientific Parks promoted by Public Universities or Public Research Centres, (ES 23) is an instrument that fosters this action line, as far as it promotes the creation of specific facilities (business incubators) that helps in the creation of spin-offs.

Sweden

Since 1994-1995 the commercial exploitation of university research and inventions has been the focus of several new programmes. In 1995 seven Foundations for Technology Transfer (*Teknikbrostiftelser*) located in seven major university cities, became operational. Together they receive capital of about €115 million (one billion SEK), the return on which they are allowed to use to increase commercial benefits from university research and to encourage co-operation between industry and academia. The mode of operation in the Foundation for Technology Transfer varies between the different units. They have developed differently, amongst other things depending on the conditions and needs in each region.

In 1994-1995 eleven University Holding Companies (*Holdingbolag*) were formed in Sweden. Their mission is to form project companies in order to exploit research from the universities and to develop services for such exploitation. They are themselves owned by the universities and are expected to become minority owners in firms created jointly with researchers and industrial actors for the commercialisation of university research.

The Foundations for Technology Transfer in co-operation with the Holding Companies have, in turn, formed Patent & Licensing Offices (*Forskarpatent),* which actively support the exploitation efforts of researchers. The formation of actors like the Foundations for Technology Transfer and the University Holding Companies as well as the Patent & Licensing Offices are concrete manifestations of the belief of the political system in the commercial potential of RTD and academic research.

The government has commissioned a survey of the activities of the Foundations for Technology Transfer and the University Holding Companies. The Swedish National Audit Office (RRV) published the survey report in spring 2001.[28] According to this report, the University Holding Companies give universities and the university colleges a better opportunity to improve their work with the third mission, and the Foundations for Technology Transfer play a major role in making it possible for the university colleges to create a properly functional co-operation between researchers and companies.

[28] http://www.rrv.se/

United Kingdom

The creation and development of technology-based enterprises remains a key Government priority for innovation policy. There are indications that efforts are beginning to deliver some positive results. A new survey by the University Companies Association (Unico) estimates the value of all current spin-off companies from UK universities at nearly £3 billion (€4.35 billion). This may be a sign that commercialisation activities at UK universities have reached a level where a real entrepreneurial culture can be said to be emerging. Figures for 2001 show 175 new spin-off companies in that year, with earnings from equity stakes and licensing deals reaching well over £500,000 (around €725,000) per university – although intellectual property protection costs UK universities on average just over £100,000 (€145,000) each. The report also outlined barriers to spin out creativity, which includes the time available to university staff in which to pursue spin-offs, the presence of clear processes to enable spin-offs, schemes and incentives to entice external commercial managers in to manage spin-offs, and availability of finance at the early stages of spin-off planning. Levels of academic commitment were also seen to be vital to the success of spin-offs. The aim of the survey was to provide a means of benchmarking university spin-off performance against activity levels in the US and Canada; it was the first study to provide a comprehensive picture of UK activity.

Further evidence of success is provided by results from the second annual Higher Education Business Interaction (HEBI) survey, produced by the Higher Education Funding Council for England[29]. The results indicate that during 2000-2001 the number of spin-off companies from the UK HEIs rose by 22%. At the same time the number of patents filed by HEIs grew by 26% and the number of intellectual property licences rose by 25%. Other main findings were:

- 248 new spin-off firms were set up in 2000/2001 – an increase of 22% on the previous year; 203 spin-off firms were set up in 1999/2000, compared to 338 in the previous five years;
- New patents filed by HEIs rose by 26% from 725 in 1999/2000 to 913 in 2000/2001;
- People employed by HEI-owned spin-offs rose by 25% from 3 996 in 1999/2000 to 4 979 in 2000/2001;
- 44% of HEIs offered incubation or start-up facilities and almost 60% had access to seed corn investment; and
- UK Universities' spin-off performance was comparable with that of US universities when adjusted for their size. UK universities identified one spin-off firm for every £12 million of research expenditure, compared with one for every £46 million in the US.

Currently, support for the creation of new companies is provided in two broad areas. Firstly through stimulation of a culture of entrepreneurship (for example, through initiatives such as the RDAs Innovative Clusters Fund, part of the Regional Innovation Funds (UK 44), Early Growth Funding, Regional Venture Capital Funds (UK 53), the UK High Technology Fund (UK 54), Small Firms Loan Guarantee Scheme (UK 08), Science Enterprise Centres (UK 21) or the Enterprise Insight Campaign (UK 50)). Secondly, an environment is created in which new companies may flourish, a goal supported by a number of existing measures. These include corporate venturing tax relief (UK 31), R&D tax incentives for small and medium companies (UK 35), the University Challenge scheme (UK 11), the Higher Education Innovation Fund (UK 38), and the Small Business Research Initiative (SBRI) (UK 46). Aspects of the new Enterprise Act will also be beneficial to the creation of new companies

As noted above, the Higher Education Innovation Fund (HEIF) now incorporates funding for the University Challenge and Science Enterprise Challenge schemes. In its 2002 strategy document, *Investing in innovation: A strategy for science, engineering and technology*[30] the Government indicated that it would consolidate the HEIF as a permanent third stream of funding for universities, with investment rising to £90 million (€130 million) per year by 2005-06. The second round of HEIF funding is now coming onstream to support activities which will increase the capabilities of HEIs to respond to the needs of business (including companies of all sizes and sectors, and other bodies in

[29] Available at: http://www.hefce.ac.uk/pubs/

[30] *Investing in innovation: A strategy for science, engineering and technology'*, DTI, DfES, HM Treasury, July 2002

the wider community), where this will lead to identifiable economic benefits. For example, it will provide pump-priming resources for technology transfer, entrepreneurship training, corporate spin-outs, seed venture funding and transferring knowledge from HEIs into business and the community. Some £171 million (almost €250 million) is available to fund such activities over the two years 2004-2005 and 2005-2006. The maximum award for a single HEI will be £2.4 million (€3.5 million). The Government envisages that HEIF proposals coming from HEIs will include funding from other sources such as RDAs, European funding streams, business, institutional investments, etc. Indeed, recent programme information notes that 'stronger partnerships will be encouraged between HEIs in each region and the RDA and other agencies charged with promoting economic development. RDAs will have an enhanced role in steering the distribution of HEIF 2 funding. Proposals should demonstrate how they fit with RDA priorities, the regional economic strategy and/or the Framework for Regional Employment and Skills Action strategy where relevant. We will be encouraging RDAs to contribute to additional or complementary activities and to work with HEIs to assemble wider funding packages'[31].

In addition, in the White Paper, *The Future of Higher Education,* the Government announced that additional funding would be delivered through HEIF to create a network of around 20 'Knowledge Exchanges'. These are intended to be models of good practice in interactions between less research-intensive institutions and business. Each Knowledge Exchange will be funded for five years, and an additional £16 million (€23 million) has been allocated to cover funding for 2004-2005 and 2005-2006. Thus, a total of £187 million (€271 million) will be made available through HEIF for 2004-2006. Knowledge Exchange funding is a separate stream within HEIF.

Also relevant under this Action Line is the Small Business Service's £75 million (€120 million) 'Incubator Workspace Loan Fund'. 'This aims to encourage business start-ups and growth in managed workspace…. with flexible leases, good communications and business advice and support.' The fund, however, does not specifically target technology-based companies. It is intended that incubator schemes can receive support in every region in England.

The Government has also launched a new on-line advice service and business start-up packs for young prospective entrepreneurs. The LiveWIRE website and the associated information support form a £345,000 (€500,000) package available to entrepreneurs in the 16-30 age bracket.

Bulgaria

The creation of new firms, particularly new firms with an advanced technological base (NTBF) and openness to global markets, is a vitally important factor in the restructuring of the economy.

The political changes in the 1990s allowed start-ups to flourish in the country. Recently a process of improving the conditions for new firm creation — particularly for hi-tech — is taking place.

NTBFs are supported through amendments to the Law on Standardisation, which removes conflicts of interest between standardisation and regulatory functions and/or certification. Considerable efforts are still needed, however, to reinforce administrative procedures for standardisation and certification and to create systems for national conformity assessment and market surveillance (notably laboratory upgrading and accreditation). Company law has also been further aligned but still needs to be brought fully into line with elements of the '*acquis communautaire*', especially on acquisitions, mergers and divisions of companies.

Several instruments have been adopted by the Government to stimulate the creation of new firms, particularly for high-tech. However, the lack of policy tradition in this area is giving rise to difficulties in creating an adequate portfolio of measures.

The National strategy for hi-tech development, adopted by the Government in 1999, aims to enhance the role of hi-tech in contemporary economy and to improve the conditions for developing hi-tech

[31] Office of Science Technology/Higher Education Funding Council for England: Special Initiative Consultation, July 2003/34.

activities in the country. The current policy is based on the implementation of this document, including actions for improving the business climate in the country, developing industrial zones, plans for innovation strategy, etc.

There have been initiatives such as the ‘Guarantee fund for Micro-crediting’ Project (BG 03), which started at the beginning of 2001 in 18 pilot municipalities with the highest rates of unemployment. This fund was created with money from the State budget, with an initial capital €10 million. Its objective was to create new jobs through facilitating the access to funds for small and newly created enterprises to people willing to establish their own businesses, and also to free up resources necessary for developing and widening business activity. There are two types of loans: investment loans of up to €7,653 and working capital loans of up to €5,102. Terms of payment are five years for investment loans with a six months grace period, and 18 months for working capital loans with a one-month grace period. The Guarantee Fund had extended loans for 616 projects at a total value of €3.06 million by the end of September 2002. Start-ups have 42% of the total, with the Fund guaranteeing 70% for SMEs and 100% for start-ups. Annual interest rates are 10%. This Fund has been of application in all municipalities in Bulgaria since 1 August 2002.

Cyprus

As mentioned above, the Business Incubators measure (CY 5) has overcome its prior constraints and is now operational. Applications for incubation are now being made and is open to individuals and to small groups of individuals who together present a business plan promoting the development of an innovative idea. Groups of individuals that include non-Cypriots inventors will also be considered. The Government of Cyprus will provide part finance up to a total of £120,000 (€210,000) for projects designed to develop new high technology products, for a period of up to two years. The grant will be provided on the condition that the inventor or/and associate has a stake in the project of at least £10,000 (€17,500).

In addition, the Ministry of Commerce, Industry and Tourism’s measure entitled ‘Support fo female entrepreneurship’ (CY 23) is supporting start-ups, and so is the forthcoming measure for the support of youth entrepreneurship.

As mentioned earlier, a special scheme providing for a start-up loan at favourable terms to unemployed tertiary education graduates, has operated since 1983, within the *Ministry of Labour and Social Insurance,* in order to encourage young people to start self-employed business, continued to be operated. A scheme to finance small businesses from the *Central Bank of Cyprus* has also been in force since 2001. ‘Guarantees for loans to small and medium enterprises’ [CY-12] measure is operational in the framework of the *New Industrial Policy*. The SME centre of the *Cyprus Development Bank* provides integrated solutions to SMEs and tailored made loans, equity and quasi-equity instruments. These offers are based on commercial criteria and not on subsidies. The products are geared to firms in their start-up and growth phases and to those that intend to internationalise their strategies. Equity and quasi-equity products are offered very selectively only to those businesses that have strong and committed management, unique products and market approach and a solid business plan.[32]

Czech Republic

No new measures have been introduced under this action line within the relevant period. However, the government continues to view this area as an important focus for policy.

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[32] European Commission (2001) ‘Report on the Candidate Countries’ Measures to Promote Entrepreneurship and Competitiveness’, Commission Staff Working Paper, SEC(2001) 2054: http://europa.eu.int/comm/enterprise/enterprise-policy/enlargement/cc-best-directory/documents/sec-2001-2054-bis-en.pdf

The Technology Centre AS Czech Republic, and also other members of the Society of Science and Technology Parks, runs high-tech business incubators which offer assistance to early-stage knowledge-based businesses (science spin-offs). The Technology Parks (which essentially manage these business incubators) have been in operation since 1991 and are funded by the Science and Technology Centres programme, which received €673,400 for 2003. The Science and Technology centres in turn are financed by the SME programme COUNSELLING (CZ 14). The programme is targeted at SME's.

The companies are offered space in the business incubator at subsidised rental rates (the PHARE programme and the programme of the Czech Ministry of Industry and Trade). The package of services provided includes the following:

- complex advisory assistance with business development;
- marketing services and technology transfer consultancy;
- information on the access to European and national financial resources for R&D projects including assistance in preparation of project proposals;
- contacts to financial sources for business development (venture capital, soft-loans schemes).

By 1 January 2003, more than 300 firms had been placed in these incubators.

Estonia

Four years ago saw the initiation of technology-based start-up firms under management by the Tartu University and Tallinn Technical University. Since then the State has developed and implemented the SPINNO programme (ES 17), which is now working well, delivering results and it is planned to continue this programme during 2004.

The main impulse for favouring the creation and development of start-ups is via ESTAG project-oriented funding and through the SPINNO program (ES 17). The latter will end at the end of 2003, but will be redesigned according to the requirements of EU structural funds and then relaunched in 2004. The Tartu Science Park and the universities also support the starting-up of firms. The Tartu Science Park is offering favourable terms for technical infrastructure and consulting services, while the role of the universities' innovation centres at present concentrate on providing consultation and training. Another step forward was the opening of a technology incubation centre near Tallinn Technical University in September 2002. It now belongs to the Tallinn Technology Park.

A large share of programmes launched during 2003 and in 2004 (including the Tallinn Technology Park, the Competence Centre Programme, the State Venture Capital Fund) promote the founding and development of new firms. However, so far there are no fiscal measures, e.g. tax deductions, in support of setting up new enterprises.

In order to develop a more comprehensive structure for supporting hi-tech ventures, the government prepared a four-year SPINNO programme under the auspices of the EAS, which had been launched during autumn 2001. In a preliminary phase, the EAS commissioned a survey from an international consulting firm, for mapping and evaluating existing support facilities for hi-tech start-ups (mostly originating from universities) and identifying the need for improvements and new facilities. The emphasis of the new SPINNO programme is on having a comprehensive approach, including all phases of commercialisation of an innovative idea, offering a complete approach to support structures and bringing together all actors during the process. The focus is on building up and strengthening capacity at universities for supporting entrepreneurship and their ability to manage spin-off processes.

A feasibility study of the Competence Centre Programme (ES 20) was made together with the foreign experts from Technopolis BV. The programme itself was launched at the beginning of 2003. It promotes the start-up of new technology and knowledge based consortia which bring together scientists and entrepreneurs to develop new products and services. Their implementation and funding is divided between public and private sectors.

The Tartu Science Park has been active since 1992 and has gradually developed an infrastructure and services package for technology-intensive start-ups. The park includes an incubator with additional space, renovated by a PHARE SPP project, opened in January 2001. The incubator provides accommodation, access to advisory services, communication facilities and international networks. The average number of tenants ranges from 24 to 28. All plans to expand the incubation space and improve the infrastructure and services are stalled due to inability to attract new investment and financing. At present, a proper business plan is being developed, including restructuring of the organisation.

In September 2002 Talinn opened its technology incubation centre was opened in Tallinn, and in May 2003 it also opened a business incubator. Both provide facilities for starting up companies. Business plan competitions is the method used to find applicants for places in incubators or for receiving start-up money from EAS or Tallinn City Government.

To promote technology-based companies, the PHARE 2000 ESC project made contributions to the further development of the Science Park, Tartu University Innovation Centre and the creation of a Bio-Technology Incubator. The regional business incubator, developed under the previous PHARE program in Johvi, has proved not to be successful in promoting new ventures in the region under industrial re-structuring. The PHARE 2003 contributions will be employed in further engaging and developing the Tartu Science Park and Tallinn Technology Park.

Hungary

The direct goal of Tech-start (HU 02) is to promote high-tech SMEs in their early phases, establishing new spin-off companies. Its long-term goals are to install knowledge-intensive networks and clusters around universities and government laboratories. For this measure, micro companies incorporated in Hungary with a maximum age since foundation of five years are eligible for R&D grants. Moreover, individuals with research backgrounds are eligible for spin-off grants. The overall aim is to transform incentives into direct seed capital for innovative start-up companies and venture capital for technology-intensive investments.

The aim of the Integrator measure (HU 19) is to support the experimental development of domestic small and medium-sized enterprises. Hence, it promotes raising quality, international competitiveness and raising the capability of SMEs to become not only reliable co-operation partners with larger enterprises but also long-term suppliers.

The call for proposals establishing innovative micro enterprises (IST, HU 23) also support technology based companies.

Latvia

In year 2001, around 39 000 SMEs were operating in Latvia, equalling 99% of the total number of enterprises. The SMEs account for more than 70% of the total workforce and create more than 50% of GDP. According to the estimates of the Central Statistics Bureau, the contribution to GDP made by SMEs went up from 57% in 1996 to 65% in 2000. The main institutions responsible for co-ordinating business activities and policies regarding SMEs are the Ministry of Economy, the Latvian Development Agency, the Latvian Guarantee Agency, and the Regional Development Council.

On 20 September 2000 the Cabinet of Ministers endorsed the decision by the European Community, on the conditions for Latvia's participation in the European Communities SME Programme (LV 60). This participation has been beneficial both for internationalising the work of Latvian SMEs and for the promotion of co-operation with enterprises from the European Union.

On 27 February 2001 the cabinet of Ministers approved the National Concept of Innovation, designed to create an economy open to innovation. This policy is at the base of the National Innovation Programme and its Action Plan. Its primary strategic task is to implement the pre-conditions for innovative activities. Furthermore, it is expected to develop new and competitive products and services, to engage in applied research, to train highly qualified specialists, to introduce standardised quality schemes, to encourage the development of advanced technology and potential sectors with high value-added, which would promote the overall growth of enterprises and consequently also increase the competitiveness of the country. Other earlier documents in this action line that are also relevant are Latvian Academy of Science LV 14, National Programme for the Development of SMEs (LV 05), and an order on the disbursement of the allocated financing for programme Reform of the teaching staff salaries from State Budget (LV 38)

The Long-Term Economic Strategy envisages state support for innovative companies and infrastructure – development of research and knowledge centres, technological centres, business incubators, hi-tech companies, and also financial support system for innovative activities. It also aims to increase the share of the state budget directed towards innovative activities, distributing it amongst applied research, development and innovative activities, as well as attracting private capital and promoting access to risk capital;

Among the most recent documents for this action line is the Latvian National Employment Plan for 2003 (LV 64), which has provisions for measures to improve the employment rate that include: providing consulting services to start-up companies, implementation of SME development crediting programme, phase two (LV 62), support for raising qualifications, and making consulting available to business start-ups and SME personnel.

Crediting Programme for Development of SME (LV 62) has been approved by the Cabinet of Ministers for its phase two activities, which continues to pay special attention to start-up SMEs, especially at micro level.

Amongst the three main tasks of the National Innovation Programme 2003-2006, approved by the Cabinet of Ministers in April 2003, figures the establishment of a base for the sustainable development of innovative commercial activity.

Lithuania

Lithuanian innovation policy places more emphasis on providing support to existing technology-based companies, than to start-ups. Furthermore, attention is generally concentrated on supporting SMEs at their start-up stage. It is vital that new technologies be introduced into the existing companies, and this is regarded as more important than the creation of brand new companies based on enhanced technologies.

Poland

At the very beginning of 2000, entrepreneurs who planned to start up technology-based companies only had access to consulting services within the National System of Services measure (PL 04). In 2003 the access to such services and professional training of the personnel has been made even easier and wider, thanks to the new measure PL 14 but this is practically all. Introduction of the measure for Financial support to new investment (PL 13) has not improved the situation at all, because the measure mainly targets large and medium companies, and small companies have insufficient financial resources at their disposal. What is desperately needed is a system of providing newly established companies with sufficient seed capital.

In the era of globalisation, the position of large Polish tele-information firms looks pale in comparison to their peers in other EU candidate countries. In the recent ranking ‘Fast 50’ for Central Europe, published in 2003, (prepared by the consulting firm Deloitte-Touche and listing the largest and the most dynamically developing technological companies in Central Europe), only three Polish companies were mentioned, while as many as 20 companies from Hungary, 16 from the Czech Republic, and six from Slovakia were included. The competitiveness of Polish enterprises is affected not only by the draconian fiscal policy of the State, and by the lack of assistance funds, but also by gaps in knowledge about how international business functions, and also by attempts to imitate the success of others rather than to innovate.

It seems that Poland has the greater number of technology firms belonging to the SME sector although they remain unknown outside Poland. According to research done by the Economy Chair of Lodz University in 2000, Poland had about 600-700 small companies based on specialised and advanced technology. The founders of such companies were usually individual inventors and researchers from technical universities and scientific institutes who had built up specialised knowledge and experience during their professional career and were now applying it in their firms.

According to this research, the companies referred to above were active in the following sectors during 1999:

Sector	% of companies researched
Scientific, medical and optical instruments	27.3%
Biotechnology and pharmaceuticals	23.6%
Advanced materials	18.2%
Computers and telecommunications	18.0%
Industrial electronics	12.7%
Others	0.2%

There are opportunities for a certain amount of improvement in the number and standing of technology firms. At the beginning of 2002, the Agency for Industrial Development (*Agencja Rozwoju Przemyslu*) supported by the Ministry of Economy established the Foundation FIRE (*Fundacja Inwestycji Restrukturyzacji Edukacji* – Foundation for Investments, Restructuring and Education). The Foundation has been modelled on the Inno-Centre in Quebec (Canada) which financially supports scientists who would wish to process the results of their scientific work into marketable products and to establish their own companies.

It seems that the initiative came from Canada rather than from Polish governmental circles. A Canadian consultant of Polish origin offered his services to set up in Poland an institution similar to the Canadian Inno-Centre. His proposal was accepted — firstly by the Ministry of Economy (official support) and then by the ARP - Agency of Industrial Development (operational support). Fundacja FIRE located in Warsaw started activities in late 2002 and already has a number of promising projects.

Romania

The Government adopted the Action Plan to improve the business environment for SMEs in May 2001, and progress will be reviewed every six months. This Action Plan is part of the Government's overall working programme for 2001-2004. The main priorities in the short term are to improve the legal framework for SMEs and eliminate administrative barriers. In the area of access to finance, priority is being given to the Credit Guarantee Fund for SMEs, launched in 2001, to develop financial programmes with subsidised interest rates or non-reimbursable allocations for start-ups and micro-enterprises in order to finance investments in production, services and agriculture. Finally, the offer of services available to SMEs has increased, including services like networks, databases, training programmes, etc. The annual budget totals €1 million.

In 2002, the Ministry of Education and Research published a document on the Medium Strategic Orientation of RDI activities, which published the following conclusions:

- Evidence of a high disproportion between research-development activities of the public when compared with the private sector (77%/23%) respectively, between technological and academic research (85%/15%);
- The research-development activities for industry were mainly performed in specialised institutes, as was reflected in the inadequate proportion between research-development activities in the specialised institutes vs. enterprises (75%/25%);
- The infrastructure for technological and innovation transfer and the organisations specialising in the spreading, transfer and capitalization of the economy of research-development results was neglected during the period 1997-2000.

The sub-programme 9 — ‘Excellence Centres’ of the RELANSIN programme (RO 01) outlines the objectives for stimulating start-ups of technology-based companies. The main goal of this sub-programme is to sustain the start-up of incubators and research networks, which is expected to reach European quality standards. However, there are currently no normative acts to implement these objectives.

Another measure supporting the start-up of technology-based companies is the preferential tax payments regarding the salaries of software and information technology specialists — they are exempt of taxes on their salaries.

A number of schemes promoting entrepreneurship and supporting start-ups have been put in place.

One example of such a scheme, applicable in all regions, is the Grant Support Scheme. Introduced in 2002, it helps Start-up businesses, Micro Enterprises and new SMEs under the joint EU-Romania programme for economic and social cohesion. The public grants may not exceed 60% of the total costs of the project. Financial support normally ranges between €10,000 and €50,000 while the projects themselves are not to be longer than18 months. Another similar example of a micro-credit scheme is the Micro-Loan Programme developed by the Romanian-American Investment Fund.

The Romanian-German Fund II, *Kreditanstalt für Wiederaufbau* (KfW)/Microenterprise Credit Romania S.A. presents a further example of finance available to small enterprises. The scheme offers loans to enterprises with no more than 50 employees, a minimum of one year of existence and involvement in trade and services. There are three types of loan: Micro trade credit (max €2,556); Micro Business credit (from €2,556 to €12,782) and Small business Credit (from €12,782 to €51,129). The maximum maturity is 3 years with a grace period of three months. The total budget for the three years is €2.5 million.

The National Council of Private SMEs has special partnerships for SMEs having access to credits with Banca Romaneasca, *Banca Romana pentru Dezvoltare* (Group Société Générale), Banca Comerciala Romana. These partnerships offer information, consultancy and assistance to SMEs in obtaining financing.

The budget set aside for 2001 to 2004 exceeds €1.2 billion for developing programmes aimed at promoting entrepreneurship and competitiveness of SMEs. It is financed from the state budget, including EU co-finance,.

Slovak Republic

The legislative framework is fully harmonised with the EU legislation. however, legal uncertainty and problematic enforcement of law, non-transparent and frequently changing legislation, intensifying the usual disadvantages facing SMEs, represents a large administrative burden.

A non-functional capital market has rather had a rather negative impact on the development of businesses, as capital financing represents one of its traditional tools. In the face of a non-functional capital market, and because (as already mentioned) SMEs have limited access to resources, SMEs rely exclusively on their own accumulated resources for financing their own development.

Innovation financing schemes are still scarce. Venture capital funds tend to favour large initiatives or development phase investment, rather than providing the seed capital needed by start-ups. Some guarantee funds do exist, though not exclusively for innovation or R&D investments.

Slovenia

In this area, too, much was expected from the 1999 Law, where special provisions were made for such companies. It remains to be seen if the currently prepared SPD and the proposed Law on Promotion of Entrepreneurship will be more successful.

Currently, there are three technology parks (*Tehnološki park Ljubljana, Štajerski tehnološki park and Primorski tehnološki park*), all three receiving an annual subsidy from ME, based on annual call for proposals. The uncertainties connected to this annual co-financing has made it more difficult to introduce business planning for managing the parks. Building up the technology parks further as an important element of innovation infrastructure is one of the priorities in the proposed SPD. At the same time, the draft proposal of the Law on Promotion of Entrepreneurship has also put forward a longer-term solution for state support to the parks. Each one of the parks is facing specific problems, not only financial. Ljubljana's technology park has insufficient space to expand its activities (initially it was set up in the building of one of its co-founders, the Jozef Štefan Institute). Even though promises have been made by the local community and several new locations have been proposed, nothing firm has been decided so far. On the other hand, the Štajerski park has sufficient space at its disposal, but needs to resolve its ownership issue.

Annex 2 Modes and target of measures aimed at NTBFs

			Modes								Targets										
Country	Instruments	Date	Grants/Loans	Intermediation	Guarantees/participation	Consultancy services/Services	University spin-offs/Incubator	Tax deduction	Networking/collaboration		Other	SMEs/Industrial SMEs	Companies/Industrial companies	Managers	Individuals	Investors	Research institutes/Researchers	Students/Graduates	Public Authorities/Organisations	Universities
Austria	AT 3 Seed financing programme	1989	1									1								
Austria	AT 4 ideas x investment (i²)	?		1								1	1	1						
Austria	AT 5 BÜRGES-Young Entrepreneurs Programme	1977	1									1			1					
Austria	AT 7 1) ERP Technology Programme; 2) ERP SME-Technology Programme; 3) ERP Regional Programme	1998			1							1				1				
Austria	AT 11 1) Foundation of new enterprises (support in the course of the creation and start up of new firms), 2) Support for SMEs, 3) RTD and innovation in SMEs, 4) Silent participation	1997	1	1	1	1						1								
Austria	AT 12 1) Fördermodell 'Gründungssparen' 2) Chancenkapitalmodell (Equity capital model).	1997			1							1	1							
Austria	AT 13 1) Young Entrepreneurs Programme 2) Support for consultancy for young entrepreneurs3) Participation in enterprises	1995	1		1	1						1			1					
Austria	AT 14 NÖ Beteiligungsmodell	1993			1							1								
Austria	AT 15 Equity capital guarantee scheme	?			1							1				1				

Austria	AT 24 Vienna Science and Technology Park Tech Gate	1999				1								1						
Austria	AT 25 Tecnet	?				1					1	1	1	1				1		
Austria	AT 38 BÜRGES Equity Capital Guarantees	1997			1							1			1					
Austria	AT 41 Impulse Programme Biotechnology	1999				1					1									
Austria	AT 42 Savings Programme for Small Enterprises	?	1									1								
Austria	AT 43 Startfinanzierung der NÖ Kapitalgesellschaft	1998	1		1							1								
Austria	AT 44 Existenzgründungen' (Business start ups, De Minimis Action)	1975	1									1								
Austria	AT 47 A plus B	2001		1													1	1		1
Austria	AT 54 Forschung, Innovation, Technologie: Informationstechnologie - FIT-IT	2002				1						1	1		1		1	1		1
Austria			7	3	8	6	0	0	0		2	15	4	3	4	2	2	3	0	2
Belgium	BE 18 University Interfaces	1998					1													1
Belgium	BE 27 Incubators and Innovation Centres	1998					1					1				1				
Belgium	BE 37 FIRST Spin-off	1999	1				1									1				1
Belgium	BE 48 Pre-activity grant	2001	1												1		1	1		
Belgium	BE 62 Venture capital for university spin-offs	2003					1					1								
Belgium			2	0	0	0	4	0	0		0	2	0	0	1	2	1	1	0	2
Denmark	DK 2 'Equity Guarantee Programme'-Development Companies (Venture Capital Companies)	1994			1							1								
Denmark	DK 4 Technology incubators	1997	1		1		1								1		1	1		1
Denmark	DK 8 Approved Technological Service Institutes	1973				1					1	1	1						1	
Denmark			1	0	2	1	1	0	0		1	2	1	0	1	0	1	1	1	1
Finland	FI 1 SPINNO Business Development Centre	1990					1										1	1		
Finland	FI 2 FINNVERA Small loan programme	1996	1									1								
Finland	FI 3 Sitra Matching Service	1996		1					1		1	1			1	1				
Finland	FI 4 Capital loans for R&D in companies	1996	1									1								
Finland	FI 6 TULI-programme	1993					1										1			1
Finland	FI 13 PreSeed Finance / LIKSA & INTRO	2001	1	1											1		1			

Finland	FI 17 Tekes valmistelurahoitus (VARA) — Tekes Funding for Feasibility Studies	1999	1									1					1			1
Finland			4	2	0	0	2	0	1		1	4	0	0	2	1	4	1	0	2
France	FR 1 Support for innovation	1979	1			1					1	1					1			
France	FR 11 National competition for creation of new technology-based firms	1999	1			1									1					
France	FR 12 Creation of regional incubator structures	1999					1				1						1			1
France	FR 13 Support for the creation of seed-capital funds	1999	1								1						1			
France			3	0	0	2	1	0	0		3	1	0	0	1	0	3	0	0	1
Germany	DE 12 Technology Venture Capital Programmes	1990	1		1						1	1	1		1		1			
Germany	DE 16 InnoRegio — innovative networks in Eastern Germany (incl. Interregional Alliances)	1999	1								1	1	1				1	1	1	1
Germany	DE 20 FUTOUR 2000	2000	1		1	1						1			1					
Germany	DE 21 EXIST Start ups from Science	1997	1				1				1				1		1	1	1	1
Germany	DE 22 Start ups in Multimedia — Mobilmedia	1997	1			1									1			1		
Germany	DE 23 Biotechnology Initiatives	1997	1			1						1	1				1			1
Germany	DE 39 INSTI School Action: Tour d'Innovation	2000	1															1		
Germany	DE 50 BAND: Business Angels Network of Germany	1997		1							1	1	1							
Germany	DE 57 Innovative Regional Growth Poles	2001	1								1	1	1				1		1	1
Germany	DE 60 Professorships for Entrepreneurship	1998	1																	1
Germany	DE 64 JUNIOR Pupils as Entrepreneurs	1994				1												1		
Germany	DE 67 Direct Research Promotion Natural Sciences, Climate, Environment, Energy	1957	1									1	1		1		1			1
Germany	DE 68 Direct Research Promotion New Technologies	1969	1									1	1		1		1			1
Germany	DE 69 Direct Research Promotion Information and Communication Technology	1967	1									1	1		1		1			1
Germany	DE 70 Direct Research Promotion Biotechnology,Health, Design of Working Conditions	1970	1									1	1		1		1			1

Germany	DE 71 Direct Research Promotion Transportation, Space, Construction	1962	1									1	1		1		1			1
Germany	DE 74 Facilitating Start-ups from Public Research Organisations (EEF Funds)	2001	1														1			
Germany			15	1	2	4	1	0	0		5	11	10	0	9	0	11	5	3	10
Greece	GR 2 Investment Law — Support for the creation of NTBFs	1990	1									1								
Greece	GR 14 Support of New Entrepreneurs for the Establishment of SMEs	1994	1									1								
Greece	GR 36 New Economy Development Fund S.A. (NEDF S.A.)	2000			1						1					1				
Greece	GR 37 Venture Capital Forum for the New Economy	1999		1							1	1					1			
Greece	GR 39 Programme for the Market Exploitation of Research Results through the Establishment of Academic Spin offs —PRAXE	2001	1								1						1			1
Greece	GR 45 Development of Incubators and S&T Parks in Greece — ELEFTHO Programme	2001	1								1	1							1	
Greece	GR 46 Reinforcement of Youth Entrepreneurship	2001	1												1					
Greece	GR 48 Support for female entrepreneurship	2001	1												1					
Greece	GR 53 Supporting entrepreneurial ideas through tertiary education structures	2002	1															1		1
Greece			7	1	1	0	0	0	0		4	4	0	0	2	1	2	1	1	2
Iceland	IS 8 Innovative ideas	1996	1									1			1					
Iceland	IS 9 Out of the drawer	1998							1						1		1			
Iceland	IS 10 Support for entrepreneurs.	1998	1									1			1					
Iceland	IS 11 Step ahead	1998				1						1		1	1					
Iceland	IS 15 IMPRA Innovation Centre	2003				1			1			1			1					
Iceland			2	0	0	2	0	0	2		0	4	0	1	5	0	1	0	0	0
Ireland	IE 8 Actions relating to Equity Finance for Innovation	?	1								1	1		1	1	1				
Ireland	IE 21 Business Expansion Scheme (BES) and Seed Capital Relief	1985			1			1				1			1					

Ireland	IE 22 Technology Service Centres and Programmes in Advanced Technology (PATs)	1996	1											1			1	1		
Ireland	IE 23 Graduate Enterprise Programme	1995	1				1											1		
Ireland	IE 24 Campus Companies Programme	1996	1				1							1			1	1		
Ireland	IE 28 Business Incubation Centre programme	1996					1					1					1			
Ireland			4	0	1	0	3	1	0		1	3	0	3	2	1	3	3	0	0
Israel	IL 1 Technological Incubators Programme	1991	1	1			1								1					
Israel	IL 4 The Law for the Encouragement of Industrial R&D	1985	1								1	1								
Israel	IL 6 HEZNEK FUND Support for Start-up Companies	2002			1						1									
Israel			2	1	1	0	1	0	0		2	1	0	0	1	0	0	0	0	0
Italy	IT 11 The reorganisation of the regulation and the simplification of the procedures: the Fund for Research Support	1999							1		1	1	1				1			1
Italy	IT 26 Agreement Sviluppo Italia MURST	2000				1											1	1		1
Italy	IT 36 Decree for the implementation of the Fund for Research Support	2001	1						1		1	1	1				1			
Italy	IT 37 Decree for the implementation of the Fund for Technological Innovation	2001	1						1		1	1	1				1			1
Italy	IT 41 Support for the promotion and the development of new innovative enterprises foreseen	2003				1						1	1							
Italy			2	0	0	2	0	0	3		3	4	4	0	0	0	4	1	0	3
Luxembourg	LU 2 SME Capital Development Company (CD PME)	?			1							1								
Luxembourg	LU 4 Technoport Schlassgoart — start up incubator	1998					1					1								
Luxembourg	LU 5 Luxinnovation GIE — National agency for innovation and research	1984				1						1	1	1			1		1	1
Luxembourg	LU 12 Ecostart	2002				1	1					1	1							
Luxembourg			0	0	1	2	2	0	0		0	3	1	1	0	0	1	0	1	1
Netherlands	NL 4 PMTs Participation Companies for New Technology-based Firms	1996	1									1	1							

Netherlands	NL 15 Twinning Centres	1998			1		1				1	1								
Netherlands	NL 23 Tante Agaath ('Aunt Agatha' scheme)	1996						1			1					1				
Netherlands	NL 24 BioPartner	2000			1	1	1										1		1	1
Netherlands	NL 32 Dreamstart, platform for technostarters	2001							1		1				1		1			1
Netherlands	NL 39 Subsidy Scheme Infrastructure Technostarters	2002	1														1			1
Netherlands	NL 40 Subsidy scheme Entrepreneurship and Education	2000			1														1	1
Netherlands	NL 42 STIGON	2000	1														1			1
Netherlands			3	0	3	1	2	1	1		3	2	1	0	1	1	4	0	2	5
Norway	NO 9 Project Development Funds	1999	1											1			1			
Norway	NO 6																			
Norway	NO 10 The BRIDGE programme (BRO)	?		1								1					1			1
Norway	NO 11 FORNY	1994	1														1			1
Norway	NO 19 Municipal Business Development Funds	1987	1																1	
Norway	NO 30																			
Norway	NO 35 Network credit/network bank	1992	1												1					
Norway	NO 36 Programme for incubator activities	2000	1				1					1			1					
Norway	NO 38 Fund for regional readjustment and innovation	?	1									1								
Norway	NO 39 Business establishing grant	1989	1			1						1			1					
Norway	NO 47 Incubator grant	2001	1			1						1								
Norway			8	1	0	2	1	0	0		0	5	0	1	3	0	3	0	1	2
Portugal	PT 7 Regulation to support the development of technological capabilities at enterprise level, SME Initiative	1997	1									1								
Portugal	PT 16 Company Modernisation Incentive System (SIME)	2000	1									1	1							
Portugal	PT 31 Venture capital Syndication Funds (FSCR)	2002			1							1	1							
Portugal	PT 34 NEST – New Technology Based Companies	2003			1							1	1							
Portugal			2	0	2	0	0	0	0		0	4	3	0	0	0	0	0	0	0

Spain	ES 29 NEOTEC: Support for creation and development of NTBFs	2001	1			1					1				1		1			1
Spain	ES 32 Support measure for venture capital for New Technology-based firms	2002	1								1					1				
Spain	ES 39 Public Venture Capital to NTBFs via ENISA participation	2001	1								1									
Spain			3	0	0	1	0	0	0		3	0	0	0	1	1	1	0	0	1
Sweden	SE 3 Innovation Sweden	1986	1			1									1					
Sweden	SE 8 Investment Forum CapTec	1994				1						1								
Sweden	SE 13 The Venture Capital Database	1999		1		1						1								
Sweden	SE 21 Seed Financing	2002	1									1								
Sweden			2	1	0	3	0	0	0		0	3	0	0	1	0	0	0	0	0
UK	UK 2 Liaison at ministerial and official level with private sector providers of finance to address concerns about financing of innovative SMEs	?							1			1								
UK	UK 5 Biotechnology Mentoring and Incubator (BMI) Challenge	1996	1	1					1		1	1	1				1		1	1
UK	UK 8 Small Firms Loan Guarantee Scheme	1981	1									1								
UK	UK 31 Corporate Venturing Tax Relief	2000						1				1								
UK	UK 35 Research & development: new tax incentives for small and medium sized companies	2000						1				1								
UK	UK 38 Higher Education Innovation Fund (HEIF)	2001	1																	1
UK	UK 44 Regional Innovation Fund	2001							1		1	1	1	1	1		1		1	
UK	UK 46 Small Business Research Initiative	2001										1								
UK	UK 50 Enterprise Insight Campaign	2001							1			1						1		1
UK	UK 53 Regional Venture Capital Funds	pending	1		1							1								
UK	UK 54 UK High Technology Fund	2000			1						1									
UK			4	1	2	0	0	2	4		3	9	2	1	1	0	2	1	2	3
Cyprus	CY 5 High Technology — Business Incubators	1999	1									1			1		1			
Cyprus	CY 14 Scheme for the Subsidy of Specialised Software in Industry	1999	1									1	1							
Cyprus	CY 23 Support for female entrepreneurship	2002	1												1					

Cyprus			3	0	0	0	0	0	0		0	2	1	0	2	0	1	0	0	0
Bulgaria	BG 03 Guarantee fund for micro crediting	2003	1									1								
Bulgaria			1	0	0	0	0	0	0		0	1	0	0	0	0	0	0	0	0
Czech Rep	CZ 06 Park Programme	1995	1								1						1	1		
Czech Rep			1	0	0	0	0	0	0		1	0	0	0	0	0	1	1	0	0
Estonia	EE 01 Tallinn Technical University and Tallinn Technical University Innovation Centre Foundation joint spin off programme	1999				1	1										1			
Estonia	EE 14 Tartu University Innovation Office spin off programme	1998				1											1	1		
Estonia	EE 21 Supporting Research and Development	2001	1									1	1							
Estonia			1	0	0	2	1	0	0		0	1	1	0	0	0	2	1	0	0
Hungary	HU 02 Tech Start	1999	1									1								
Hungary	HU 05 Integrator	1999	1									1	1							
Hungary	HU 23 Application for establishing innovative enterprises	2001	1								1									
Hungary			3	0	0	0	0	0	0		1	2	1	0	0	0	0	0	0	0
Latvia	LV 05 National Programme for SME support	1993									1								1	
Latvia	LV 14 Latvian Academy Of Sciences (LZA) Website	?													1		1	1		
Latvia	LV 60 EU Multi annual Programme for Enterprises and Business, Especially for SMEs 2001 –2005	2002	1								1									
Latvia	LV 62 On Crediting Programme for Development of SME (phase two)	2004	1									1								
Latvia			2	0	0	0	0	0	0		2	1	0	0	1	0	1	1	1	0
Poland	PL 01 Specjalne Strefy Ekonomiczne (Special Economic Zones)	1994						1				1	1							
Poland	PL 13 Financial support for new investments	2003	1									1	1							
Poland	PL 14 Grants for entrepreneurship development	2003	1												1		1	1		
Poland			2	0	0	0	0	1	0		0	2	2	0	1	0	1	1	0	0
Romania	RO 05 Technology Transfer, Stimulation and Dissemination of Innovation 1998 – 2010 (TTSDI'98)	1998	1									1								

Romania	RO 19 Programme for the development of industrial and software parks	2002	1									1					1			
Romania			2	0	0	0	0	0	0		0	2	0	0	0	0	1	0	0	0
Slovenia	SL 03 Subsidies for technology centres/parks	1994	1								1						1			
Slovenia	SL 11 Incentives for SMEs via technology centres, incubators and technology parks	1994	1									1								
Slovenia	SL 13 Development of business incubators at universities	2003					1													1
Slovenia			2	0	0	0	1	0	0		1	1	0	0	0	0	1	0	0	1
Austria			7	3	8	6	0	0	0		2	15	4	3	4	2	2	3	0	2
Belgium			2	0	0	0	4	0	0		0	2	0	0	1	2	1	1	0	2
Denmark			1	0	2	1	1	0	0		1	2	1	0	1	0	1	1	1	1
Finland			4	2	0	0	2	0	1		1	4	0	0	2	1	4	1	0	2
France			3	0	0	2	1	0	0		3	1	0	0	1	0	3	0	0	1
Germany			15	1	2	4	1	0	0		5	11	10	0	9	0	11	5	3	10
Greece			7	1	1	0	0	0	0		4	4	0	0	2	1	2	1	1	2
Iceland			2	0	0	2	0	0	2		0	4	0	1	5	0	1	0	0	0
Ireland			4	0	1	0	3	1	0		1	3	0	3	2	1	3	3	0	0
Israel			2	1	1	0	1	0	0		2	1	0	0	1	0	0	0	0	0
Italy			2	0	0	2	0	0	3		3	4	4	0	0	0	4	1	0	3
Luxembourg			0	0	1	2	2	0	0		0	4	2	1	0	0	1	0	1	1
Netherlands			3	0	3	1	2	1	1		3	2	1	0	1	1	4	0	2	5
Norway			8	1	0	2	1	0	0		0	5	0	1	3	0	3	0	1	2
Portugal			2	0	2	0	0	0	0		0	4	3	0	0	0	0	0	0	0
Spain			3	0	0	1	0	0	0		3	0	0	0	1	1	1	0	0	1
Sweden			2	1	0	3	0	0	0		0	3	0	0	1	0	0	0	0	0
UK			4	1	2	0	0	2	4		3	9	2	1	1	0	2	1	2	3
Cyprus			3	0	0	0	0	0	0		0	2	1	0	2	0	1	0	0	0
Liechtenstein			0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0
Bulgaria			1	0	0	0	0	0	0		0	1	0	0	0	0	0	0	0	0
Czech Republic			1	0	0	0	0	0	0		1	0	0	0	0	0	1	1	0	0
Estonia			1	0	0	2	1	0	0		0	1	1	0	0	0	2	1	0	0

Hungary			3	0	0	0	0	0	0		1	2	1	0	0	0	0	0	0	0
Latvia			2	0	0	0	0	0	0		2	1	0	0	1	0	1	1	1	0
Lithuania			0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0
Poland			2	0	0	0	0	1	0		0	2	2	0	1	0	1	1	0	0
Romania			2	0	0	0	0	0	0		0	2	0	0	0	0	1	0	0	0
Slovak Republic			0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0
Slovenia			2	0	0	0	1	0	0		1	1	0	0	0	0	1	0	0	1
Total			**88**	**11**	**23**	**28**	**20**	**5**	**11**		**36**	**90**	**32**	**10**	**39**	**9**	**51**	**21**	**12**	**36**