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Design measures to promote growth of young research-intensive SMEs and start-ups

Report of the CREST Expert Group

Second cycle of the Open Method of Coordination
in favour of the 3% objective

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Main recommendations of the OMC-SMEs expert-group

The “expert-group on SMEs”, operating within the framework of the Second Cycle of the Open Method of Coordination for the implementation of the actions lines of the Action Plan “Investing in Research: an Action Plan for Europe” (also called the “3% Action Plan”), has formulated a series of recommendations addressing the needs of research-intensive SMEs and high-tech start-ups. The expert group focused its activities on five topics considered as being key issues for an integrated approach of research and innovation policies in this field:

- Financing issues
- Improving management skills
- Collaboration with higher education
- Technology procurement
- Opportunities for high growth

The main conclusions and recommendations of the expert-group, as reported to CREST, are summarised below:

1. The financing issues for young research-intensive SMEs are dominated by the worldwide reality of an existing “equity and financing gap” in the pre-seed and seed phases of research-intensive SMEs. The private financial sector has good reason to be reluctant to invest in these phases (€0,1 – €2,5 million euro), as, as historical data in Europe and in the United States tend to show that they are generally not sufficiently profitable. This “market failure” makes public measures imperative, as an adequate birth rate of these SMEs is vital for our sustained economic development.

   In part this objective can be achieved by mobilising private funds, but major public financing by the Member States is inevitable. This can take different forms: subsidies; guarantee schemes; subordinated loans; equity, etc. Therefore, this implies higher risk taking for this funding but not necessarily a formal subsidy-equivalent, although this is recommendable in the start-up funding phase. The revision of the EU State aid rules on R&D, Innovation and Risk Capital are crucial for this context. “De minimis” can be of help in this respect and preferably with a higher amount than the actual allowed maximum of €100.000 subsidy-equivalent. Anyway, public funding has a temporary importance, as in the later stages of financing needs of innovative SMEs the private financial sector has to take over.

   Until now the Commission has been overly restrictive on the possibilities for public authorities to be active in providing venture capital. State aid rules urgently need to be adapted and the possibilities for the EIB/EIF and national/regional governments should concentrate co-financing in majority publicly owned venture capital funds for the seed and early stages of young innovative SMEs. This is especially important for the new MS, where a private venture capital sector still has to be developed. European co-funding is also important for cross-border initiatives of risk funding of young innovative SMEs.

2. Finance is a necessary but not a sufficient condition for success of innovative start-ups. Entrepreneurial and Management skills are as vital. In fact this is true from the very start of a new SME. As a consequence, this obliges the Member States to adopt policies of providing highly professional coaching facilities to develop management skills, as these are critical to start-up success. In this regard, the opportunity of a European Academy for Entrepreneurship, aimed at “training the trainers” as well as training the entrepreneurs to world-class level, should be investigated.

Most important, policies should offer an integrated approach on both financing and coaching of management skills. Even more, in most cases, financing should be made conditional, only to be provided when the start-up accepts adequate coaching resulting in an inevitable learning curve on a whole range of management skills. The development of an innovative start-up has to pass well-defined milestones. An integrated approach implies both the need for adequate coordination of policy levels and the need to streamline the supply of competent advice and coaching services.

3. Open innovation, as the way of working together in collaborative networks, is the current challenge in the field of innovation practice. Research-intensive SMEs, in particular, can gain a lot by working together in collaborative networks with research institutes and other, mostly bigger, companies. Besides these research-intensive SMEs, collaborating networks are also valuable for other types of innovative SMEs. In the policy design, it will be important to make an appropriate segmentation of the SMEs, and adapt the ways of linking these SMEs to the knowledge world in a suitable way. For some segments it will even be necessary to build up the capacity for knowledge absorption as a prerequisite for collaboration.

In the preparation of R&D Programmes it is also recommended that the preparatory phase should include a market and technology scan or a foresight activity, where SMEs are also participating actively in the process, in order to address their specific needs.

Important in this perspective is also the support for demand-driven knowledge platforms, where enterprises, research institutes and, in some cases, also public bodies can work together on strategic issues, with distinct societal or economic purposes. These generic knowledge platforms are the essential building blocks for the development of the core technology and the core business, which are crucial for creating a competitive economy in the MS, and hence also in the European Union. Support schemes for these platforms should impose clear conditions on the demand-driven approach.

However, between the wish to foster these collaborative networks, which should be a cornerstone of each innovation policy, both in the MS and in the EU, and actual practice, there are a lot of hurdles that need to be overcome.

There is the need to have some guidelines in the field of technology transfer, with a special focus on IP issues, building upon the work, which has already been done in this field on EU-level. But it is also important that these guidelines become formal standards of some kind, being endorsed by the MS and the EU. The establishment of an integrated European Patent can also be very helpful in this regard.

It is important to align the policy of HEIs, especially concerning their mission towards the exploitation of research results, with general R&D policy. Universities currently lack incentives to cooperate with SMEs that address their research needs. By changing the legal framework in which universities operate, for example by gearing their third mission towards societal needs in general, and the needs of industry in particular, the research needs of SMEs could be better addressed. From this viewpoint, it is also recommended to foster the setting up of professional Technology Transfer Offices at the universities.

Intermediary organisations can play an important role in the match-making between the needs of the SMEs and the research organisations. However, the governance mechanisms by which the MS are sustaining these intermediaries must be kept efficient and effective.

Looking to the value chains of business, it is necessary for the European Research Area to become a reality and also for cross-border collaborative networks to be easily formed and sustained. Therefore, the EU could very helpfully come up with financial incentives for those Member States which really open up their national/regional funding schemes to cross-border cooperation.

4. Technology procurement is important for all innovative companies, but especially for the research-intensive SMEs. Therefore, technology procurement should go beyond the stage of giving opportunities to new but proven technologies. Procurement should also provide the possibility of developing and demonstrating new technological solutions that are not yet available. For research-intensive SMEs this would not only offer a financial opportunity that is more attractive than a classical subsidy scheme. It would also propose public authorities as "launching customers" by demonstrating new solutions in real conditions and thus favour entry into new markets. As this involves risk-taking, a clear political commitment is necessary.

In several Member States, attractive and realistic schemes for Technology Procurement are actively being developed. Some are in the pilot phase and one is actually operational (the SBRI-scheme in the UK). A lot of analysis has also been done on this matter at EC level. Networking and mutual learning, for example by means of a dedicated OMC-Net, are highly recommendable.

Technology procurement schemes have to be compatible with the new procurement regulations of the Commission. The defence sector differs in that respect, as it is not subject to EU procurement regulations, and technology procurement is a well-known approach in the defence sector. There is a potential conflict between the purpose of the procurement regulations (finding the most economical solution) and the goal for stimulating innovation in general and innovative SMEs in particular. Unlike under State aid rules, procurement legislation contains no provisions for innovation or innovative SMEs. There is an exception for R&D, but the scope of the exception is unclear. The Commission should take steps to clarify and, if necessary, to improve the actual opportunities for technology procurement under its general procurement regulations, and especially on behalf of research-intensive SMEs.

5. Europe is not lacking in inventiveness; it is lacking in innovation. All European Member States support the development of small research-intensive firms. But that support is often research-related, instead of being innovation-focused, and driven by market needs and high market global growth. Also, it often ends when firms need to cross national frontiers, e.g. to find technology partners or to address larger niche markets.

Nevertheless, the growth issue is very important, since only growth will bring welfare to society. Therefore, it is very important to stimulate growth, and also the related internationalisation aspect, by means of the appropriate instruments, which at the moment are lacking, including at European level. All the issues developed by the Expert Group are of vital importance for the high-growth innovative SMEs and for the creation of potential new ones, in particular. However, the Expert endations on how to design and implement specific HIGRO policy measures.

Paul Zeeuwts
Chair of the OMC-SMEs expert-group
On behalf on the experts involved

Results of the expert group on research-intensive SMEs

Background and Scope

This report summarizes the results of the work of the expert-group, operating within the framework of the Second Cycle of the Open Method of Coordination, on the implementation of the action lines of the Action Plan "Investing in Research: an Action Plan for Europe" (also called the "3% Action Plan"), addressing Small and Medium-sized Enterprises (SMEs) and start-ups (OMC-SMEs expert-group):

- Create more research-intensive SMEs under favourable conditions (start-up, breeding, incubation).
- Facilitate their growth and internationalization.
- Anchor consolidate the ownership of these SMEs in local hands so that they can contribute to the national/local socio-economic welfare in a sustainable way.
- Strengthen the involvement of these SMEs in R&D and innovation programmes.

The OMC-SMEs expert-group of last year (the first OMC cycle) reviewed main developments in countries involved, and identified good/novel/bad practices and obstacles to progress (and the conditions for success/failure).

This year's expert-group aimed at providing 'support/guidelines on formulation of policy and programmes for young research-intensive SMEs on a series of topics, thereby addressing specific problems and their solutions, but also issues concerning transferability".

This year's expert-group focused its activities on "research-intensive SMEs and high-tech start-ups". It became clear during the initial discussion within the expert-group, that the concept of "research-intensive SMEs and high-tech start-ups" differed in the countries involved; policy makers use different terms and definitions when referring to this specific group. However, it was decided not to define a specific description of the target group within the framework of this expert-group, in order not to exclude potentially interesting information (policy analysis, instruments), which would refer to a specifically defined group of high-tech SMEs and start-ups.

The topics for analysis and recommendations were identified during the first meeting, based on the experience of the senior policy experts involved in the expert-group. Young research-intensive SMEs and start-ups play a vital role in the economy. They are a driving force for the development of new knowledge, and they play a key role in the translation of new knowledge into products and applications. A solid and healthy population of young research-intensive SMEs improves the competitiveness levels of a country. Therefore, there is a role for research and innovation policies to address the deficiencies in the process of creation of these enterprises. It was decided to focus on issues which hinder research-driven innovation: from the successful development and implementation of an idea into the market by high-tech start-ups, up to further growth of research-intensive SMEs: lack of financial resources in the seed and early stage phase; lack of

management skills; limited access to knowledge; high risks involved in research, and difficulties with further analysis:

- Financing seed and early stage phase: mobilizing private capital.
- Management skills.
- Collaborative research: links between HEIs and SMEs.
- Demand-driven R&D: public procurement.
- High-growth framework conditions for SMEs.

Because of the selection of topics identified, conclusions and recommendations are not limited solely to research-intensive SMEs and high-tech start-ups. They also address less developed SMEs, to "help them up on the technology ladder".

In order to meet the expert-group's objective, a methodology was developed consisting of three different phases for each of the topics. For each topic, a specific country identified specific issues/problems concerning formulation and implementation of policy and instruments addressing the topic (presented as a Case), given the characteristics of its innovation system. As a Response, other countries presented their specific issues, but also solutions concerning the problems identified by the country presenting the Case. Based on all this information, the experts in the group formulated recommendations concerning policy formulation and delivery, addressing the specific topic. The full reports can be found at http://ec.europa.u/invest-in-research/coordination/coordination01_en.htm

The following paragraphs describe the identified problems resulting from market or system failure and some examples of policies addressing these problems. The last paragraph describes recommendations at national policy level and European level for each of the identified issues, resulting from the analysis by the experts. Recommendations at national policy level refer mainly to the development of national policy. Recommendations at European level go beyond the interest of just individual countries, and refer to issues concerning policy formulation and implementation that require a pan-European approach.

Financing R&D intensive SMEs and high-tech start-ups

During their life cycle, starting from the development of an idea up to market introduction and further company growth, R&D intensive SMEs encounter specific problems. A particularly complicated problem, which has a strong impact on success rate for young research-intensive SMEs, is sufficient access to capital. Limited access to financial resources results from market (or system) imperfections on a micro-economic, but also on a macro-economic scale:

- Small and medium sized enterprises in general have a disadvantage of scale in accessing the capital market. The costs (risk assessment, legal and administrative costs, supervision) of providing a small amount of finance are practically identical to the costs of providing a large amount.

- Furthermore, the risks of innovative, R&D intensive, fast growing SMEs, and especially start-ups are much more difficult for financiers to assess compared to established, conventional and stable companies with track records. In many cases this results in R&D intensive SMEs and start-ups receiving inadequate finance, thus decreasing their growth potential.

- Because of the higher risks and the generally long development times of their projects, high-tech start-ups have a problem attracting loans and venture capital for early stage growth. Literature mentions that based on experience, the anticipated Return On Investment (ROI) for these types of firms lies on average below 3%, which makes it rather unattractive for private investors.

- At the same time, venture capital and informal investors find that there is a lack of good propositions and management competences in these companies, which leads to untapped venture capital available for young research-intensive SMEs with interesting business cases.

This mismatch between venture capital supply and demand occurs particularly at the bottom end of the capital market. For instance, for high-tech start-ups an "equity gap" has been noted between supply and demand that lies roughly between €100 000 and €2,5 million per financing round.

The "equity gap", or more generally the "financing gap", differs for the different phases of the lifecycle of R&D intensive SMEs. Especially in the pre-seed and seed phases it is very difficult to mobilise capital. R&D intensive SMEs are therefore (throughout their life cycle) dependent on financing from own funds or those of family and friends (known in the business as "friends, family and fools"), or traditional bank loans. Analysis indicates that these types of funding are insufficient, and that the lack of alternatives is hindering the establishment of new research-intensive SMEs, or further growth of this type of companies, which play an essential role in the revised Lisbon-ambitions of the EU Member States. Especially after the collapse of the technology bubble, the limitations of the venture capital market in providing early-stage financing have become more pronounced. These types of market or system failure justify government intervention. Until now the European Commission has been (too) restrictive concerning State aid rules on venture capital in relation to the actual market conditions. This limits the possibilities for public authorities to be active in mobilising venture capital towards the equity gap.

History shows that traditional and more generic governmental instruments (for example, R&D schemes) do not properly address the (financial) needs of young research-intensive SMEs. The public sector has an interest in addressing market imperfection and therefore a variety of instruments have been developed and implemented across Europe which aim to improve access to finance. These instruments have the following characteristics:

- Public-private-partnerships with financial intermediaries: these schemes mobilise (risk) capital in various forms: venture capital funds, guarantee/subordinated loans schemes or combinations of these.

- Seed capital schemes are often embedded in 'service packages" that are focusing on facilitating people (i.e. mainly researchers) with promising business ideas to find sources of venture capital.

- The overall budget of these schemes varies considerably across the Member States, ranging from €5 million to €142 million, with an average size of about €60 to €70 million.

- Also, the level of funding varies a lot across the Member States: start-up projects can receive a funding/subsidy between €0,1 million - €0,5 million and early stage company financing up to €2,5 million. The funding is generally delivered through a combination of equity investment and second-tier loans.

- Frequently, regional business incubators take part in regional development funds investing in firms linked with public research at early stages that are often located in the incubator.

Management skills

Analysis indicates that young research-intensive SMEs and start-ups are faced not only with problems concerning their financing, but also that they often lack entrepreneurial skills, resulting in the failure of potentially successful ideas and enterprises. Typically, young research-intensive companies are founded by scientists who were mainly (or still are) involved in carrying out research activities, and which have little or no experience in running a business, which requires quite different skills and attitudes. They would need specific support for developing and commercialising their products in the early stages of their life cycle to increase their survival rates.

The problem with entrepreneurial skills is the tendency of (research-intensive) SMEs to underinvest in new and necessary competence. This may be explained by a number of hindrances and weaknesses found in the competence market, on both the demand and the supply side. Some examples:

- Lack of capital for investments in competence development (high risk, no mortgage).

- Little awareness or recognition of competence as a competitive edge.

- Lack of information and knowledge about how to acquire necessary competence, and from whom.

- Most suppliers in the competence market find larger enterprises and the public sector more attractive as clients than SMEs (who entail higher transition costs).

- The suppliers have often a poor understanding of the real competence need of the SMEs.

The different countries analysed offer a variety of instruments to address these problems, targeting young research-intensive SMEs and start-ups. These measures, most of which are indirect, offer:

- Advice, which includes coaching (active and passive), mentoring, and networking programmes.

- Financial assistance for feasibility studies, market research studies, training, taking part in trade fairs, etc.

- Market research to help develop their market entry strategy, carry out product benchmarking, etc.

- Assistance with team building, training plans, courses and workshops, etc.
- Technology advice to help find and adopt best manufacturing and operations practices, to optimise the benefits of ICTs, etc.

One of the main characteristics of the above-mentioned support programmes is the relatively small amounts of support, as they only offer about €50.000 - €150.000 per project. The average budget of these programmes is about €1 million - €2 million a year or €5 million - €20 million for a period of 3 - 5 years.

Collaborative research: links between HEIs and SMEs

A major weakness of the "European Innovation System" is the lack of interaction between public and private actors. This problem is especially apparent concerning the links between SMEs and Higher Education Institutes. The quality of science and higher education is regarded as excellent, but it seems the actors are not able to commercialise the results of these efforts ("European Paradox"). Innovation-driven economic growth, however, requires optimal co-operation, and analysis indicates that there is plenty of scope for improvement.

For policy makers, therefore, an important question is: how can research-intensive SMEs create significant value from the technology, knowledge, and innovation potential of Higher Education Institutions (HEIs), and how to define policy guidelines or build public actions that substantially enhance the dissemination of knowledge between business entities and academic institutions. The expert-group believes that, by creating more jobs and well-being, this knowledge transfer process will improve the competitiveness of young research-intensive SMEs and also the competitiveness and attractiveness of nations.

Collaborative research is defined in this report as a process of interaction and exchange of knowledge between HEIs and SMEs in pursuit of a shared, collective, circumscribed goal. This definition also includes the possibility that individual entities may have their own separate, unique objectives. The challenges and problems related to collaborative research can be categorized into cultural (i.e. social capital) issues, structural and human capital issues, and policy issues.

In relation to social capital issues, the following problems with present practices and policies have been identified:

- Lack of common language between academics and business people, resulting in an information gap between researchers and SMEs.
- Lack of entrepreneurial training within higher education programmes
- Lack of innovation awareness in most SMEs, as only a small fraction of SMEs focus on research and innovation.
- Lack of measures to foster the mobility of researchers between academia and enterprises.
- Lack of an open innovation culture within SMEs, relying on networks.

With regard to human capital issues and appropriate structures to support the collaborative links, the following problems have been identified:

- Lack of enterprise-oriented technology and knowledge transfer units at research institutions and universities, which would be familiar with specific SME problems.
- Inadequate resources for protecting intellectual property and technology transfer in HEIs, and also little expertise in the universities to evaluate inventions.
- Because of a lack of co-ordination, research by HEIs does not address the needs of industry. The reason for this "coordination gap" is that there is no efficient network of well-informed intermediaries, such as business development companies and incubators.
- Lack of efficient public-private partnerships between HEIs, intermediaries, and SMEs.
- Lack of indicators to measure outputs of these intermediaries and to build efficient governance structures when public measures are used to support the intermediary organisations.
- Lack of resources for business development of innovations and weak focus on non-technological aspects in a development of a new product, process or service.

The input of the countries involved has also uncovered policy issues:

- Limited strategic intelligence at RDTI policy level.
- Lack of industry-led thematic actions.
- Lack of incentives for HEIs to address the needs of industry.
- Challenge of creating new forms of collaboration and business models.
- Incoherent legal framework of invention within member states, and hence problems related to:
  - Ownership of intellectual property rights.
  - Fair return on background knowledge of research organisations.
  - Dilemma of publication versus protection of IP
- Problems related to spin-off creation of academic institutes (especially financing problems, but also business competence problems).
- Internationalisation of national R&D programmes and openness of national clusters and centres of competence.
- Lack of appropriate actions for different segments of SMEs.

The interactions between business and science take various forms in different countries, reflecting national specificities in institutional set-ups, regulatory frameworks, research financing, IPR regulation, and in the status and mobility of researchers. Different models may work well, but they should be seen against the specific background of each country. The most frequently used instruments supporting collaborative research are: subsidies, fiscal incentives, the legal and regulatory framework and intermediaries.

Certain countries in this expert-group follow the US model, and are strongly pushing for university technology offices and for generating significant revenue from university-industry collaboration. Other countries have strong, partially publicly funded academic laboratories, which also operate, at regional level, co-funded by regional governments. Research indicates that removing regulatory barriers across the Member States can foster increased collaboration and interaction between business and academia, but other types of intervention are also needed. This includes supporting of interaction between researchers and businesses, which depends heavily on incentives. A number of European countries have gone beyond deregulation and have launched programmes to address disincentives to human resource-based business-science interactions.

A recent study shows that the share of programmes to promote collaborative research in the EU ranges between 2% and 11% of government R&D financing. Contract and collaborative research financed by industry for public research organisations is highest, at around 15%. The largest share of contract and collaborative research for higher education institutions is around 10%.

Demand-driven R&D: public procurement

A major factor hampering SMEs in carrying out R&D is the lack of resources to cover the risks of a research-oriented innovation process. Figures indicate that the bigger players on the market account for the largest share of R&D by industry. The outcome of an innovation process is difficult to manage and highly uncertain, resulting in a possible lack of resources to allocate for research. Within the scope of this expert-group, Public Technology Procurement (PTP) has been discussed as an important instrument to increase efforts in R&D by SMEs by addressing the perceived risks involved, based on the results of the work of another EU expert-group. This group identified Public Technology Procurement as the most powerful weapon in the armoury of policy instruments to achieve the Barcelona target for R&D of 3% of GDP by 2010.

Technology procurement can be used in many ways. It can address a need on the part of the procuring organisation itself, other users or both. In all cases, however, the point of departure of technology procurement is an underlying socio-economic problem or need that has not yet been resolved. In this way, technology procurement gives the possibility of developing and demonstrating new technological solutions that are not yet available.

By means of PTP, a government will cover the costs for R&D performed by the SME under the heading of procurement. Besides grants and loans, public technology procurement can be a powerful instrument to stimulate innovation. Technology procurement is important for all innovative companies, but especially for research-intensive SMEs. It allows procuring organisations to act as “launching customers” by demonstrating new solutions in real conditions, thus favouring entry into new markets. For research-intensive SMEs it can therefore offer a more attractive financial opportunity than a classic subsidy scheme. However, widespread structural commitment is required at the highest policy level. Using technology procurement means shifting from old and comfortable habits to a new method. Without this backup, it is difficult to achieve the desired change in attitude.

A contract via procurement has several advantages over the traditional subsidy. With a contract it is possible to fully fund the necessary R&D, regardless of what phase the research project is at (fundamental, industrial or pre-competitive), while State aid rules imply that a subsidy is always tied to a maximum percentage. Furthermore, a contract is a two-way obligation. Subsidies involve fewer obligations and therefore make it less certain that the result will in fact be achieved. However, as a result, procurement contracts must comply with Directive 2004/18/EC on procurement, and this restricts the scope for using PTP as an instrument to stimulate innovation.

Based on the experience from the countries participating, and also based on the literature, the following key features can be identified for PTP schemes:

- Socio-economic needs are translated into performance or functional output-based criteria.
- As a basic IPR-concept, the supplier is assigned full ownership of IPR, while the contracting government has the right of use.
- Bids received as part of a PTP are not selected on the basis of price alone; issues such as stimulation of research and innovation within SMEs are also considered.
- PTP allows different solutions addressing the identified needs to develop in parallel. In such cases it is preferable to communicate (long-term) government needs to the market at an early stage. This allows time to be used as a risk-controlling strategic parameter.
- A survey of market status and trends should be carried out using foresight techniques, e.g. a feasibility study.

The current practice of PTP indicates that problems/bottlenecks hindering the successful implementation of such a scheme are due not so much to the technology, the ideas or getting SMEs involved, but to European legislation. The main factor is the uncertainty surrounding the public procurement directive: what is the status of contracts falling under the R&D exception and what are the possibilities for innovative SMEs? Current European procurement legislation is unclear on this point, and might require special provisions for research-intensive/innovative SMEs. Such a policy would then be in line with the objectives of the European Community and the Lisbon strategy. The argument for preferential treatment of SMEs under the Community Framework for State aid for research and development can similarly be applied to the procurement regime.

Conditions supporting high growth of SMEs

Within the framework of the OMC-SMEs expert-group, framework conditions for high growth of SMEs have also been discussed, as a logical next step in the development of research-intensive SMEs and high-tech start-ups.

The weakness of economic growth in Europe suggests the need to look for new ways of reinforced support especially for SMEs with high growth and innovation potential. This problem calls for new concepts of SME support. Limited resources give rise to the need for effective and efficient use of public support instruments. From this perspective the group of high growth-potential SMEs (HiGroSMEs) should be a very important target group for new innovation-related support instruments in Europe. Rolling out the full potential of HiGroSMEs in Europe could be just the answer to the lack of growth and innovation in the European common market. A targeted “pick-the-winner” approach of this kind also promises a better return on investment for public funding of R&D policy.

Current research indicates that fast growth is an issue not only for young companies including start-ups (baby gazelles), but also for middle market companies (gazelles). Policies should address both target groups and take into account the specific and often different nature of problems affecting both types of companies. Concerning the first group, existing instruments should be improved in order to focus on those companies with a real growth potential. For the second group, which have clearly identifiable problems related to growth, specific new support measures will have to be designed.

Supporting R&D will continue to be a central policy issue, even if not all types of (potential) growth companies are affected and not always at the same time. However, consolidating the R&D basis of companies is crucial for future product development. R&D activities should be seen as strategic investments and therefore be considered for support. As in many cases, the primary obstacles to growth (and caused by growth) are only in part caused by technological problems; policies should also consider financing, management skills, access to knowledge and investment in research. As innovation and the growth of companies are to a large extent determined by “broader” conditions within and outside the company, the case for indirect support instruments (including fiscal incentives) in addition to project funding will have to be assessed.

On the other hand, problems and support needs of HiGroSMEs seem to arise in different areas (or basic business functions) and at different stages of the company life cycle. Therefore, it is necessary to evaluate whether the typical support programme design (targeting a defined problem at a specific moment in the company’s development) is suited to fast-growing companies.

Discussions in the OMC-SMEs expert-group have indicated that the problems with high-growth framework conditions are apparent throughout Europe, and seem to be generic. However, the expert-group has not been able to come up with recommendations to further strengthen the position of HiGroSMEs, and therefore suggests additional analysis and research on the specific nature of the support needed by this particular group of SMEs.

Recommendations at national policy level

The following recommendations can be formulated which refer mainly to the development of national policy:

Generic

- Addressing the needs of young research-intensive SMEs and high-tech start-ups calls for an integrated approach, covering different kinds of areas such as: access to finance, R&D support, coaching of management skills, use of incubators, etc.
- An “integrated approach” requires co-ordination between the organizations involved not only in policy formulation, but also in policy delivery.
- Policy should be based on a thorough analysis of the system, addressing specific market failures, and referring to specific strengths and weaknesses.
- Clear goals and targets should be set for policy delivery and impact.

Financing

- When designing or evaluating government funding schemes to support R&D intensive SMEs and start-ups, ROI should not be the main consideration. Governments should consider the spill-over effects on the economy as a whole.
- The specific role of the government is to address the market imperfection: the so-called equity gap, which lies between €100.000 and €2.500.000.
- Financial support from a government should focus on the early stages of the life cycle of the R&D intensive SME. The “financing burden” must be transferred during the life cycle of the SME towards the private sector.
- The private sector should be involved in the process of assessing investment opportunities resulting from a project proposal.

Skills

- Successful entrepreneurs should be encouraged to share their experience with young research-intensive SMEs and start-ups as role models in specific training/coaching programmes.
- To secure a successful transfer of competence to SMEs, qualified and trained trainers (coaches) should be used as “change agents” and driving forces in project implementation.
- Support should not be confined to providing funding. Specific project milestones should be identified, and performance should be evaluated against these targets.

Research collaboration

- It is recommended that national R&D Programmes should enhance the different forms of collaboration in their programmes, with a special focus on the group of different segments of SMEs, for additionality reasons.

- It is recommended that national R&D Programmes be designed so as to target the right group of SMEs. A better insight into the needs of the final clients of the programme, through segmentation of the target population, is recommended.

- Public intervention should be aimed at removing the barrier between SMEs and academia, taking into account the administrative burden of the public intervention in itself.

- In preparing national R&D Programmes it is recommended that, at the preparatory phase, a market and technology scan or a foresight activity is included, where SMEs are also participating actively in the process.

- The active involvement of enterprises in collaborative research projects is very important and should be mandatory in stimulating partnerships. Adequate monitoring systems should be developed to follow up this participation.

- It is important to align the policy of HEIs, especially concerning their mission towards the exploitation of research results, with the general R&D policy. Universities currently lack incentives to cooperate with SMEs addressing their research needs. By changing the legal framework in which universities operate, for example by gearing their third mission towards societal needs in general, and the needs of industry in particular, the research needs of SMEs could be better addressed. From this perspective, it is also recommended that the setting up of professional TTOs at the universities should be fostered.

- There is a clear need to facilitate the supply of qualified staff to support Innovation in SMEs, e.g. by introducing mobility programmes to support postgraduates, PhD students, engineers, technicians carrying out innovation and R&D projects for SMEs as well as to cover staff costs. Grants are needed to allow SMEs to hire qualified staff, for limited periods, to undertake innovation projects.

- It is recommended that appropriate intermediary systems be set up to close the gap between the HEI and the enterprises. It is important to look carefully into the efficiency and effectiveness of this intermediary system. Therefore, the appropriate governance mechanisms have to be developed.

- In the design of the national programmes the mechanisms for opening up the programmes to foreign participation need to be taken into account.

Public Technology Procurement

- Widespread structural commitment is required at the highest policy level. Using technology procurement means shifting from old and comfortable habits to a more risk-taking approach. Without this backup, it is difficult to get the desired change in attitude.

- Legislative barriers thrown up by national procurement regulations should be removed. A very restrictive national procurement policy limits the possibilities of technology procurement and can lead to unnecessary administrative burdens.

Recommendations on European level

The following recommendations can be formulated concerning policy formulation and implementation that require a pan-European approach:

Generic

- The Member States could learn from each other's solutions by means of further exchange of practices/policy learning.
- EU instruments should also provide an integrated approach towards research-intensive SMEs and high-tech start-ups.

Financing

- The functioning of the EIF as a "fund of funds" on behalf of the EC is too limited where funds with public co-investment are concerned, especially in the seed and pre-seed phase. These types of funds should also be included. Co-intervention and stimulating pan-European approaches by the EC are recommended
- Typically the area of financing of young research-intensive SMEs is international, and national solutions are therefore often less than optimal. Stimulation at EU level could address this problem by additional funding of the national instruments. This should allow the funds to operate (when needed) on an international level.
- Additional funding to top up funds initiated by national instruments also generates a higher volume/critical mass of the fund size, which improves its success rate and could lead to harmonisation of schemes and less market fragmentation.
- The regulations for SME investment, risk capital and guarantees are still not sufficient to address the "equity gap". State aid rules should be adapted to the actual market circumstances and be more flexible. Especially the widening/volatility of the equity gap, from €100.000 up to €2,5 million nowadays, should be addressed.
- As aid to small innovative companies has little effect on international trade, the Commission could design much simpler State aid rules.
- The "de minimis" regulation now allows support up to €100.000. This figure should be adjusted, and allow for support up to the appropriate level of funding needed, especially for risk capital.

Skills

- The different Member States offer different solutions to address the lack of management skills and the demand for coaching of young research-intensive SMEs and start-ups. The Member States could learn from each other's solutions by means of further exchange of practices.

- The modern economy is globalising further and further, and so are the young research-intensive SMEs and start-ups. Their specific needs for coaching or skills might no longer be met by the available knowledge/resources in their specific Member States. Therefore, the Member States could support the exchange of specific talents/competences, or even opening up of their programmes to young research-intensive SMEs and start-ups. This requires however additional support/resources from EU programmes on entrepreneurship.

- As a consequence, this demands that policies both at Community level and in the Member States should provide highly professional, world-class coaching facilities on entrepreneurial and management skills, as these are critical for start-up success. “Training the trainers” and training the entrepreneurs to world class is a key part of this objective. In this regard, the opportunity for creating a European Academy for Entrepreneurship should be investigated.

Public Technology Procurement

- The European Commission should clarify and, if necessary, improve the real opportunities for technology procurement as part of its general procurement regulations concerning research, innovation and SMEs.

- The Member States and the EC have done a lot of analysis on technology procurement. Networking and mutual learning is therefore more than recommendable. The Member States would like to continue their efforts, for example by means of a dedicated OMC-Net on this topic.

High-growth framework conditions for SMEs

- Analysis indicates that problems concerning conditions for HiGroSMEs are generic throughout Europe. The expert-group has not been able to identify recommendations to further strengthen the position of HiGroSMEs, and therefore recommends additional analysis and research on the specific nature of the support needed by this specific group of SMEs.

Composition of the Expert Group

Chair

Zeeuwts Paul	Institute for the Promotion of Innovation by Science and Technology in Flanders	Belgium

Experts

Peperna Otto	Federal Ministry of Economics and Labour	Austria
Surgeon Marnix	Ministry of the Flemish Community	Belgium
De Potter Bernard	Institute for the Promotion of Innovation by Science and Technology in Flanders	Belgium
Thevissen Peter	Institute for the Promotion of Innovation by Science and Technology in Flanders	Belgium
Doynova Galina	Bulgarian Small and Medium Enterprises Promotion Agency	Bulgaria
Vincour Dusan	The Institute of Applied mechanics Brno, Ltd.	Czech Republic
Haarup Thomsen Hanne	Ministry of Science, Technology and Innovation	Denmark
Popp Marika	Ministry of Economic Affairs and Communication	Estonia
Maijanen Aila	TEKES Finnish Funding Agency for Technology and Innovation	Finland
Astoin Jacques	Ministry of Education, Research and Technology	France
Raud Stéphane	Ministry of Education, Research and Technology	France
Gessner Wolfgang	VDI/VDE Innovation+Technik	Germany
Vasalos Lacovos	Aristotle University of Thessaloniki	Greece
Fisekidis Antonios	GSRT General Secretariat for Research and Technology	Greece
White Michael	Enterprise Ireland	Ireland
Ortasse Moshe	Ministry of Industry, Trade & Labour Chief Scientist Office	Israel
Stabulnieks Janis	Latvian Technological Center	Latvia
Diederich Léon	Ministry of Culture, Higher Education and Research	Luxembourg
Dexel Jan	Ministry of Economic Affairs	Netherlands
Bakker Edwin	Ministry of Economic Affairs	Netherlands
d'Oliveira Christine	SenterNovem	Netherlands
Walderhaug Vebjörn	The Research Council of Norway	Norway
Bala George	Ministry of Education and Research	Romania
Micieta Branislav	The Slovak Productivity Centre	Slovakia
Pérez Sánchez	PalomaMinistry of Industry, Tourism and Trade	Spain
Persson Ann-Louise	VINNOVAAgency for Innovation Systems	Sweden
Casey Jeannie	KTI/CTIInnovation Promotion Agency	Switzerland

Rapporteur

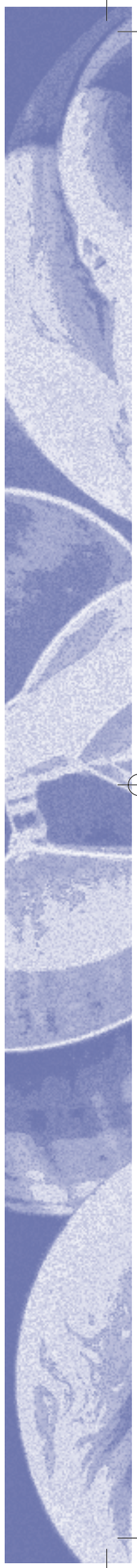
De Heide Marcel	TECHNOPOLIS BV

Support

Dory Tibor	Institute for Prospective Technological Studies	EU Joint Research centre

Secretariat

Christensen Peder	DG Research, Open Co-ordination of Research Policies Unit	European Commission
Larosse Jan	DG Research, Open Co-ordination of Research Policies Unit	European Commission



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