UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE

Policy Options and Instruments for Financing Innovation

A Practical Guide to Early-Stage Financing

UNITED NATIONS

United Nations Economic Commission for Europe

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A Practical Guide to Early-Stage Financing

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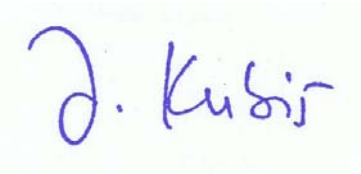
FOREWORD

Innovation is the outcome of a complex process which involves multiple stakeholders through the various stages of development of a new venture. Financing provides the resources that allow the transformation of new ideas into large-scale commercial activities while linking the various actors that make this process possible, through the sharing of risks and rewards.

Financing innovation is not only about the availability of financial resources. It is also about skills – to present projects, to assess them and to provide the complementary managerial and technical expertise that is required to nurture emerging innovative enterprises. It is also about finding a common language that allows communication among different actors and promoting awareness of the various existing alternatives at different phases of the life of a company. Policy efforts are required to provide both the economic environment and the institutional infrastructure that enable and support private activities in this area.

Comparative approaches, based on the lessons derived from various national experiences, provide a fertile ground for transnational policy learning, while making allowances for the needs and specificities of local circumstances. This *Practical guide* continues the comparative orientation followed in other recent publications issued in accordance with the Programme of Work of the Committee on Economic Cooperation and Integration and its mandate to foster competitiveness and innovation in the UNECE member States.

I hope that this publication will help policymakers and other stakeholders in understanding the various options as well as their implications in the area of early-stage financing, so that to take up appropriate actions, including through cooperative efforts.



Ján Kubiš
Executive Secretary
United Nations Economic Commission for Europe

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A leading substantive contribution to the publication by Dimo Dimov, Assistant Professor of Management, University of Connecticut, is gratefully acknowledged.

CONTENTS

LIST OF FEATURES

ABBREVIATIONS

AIM	Alternative Investment Market (UK)
BAN	Business Angels Network
CDFI	Community Development Finance Institutions
CIP	Competitiveness and Innovation (Framework) Programme
CITR	Community Investment Tax Relief (UK)
CPC	Capital Pool Company Programme (Canada)
ECF	Enterprise Capital Funds
EIB	European Investment Bank
EIF	European Investment Fund
EIS	Enterprise Investment Scheme (UK)
ERDF	European Regional Development Fund
ERP	European Recovery Programme (USA)
FDI	Foreign Direct Investment
GIF	High Growth and Innovative SME Facility
IPO	Initial Public Offering
ISR	Industry-Science Relations
JEREMIE	Joint European Resources for Micro to Medium Enterprises
LLP	Limited Liability Partnership
MFI	Micro Financing Investment
RPO	Recruitment Process Out-Sourcing
SBIC	Small Business Investment Company
SBIR	Small Business Innovation Research (USA)
SFLG	Small Firms' Loan Guarantee Scheme
VC	Venture Capital

INTRODUCTION

Innovative enterprises face particular difficulties in raising finance. Some will grow to become highly lucrative ventures but for many the outcome will be less successful, in some cases ending in outright failure. The promise of high returns is often associated with large risks. New, innovative enterprises have little or no collateral to offer while attempting to raise external finance. As a result, conventional financial intermediaries are not ready to engage with innovative companies at the early stages of their development.

Specialised financial intermediaries, such as business angels and venture capitalists, provide not only financial resources but also managerial and technical expertise that will support a young innovative company. A variety of public programmes and policies can be deployed to foster the development of these intermediaries and to encourage their involvement in early-stage financing. The emergence of a vibrant venture capital industry (both formal and informal) depends on the existence of a supply of potential opportunities that can be screened by these intermediaries. Merit-based grants and closer links between research institutions and industry can increase the flow of promising opportunities that may be considered by business angels and venture capitalists. Effective public policies are necessary in this area, where private involvement is likely to be limited but where action is essential to mobilise private financing.

While equity is the most usual form of financing for high-growth innovative companies, bank lending, including microfinance, can also play a role when supported by appropriate policies. Besides dedicated financial intermediaries, established non-financial companies can also be a source of financing for new ventures, as they seek to exploit new possibilities and develop a source of competitive advantage.

The aim of this guide is to map out:

- The different sources of finance available to innovative companies in the early stages of their development, emphasising the need for continuity through these different stages so as to avoid any bottlenecks that may hamper the growth of these promising ventures.

- The various policy options and instruments that can be deployed by the public sector to increase the supply of potentially successful innovative companies and to mobilise private financing to support the development of these companies.

- The general framework conditions and institutional arrangements that can enhance or diminish the impact of public interventions.

- The good practices and institutions that support the effectiveness of the activities of the various agents, both private and public, involved in the financing of innovative enterprises.

This guide complements other publications of the UNECE Subprogramme on Economic Cooperation and Integration focusing on innovation and competitiveness policies. In particular, the handbook "Enhancing the Innovative Performance of Firms: Policy Options and Practical Instruments" provides additional details on some of the institutions and arrangements that public authorities can put in place to facilitate the development of innovative companies.

The guide has been compiled on the basis of existing information, illustrating some of the issues considered with the experiences of UNECE countries. It has benefited from the comments and information provided by the international network of experts that supports UNECE activities in the area of Financing for Innovative Development.

I. THE NATURE AND FINANCING OF INNOVATIVE ENTERPRISES

Executive Summary

Innovative enterprises are engines of economic growth and job creation. They seek to commercially exploit new ideas, technologies, inventions or other scientific or market knowledge. There are different development stages in the life of a company before it becomes a commercially successful enterprise (seed, start-up, early-growth and expansion). The net cash flow of an innovative enterprise is negative at the seed and start-up stages before it becomes positive. Many of the traditional sources of finance are not fully suitable for innovative enterprises. Given the negative cash flow and high risk of failure at their early stages of development, innovative enterprises ideally need forms of financing that do not seek guaranteed repayment.

Two forms of finance are appropriate for the early development stages of innovative enterprises: merit-based awards (grants) and external equity. Typical providers of external equity financing are business angels, seed funds and venture capital funds (including private, corporate affiliates, or government-sponsored).

Policy initiatives aimed at improving the environment for early-stage financing of innovative enterprises need to address the problem of simultaneity of (1) capital, (2) specialized financial intermediaries, and (3) entrepreneurs. In order to create a vibrant risk capital market, each of these elements will emerge and develop only if the other two are present.

A. Characteristics of innovative enterprises

Innovative enterprises seek to commercially exploit novelties – new ideas, technologies, inventions or other scientific or market knowledge – by introducing new products or services, creating or entering new markets, or applying new, more efficient methods of production or organization. As such, they function as engines of innovation and solid contributors to economic growth and job creation. The source of novelty may be new scientific knowledge (i.e. invention), the transfer of business knowledge from one sector to another, or different appeal of existing products or services to new or existing customers. In its magnitude and relationship to existing market processes, the novelty may be incremental, in which small-scale improvements are made to existing products or processes, or radical, in which the existing economic order may be "destroyed" and new ways of doing business established.

Most innovative enterprises start out small and private, whereby an individual or a group of people – attracted by the commercial promise of a novel idea – take actions to make that promise a reality. Because the existing social and economic order is inherently resistant to change – for example, consumers find it difficult to break existing habits, companies find it hard to replace well entrenched routines and can use their lobbying power to create political impediments to emerging innovative developments – the commercialization of novel ideas faces several hurdles that mark the distinct development stages through which an innovative idea germinates into a commercially successful enterprise:

(1) Exploration of the market potential, technical feasibility and economic viability of the business idea.

(2) Product development; establishment of formal organization.

(3) Establishment of operations; market introduction.

(4) Market and organizational expansion.

In the first two stages there is much technical, market and economic uncertainty that makes it difficult to determine the potential of the idea and the feasibility of turning it into a successful enterprise. Accordingly, for ideas undergoing these stages it is hard to present a "rational" business case to potential finance providers. This in turn makes it difficult to obtain resources from traditional financial intermediaries, such as banks. Once an emerging enterprise reaches its market stages, there is much less doubt about its potential and its appeal to financial intermediaries increases. Thus, the critical, distinguishing characteristic of developing innovative enterprises lies in the need to overcome early-stage uncertainty in order to reveal or create their commercial potential. There are two types of "positive" outcomes that can emerge from the resolution of such uncertainty: allocating resources to the enterprises with potential and ceasing allocations to those that lack promise.

B. Financing needs of innovative enterprises

The financial needs of innovative enterprises vary according to their upfront feasibility and product development costs and the length of their market development and entry process. There are several early, critical milestones in this development process for which sufficient financing and technical assistance is crucial: product R&D, product conception and prototype development, market definition and testing, initial production, shipping and marketing. The amount of financing and other support needed is often sufficiently large to exhaust immediately available resources such as founders' own funds and funds from family, friends and "fools" (also known as the 4 Fs!).

Based on these development milestones and financing needs, several financing stages can be distinguished, each characterized by its specific amount and use of financial resources.

(a) The ***seed*** stage covers the initial research and development of a commercial idea or business concept, focused on determining its technical feasibility, market potential and economic viability.

(b) The ***start-up*** stage covers the development of a product prototype; initial market research and market-reach activities, and the establishment of a formal business organization.

(c) The ***early-growth*** stage pertains to small-scale commercialization and growth as well as to the development of the pillars for the scalability of the business.

(d) The ***expansion*** stage covers the substantial growth in the scale and market impact of the business.

The Figure below provides a representation of the cash flow pattern – i.e. the evolving cash position – of a typical innovative enterprise across its development stages and maps various sources of finance according to the stages at which they are available or most suitable. The cash flow follows a distinct "J-curve" pattern over time, with an initial drop at the seed stage (the "Valley of Death"), related to the financial resources spent on the proof of the business concept. For enterprises requiring significant R&D or product development effort, the "Valley" can be much deeper and longer. If the business emerges from the "Valley" and becomes established, the cash flow turns positive and the business gradually generates market momentum and moves to the early-growth and expansion stages. In these stages the financial resources needed by the business are significantly larger, but because of the more tangible nature of its performance potential, these resources may be obtained from more traditional financial intermediaries.

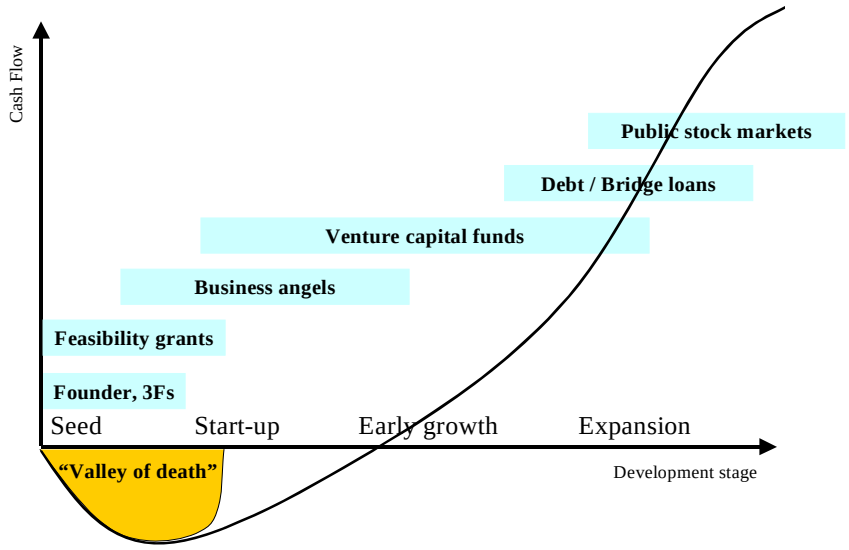

Figure. Development Stages, Cash Flow, and Sources of Finance

C. Sources of finance for innovative firms

Many of the traditional sources of early-stage finance are not immediately or sufficiently suitable for innovative enterprises. The personal funds of the founders as well as of their families and friends represent an important source at the seed stage of enterprise, but are often insufficient to cover the needs of the enterprise as it shows increasing promise, as illustrated in the above figure. In addition, given the longer periods that innovative enterprises take to generate cash, bootstrapping techniques such as trade credit and customer advances – which are very effective for businesses looking to fill niches in established markets and industries – are inappropriate. Finally, the uncertainty associated with feasibility studies, the intangible nature of the assets of innovative enterprises, the volatility of their cash flows, and the lack of sufficient operating history make them unsuitable for debt financing. While founders may draw personal loans, such loans, if used to fund seed-stage activities from which there are no payoffs in the short-term, may quickly recourse to and deplete the founders' personal assets.

Given the negative cash flow and high risk of failure at their early stages of development, innovative enterprises ideally need forms of financing that do not seek guaranteed repayment. For prospective investors, there is a need to adopt a portfolio approach when investing, which requires a suitably large number of opportunities. Such an approach results in a number of investments, which are made with the expectation that a few of them will generate very large returns, thus offsetting the losses registered in other investments. While this is risky for most finance providers, some of them may tolerate such excessive risk by virtue of focusing on and sharing the potential benefits of the few enterprises that do emerge and become successful on a large scale. Therefore, the following forms of finance are most relevant for the early development stages of innovative enterprises:

Merit-based awards (e.g. grants)

This is a form of financing that can be provided by public (government) agencies, in line with their broader social objectives for innovation and economic development. Under this form of financing, enterprises essentially receive funds unconditionally, i.e. the funds do not have to be repaid if the enterprise is not successful. This is a viable option for funding early concept development or exploratory market research, if the amounts involved are not too large. In addition, such funding can provide important certification to the recipient enterprises when they subsequently seek to raise private capital for their further development.

Because there is a substantial administrative and decision burden associated with the selection and support of the recipient enterprises, these can be shifted to private agents, with the government ultimately sharing the financial burden indirectly, through the provision of guarantees, tax rebates, or other incentives that compensate the private providers for the losses they may incur. The outsourcing of the selection process can benefit from the entrepreneurial knowledge of the private sector. However, in some countries, in particular in those with economies in transition, such private expertise may be scarce and government agencies may choose to rely on the advice of scientists

and public research organizations. In any case, to produce positive effects such government schemes should support large numbers of new enterprises instead of focusing on a few potentially best business ideas.

External equity

This form of financing matches the risk profile of the enterprise with its potential payoffs. By receiving equity stakes in exchange for their capital, investors have claims on the residual value of the enterprise, sharing not only its upside potential but also its downfall. Variations of this type of financing – such as convertible preferred stock[1] or convertible debt[2] – allow the investors to have seniority in the distribution of proceeds and receive returns prior to the entrepreneurs. Typical providers of external equity financing are business angels, seed funds and venture capital funds (including private, corporate affiliates, or government-sponsored). These investors may receive significant control rights and exercise extensive monitoring that help them manage the downside risk of the investment. They may also provide valuable expertise and networking opportunities to the enterprise, thereby increasing its commercial potential.

D. Framework conditions

Any policy initiatives aimed at improving the environment for early-stage financing of innovative enterprises and, more specifically, the development of a local formal and informal venture capital (VC) industry should be made with consideration of the fundamental challenges associated with "engineering" markets for private financing as well as of the limitations or potential challenges to government involvement. The engineering challenge is best captured by the problem of simultaneity of three central inputs:

- Capital;
- Specialized financial intermediaries; and
- Entrepreneurs.

Each of these inputs can emerge and develop only if the other two are present. Thus there needs to be a profound understanding and constant awareness of the state and degree of efficiency of all these complementary components of the private financing cycle. Given the distinct development stages of innovative enterprises, there are different clusters of specialized financial intermediaries, each seeking to accomplish distinct goals, harnessing distinct sources of capital and serving particular classes of entrepreneurs. Therefore, market interventions aimed at facilitating the emergence and development of such intermediaries requires understanding of the

[1] Preferred stock carries seniority over common stock in the distribution of dividends or upon liquidation. Convertible preferred stock can be converted into common stock at pre-specified terms when this would result in higher liquidation proceeds than the amount of the preferred dividend that would be due if the stock was not converted.

[2] Such debt can be converted into common stock at pre-specified terms.

challenges that these intermediaries face in raising capital, making investments and obtaining proper returns that can justify and facilitate their sustained activity.

The following sections provide detailed description and discussion of various financial intermediaries and the overall conditions facilitating the emergence and development of innovative enterprises. At each junction, there is discussion of the rationale, options and considerations for effective policy interventions.

II. FROM IDEAS TO START-UPS

Executive Summary

The emergence and development of innovative companies requires promising opportunities, financial resources and access to operational, marketing, financial and managerial expertise. Various public policy initiatives can be implemented to support both entrepreneurs and investors to create, identify and finance new opportunities in conditions of uncertainty and imperfect information.

Besides addressing the general framework for the financing of innovation, individual initiatives include both direct (feasibility grants, promotion of relationships with research and development (R&D) institutions, business support services), and indirect involvement (financial and technical support and incentives to specialized intermediaries such as microcredit institutions, business angels, and corporate venture capital units).

Grant programmes need to consider the structure of the decision-making process, the decision criteria, impact on investors' perceptions, evaluation measures and the influence on the quality of the deal flow.

Commercialization of scientific knowledge requires close and effective relations between businesses and public R&D institutions, which can be fostered through various public initiatives, including the use of specific intermediaries.

Business support services can help entrepreneurs to overcome initial challenges, thus assisting companies to become "investment ready". Increased awareness, networking, matchmaking, training and coaching can be targeted by these services.

Microcredits can be used to support initial concept development or feasibility studies. Public support instruments can be deployed to increase the flow of financing, including the use of grants and technical support to microfinance institutions, guarantees, tax incentives or co-financing. Effectiveness depends on assessment procedures, geographical proximity and technical expertise.

Business angels play a critical role in financing the early development of innovative companies, providing not only capital but also managerial and technical expertise and exposure to other networks. Business angels' networks can facilitate the circulation of information and raise larger amount of finance, while providing a variety of services to its members. Investments by business angels depend on different factors, including return potential, supply of high-quality entrepreneurs and tax and economic conditions. Policy initiatives can be developed to foster business angels' networks and improve the conditions in which they operate, including the provision of technical and financial support and the implementation of co-investment schemes with public money.

Corporate venture capital allows established companies to explore new options while being a source of financing for innovative companies. These links can be promoted through

various policy instruments, including tax incentives, public-private partnerships and structures such as industry-related incubators that facilitate the commercialization of new ideas.

A. The role of public initiatives

It is difficult to predict whether a particular fledgling, innovative enterprise will turn out to be successful on a large scale. But it is more reasonable to expect that if a large number of innovative ideas are generated, nourished and developed, some – and perhaps many – of them will be successful. In other words, the successful emergence and development of innovative companies requires a constellation of well articulated, promising opportunities, sufficient allocation of financial resources, and access to necessary operational, marketing, financial and managerial expertise. This requires an innovation support system that continuously screens in promising ideas and allocates increasing amounts of resources to the ideas that gather momentum.

The emergence and sustenance of such a system depends on ensuring a stable supply of ideas and on having an efficient decision structure that evaluates, selects and supports those ideas that are more promising. In the absence of omnipotent, omniscient agents, this is a daunting feat – ideas can spring out in any geographic region or industrial or scientific sectors; their sourcing and proper evaluation requires both geographic and knowledge proximity. Diverse, properly situated agents can best perform these tasks. This means that implementing a system aiming to foster innovation requires a support and incentive framework for such agents to emerge and an overall coordination of these agents in order to ensure that all areas of the innovation enterprise spectrum are well covered. Public policy can be effective in implementing these tasks by means of both direct involvement and indirect incentives and support.

Formulating public policy initiatives requires an understanding of the distinct challenges that both potential entrepreneurs and investors face in the early stages of the enterprise development process. *Potential entrepreneurs* face the challenge of generating, assessing, and developing promising ideas. Addressing this challenge requires exposure to information and knowledge exchanges, proficiency in developing feasibility studies and understanding of the business development and funding process. In turn, *potential investors* face the challenge of selecting promising projects when they lack sufficient information, monitoring the development of these projects to ensure that resources cease to flow to projects that lack promise and obtaining returns commensurate with the risk of the funded projects. Thus, individual initiatives can be designed to address one or more of these challenges. But collectively, as part of a broader policy framework, they should ensure that all challenges are addressed.

Individual initiatives may comprise *direct* involvement with potential innovative enterprises, through provision of feasibility grants, promotion of relationships with R&D institutions, and provision of business support services, and *indirect* involvement, through provision of financial and technical support and incentives to specialized intermediaries such as microcredit institutions, business angels, venture capitalists and corporate venture capital units. These options will be reviewed in greater detail in other sections of this guide.

B. The needs of potential entrepreneurs

The needs of potential entrepreneurs can be represented by several critical questions.

How can I conceive / polish my idea?

For what purpose or need can this new invention or technology be used? The answer would not be obvious to someone detached from the daily problems of consumers or producers in the market place. Some technologies can bring new products that address acute consumer needs. Others can bring efficiencies in production processes. Without providing a forum where information and knowledge about the technology and market space can be exchanged, many of these solutions will remain obscure. Ideas require a setting of free thought, brainstorming and unstructured dialogue. At the very least, research institutions need to interact with outside market constituents in order to stir up knowledge exchange and application.

Does my idea have potential?

All ideas start with a good hunch, but at some point that needs to be put under an analytical microscope. Assessing an idea requires that it is properly elaborated: What is the product or service? Who is the potential customer? Is he or she willing to pay money for this product or service? How would he or she benefit from the product or service? How will money be made in this exchange – and how much? How easy will it be for existing and new competitors to copy our business or offer better solutions? Answering these questions requires elaborate market and industry analysis.

What to do with my idea?

Some people think – quite simplistically – that just throwing money after an idea is enough to make that idea flourish. Accordingly, an excuse often offered is, “I would do it if I had the money”. There should be increased awareness that much should be done before a business plan is even written and before it is feasible to seek financing from external investors. A solid understanding of the process that can establish whether an idea is feasible is thus an essential first step.

What expertise do I need to successfully launch the idea?

One person simply cannot do it all. In all likelihood, the potential entrepreneur will understand well one aspect of the business (for innovative, technology-based enterprises this would be the technology from which the business is to emerge). So, thinking ahead, there are other crucial aspects of the seed and start-up process that, if not handled by proper expertise, can jeopardize the successful emergence of the business: technical and cost feasibility of potential product, production and operations, marketing, general and human resource management, etc. At each subsequent stage of development, the need for vital new skills emerges and it is thus necessary to ensure that the venture team has access to such expertise by establishing advisory boards or outright hiring qualified people. Some skills are needed at all stages of development. They should be integrated in the management team or at board level. Others are just required temporarily. For this expertise, external resources can be hired.

When and where to find money?

In regard to financing, new businesses run the risk of seeking external financing too early – before the essential questions about the businesses have been properly addressed – or contacting the "wrong investors". Contacting investors too early can lead them to perceive excessive risks in the ventures and demand very stringent conditions for their involvement, thus leading to frustration and discouragement of the entrepreneurs. Going to the "wrong" investors can lead to unnecessary, early rejection that can also discourage the entrepreneurs and delay the development process.

C. The needs of potential financiers

Similarly, the needs of potential entrepreneurs can be represented by several critical questions.

Is this a good, promising idea?

The classic peach vs. lemon problem is well illustrated by the problem of buying a used car. External appearance can be misleading and there is much trouble that can be hiding under the hood or under the chassis. Most worrying is that the seller may not be forthcoming with all available information. Similarly, the use of fancy jargon and ambitious statements will not be enough to convince the investor of the merits of the business. There needs to be strong, objective evidence, based on primary or secondary market research, of the commercial potential of the project. In addition, the entrepreneur's understanding of the competitive landscape should be well articulated, outlining the ways in which the business seeks to establish competitive advantage. Investors will also be looking for a competent management team, capable of transforming a business idea into a strong company.

How much money does the project need? And when?

From the entrepreneur's perspective, more money is always better (leaving aside the possible implications in terms of valuation and dilution of ownership), but from the investor's perspective loose money can lead to inefficiencies and lack of focus. Therefore, knowledge of the exact financing requirements of the business is evidence of good planning and commitment. In addition, even if a business requires a certain amount of money, not all this money may be needed immediately; some may be necessary only if certain developmental milestones are met and the business demands new resources to tackle its next wave of challenges. Again, understanding of the timing of the financing needs is evidence of good management.

What is the intended use of the funds?

Investors need to be assured that the money they provide will be well spent. It is therefore essential that the entrepreneur has a clear idea of where the money will be used, based on a properly constructed business and financial plan.

Will the entrepreneur be committed to the project?

It is easy to spend "other people's money". In addition, entrepreneurs can extract a lot of private benefits from running the business and so the actual profitability of the business or the returns that investors may achieve may not be their utmost priorities. This is why investors want assurance that the entrepreneur is committed to the business and that his or her interests are aligned with that of the investor (i.e. the long-term success of the business). Investment of part of their own money and/or full time devotion to the business, are usually good signals of such commitment.

What are the risks associated with the project? Are there contingency plans in place?

No project is without risks and a good anticipation of these is a signal of comprehensive, diligent planning. Identification of contingency responses to the most likely or most influential downturns in expected development attest to the entrepreneur's understanding of the business and his/her commitment to make it thrive.

D. Feasibility grants

Feasibility grants provided by government agencies are an effective source of seed financing for innovative companies that bridge the information asymmetry between entrepreneurs and investors and can meet the goals of both entrepreneurs and governments. The ultimate goal of such programmes is to enable the seeding and early germination of innovative ideas that can provide a strong supply of investment opportunities to private investors and eventually develop into enterprises with large economic and social impact. However, such programmes are naturally susceptible to political and bureaucratic influences that may interfere with the soundness of the business decisions. There are several areas that need to be properly considered and addressed for such programmes to achieve their intended goals.

Structure of the decision making process

The dangers of political interference in response to specific interests are particularly high when the programme coordination and funding decisions are centralized. It is important that the person making the investment decisions is as close as possible to the applicant, both geographically and in terms of expertise. This ensures a better understanding of the context of the enterprise and its technology, more efficient information processing, and ultimately quicker decisions. On the other hand, the available expertise may not be widely available, so some degree of centralization is necessary. Engaging private organizations to perform this role may be a good way to bring an entrepreneurial approach when taking these decisions.

Decision criteria

To ensure that they select and support high potential firms, government agents should employ clear and professional selection criteria, in line with those of private investors. Such an approach will help avoid selecting underachieving firms, which is the main potential drawback to government financing programmes. In addition, the clarity of criteria and their consistent

application will help screen out early ineligible projects. The firm's track record (although this may be limited for early-stage firms), the experience of the management team and the existence of a clear product/market strategy are essential considerations since these factors have historically been good predictors of a firm's commercial success. To better equip its decision makers for such appraisals, the government needs to provide them with continuous education and training and, possibly, employ private sector expertise.

Positive or negative certification?

Many of the firms backed at this seed stage may eventually look for venture capital financing when entering their early-growth stages. And venture capital investors do look at a company's prior achievements and relationships as a signal for its quality. A question to consider then is whether the reception of government grants will ultimately prove to be an asset or a liability for such companies. In other words, what external perceptions of the grant programme are needed in order for it to provide positive certification for its firms in the eyes of future potential VC investors? How can one ensure that the judgment of the programme officer about the soundness of the underlying technology proposition will hold sway? Government employees can only be superior to private professionals in selecting investments in cases where they have the proper technology expertise. This suggests that the selection of projects that receive government funding should be handled by agencies in which such expertise is readily present.

Monitoring and support of selected projects.

Feasibility grant programmes should be infused with the elements that make the venture capital investment process effective: careful selection, incentives, monitoring, staged financing, strategic and management support. To allocate capital more efficiently, and continue to fund enterprises that show increasing promise, the funding provided by early-stage programmes should be staged. The initial stage should provide small grants for feasibility study and market analysis. A second stage, for which enterprises apply upon successful completion of stage 1, provides larger funds for product development and initial marketing. Upon completion of that stage, enterprises should be well prepared for large-scale commercialization and be more likely to attract private expansion capital.

In addition, much attention needs to be paid to the oversight and support of the financing recipients. To this end, programme managers should not only have proper business expertise but also develop an attitude of strategic flexibility, ready to accommodate strategy or market changes that become necessary as the enterprise deals with its uncertain environment.

Proper programme evaluation measures

The measures used to evaluate the activity of these programmes should be well aligned with their seed focus. By contrast, an emphasis on actual returns may shift the attention to more established companies. If programme managers are more concerned with reporting and claiming credit for positive

programme results, they may select firms that do not need financing but are more likely to be successful, thereby ensuring that the programme will show positive results. In such cases the government essentially crowds out private financing. On the other hand, a focus on simply reaching a certain number of supported companies or allocating certain funds may lead to poor selection.

Ensuring quality deal flow

A programme is ultimately as effective as the quality of the deal flow it attracts. Will a potential entrepreneur readily consider the grant programme as a potential source of seed financing? Only if he or she is aware of that programme and has positive perceptions of its potential usefulness. To this end, information dissemination and education about the programme are essential. These need to take place in close proximity to the potential entrepreneurs. Possible ways to provide such dissemination include information sessions, dedicated websites, contact details, help with the necessary documentation and relationships with technology-transfer offices.

Feature 1: SBIR Programme (USA)

The Small Business Innovation Research (SBIR) was launched in 1982 in response to the loss of competitiveness of the USA in the global economy and with the goal of promoting innovative and high-technology small firms. It represents 60% of the public SME finance programmes in the USA. Notable companies such as Apple, Compaq, and Intel have received SBIR funding. Most of the founders of the companies receiving SBIR awards came from universities. Without the SBIR award, 20% of the founders would not have started their firm and 40% would not have continued it.

The SBIR programme provides up to $850,000 in early-stage R&D funding directly to small technology companies (or individual entrepreneurs who form a company) in two phases:

- Phase I awards $100,000 for up to six months intended for a project feasibility study. With positive feasibility results, companies can apply for Phase II funding.
- Phase II awards $750,000 for project and prototype development. This phase lasts up to two years. It is expected that beyond Phase II, the SBIR recipients launch commercialization efforts with external, private funding, often provided by VC funds.

One of the major strengths of the programme and a key factor for its success is the decentralization of the funding decisions, spread around the 11 federal agencies. Each agency allocates 4% of its funds to small innovative firms.

For further information: http://www.sbir.gov/

Feature 2: START Programme (Russian Federation)

The START programme was launched in 2004 to stimulate spin-off activity from universities and research institutes of the Russian Academy of Sciences. Similar to the SBIR programme, it has several (three) one-year financing phases. The three-year budget is $180,000 ($250,000 from year 2009). In the first year, financing of up to $30,000 ($40,000 from year 2009), is provided to cover R&D expenditures and convince private investors of the potential of the company. In the second and third years, financing from the programme is granted only if private investors participate on a 50/50 basis. In the third year, the project is financed if developments are in line with the business plan and sales have already started. Each year about 400 new teams join the programme, (from about 1,500 applications). From them about 25-30% graduate to second year and about 70% qualify to receive financing in the third year.

Evaluation of applications is highly decentralized. More than 1,000 experts are involved from the regions of Russia where applications are made. Final recommendations are made by 35 Councils, (for each of five programme priority areas in each of seven federal districts of Russia).

For further information: http://www.fasie.ru/

E. Relations with public R&D institutions

The "European Paradox" – the generation of world-class, top-level scientific output, while lagging behind in the ability to convert this output into wealth-generating innovations – has long cast a shadow over innovation policy deliberations as it underscores the importance of infusing market relevance to a country's public R&D base. The commercialization of cutting edge scientific knowledge, especially the one originating in public R&D institutions, through the establishment of innovative, technology-based enterprises requires effective integration and information exchange between public R&D and business and educational institutions. Governments can play a central role in initiating and sustaining such exchange given their interface with each of these constituents and vested interest in promoting innovation. More specifically, any facilitation of information exchange between scientists, engineers, managers, entrepreneurs, etc. through special forums, conferences, venture fairs or online discussions and interaction platforms will likely improve the flow of information to reveal potential innovative opportunities and the supply of relevant skills for the commercialization of these opportunities.

An essential factor in the commercialization of these technologies is the provision of appropriate financing through specialized intermediaries who are also able to facilitate an understanding of market needs at an early stage and be a source of managerial expertise.

Although relationships with public R&D institutions may take several forms, they share several underlying goals:

(a) Education of faculty and researchers on possible entrepreneurial opportunities, the process involved in developing these opportunities, and the available resources for the pursuit of these opportunities.

(b) Provision of information to market constituents and entrepreneurs on the nature and possible application of the scientific knowledge developed in public R&D institutions.

(c) Granting technical and financial support for the early exploration of ideas.

(d) Facilitating technical, managerial and financial support for the incubation of promising enterprises.

These goals can be addressed through financial or technical support for the following types of information, service and financial intermediaries:

(a) Specialized information intermediaries such as technology transfer offices or cooperation networks among R&D, business, and educational institutions.

(b) Professionalization of technology transfer. For example, in some European countries many universities have tech transfer offices with only one employee, who covers technology transfers for many departments (medical, chemical, biological, physical).

Feature 3: EXIST Programme (Germany)

The EXIST programme, launched in 1997, has sought to improve the entrepreneurial climate at higher educational institutions in Germany and to increase the number of start-ups from these institutions. By 2006, 20 regions had been designated as EXIST partners, encompassing extensive networks of cooperation between educational, research, economic, and political institutions that sought to motivate, develop and support entrepreneurship, and offering financial and professional support for students, graduates or researchers at the universities in these regions to develop their business ideas.

For further information: http://www.exist.de/

(c) Specialized service intermediaries.

Feature 4: The TechnoPartner Programme (Netherlands)

The TechnoPartner Programme was introduced in 2004 to promote more and better technology-based start-ups ("technostarters") through the creation of a better climate for technostarters inside and outside knowledge institutes. It provides comprehensive services to start-ups that include: (1) seed financing through specially created Small Business Investment Company (SBICs) funds; (2) knowledge exploitation subsidy (SKE) that offers both pre-seed financing to potential technostarters and a patent facility for knowledge institutes to professionalize their patent policies; (3) certification for technostarters to obtain bank credit guaranteed through the SME Credit Guarantee Scheme; and (4) information and expertise to technostarters, including a TechnoPartner Academy offering entrepreneurship courses.

For further information: http://www.technopartner.nl/

(d) Technology incubators or innovation accelerators.

Feature 5: Technology Incubators Programme (Denmark)

In 1997, the Technology Incubators Programme was launched, aiming to bring together research institutions, entrepreneurs and finance providers in order to facilitate the commercial transfer of research via the creation of new enterprises. The Ministry of Science, Technology and Innovation originally approved eight such incubators located at universities or science/research parks. The incubators provide a channel for state-financed seed capital in the form of grants, loans, and equity as well as administrative support and training to selected entrepreneurs in companies of no more than six months old. The maximum funding per company is €100,000. The initial funding for the programme was €40 million for a period of three years, with an additional €54 million approved for 2001-2004. After 2004, the incubators were to become self-financing. By 2000, 172 new innovative companies were started in high growth industries. However, only 38 per cent of the funded projects were research-oriented.

For further information:
http://www.forskerparkforeningen.dk/pdf/innovative_incubators_denmark.pdf

Feature 6: Incubator Programme (Russian Federation)

As part of a general programme to support small entrepreneurship, the Ministry for Economic Development runs a special subprogramme to build a network of incubators throughout Russia. There are more than 100 incubators under construction, of which about 50 are already operational. A third of all incubators are especially earmarked for innovative enterprises. Incubators are involved in microcredit and credit compensation schemes sponsored by the Ministry for Economic Development.

For further information: http://www.economy.gov.ru

F. Business support services

Given the wealth of questions that potential entrepreneurs have and the early challenges they may face, there are tremendous opportunities to provide them with a variety of support services that will ensure that they will not be discouraged or abandon what may turn out to be a high-potential idea. Ultimately, these forums can serve as platforms for ensuring the "investment readiness" of their recipients in terms of the entrepreneurs preparing suitable business plans and understanding the different sources of finance available to their businesses at different stages of development. There is a wide range of services that can be provided to potential enterprises, from the general facilitation of information and networking possibilities to more focused, hands-on involvement with specific projects, as discussed below:

(a) ***Awareness Raising***. There is much value in educating prospective entrepreneurs on the roles that various investors play in the business development process. Increasing the awareness of potential entrepreneurs of the various financing options as well as their understanding of what private investors look for and how they make decisions will likely increase the supply of business opportunities and demand for private capital.

(b) ***Networking*.** Potential entrepreneurs can be presented with opportunities for interaction with people from the business world in order to spur idea generation and knowledge exchange.

(c) ***Match-making***. More formal exchanges can be organized for providing fledgling enterprises with needed expertise.

Feature 7: PreSeed Programme (Finland)

The PreSeed Finance Programme, managed by SITRA, the Finnish Innovation Fund, was launched in 2001 to help people with good business ideas to find sources of venture capital. It serves potential businesses in three ways. It provides pre-seed funding for the development of technology-oriented ideas (LIKSA). It then operates a marketplace (INTRO), serving private investors and businesses that are seeking initial investment through company presentation forums, focused investment negotiations and a Web service. Finally, it operates an expertise exchange (DILLI), helping entrepreneurs to access needed expertise from experienced business professionals prepared to share the risk of the venture as well as helping business experts exchange their know-how for a share in the company.

For further information:
http://www.sitra.fi/en/Programmes/CompletedProgrammes/innovation/preseed/preseed.htm

(d) ***Training*.** Formal training programmes can provide courses in business planning and feasibility analysis.

(e) ***Coaching*.** Conducting a formal feasibility study with its associated market and industry analysis can be difficult for someone not trained in business tools. Coaching platforms that guide potential entrepreneurs through these processes can be provided either through face-to-face interaction or web interface.

Feature 8: Canadian Community Investment Plan (Canada)

At the deal flow end, the Canadian Government has attempted to increase the number of "investment-ready" small firms and to link them with potential angel investors. In 1995, the Canadian Community Investment Plan (CCIP) was launched as a seven-year programme aimed at building investment development expertise in communities. Its Internet-based component provides entrepreneurs with improved skills to structure and present their investment opportunities and to attempt to match qualified firms with local, regional or national sources of capital. In addition, the programme established 22 community-based projects to improve access to capital for local growth firms. Each project receives up to CAD 600,000 over a five-year period and acts as intermediary between local businesses and various sources of risk capital. The success of these projects has been attributed to the existence of a critical mass of growth-oriented entrepreneurs and private investors.

For further information: http://www.ic.gc.ca/pics/cw/winning.pdf

Feature 9: TULI Programme (Finland)

The TULI programme was established in 1993 to promote the launch of new, technology-based businesses that originate from research. It seeks out research ideas or innovations with commercial potential and promotes awareness of such possibilities in the local community as well as provides funds for feasibility studies or market analysis. TULI is financed by the Finnish Funding Agency for Technology and Innovation (TEKES). Originally, the programme included regional technology transfer companies, each with a full-time project manager and a team of independent consultants focusing on identifying, assessing, and developing potential new business concepts. Typical services include market research, competitor analysis, and issues related to intellectual property rights. The services are free for researchers and research groups, and participation in the programme does not restrict the proprietor's rights to his/her idea. In 2002, the regional operations were consolidated into a national operation administered by the Finnish Science Park Association (TEKEL).

For further information:
http://akseli.tekes.fi/opencms/opencms/OhjelmaPortaali/ohjelmat/TULI/en/etusivu.html

G. Microcredit

Microcredit refers to the provision of small loans, usually smaller than €25,000, to support entrepreneurial activity. Borrowing small amounts is often difficult for entrepreneurs because the costs inherent to the lending process – when viewed in relation to the amount to be lent – make such transactions uneconomical for most banks. Therefore, microcredits are often granted by specialized microfinance institutions (MFI). In addition to providing smaller loan amounts, such institutions use alternative methods to appraise credit-worthiness of the borrower and have different collateral requirements. Many MFI also provide business advice and support, help with developing a business plan, and facilitated support after granting a loan. The income of such institutions sometimes cannot cover their actual operating expenses, in particular due to low scale of operations. As a result, these institutions cannot operate with sufficient profitability and often depend on grants for their sustenance. Overall, microlending is more compatible with the pursuit of non-economic goals such as social inclusion or regional development. The institutions providing microloans include:

(a) Loan funds specially chartered to assist in the tackling of social issues such as unemployment, underdevelopment, or social marginalization.

(b) Non-Government Organizations (NGOs).

(c) Financial institutions with social missions, such as development, savings, and cooperative banks as well as financial cooperatives and credit unions. Guided by their social missions, they may enter the microlending field through direct or indirect (i.e. by providing funds to other microcredit organizations) involvement.

Feature 10: Adie (France)

Adie is a non-profit association, established in 1989 and based in France, targeting unemployed and welfare recipients (95%), and active poor (5%). It offers financing as well as business advice to micro entrepreneurs. It is active nationwide, with 22 regional and 112 local offices, 380 points of contact, 300 employees and 1,000 volunteers. Based on the latest figures from its 2007 report, Adie has since 1989 provided 53,600 credits in the total amount of €145 million, assisted in the creation of 46,000 enterprises and 55,000 jobs. Its products include loans of up to €5,000 at markets rates, start-up grants and non-interest bearing subordinated loans respectively finance and co-financed by local governments.

For further information: http://www.adie.org/

Feature 11: Microloan Programme (Slovakia)

Financed initially with PHARE resources, the National Agency for Development of Small and Medium Enterprises (NADSME) launched the Microloan Programme in 1997. This programme is run by a network of cooperating regional advisory and information centres (RAIC) and business innovation centres (BIC). There are currently 14 centres, all non-profit, non-governmental associations that are involved in the provision of microloans. In addition to advice, they offer counselling, information and training. By the end of 2006, 1,402 microloans totaling €16.8 million had been disbursed, helping to create 2,084 jobs and to maintain 2,660 others. The microloans are provided to enterprises with up to 20 employees and may be used to acquire assets, refurbish operation facilities, or purchase raw materials or merchandise. At present, the minimum amount of a loan is SKK 50,000 (approximately €1,400) and the maximum amount is SKK 1.5 million (approximately €42,000). The maturity period of the loan is from 6 months to 4 years. Upon request, the entrepreneur can receive a grace period of up to 6 months. The interest rate for the loans has been set at a 2% premium to the basic rate of the National Bank of Slovakia.

For further information: http://www.nadsme.sk/?article=340, European Communities (2007), the regulation of microcredit in Europe.

Governments can play a role in enhancing and supporting the provision of microcredits to eligible entrepreneurs, as a component of policies promoting the development of innovative enterprises. The amounts typically provided by microlenders are suitable for initial concept development or feasibility studies. There are several options for intervention/support in microlending markets:

(a) Provision of grants and technical support to eligible MFIs to provide initial capital or offset the high costs inherent to their ongoing microlending activities.

(b) Direct financing or co-financing of projects that have been initiated by MFI or other eligible microcredit organizations.

(c) Provision of microloan guarantees to encourage currently non-involved financial institutions to engage in microlending.

(d) Provision of tax incentives for microlenders or for their third-party capital providers. Such incentives can improve the cost efficiency of the MFI and enhance their stand-alone viability.

Feature 12: Community Investment Tax Relief (UK)

The Community Investment Tax Relief (CITR) scheme encourages investment in disadvantaged communities by giving tax relief to investors who back businesses and other enterprises in less advantaged areas through investments in accredited Community Development Finance Institutions (CDFIs). The tax relief is available to individuals and companies and is worth up to 25% of the value of the investment in the CDFI. The relief is spread over five years, starting with the year in which the investment is made.

For further information: http://www.berr.gov.uk/bbf/enterprise-smes/info-business-owners/access-to-finance/CITR/page37528.html

If these initiatives set the explicit objective of promoting innovative enterprises, then several considerations are necessary to ensure that the supported microlenders indeed target and reach potential entrepreneurs in innovative enterprises.

(a) A clear specification of the types of enterprises to be supported – down to operational definitions to be used by field loan officers in appraising potential applicants – can be instrumental for achieving consistency in approaches among different microlenders and for measuring the scale of their activities in regard to innovative enterprises.

(b) Microlending can be an effective early-financing option for innovative enterprises if microcredit institutions operate in close proximity and have sufficient visibility in the place where innovative enterprises originate, such as universities and research institutions. Technical support can be directed towards expanding the distribution network of MFI to cover such locations.

(c) As MFI officers may lack the specific business, analytical or technology knowledge and skills associated with appraising the feasibility and preparing plans for innovative enterprises, a centralized training or knowledge and partner exchange platform can be instrumental for the development and dissemination of such skills, ensuring that field loan officers are well equipped to deal with innovative enterprises.

H. Business angels

Overview of business angels

Business angels are individuals that make equity investments in high potential ventures and provide their time/expertise/network of contacts to the entrepreneurial team. In addition to equity, there are also other less frequent forms of financial contribution, such as convertible loans and guarantees. Because such investments are risky, as a rule business angels only invest

amounts that they can afford to lose. For many angels, the source of their wealth is the sale of businesses that they had founded and operated, so a vibrant, dynamic entrepreneurial environment is an important pre-requisite for the emergence of business angels. They provide a substantial portion of the seed and start-up capital to entrepreneurial ventures and have the following key characteristics:

Invested amounts

Business angels typically invest between €25,000 and €250,000, and up to €1-2 million, (for syndicated deals involving several angels and angels investing via co-investment funds). In Europe in 2007, the average amount invested in one round was €170,000.[3] Generally deals are smaller from those of the formal Venture Capital but occurring at earlier stages of firm development.

Value added

Business angels provide more than just capital. They actively participate in the development of the venture by providing valuable strategic, operational, and market advice. The extensive business and entrepreneurial experience that many angels have makes their role in the early development of the venture invaluable. Angels can offer important insights on the complexities of the industry and can be instrumental in introducing the entrepreneur to major stakeholders such as customers and suppliers. In addition, early-stage entrepreneurship is a lonely, dedicated process and, in this regard, angels can offer much moral support to an entrepreneur facing adversity and strained personal relationships. Some business angels develop strong reputations that carry a lot of weight in attracting high-quality deals and bestowing legitimacy to the new enterprises in the eyes of potential suppliers, customers or employees. Business angels may take a more passive role when investing in groups (syndicates) or through a fund (angel fund or public-private partnership).

Types

Business angels can be distinguished on the basis of the intensity of their involvement in the management of the enterprise and their prior investment experience:

- Active versus passive.
- Novice versus experienced; this distinction suggests that the actual value added (in addition to financial resources), is likely to vary substantially among business angels.

Key decision criteria

- ***Is this opportunity presented through a referral or is it unsolicited?*** Personal referrals of potential investment opportunities play an important role in capturing the investor's initial attention. Lack of personal referral for the proposal, poor presentation of the business plan, or an unclear executive summary can prompt the business angel to quickly discard the proposal.

- ***Does the business idea have solid fundamentals?*** The potential market impact (market size, market share) of the business as well as the existence and

[3] EBAN, Statistics Compendium 2008.

sustainability of its competitive advantage are essential for prompting serious consideration by the business angel. For innovative enterprises, sustainable competitive advantage is associated, for example, with solid protection of its scientific knowledge (e.g. through patents), and attraction of key customers.

- ***Is this person capable of running the business? Is this a person I can trust and deal with?*** Business angels emphasize the quality of the management team – looking for solid expertise and favourable personal impression and evidence that the person(s) can be trusted to lead the venture in the face of adversity.

- ***Does the business operate in a familiar area? Is it close geographically to allow for face-to-face interaction?*** Business angels like to be closely involved in the businesses they invest in, providing practical help and guidance to the entrepreneurs. Because of this, they tend to not get involved in ventures that are based in unfamiliar industries or are located far from the business angel's residence.

- ***Can the Business Angel invest enough funds to develop the project to the next level?*** Some projects are very capital-intense (i.e. drug development, pre- and clinical trials and approval process). Individual business angels may not want to get involved if they are unable to take a significant stake in the venture.

Business angel networks

One of the main difficulties in business angel investing is related to the inefficient flow of information between business angels and entrepreneurs: business angels are hard to find and so are high-quality entrepreneurs; in this way the information about financing sources and investment opportunities remains mismatched. Business Angel Networks (BAN) have emerged in recent years to address this market and information inefficiency as well as provide value added services to both individual angels and entrepreneurs. An increasing number of business angel investments are made through BAN, which pool the financial, knowledge and information resources of groups of angels to become more visible to prospective entrepreneurs, to attract bigger deal flow and thus sift better-quality deals, and to apply more formal screening and investment selection. BANs operate both locally, nationally, and increasingly across borders and provide significant information and financial leverage to individual angels, giving them exposure to a larger number of deals and enabling them to diversify their individual portfolios by participating in a larger number of (syndicated) deals.

Some key characteristics of BAN include:

(a) ***Scope of operation*****:** local, regional, national or cross-border. Some have a sectoral focus.

(b) ***Advantages to individual angels*****:** provide significant information and financial benefits to individual angels, giving them exposure to a larger number of

opportunities and enabling them to participate in more (syndicated) deals and diversify their portfolios; allow them to invest in sectors, such as biotechnology, inaccessible to individual investors due to high deal amounts involved.

(c) ***Organization*:** increasingly around investor interests in particular sectors.

(d) ***Key services*:**

- Matchmaking (with charge or free of charge), through networking events or investment forums. BAN and other professional angel networks provide an opportunity to match the skills of particular individual angels with the needs of particular ventures.

- Business plan coaching to prospective entrepreneurs to help them with their presentations to potential investors.

- Training for participating investors and entrepreneurs.

- Support for the syndication of investment deals; set-up of co-investment funds.

- Connections to other finance providers for co-investment opportunities.

Feature 13: CIDEM (Spain, Catalonia)

The Center for Innovation and Business Development (CIDEM) is a successful regional programme in Catalonia, managed by the Catalan Government. It was established in 1985 to provide equity funding and managerial advice to start-ups and to partner with private investors and VC funds. It functions as a "one-stop shop" for start-up businesses and potential investors and assists with feasibility studies, funding, project development, implementation and follow-up. The activities of the programme are carried out through several funds and initiatives catering to all stages of company development. CIDEM now acts as a federation of business angel networks located in the Catalan region, having offered matchmaking services in the region for a number of years. It has also supported the development of a dozen of business angel networks in the region.

For further information: http://www.cidem.com/cidem/eng/disclaimer/index.jsp

Factors affecting the scale of business angel investing

Any initiative aimed at increasing the volume or intensity of business angel investing should be based on a solid understanding of the factors that affect the scale of business angel investing. To business angels, private investments need to represent a viable alternative for preserving and increasing their wealth. Indeed, angels can invest their money in a wide range of alternatives: publicly traded stocks, bonds, property, art, antiques, etc. Although many angels make investments for reasons beyond achieving financial returns – such as the opportunity to continue their entrepreneurial experience – there are several key factors that determine the scale and intensity of business angel activity:

(a) ***Potential for promising returns*.** The returns on private investments depend on the quality of recipient enterprises, the availability of subsequent private growth capital to spur the large-scale development of these enterprises, and the conditions under which the business angel can exit their investments. These are discussed in sections 3 and 4.

(b) ***Supply of high-quality entrepreneurial enterprises*.** Business angels can be discouraged by the limited number of deals meeting their investment criteria as well as by the poor quality of the investment proposals they receive. This problem can be partially mitigated through participation in BAN.

(c) ***Tax conditions*.** Business angels often cite taxation as their most important concern. The availability of tax relief on private investments has provided the strongest incentive for investing, followed by capital gains tax and dividend tax relief. Higher upfront tax relief encourages investments while higher tax rates on capital gains or dividends discourage investments.

(d) ***Economic conditions***. Economic growth, interest rates and inflation can also affect angel activity by increasing or decreasing the returns to be made from alternative investment opportunities.

(e) ***Stock market conditions*.** Stock market movements and expectations can affect the amount available for private investments as well as the opportunity cost of such investments.

Given these factors, broader policy initiatives that aim to increase the supply of high-quality innovative enterprises (such as through the establishment and promotion of an infrastructure for the generation of ideas, exploring their feasibility, and providing increasing support to those with the highest potential), can have a spillover effect on encouraging business angel activity. In addition, there are several possible policy instruments that can be used to support or increase business angel activity:

(a) Increase the supply of high-quality innovative enterprises through the establishment and promotion of an infrastructure for the generation of ideas, exploring their feasibility and providing increasing support to those with the highest potential.

(b) Increase the understanding by entrepreneurs of the reality of business angel and equity financing.

(c) Increase programmes to help entrepreneurs present their business ideas in the most effective way and to the most appropriate potential investors, a process often referred to as “Investor Readiness”.

(d) Increase the number of capacity building programmes to bring more business angels to the marketplace.

(e) Provision of tax incentives for business angel investments. Possible instruments include tax rebates or deductions and exemption or deferral of capital gains and losses on investments in specific types of company.

Feature 14: Enterprise Investment Scheme (UK)

Enterprise Investment Scheme (EIS) was introduced in 1994 to help certain types of small higher-risk unquoted trading companies to raise capital. It provides income and capital gain tax relief for investors in qualifying shares of such companies as follows:

- Income tax rebate equal to 20% of investments up to £400,000 (under review to be increased to £500,000).
- Exemption from capital gains tax on Angel investments.
- Income tax relief of 40% on failed investments.
- Deferral of tax on capital gains if these are reinvested in EIS companies.

The EIS is now restricted to companies employing less than 50 people at time of investment, and a cap of £2million sterling is applied per company.

For further information: http://www.eisa.org.uk/render.aspx?siteID=1&navIDs=21,97

(f) Technical or financial support for the establishment and expansion of BAN, particularly in regions where such networks do not yet exist.

(g) Technical or financial support for business angel training in standalone facilities or through BAN. This is particularly relevant for novice or "virgin" angels, i.e. those who have not yet made private investments but do have the ability and desire to do so and who often represent a substantial portion of business angels. Compared to more seasoned angels, novices may lack knowledge of the investment process and thus hold unrealistic expectations about the nature of entrepreneurs and their investment proposals. Access to business angel networks or to other forums for interaction or knowledge exchange with fellow business angels may be important for overcoming the hurdles associated with initial private investments. Business angel academies and investor readiness programmes help virgin angels to become serial angels by increasing their understanding of the angel market, and also provide investment support to seasoned angels.

(h) Financial leverage[4] instruments that mirror the approaches that can be taken with venture capital funds (as discussed in section 3):

- Co-investments with business angels or business angel investment funds.
- Allocation of capital to business angel investment funds, based on the attraction of certain amount of private capital.

[4] In broad terms, financial leverage pertains to the use of resources in a way that enhances their outcomes. In this case, it pertains to the aim of policy instruments to attract a certain amount of private funds for the amount provided by the instrument.

I. Corporate venture capital

Corporate venture capital pertains to the making of equity or equity-type investments by non-financial corporations in private, entrepreneurial firms. Compared to traditional venture capital investors, corporate venture capital investors may be less concerned with financial returns and more with the strategic value that the entrepreneurial firm may eventually bring to the parent organization. In this way, corporate venture capital can be a form of business intelligence or exploration, whereby the parent organization makes small bets in different technology areas without undertaking the operational or managerial burden of developing the ventures.

Although innovation and entrepreneurship may lead to the undermining of the hegemonic market positions that many established companies have, such companies are often hungry for innovative ideas and new opportunities, and can thus be attracted as partners in the promotion of innovative enterprises. There are different ways in which established companies can be encouraged to invest in innovative enterprises. These include:

(a) Tax incentives for investments in private, innovative enterprises.

(b) Public-private partnerships that involve substantial financial participation.

(c) Establishment of administrative structures that facilitate the incubation of new ideas.

The examples below illustrate each of these approaches.

Feature 15: Corporate Venturing Scheme (UK)

The Corporate Venturing Scheme was introduced in 2000 to encourage venture capital investments by corporations. To be eligible for the specified tax incentives, the investing company must not hold more than 30% of the issuing company's ordinary share capital, and the gross assets of the issuing company in return should not exceed £15 million. The tax incentives consist of the following:

- Deduction against corporation tax at 20% of the amount invested, provided that shares are held for a minimum of three years.
- Deferral of corporation tax on any chargeable gains on disposal of investments.
- Capital loss relief against income for any capital losses on disposal of investments.

For further information: http://www.hmrc.gov.uk/guidance/cvs.htm

Feature 16: "High-Tech Start-Up Fund" Initiative (Germany)

In 2005, the German Government and KfW launched the High-Tech Start-Up Fund as a public-private partnership with BASF, German Telekom and Siemens, as part of the "Partner for Innovation" initiative. The programme has explicit focus on seed and start-up stages – i.e. before VC investors are likely to become interested – and offers VC investments (up to €500,000), to founders of technology start-ups. Its main targets are newly founded technological companies whose core planning is focused on R&D. Many of them are spin-offs from public research institutions. €262 million has been set aside for the programme over a five-year period, with €240 million coming from the federal budget. In 2006 three more private partners (Daimler, Carl Zeiss and Bosch) joined, increasing the funds to €272 million. The private partners provide not only funds but also networks for the start-up companies.

For further information: http://www.high-tech-gruenderfonds.de/htgf/

Feature 17: Industry Incubator Programme (Norway)

The Industrial Development Corporation of Norway (SIVA) established the Industry Incubator Programme in 2004, in which incubators are linked to a well established manufacturing company or group of companies ("the mother company"). Based on its specific needs, the mother company offers physical premises and assistance to individuals willing to start up a relevant business. The main functions of the industry incubator are thus to identify and support new business opportunities as well as people who are interested in them and are capable of developing them. The industry incubators are organized as private limited companies owned by the mother companies, other local investors and SIVA. Four industry incubators were established in 2004, and another four are to be established in 2005. It is the ambition of SIVA to contribute to the establishment of a total of 50 incubators in the course of the next five years.

For further information:
http://www.siva.no/sivabas/nyheter.nsf/main/B75688BC7187E9F3C1257214003648F3?opendocument

J. Conclusion

Innovation support systems that select and nurture promising ideas are vital for a healthy, growing population of innovative enterprises. Public policy can play an important role in the establishment of such systems by promoting initiatives that aim to ensure a stable supply of ideas and to engage a network of agents that evaluate, select and support promising opportunities. This chapter reviewed various initiatives and policy instruments, representing both direct involvement and indirect support, which can target and stimulate such agents. Direct instruments can increase the entrepreneurial awareness and skill sets of potential entrepreneurs located in R&D institutions as well as provide them with critical early means to explore the feasibility of their ideas. Indirect instruments can encourage and facilitate the involvement of other funding agents, such as microcredit agencies, business angels, and corporate venture capital funds, by improving the flow of information to them or providing them with support or incentives that ensure the economic viability of their investments in innovative enterprises.

For all their potential, such policy initiatives need to be both effective and efficient, i.e. it needs to be clear that innovative enterprises do emerge as a result of their implementation and that the economic and social benefits that these enterprises bring outweigh the cost of the initiatives. Determining whether this is the case is not an easy task. Therefore, successful

programmes require both careful design – that anticipates and averts possible challenges and conflicts of interest – and attentive monitoring of operations and results. Here are some examples of the challenges that programmes may face and the areas that need special consideration in the design and monitoring of programmes:

(a) ***Displacement of private funding***. Would an enterprise have been able to obtain funding if the public programme were not in place?

(b) ***Targeting the right recipients.*** If left to interpretation by individual agents, the term "innovative enterprise" could apply potentially to a diverse group of enterprises. Carefully derived and tested operational definitions are essential for guiding field decision makers toward supporting the desired group of enterprises.

(c) ***Measuring success.*** Success is an elusive concept, as it can be defined in many different ways – survival, growth, profitability, social impact, etc – and can apply to short- or long-term time frames. Employing a common metric of success is important for comparing different programmes, but excessive focus on a particular metric can also distract from other, longer-term aspects in which an enterprise can benefit the economy and society.

III. EARLY-STAGE GROWTH

Executive Summary

As innovative companies grow, their financing needs increase, which requires access to larger pools of capital. Venture capital (VC) financing provides professionally managed capital to promising enterprises in exchange for equity stakes, with the anticipation of selling those stakes at substantial premiums. VC firms act as intermediaries channeling funds from institutional investors to high-potential enterprises.

Typical private VC funds are usually organized as limited liability partnerships with a fixed term life. Investment opportunities are selected through a multi-stage process. VC investors provide companies with strategic and managerial advice, network contacts and play an active role in the recruitment and professionalization of management.

The VC financing cycle has four main stages: fund-raising, investing, managing/value adding and exiting. Fund-raising is influenced by tax and regulatory issues, which determine whether venture capital is a suitable class for asset allocation by institutional investors. Relevant factors include the existence of a dedicated or suitable structure for raising capital so to avoid double taxation and deferring tax liabilities until securities are actually sold. Convertible preferred shares play an important role in aligning the interests of stakeholders.

Public initiatives can favour the development of the VC industry, such as awareness and knowledge sharing actions, the promotion of labour mobility and public-private partnerships that co-invest with private capital and help to smooth cycles and counteract risk aversion. The efforts to develop a VC industry should be part of general innovation policies that pay due attention to general framework conditions, including the impact of tax and regulatory issues.

A. Sources of finance

Determining the feasibility of an idea, although a significant milestone by itself, marks the beginning of another development phase, initial operations and growth. Once the commercial potential of the enterprise is deemed real, capturing it requires sufficient financial, managerial, and technological resources as well as requisite managerial and strategic expertise. New ventures face a multitude of hurdles – choosing where and how to compete, acquiring customers, establishing relationships with suppliers, hiring personnel – that can make their early-growth process a bumpy ride. These challenges require the provision of special development capital that infuses financial resources with managerial oversight and strategic expertise that traditional finance providers cannot provide.

As providers of development capital, venture capital (VC) firms perform an important intermediary function: they channel funds from institutional investors to high-potential enterprises. Although institutional investors stand to benefit from portfolio diversification into private, innovative enterprises, they lack the expertise to select and help develop such enterprises. Accordingly, this is the specialized function that VC firms provide: they identify, help develop, and add value to high-potential enterprises, and in turn provide attractive returns to institutional

investors. A well developed VC industry thus requires well oiled interfaces for the flow of funds from institutional investors to VC firms, from VC firms to high-potential enterprises, and from there back to the VC firms and institutional investors. Any interruption of that cycle can undermine the vitality and sustainability of the VC industry.

In addition to VC firms, more traditional financial intermediaries can be enticed to support the early-stage growth of innovative enterprises through a variety of guarantee or credit enhancement instruments. In the absence of sharing the upside gains of the supported enterprises, the instruments protect finance providers against potential losses and thus ensure proper risk-return balance.

B. The role of venture capital

Venture capital or private equity?

Since the terms *private equity* and *venture capital* are often used interchangeably, it would be useful to clearly define the two and specify the distinctions between them (based on definitions used by the European Venture Capital Association).

Private equity refers broadly to the provision of equity capital to enterprises not quoted on a stock market. It can be used to develop new products and technologies, to expand working capital, to make acquisitions, to strengthen a company's balance sheet, or to resolve ownership and management issues. It is often associated with funding successions in family-owned companies or the buyout (or buyin) of a business by experienced (outside) managers.

Venture capital is, essentially, a subset of private equity and refers to equity investments made for the launch, early development or expansion of a business. It is therefore directly relevant for the development of new products and technologies and the early growth of innovative enterprises.

What is venture capital?

Venture capital (VC) financing pertains to the provision of professionally managed capital to promising enterprises in exchange for equity stakes, with the anticipation of selling those stakes in five to seven years at substantial premiums once these enterprises reach certain developmental milestones or fulfill their commercial promise. VC firms perform an important intermediary function, enabling funds from institutional investors to reach high-potential enterprises that could otherwise be ignored by these investors and other traditional financial institutions. By its nature, VC is "patient" capital in that VC investments are illiquid during their long process of "fruition". Although venture capital covers a wide range of companies, the bulk of it (70-80%) goes to early-growth or expansion-stage companies for which the uncertainty regarding their high potential has been largely resolved.

How does a VC fund work?

VC firms manage a series of individual investment funds. Each fund is typically organized as a limited liability partnership, in which some or all of the VC firm managers act as general partners and the capital providers such as institutional investors (e.g. pension funds, university endowments, banks or insurance companies), or wealthy individuals serve as limited partners. LLPs have a fixed-term life, typically 10-12 years. Transfer of partnership stakes and early withdrawals from the partnership before the termination date is generally prohibited. LLPs allow distributions to flow through the partnership structure to the limited partners and be taxed at the limited partners' marginal rate, thereby avoiding the double taxation associated with a corporate form. They also allow for securities to be distributed to the partners without incurring tax liability before the security is actually sold**.** The exact tax treatment of LLPs varies across countries and so in some countries the LLP vehicle is not feasible. In such cases, VC funds may be organized as investment funds or corporations. The general partners provide a small part (typically 1%) of the fund's capital and make all investment and divestment decisions. Limited partners are prohibited from active management of the fund, although they use a variety of covenants to govern the behaviour of the general partners (the VC managers). For each investment, the VC firm monitors the venture's progress, helps in its development through active managerial involvement, strategic oversight and corporate governance, and ultimately seeks to sell its equity stake to public investors or strategic acquirers.

In a typical compensation arrangement, the VC firm receives a management fee of 2-2.5% of the committed capital during the life of the fund and 20%-25% of the distribution to the partners beyond a minimum (the nominal amount plus a specified minimum return). The compensation structure creates incentives for the manager to seek high profits for the fund and the investors in the funds as it aligns the interests of the manager with the interests of the investor in the fund. Because VC firms do not borrow funds and incur few liabilities, there are few detrimental consequences to the unlimited liability of the general partners. Given that they provide a small portion of the fund's capital, their downside exposure is limited. Yet, given their disproportionate share of the fund's distribution, they have significant exposure to the upside of the fund and thus have a strong incentive to increase it. In contrast, alternative structures often put pressure on the fund to generate periodic cash flows and provide no competitive compensation for the fund managers, which in turn affects the fund's ability to attract or retain competent managers.

How much do VC funds invest? How do they add value?

Although the average amount of VC financing varies by country and fund focus, it is typically between €1-4 million. It varies with the intensity of VC investing and fund-raising: when more money is available for investing, average deal sizes tend to go up; when there is high demand for venture capital average deal sizes may go down or stay level.

These amounts may be less than the current needs of the company, but they reflect an important tool that VC firms use in managing their relationship with a portfolio company and ensuring a continuing alignment between their and the entrepreneurs' interests: their capital infusions are provided in several stages. VC firms can disburse additional funds to the company based on the achievement of pre-determined milestones such as the development of a product

prototype, initiation of marketing efforts, acquiring a certain number of customers, etc. By making subsequent infusions contingent on milestone achievement, VC firms not only energize the venture's management team but also protect their downside exposure by being able to cut their losses once the performance prospects of the venture become negative. The negative aspect of this, from the point of view of the entrepreneur, is that if the venture is still viable – but not promising enough to deliver the needed returns to the VC firm – it can be deprived of much needed funds.

Unlike passive portfolio investors, venture capitalists typically become actively involved in the development of their portfolio companies, thereby increasing the value of these companies. The value that VC firms can add to their portfolio companies stretches well beyond the provisions of financial capital to include active governance such as monitoring company behaviour and performance, providing strategic advice and network contacts. Indeed, the latter two represent the most valued contribution by venture capital firms to early-stage companies. In addition, VC firms can assist with the recruitment and professionalization of management, replacing the original entrepreneurs, where necessary, with more experienced managers better suited for the changing needs of the growing venture. The active influence of the VC managers in the strategic and operational decisions of the entrepreneurial company is afforded by the terms of the investment agreement and often through significant board participation.

Taxonomy of VC funds

(a) ***Public vs. private*.** Depending on the affiliation of the VC fund managers, funds can be private or public. Public VC funds are run by specially created government development agencies and use public funds as their capital base.

(b) ***National vs. regional*.** Depending on the explicit mandate or geographical focus, funds can be national (international) or regional. Regional funds aim to support enterprises in particular regions.

(c) ***Captive vs. independent*.** Captive funds are subsidiaries of financial institutions such as commercial or investment banks. Accordingly, the parent company provides the funds with which their VC arm operates and can influence the decision-making process. In contrast, independent funds operate with capital from third parties and are managed without interference.

(d) ***Fund-of-funds*.** Some VC funds operate as fund-of-funds, i.e. they do not invest their capital directly in entrepreneurial companies but allocate it to other VC funds that do so. Fund-of-funds allow institutional investors to diversify their private equity holdings and thus develop expertise for the selection of well-performing VC funds.

(e) ***Sidecar funds*.** Some angel groups operate sidecar funds – they pool some of the capital of usually the less active members into a fund that invests alongside deals made by active members, i.e. those who participate in the selection, screening and post-investment support of investments.

What do VC Investors Look for?

The selection of investment opportunities by VC firms is a multi-stage process that involves (1) initial deal screening, (2) detailed evaluation, and (3) due diligence.

Initial deal screening

Given the specific industry or stage focus of a VC fund, incoming proposals are quickly screened out if they do not meet the fund's basic investment criteria. In addition, the lack of personal referral for the proposal, poor presentation of the business plan, or ineffective executive summary can prompt the VC investment officer to quickly discard the proposal. Anecdotally, nine out of ten proposals can meet such fate.

Detailed evaluation

Once a proposal generates initial interest it is put through the grinder of more elaborate evaluation in which the various elements of the business plan (market analysis, competitive analysis, business model, management team, operational plan, marketing plan and financial plan), are examined closely to reveal inconsistencies or uncorroborated, inflated assumptions. The VC managers can meet with the management team to clarify some of their concerns and test the team's understanding of all aspects of the business. Some of the basic questions that venture capitalists ask are:

- Is this an attractive industry?
- Is there a growing market? Can this be a multi-million Euro venture within the next five years?
- Does the management team possess the motivation, skills and connections to execute the business plan? This is often cited as the most important decision criteria for VC funds. In fact, the sayings go, "I would rather back an A team with a B idea, than a B team with an A idea", or "I have made more money on plan Bs than on plan As". A good management team assures the investor that if things do not go as planned, they can find new opportunities for development and growth.

Due diligence

Once the business plan passes the initial hurdles for consistency, its assumptions are corroborated by external observers. To a large degree, this process relies on a support network of IP lawyers, technology due diligence and market research firms, executive recruitment firms with expertise in new ventures, accountants, etc., that provide both deal referrals and due diligence feedback. Relationships with the local research base (universities, research institutes) can also provide valuable and timely deal flow and due diligence information.

Feature 18: Silicon Valley

A good example here comes from the Silicon Valley experience, in which the current complex interrelated social structure can be traced back to a few "spawning" companies that have created a far-

reaching tree – not only on the enterprise side but also on the venture capital side. Indeed, some of the founders of what are now among the most prominent VC firms are ex-entrepreneurs from some of the flagship enterprises of Silicon Valley or the early pioneers in the VC industry. For example, Eugene Kleiner of *Kleiner, Perkins, Caulfield and Byers* was one of the co-founders of Fairchild Semiconductor (the pre-eminent "spawner" of Silicon Valley); Tom Perkins came from Hewlett Packard. Two other "Fairchildren", Gordon Moore and Andy Grove, founded Intel.

Good practices of VC fund management

VC firms perform a distinct intermediary role, channeling funds from institutional investors to promising enterprises. As such, they can be effective in supporting innovative enterprises, but this success depends on several "good practices" that ensure a proper constellation of incentives, decision expertise and value adding activities.

(a) VC funds need proper structures that allow them to exert patience in developing their portfolio companies and provide them with performance incentives to ensure the success of these companies. In this regard, limited liability partnerships (LLP) are special fund structures with a fixed life of 10-12 years and which prevent limited partners (i.e. institutional investors), from participating in the investment or divestment decisions. In addition, the compensation arrangement, beyond an annual management fee, includes a substantial portion of excess returns (typically 20%), that can account for the bulk of the VC firm earnings.

(b) Because VC firms need to raise new funds and provide follow-on financing to their portfolio companies – and because the fund-raising process can be time consuming – establishing long-term relationships with particular institutional investors can smooth the fund-raising process and ensure timely availability of funds for follow-on financing.

(c) VC firms are more open to early-stage, innovative enterprises when their general partners have prior entrepreneurial and relevant industry experience. Such experience allows them to source deals, reach outside expertise for due diligence and maintain access to competent managers and strategic advisors.

(d) In addition to the experience and expertise of the general partners, VC firms that provide value to their portfolio companies attract investment executives with relevant industry expertise and contacts. Many VC firms employ venture partners or entrepreneurs in residence that work extensively with the portfolio companies to assist them with their strategic and operational processes.

(e) When making investments, the availability of securities that align the interests of investors and entrepreneurs is important for ensuring sustained motivation by the entrepreneur and involvement by the VC investor. Convertible preferred stock gives the investor priority in the distribution of proceeds, voting rights, and the option to fully benefit from the success of the venture by converting the shares into common stock and claiming a share of the liquidation proceeds.

(f) Value adding by VC firms comes from their active involvement in the companies they back. Such involvement includes board governance, strategic advice and external ambassadorship, which can all consume significant amounts of time and are greatly facilitated by the VC manager's relevant experience. Successful VC firms balance the number of companies that each partner oversees in order to ensure that sufficient, quality time is devoted to each.

(g) The performance of the VC fund ultimately depends on whether its portfolio companies reach successful exits through IPOs or trade sales. In this regard, long-term, sustained relationships by the VC firm with investment banks can facilitate timely deal flow for potential IPOs and trade sales.

C. The levers of the VC financing process

How to develop and promote a vibrant VC industry and how to attract VCs to early-stage financing? The venture capital financing process is essentially a cycle through which money flows (and multiplies): from institutional investors to VC funds, from VC funds to promising entrepreneurial companies, from the entrepreneurial companies back to the VC funds and from the VC funds back to the institutional investors. This self-reinforcing cycle consists of four main stages: fund-raising, investing, managing/value adding, and exiting investments, paying funds back to investors. While each of these stages can be viewed as a policy lever, all four stages need to be developed and active for the early-stage VC financing process to function and create its impact. Each lever needs to be attuned to the specific needs of the VC firms it aims to attract.

Fund-raising

The funds that VC firms invest in promising entrepreneurial ventures are typically provided by institutional or other investors, such as pension funds, insurance companies, endowments, family wealth trusts, banks, etc. Because VC firms do not invest their own funds, fund-raising is a critical component of the VC cycle. In this regard, allocation of funds to VC firms makes economic sense only to the extent that the returns achieved by VC firms exceed the investors' opportunity costs and adequately compensate them for the undertaken risks. In addition, there are several formal tax and regulatory issues that determine whether venture capital (private equity) is a suitable class for asset allocation and whether venture capital funds will be allocated to early-stage enterprises.

Decision (investment allocation) issues

(a) Leaving aside regulatory or tax impediments, local institutional investors may have insufficient knowledge of the VC industry, the nature of VC investing or the return profile of VC funds. Often, such advisory functions are performed by special gatekeepers or specialized investment advisors that can boost the perception of venture capital as an institutional investment class.

(b) Institutional investors can be concerned about the abilities and prospects of particular funds, especially when funds are newly established or led by relatively inexperienced managers. Governments may use programmes to leverage institutional funds by acting as cornerstone investors and providing the necessary certification to fund managers. Such programmes should be of sufficient length to allow the supported VC funds to move through a few cycles and establish credible track records. Public-private-partnerships can also compensate for risk aversion and lack of private investors.

Feature 19: Competitiveness and Innovation Programme (CIP)

Financial instruments through the Competitiveness and Innovation Programme (CIP) are available for the period 2007-2013, with a total budget of over €1 billion. These programmes expect to stimulate around €30 billion of new, private finance for SMEs. Among these instruments, there is increased focus on risk capital for high-growth enterprises and on the development of innovation and business support networks. For example, the High Growth and Innovative SME Facility (GIF) aims to increase the availability of risk capital to innovative enterprises at their early stages. Through this programme, the EIF invests up to €10 million, intended to represent between 10% and 25% of the recipient fund's capital, in specialized VC funds or business incubators.

For further information: http://ec.europa.eu/cip/eip_en.htm

Feature 20: JEREMIE Initiative

In 2005, the EC together with EIB and EIF launched the JEREMIE[5] initiative to promote increased access to finance for the development of micro, small and medium-sized enterprises in the EU regions over the period 2007-2013. Under this initiative, national and regional authorities can use financial resources from the European Regional Development Fund (ERDF) to create a professionally managed Holding Fund to provide a portfolio of market-driven financial instruments, such as venture capital investments and guarantees. Each holding fund will select and accredit financial intermediaries and provide them with equity, loans, guarantees as well as technical assistance. In turn, the financial intermediaries will make funds available on competitive terms to micro, small and medium-sized enterprises, with special emphasis on those that advance the Lisbon agenda. A growing number of member States have stated their intention to establish a holding fund and apply the financial instruments proposed by the EIF. In a number of cases, the EIF has been asked to become the manager of the holding fund.

For further information: http://ec.europa.eu/regional_policy/funds/2007/jjj/jeremie_en.htm

[5] Joint European Resources for micro to medium Enterprises.

Feature 21: Dachfonds (Germany)

Also in 2005, a fund-of-funds, the European Recovery Programme - European Investment Fund (ERP-EIF) Dachfonds, was established with total capital of €500M, jointly financed by the ERP Funds and the EIF, and managed by the EIF. It targets venture funds focusing on early-stage technology companies located mainly in Germany. The supported funds have an investment period of up to five years and a divestment period of up to ten years (three times extendible for one year). The principal aim of the programme is to support the establishment and financing of venture capital funds specialized in early and development stage technology companies in Germany. The second focus is to provide finance for funds that ensure follow-on financing for high-tech companies. In managing the programme, the EIF acts as a pari passu, cornerstone investor, with an average participation in a fund of 30%. At the end of 2006, the ERP-EIF Dachfond had committed €213M to eight funds, helping to raise an additional €912m from private investors.

For further information: http://www.eif.org/venture/resources/erp/index.htm

Feature 22: Russian Venture Company (Russian Federation)

In 2006, the Russian Government created the Russian Venture Company as a fund-of-funds with $1.2 billion capital. RVC aims to take minority stakes (49%) in around ten public-private funds to invest in high-tech projects from such priority areas as nanotechnology, biotechnology and information technologies. Private partners for seven venture funds have already been chosen. In order to encourage private involvement, public returns are capped at 5% of the money invested (or the inflation rate, if this is lower).

For further information: http://www.rusventure.ru

(c) Fund-raising goes through natural cycles of ebbs and flows. To smooth interruptions to fledgling VC cycles, a government fund-of-funds programme may be introduced in periods in which VC fund-raising slows down. This would ensure that existing VC firms are able to raise additional funds to provide needed follow-on financing to their portfolio companies and thus bring them closer to successful exits. This will help them in building a track record that will be instrumental for the next wave of private fund-raising.

Tax issues

(a) The existence of a dedicated or suitable structure for raising capital from institutional investors is of vital importance. Such a structure can help ensure that the double taxation associated with the corporate form of organization is avoided.

(b) In cases where the institutional investor receives securities (rather than cash), as distribution from the venture capital funds, an important consideration is whether tax liability is incurred at such distribution or deferred until the security is actually sold.

(c) Of particular concern to cross-border fund-raising is the existence of permanent establishment exemption, under which funds established in the country and funded by international investors are not subject to local country tax.

(d) The taxation of the gains achieved by VC funds can have a significant impact on the net returns achieved by the VC fund providers. In this regard, the capital gains tax can have a direct effect on VC fund-raising.

(e) Where the local pool of institutional capital is insufficient or inappropriate, proper conditions should be ensured to potentially attract capital from foreign institutional investors. Such conditions include aligning the local tax and regulatory framework with those available in countries competing for foreign institutional capital.

Regulatory issues

(a) Many institutional investors – and especially those handling public or regulated funds – are subject to explicit quantitative restrictions on allocations to "alternative" asset classes such as venture capital (private equity).

(b) Such institutional investors also need to comply with "safe haven" and "prudent person" rules that guide investment decisions (for example, as defined in Directive 2003/41/EC). These rules define conservative criteria regarding the allocation of assets, aiming to limit the amount of risk undertaken.

Investing

For the investing stage to operate smoothly, there needs to be (1) a strong, stable supply of investment opportunities, (2) a set of (eager) VC firm managers that can recognize and select these opportunities, and (3) an availability of investment deal structure that can align the interests of entrepreneurs and investors towards the growth and success of the venture. More generally, there is the need for a well-defined and trusted legal system that gives participants confidence in the enforceability of agreements.

What determines the availability of VC investment opportunities?

(a) Overall R&D environment. The intensity of the R&D environment in a country determines the availability of scientific knowledge and new technologies that can be harnessed into innovative market offerings.

(b) Attractiveness of entrepreneurship as a career option. Even if there is a wealth of scientific knowledge with commercial potential, it may lay dormant if its commercialization is not high in the minds of the people dealing with it. To a large degree, entrepreneurial aspirations come from observing other entrepreneurs in one's social circle or from valuing entrepreneurship in one's culture.

Education can play a major role in the promotion of entrepreneurship as a career path. There is a growing trend for universities worldwide to include entrepreneurship courses in the

curricula of their business, engineering, arts and science schools. Such courses expose students to the entrepreneurial process and equip them with basic skills in evaluating and shaping opportunities and preparing business plans. As the discussion of entrepreneurship as a career option permeates conversations at home, at work and at school, there will be a gradual change in attitude towards risk taking and job security. Beyond higher education institutions, the teaching of entrepreneurship can be introduced in secondary education as well as in institutions for post-educational qualifications.

Feature 23: Science Enterprise Challenge Programme (UK)

Parallel to its programmes aimed to improve the financing conditions for innovative enterprises, the UK has devoted significant effort to increase the supply of innovative enterprises. For example, the Science Enterprise Challenge was established in 1999 to fund the creation of enterprise centres at UK universities with the following three main goals: (1) to foster the commercialization of high quality research and new ideas, (2) to help stimulate a culture of scientific entrepreneurship within British universities, and (3) to incorporate more centrally the teaching of enterprise into the UK science and engineering curricula. In 2005, the remit of the programme was changed to cover entrepreneurship education across all curriculum areas. The programme has grown from 12 centres in 1999 to over 64 today.

For further information: http://www.berr.gov.uk/dius/science/knowledge-transfer/schemes/Science_Enterprise_Challenge/page12138.html

Feature 24: UMNIK Programme (Russian Federation)

The UMNIK Programme aims to increase the potential investment opportunities for business angels and venture capitalists, while addressing the negative implications of research under-funding during the transition period. This programme was initiated by the Ministry of Education and Science and the Foundation for Assistance to Small Innovative Enterprises to support young people with innovative ideas in 2007. Each year 1,000 young innovators are chosen by the science and innovation community. A $16,000 grant is allocated to the winning projects to support R&D spending. In addition, the programme also includes special courses on the basics of innovation (IPR, business planning etc.) and testing and assisting the development of personal skills. The UMNIK Programme is considered as pre-seed financing.

For further information: http:// www.fasie.ru/index.php?rid=120

(c) Availability of seed capital. Many ideas can be stifled if not nurtured by seed money at their critical, early stages of development. If such projects seek professional investors too early, they may be perceived to be too risky and of lower quality. It is therefore critical that other, string-free forms of financing help these projects cross the "valley of death" into the zone of "investor readiness". In this regard, information relationships with ventures and seed programmes are essential. Here are some examples of programmes that aim to provide seed funding to promising ideas and aim to engage professional investors as the supported ventures approach their early growth stages.

Feature 25: University Challenge Seed Funds (UK)

University Challenge Seed Funds were established in 1999 to enable universities to access seed funding and thus facilitate the transformation of research ideas into business ventures. £45 million was allocated to 15 funds in 1999, with additional £15 million provided to four new funds in 2001. Although this programme has received no further funding, the focus on providing seed capital to university projects has been the cornerstone of the Higher Education Innovation Fund. Under this programme, 89 bids were funded in 2001, 124 bids in 2004, and 11 new bids in 2006. Most of the third-round funding in 2006/2007 went to the existing recipients to ensure their sustained funding.

For further information: http://www.berr.gov.uk/dius/science/knowledge-transfer/schemes/University-Challenge-SEED-Fund/page12117.html

Feature 26: Trampolines Tecnológicos (Spain, Catalonia)

The Trampolines Tecnológicos programme has established incubators based in five technical universities and business schools, focusing on commercializing university research and know-how. They are modeled after similar programmes at MIT and Stanford University. Invertec (a company set up by the Catalonian regional government), makes equity investments, limited to ten years, of up to €300,000 representing between 5% and 49% of total equity, in technology-based, seed-stage companies. It has capital of €6 million, managed by CIDEM (a public organization, the Centre for Innovation and Entrepreneurial Development), and six universities and business schools. The aim of this programme is to help firms "incubated" by the Trampolines Tecnológicos to raise seed funding. The Internova public fund makes equity investments of between €300,000 and €1 million in technology-based start-ups. The equity stakes are held for a maximum of ten years and the maximum equity participation is 49%. The fund capital is €20 million provided by CIDEM and private sector investors. Finally, CIDEM also invests in independently managed VC funds focusing on different stages.

For further information: http://www.cidem.com/cidem/es/comunidades/rtrampolines/index.jsp

What factors affect the recognition and selection of investment opportunities associated with innovative enterprises?

(a) Availability of an effective and extensive support network (IP lawyers, technology due diligence and market research firms, executive recruitment firms with expertise in new ventures, accountants, etc.), that provides both deal referrals and due diligence feedback.

(b) Ability of entrepreneurs to present their ideas and generate excitement. In particular, due attention should be placed to prepare a strong executive summary of the business plan. This is usually the first contact of the investor with the project.

(c) Industry-specific skills and connections among VC managers.

(d) Proper risk-return profile. Many innovative enterprises are perceived as offering poor risk-return balance: too much risk for the return they could achieve.

Government interventions can make that balance more favourable by absorbing some of the potential downside.

Feature 27: Enterprise Capital Funds (UK)

The Enterprise Capital Funds (ECFs) programme was introduced in 2005 with a total budget of £200 million. The ECFs are designed as commercial funds, investing a combination of private and public money in small high-growth businesses that are seeking up to £2 million of equity finance. The main goals of the ECF programme are to increase the flow of private capital into the equity gap by adjusting the risk-reward profile for private investors and to lower the barriers to entry for risk capital managers by reducing the amount of capital needed to establish a viable venture fund. Out of 45 bids, five ECFs were launched. At the end of 2006, a second round was launched, with additional £100m made available for (expected) three more funds. In the structure of the fund, the government receives a priority fixed return of 4.5% p.a., with all excess going to the private investors and managers.

For further information: http://www.berr.gov.uk/bbf/enterprise-smes/info-business-owners/access-to-finance/enterprise-capital-funds/page37473.html

Effective venture capital contracts

In venture capital investments, convertible preferred shares[6] play an important role in aligning the interests between investors and managers. They also provide powerful performance-related incentives that are enabled by certain tax treatments of stock and stock option compensation[7]. However, the applicability and effectiveness of convertible preferred stock in a given country depends on its regulation by the local legal and tax regimes. Specifically:

(a) The ability afforded by the local rule of law to enforce its contractual protections.

(b) A favourable tax treatment related to the valuation of convertible securities and the treatment of stock options. Such treatment is usually designed to defer tax liability until the received stock is actually sold.

[6] Preferred shares carry seniority over common shares in the distribution of dividends or upon liquidation. They can be converted into common shares at pre-specified terms when this would result in higher liquidation proceeds than the amount of the preferred dividend that would be due if the shares were not converted.

[7] Stock option compensation refers to compensation in the form of options to buy stock in the company at a pre-specified price and over a specified period. They can have substantial value if the market price exceeds the price specified in the option. In some countries, this is treated as deferred compensation, i.e. there are no tax implications until the stock is actually sold.

Value adding

The value added contribution of VC investors depends on their incentives to do so as well as on their skills, experience and social capital that enables them to engage in effective monitoring and governance, and provide strategic and operational advice and assistance.

The incentives for VC funds to provide added value and increase the commercial potential of their ventures.

(a) The conditions at which the government invests in VC funds should be such that they provide incentives for the VC managers to pursue increased upside to their investments. To this end, loss guarantees have proven counter-productive. The experience in several countries shows that capping the return accruing to the government's share and allocating all the excess returns to the VC managers have a strong leveraging effect on the VC firms' returns and thus constitute an efficient mechanism for providing the "right" incentives to the VC managers.

(b) When the government invests concurrently with private investors (e.g. VC firms) in entrepreneurial companies, another mechanism to provide upside incentives to the VC managers is to grant them the option to buy the government's share at predetermined rates and within a predetermined time period.

(c) The VC funds' ability to provide follow-on finance to companies that successfully meet their development milestones and need capital for further development and expansion represents an important added value. From the VC fund's perspective, the inability to participate in follow-on rounds leads to the dilution of its ownership stake when new investors join in and thus to reduced return potential. In view of this, programmes focusing on financing small early-stage funds should be attuned to their needs for additional financing of the companies they back.

The skills of VC investors

Much of the investor's relevant knowledge, skills and network contacts come from their own experience prior to VC. Therefore, the degree to which venture capital investors possess skills relevant for the management and development of innovative enterprises depend on the following:

(a) Availability and threading of career paths from high-technology industries to VC firms.

(b) The mobility of VC managers across firms and countries is a significant factor for the dispersion of VC investment knowledge. Programmes can be explicitly designed to draw and learn from international expertise, as demonstrated by the following example.

Feature 28: Yozma Programme (Israel)

Yozma was launched in 1992 with the objective of creating a solid base for a competitive VC industry. It consisted of a $100M government VC fund which invested in private VC funds ($80M in "Yozma" funds) and directly in high-tech companies ($20M). Each Yozma fund had to engage one reputable international financial institution and one domestic institution. The government would invest up to 40% (up to $8M) of the funds raised. Thus, $100M of government capital was matched with $150M of private capital. The $250M was invested in over 200 start-up companies. The main characteristic of the Yozma programme was the upside incentive: each fund had a call option on the government shares for up to five years. A total of ten Yozma funds were created. These original groups of managers raised subsequent funds (without government involvement), and by early 2001 managed a capital pool of $5 Billion. From 1996 onwards VC demand and supply enjoyed synchronous growth. The second wave of funds was larger and attracted pension funds and other institutional investors. The partnership with the foreign institutions was a great conduit for learning critical VC investment skills. In addition, in the second stage of the industry development strong links were developed with US VC firms.

For further information: http://www.iva.co.il/content.asp?pageId=37

Exiting

The potential returns to VC investors depend on their ability to sell their ownership stakes at prices that amply compensate them for the undertaken risk. Although there are several ways in which stakes could be sold – IPO, trade sale (i.e. acquisition of the enterprise by a third party), secondary sale, buy-back, or a write-off – IPOs and trade sales provide the most lucrative exit routes. In this regard, the presence of an active stock market open to the issuance of new securities is essential for a well functioning early-stage equity financing industry: both business angel and venture capital investments by their nature necessitate the subsequent cashing-in of control rights, a process facilitated by stock markets.

To appreciate the importance of lucrative exits, it is important to consider that a significant portion of the investments made by these equity investors results in total or partial loss: while estimates vary across samples, a reasonable calculation would be that negative returns occur in around half of the business angel investments and between a third and half of venture capital investments, with early-stage funds more severely impacted. Given this negative skewing of the returns on individual investments, a lucrative exit on one or few investments can raise the return of the entire portfolio. Perhaps the most notable and widely quoted example of this is the investment by the first venture capital firm, American Research and Development Corporation (ARD), in Digital Equipment Corporation. ARD invested $70,000 in 1957 and sold its stake in 1971 at a gain of $355 million, raising the 25-year return of the entire ARD portfolio from 7.4% to 14.7%.

The factors affecting the scale and intensity of stock market activity and its relevance for venture capital and other private investors are discussed in section 4.

D. Traditional financial intermediaries

With their available capital and distribution and support network, banks can play a potentially instrumental role in the financing of innovative enterprises. However, there are several features of such enterprises that run counter to the banks' fundamental lending philosophy:

(a) Lack of tangible assets that can be used as collateral. Most of the value (assets) of innovative business is in the form of intellectual property and thus inappropriate to use as collateral.

(b) Volatility in cash flow.

(c) Lack of historical operating performance.

Combined, these characteristics represent substantial risks to the banks – not only is the likelihood of default relatively high, but also the lack of tangible assets may leave the banks with limited recourse in trying to recover its loans. And unlike equity investors, the banks do not stand to gain commensurately from the success of the enterprise, beyond the repayment of its principal and interest. Therefore, public or private financial instruments can be implemented in ways that balance the risk-return parameters to bank lenders. More generally, any intervention that increases the likelihood that the (debt) investors will receive the cash flows to which they are entitled represents *credit enhancement* for the recipient company in that it increases its credibility in the eyes of potential investors (lenders). There are several options that can be considered in such designs.

Provision of guarantees

Guarantees by third parties are an external form of credit enhancement, whereby such parties (e.g. insurers or government agencies) promise to reimburse investors (lenders) for losses up to a pre-specified amount incurred due to the borrower's defaulting on a loan or other payment obligations. Qualifying businesses can receive guarantees that they can use to obtain debt financing from banks or other eligible financial institutions. The guarantees can involve certain pre-specified parameters (absolute amount or percentage of money borrowed, certain time period), and would normally charge a premium to the recipient. If the borrower defaults on *its debt service, the guarantee ensures that the lender will recover the outstanding value of its loan*. Such guarantees can provide an effective collateral to potential borrowers and facilitate their lending decisions. While these guarantees essentially eliminate the decision "stress" from the lending institution, they pose several challenges to the administering government agency related to potential adverse selection and moral hazard problems.

(a) Eligibility criteria need to be clearly specified so that only the group of intended recipients received such guarantees.

(b) There need to be rigid and effective selection criteria to ensure that the entrepreneurs will put their best efforts towards establishing and growing their business. Relieved of any risk or recourse, they may enjoy the "ride" for their

private benefits, with the complicit nod from the lending institution, lulled by the guarantee in hand.

Feature 29: Small Firms Loan Guarantee Scheme (UK)

The oldest programme supporting small businesses is the Small Firms Loan Guarantee Scheme (SFLG), by the Department of Trade and Industry (DTI). It was established in 1981 to help meet the gap in the market, where small businesses with viable business proposals are unable to raise finance because of lack of security. Between June 1981 and March 2005, there were 97,000 guarantees issued with a total value of £4.2 billion. The SFLG was changed in December 2005 to focus on newer businesses. Its main features include:

- A guarantee to the lender covering 75% of the loan amount, for which the borrower pays a 2% premium on the outstanding balance of the loan.
- The ability to guarantee loans of up to £250,000 and with terms of up to ten years.
- It is available to qualifying businesses with an annual turnover of up to £5.6 million.

For further information: http://www.berr.gov.uk/bbf/enterprise-smes/info-business-owners/access-to-finance/sflg/page37607.html

Feature 30: SME Credit Guarantee Scheme (Netherlands)

The SME Credit Guarantee scheme has been operating since 1994 to stimulate the provision of credit to SMEs. The Ministry of Economic Affairs (EZ) provides security for a portion of the credit extended by banks to SMEs, with a maximum guarantee of €1 million per SME. The credit guarantee has a typical duration of six years (or 12 years in case of real estate). In exchange for the guarantee, the bank pays EZ a commission (2 to 3.6%). For start-up firms, EZ can guarantee a larger portion of the credit. Each year, around 3,000 entrepreneurs receive the guarantee. The European Investment Fund (EIF) participates in the scheme. The Credit Guarantees can be applied via the bank that provides the credit.

For further information:
http://www.senternovem.nl/english/products_services/encouraging_innovation/sme_loan_guarantees.asp

Feature 31: The Programme Guarantee (Czech Republic)

The Programme Guarantee has been launched and re-launched periodically by the Czech-Moravian Guarantee and Development Bank since the mid-90s. The objective of the programme is to support the realization of investment projects of small and medium-sized enterprises by means of preferential bank guarantees that help the SMEs (especially start-ups) to get easier access to external finance. The aid is provided in the form of preferential loan guarantees or preferential loan guarantees with financial subsidy. The benefit of preferential loan guarantees consists in reducing the price of a guarantee for a loan thanks to financial assistance which covers a substancial part of the relevant cost (up to 4% p.a.). A preferential loan guarantee with financial subsidy is available only for micro-entrepreneurs (with fewer than ten employees). Characteristics of guarantees provided are identical to the above-mentioned description. Financial subsidies, which may amount to up to 10% of the guaranteed loan sum, are paid to the entrepreneur after the project is finished.

For further information: http://www.cmzrb.cz/app/en/products-services/guarantees.htm

Feature 32: EC Guarantee Facilities

The EC has implemented several guarantee instruments (SME Guarantee Facility; Growth and Environment Facility), designed to facilitate access to debt financing. The SME Guarantee Facility provides co-, counter- and direct guarantees to financial institutions providing loan guarantees, loans and equity to SMEs. It is implemented by the EIF with four focus areas (windows):

- The *Loan Guarantee* window, providing guarantees for loans to enterprises with growth potential and with up to 100 employees.
- The *Microcredit* window, providing guarantees for loans of up to € 25,000 to micro-enterprises with up to ten employees, particularly entrepreneurs starting a business.
- The *Equity Guarantee* window, providing guarantees to existing equity guarantee schemes in order to support own funds investments in enterprises with up to 250 employees.
- The *ICT Loan Guarantee* window, providing guarantees for loans for investments in information technology equipment, software and relevant training, to enterprises with up to 100 employees.

For further information:
http://ec.europa.eu/enterprise/entrepreneurship/financing/debt_hybrid_sme_guarantee_facility.htm

Other forms of credit enhancement

Variations of the guarantee mechanism can be achieved through several different approaches:

(a) Credit enhancement (e.g. third-party guarantees) can be provided by or in partnership with private institutions. Public agencies can assist in the establishment or funding of such institutions.

(b) Public agencies can provide counter-guarantees to or co-guarantees with private companies that act as third-party guarantors.

Feature 33: FINICIA Programme (Portugal)

The FINICIA Programme was launched in 2006 to improve companies' access to equity and credit, through the establishment of public-private partnerships to provide early-stage funding to innovative or emerging small companies. It aims to help develop an innovation and entrepreneurial culture as well as stimulate university technology transfer, and is the only co-investment scheme for business angels in Portugal. The programme facilitates debt financing by providing public counter guarantees to mutual guarantee companies. It also facilitates equity financing through a FINICIA venture capital fund that operates in regional FINICIA platforms (universities, incubators, and regional partners), and makes investments of up to €250,000. The Programme is widely known among universities, incubators, banks, mutual guarantee companies and venture capital companies. In its first year of operation, FINICIA raised total funds of €96 million (€10 million in equity and €86 million in debt), helped start up 111 companies, facilitated investments of €17 million and created 381 new jobs.

For further information: http://www.iapmei.pt/iapmei-mstplindex.php?msid=12

Securitization is a technique that lowers the funding costs of potential recipients, transfers risks to different entities and provides liquidity on the basis of potentially illiquid assets. It involves the pooling of cash-flow producing assets into single securities that are then sold to institutional or other investors. The performance of each security is linked to the performance and creditworthiness of the underlying assets. Various forms of credit enhancements may be involved, such as:

(a) Subordinations – individual securities are split into groups (tranches), with each tranche subject to a different level of credit protection and seniority of its claim to the cash flow from the underlying assets.

(b) Third-party insurance or guarantees of the principal and interest payments arising from the purchase of the securities.

The advantage of securitization to banks or other lenders is that the risks associated with the individual assets (i.e. the loans to innovative enterprises), are pooled and transferred to a separate entity – the issuer of the securities. In this setting, there are two possible roles for public administrators:

(a) Issuer of asset-backed securities. Essentially purchasing loans from participating banks and issuing new securities against these loans, using its high credit rating to reduce lending costs.

(b) Third-party guarantor or co-guarantor to the asset-backed securities issued by private financial institutions. Such a guarantor acts as a credit enhancer for the securities and reduces the lending costs.

E. Conclusion

The early-growth of innovative enterprises requires both sufficient capital and proper management expertise. Public policy can play an important role in facilitating the flow of growth and development capital to innovative enterprises by engaging both venture capital firms and traditional financing institutions.

Venture capital firms can perform a vital intermediary function in connecting capital from institutional investors with high-potential intermediary enterprises. But the scale, scope and quality of their activity depend on sustained cycling through four stages of the VC process: fund-raising, investing, value adding and exiting. To the extent that the cycle breaks down at any of these stages, a VC industry cannot be effective in performing its intermediary function. Therefore, although policy initiatives can target any of the deficient areas in the cycle – by addressing the specific concerns or challenges that the respective stakeholders face – the effectiveness of such interventions ultimately depends on the coordination of policy efforts and attunement to all stages of the VC cycle. It is noteworthy that three of the stages – fund-raising, investing and exiting – have far-reaching prior requirements since they need a conducive, regulatory and tax environment, strong supply of innovative enterprises and public capital markets receptive to such enterprises. This suggests that efforts to develop a VC industry should be part of a more comprehensive innovation policy.

Traditional financing institutions can increase the supply of funds to innovative enterprises if assured by guarantees or other forms of credit enhancement. The effectiveness of these programmes depends on the degree to which they can reach the intended recipients (i.e. innovative enterprises), and the degree to which these enterprises, once funded, can source and utilize proper management expertise. The former raises substantial issues of identification and distribution of decision agents, specification of selection criteria, and monitoring and evaluation of programme results, and is susceptible to the challenges outlined at the end of the previous chapter. The latter requires profound understanding of the management needs of innovative enterprises and the coordination of policy initiatives that address the supply and distribution of management skills.

IV. FINANCIAL DEVELOPMENT AND PUBLIC CAPITAL MARKETS

Executive Summary

Well functioning stock exchanges foster the development of innovative companies because they provide a mechanism for investors to trade their stakes, realize capital gains (or losses), and ultimately, redeploy their capital into new investment opportunities. However, because of the characteristics of innovative enterprises, traditional stock exchanges are unsuitable and more flexible regulations and operations are required. Areas affected by regulation include listing requirements, registration and disclosure rules and the general law enforcement environment.

Some stock exchanges have emerged as catering to the needs of innovative, high-growth enterprises. The success of these exchanges depends on their scale and trading liquidity, which are the result of their abilities to span geographical boundaries, attract institutional investors and develop a network of specialized service providers. These exchanges are increasingly shifting their strategic focus to international/pan-European activity in order to enhance their appeal. Cross-border exits can be supported by public initiatives that facilitate the exchange of information and provide training support services for market participants.

Public policies can help to increase the scale of domestic exchanges by attracting foreign investors and enterprises and encouraging the development of a support network of analysts, investment bankers and consultants.

Trade sales are a more frequent form of exit for investors. For the buyers, which are usually established companies, these acquisitions foster competitiveness and facilitate strategic renewal.

A. The role of stock markets

Public capital markets are essential for enabling companies, governments and other authorities to raise capital by selling securities to investors. Exchanges where such securities can be bought and sold provide investors with much needed liquidity. Therefore, well functioning stock exchanges are instrumental for the development of innovative companies because they can provide both fresh capital for their large-scale expansion and new product development and opportunity for the seed and early-stage investors to trade their stakes, realize capital gains (or losses), and ultimately redeploy their capital into new investment opportunities. But the same challenges that innovative enterprises pose to prospective investors also limit their suitability for traditional stock exchanges. New, more flexible regulations and operations are needed to meet the needs of younger, high-growth enterprises.

Stock markets are a source of liquidity that supports the development of VC industries. For example, the NASDAQ market, with its strong appetite for financing innovative companies, has played an instrumental role in the US and Israel, two countries with perhaps the most developed VC industries. It is well accepted that active stock markets as well as markets targeting smaller, innovative companies have significant positive influence on the scale of (early-stage) venture capital activity and, as such, affect the opportunities of innovative companies to

successfully transition from business angels and other seed investors to venture capital investors and beyond.

In addition to providing attractive exit routes to private investors, stock markets create environments that put high weight on accurate financial performance data. This allows for objective comparisons between companies and industries that can be used to identify under-performers and provide reliable valuation parameters such as price-earnings ratios. In turn, these can be used by private investors to model the performance and return prospects of the companies they consider financing.

Two components of stock exchange activity are particularly relevant for the financing of innovation as they exemplify the mechanisms through which innovation capital can be accessed and recycled.

Initial public offering (IPO)

An IPO pertains to the issue of new stock by a once private company, whereby it transforms itself into a publicly held one. IPOs are used to raise growth or expansion capital for companies (young or established), that have capital requirements that are too large or too costly for individuals investors to provide.

Secondary market

When stocks or bonds are traded or resold, these transactions take place on a secondary market. An important characteristic of a secondary market is its *trading liquidity*. Essentially, this refers to the probability that the next trade is executed at a price equal to the last one. Thus, a market is sufficiently liquid when there are ready and willing buyers and sellers in large quantities. When the number of buyers or sellers for a particular stock (security) is limited, there may be substantial fluctuations in its price across trades. Thus, if investors seek to trade larger volumes of that security, they may not be able to do so without suffering a drop in price. Similarly, investors seeking to buy larger volumes of the security may experience a hike in price. Such price instability due to low liquidity essentially deters investors from participating on that particular stock market and, ultimately, limits the opportunities for private seed and early-stage investors to sell their holdings. Low liquidity may result from several factors:

- Lack of sufficient scale of the stock exchange – number of listed securities, investment banks and companies that provide financial services to individual and institutional investors. Stringent listing or reporting requirements may prevent many companies from registering on particular stock exchanges.

- When the number of domestic investors is limited, diverse regulations and trading systems can prevent foreign institutional investors from trading on the local stock exchange.

B. Stock market regulations

The regulation of public capital markets is a complex task, aiming to serve the financing needs of new and established enterprises while also providing proper protection for public and institutional investors. The globalization of economic activity and financial services has spurred competition among the world's major stock exchanges and has sharpened their efforts to increase their international appeal and attract companies and investors through enhanced distribution, trading platforms, support services and regulations. In addition, increased attention to the needs of smaller, younger, innovative and high-growth enterprises has led to the establishment of new exchanges targeting such companies by offering less stringent regulations.

While the full set of rules and regulations for each exchange are both distinct and voluminous, there are several common areas of regulations that affect the degree to which a country's public markets can meet the needs of younger, high-growth enterprises.

Listing requirements

In order to be listed on a particular stock exchange, companies need to meet certain requirements such as minimum market capitalization, minimum public float (i.e. percentage of the company's shares available for trading), sufficient working capital for a period of time (e.g. 12 months), minimum earnings over a certain number of prior years, minimum number of prior audited annual financial statements, minimum size of initial public offering, etc.

Registration requirements

Private companies seeking to sell stock on a public stock exchange need to register with the Commission regulating the country's stock exchanges and, in many cases, work with specialist advisers (e.g. Nominated Advisers [Nomads] for listing on the Alternative Investment Market (AIM); Listing Sponsors for listing on New York Stock Exchange's Alternext). The registration and advisory process requires disclosure of the company's operating and financial standing as well as elaboration of future prospects and intended utilization of the proceeds from the listing. This is usually done through a special offering document (i.e. a prospectus), that needs to be explicitly approved for distribution to prospective investors. There is also significant legal compliance associated with the transformation of the company into a publicly held entity.

Trading restrictions

At the IPO, certain securities (such as those held by certain officers or other insiders and stakeholders), may be subject to hold periods or held in escrow for a certain period of time. Although these restrictions are aimed at protecting prospective investors by ensuring continuity in the management of the company and alignment of the interests of its insiders with the long-term success of the company, they also make the affected securities untradable for extended periods of time and thus limit the ability of previous equity investors to liquidate their ownership stakes.

Disclosure requirements

Upon listing on a stock exchange, companies must provide periodically information to the public related to their operating and financial results and business prospects. The time and effort extended to ensure compliance with these requirements can be substantial.

Overall legal foundation for investor control

More broadly, a country's *legal foundation for investor control* – for example the prevailing legal regime – as well as the degree of law enforcement can influence the degree of investor protection and thus the appeal of a particular stock exchange to individual and institutional investors.

Strict regulations that put substantial burdens on younger, less established companies can have a stifling effect on the ability of such companies to tap public capital markets and provide appealing returns to their private early-stage investors. For example, securities regulations in Canada have significantly impeded the development of a secondary market for the stock of less developed firms through stringent escrow requirements, disclosure requirements, and resale restrictions, making the IPO a costly form of exit and leading to lower returns experienced by Canadian VC firms. But, as the example below shows, regulatory reform can be used to attune stock exchange regulations to the needs of younger, high-growth companies.

Feature 34: Toronto Stock Exchange (TSX) Venture Exchange and Capital Pool Company Programme (Canada)

In 2000, the Canadian government restructured its four main stock exchanges in order to enhance their competitiveness. In particular, it simplified the trading rules and regulations, and lowered the costs for smaller participants. The Canadian Venture Exchange (now TSX Venture Exchange) emerged from this process to specialize in junior securities. To address the needs of early-stage companies, TSX Venture introduced the Capital Pool Company (CPC) Programme, which brings together an experienced management team with small firms in need of capital and expertise, and as such offers an alternative to IPO. The programme enables people with extensive business and public market experience to form a "Capital Pool Company" with no assets other than a small amount of seed capital and then list it on the TSX Venture Exchange to raise additional capital. The CPC then seeks an investment opportunity in a growing business and uses the raised funds to acquire the business in a "qualifying transaction". Following this, the shares of the CPC continue to trade as a regular listing on the Exchange.

For further information:
http://www.tsx.com/en/listings/listing_with_us/ways/capital_company.html

C. Major "junior" exchanges

Several stock exchanges have emerged to provide suitable capital markets for small and medium-size business, particularly those that are innovative and growth oriented. Their "junior" characterization comes from their affiliation with major stock exchanges and from their offering of rules and regulations tailored for the cohorts of emerging, high-potential companies.

NASDAQ OMX

The *NASDAQ* market has been the underpinning of the US VC industry, exemplifying its well functioning exit mechanisms. Since its creation in 1971, it has outpaced all other US markets in IPO listings and has been, by far, the most successful secondary market in the OECD. At its height in 1999, it listed nearly 5,000 firms and had a market capitalization of over 50% of GDP. In January 2008, it held a 49% share of the US equities market. In May 2007, NASDAQ

merged with OMX, the Scandinavian Exchange covering Sweden, Denmark, Finland, Iceland and the Baltic states. Today, *NASDAQ OMX* is the world's largest exchange company with a trading, technology and public company service capability spanning six continents. It is a leader in worldwide listings with over 3,900 companies representing $5.5 trillion in total market value.

TSX Venture Exchange

As mentioned in the profile above, Canada-based *TSX Venture Exchange* is a public market place for emerging companies, providing them with access to capital at the early stages of their growth while offering investors a well-regulated market for making venture investments. The exchange has over 2,200 listed issuers with total capitalization of over CAD 34 billion (as of the end of 2006).

NYSE Alternext

NYSE *Alternext* has been established by Euronext to meet the needs of small and midsized companies seeking simplified access to the stock market by offering streamlined listing requirements and trading rules. It was launched in 2005 in Paris, in 2006 in Amsterdam and Brussels, and in 2007 in Lisbon. After two years of operation, it has 84 listed companies with a total capitalization of €4.1 billion. It had 52 IPOs in 2006 (up from 14 in 2005).

Entry Standard

Deutsche Börse's *Entry Standard* was introduced in 2005 as a capital market for small and medium-size companies offering reduced regulation and limited transparency requirements. Towards the end of 2007, there were 109 listed companies with total capitalization of €9.5 billion. There were 47 IPOs in 2006 (up from four in 2005).

Alternativa

Alternativa is a trading platform for non-listed companies, adapting the mechanism of traditional stock exchanges to the needs and characteristics of SMEs. It originated in Sweden in 2003 and started to operate also in France in 2006. It aims to provide a space for negotiations between qualified investors in shares of companies that are not listed, facilitating settlement and delivery procedures. Rules for fixing the price of a transaction use price discovery techniques, such as assessment values, that are often associated to unlisted securities.

D. International dimensions (cross-border exits)

These emerging markets for small and medium-size companies are increasingly shifting their strategic focus to international/pan-European activity in order to broaden their investor base and achieve higher trading liquidity. In addition, companies have traditionally listed on domestic stock exchanges due to their close proximity to the companies' main markets. However, with the rapid internalization of market activity, especially for innovative enterprises, and with the opportunities offered by the European Economic Area (EEA) integration, such "home bias" is beginning to dissipate. Coupled with increased mobility of capital and stirring up of entrepreneurial attitudes, these developments should have a positive effect on the development of

the VC industry across European countries and particularly in new member states, where the national stock markets are still less developed.

There are several areas in which initiatives related to the promotion of innovative enterprise can engage – alone or in partnerships with the private stakeholders – to promote cross-border exits:

(a) Facilitation of information exchange and increased awareness of the capital market possibilities offered by the junior exchanges. Such efforts can be directed towards both institutional investors (to increase trading liquidity), and potential or current entrepreneurs (to increase the number of new listings).

(b) Training of support service providers such as stock analysis, consultants and gatekeepers to develop and disseminate specialized knowledge of the needs, regulations and opportunities for small and medium enterprises.

E. Factors affecting trade sales

Acquisitions (trade sales), although on average less lucrative and less visible, represent a more frequent form of exit for business angels and venture capital firms. Both motivation and opportunity can explain why existing companies acquire new, innovative, less established counterparts. For established companies acquisitions represent an important strategy for enhanced competitiveness and strategic renewal. In entrepreneurial, dynamic environments, in which new firms frequently emerge and overtake or disrupt the business models of established companies, acquisitions allow the currently better established and financially resourced firms to pre-empt their eventual demise by building competitive positions in the “new economic order”. They also create avenues for existing firms to pursue new opportunities that could potentially become major revenue streams. Because existing firms typically find it difficult to develop radical innovations in-house, acquisitions represent an important intelligence mechanism for existing firms to anticipate and respond to emerging technological or socio-economic trends. In other words, not only does the equity financing of innovative enterprises depend on acquisitions for its sustenance, but also the intensity of acquisition activity depends on the supply and growth of innovative enterprises.

The actual opportunities for acquisitions in turn depend on the existing firms’ abilities to both identify promising acquisition targets and finance the actual acquisitions. The following factors play instrumental roles in creating such enabling conditions:

(a) A supply of high-quality innovative enterprises, offering products or services that could potentially enhance the revenue streams of established companies.

(b) The existence of active and internationally-oriented investment banking and consulting communities, for which acquisitions represent a major source of advisory fees. These intermediaries provide the rationale for many acquisition deals.

(c) The existence of active stock markets, particularly those better attuned to the needs of new, innovative, high-growth enterprises, spur the acquisition environment by

facilitating the development and growth of the new generation of businesses, which in turn pose a continuous threat to the competitive position of established firms. In addition, stock markets facilitate the financing of acquisition deals, enabling existing firms to raise acquisition capital or use their shares as currency for acquiring their targets.

(d) The existence of well developed bond markets or project lending by commercial banks also facilitates the financing of acquisitions.

F. Conclusion

Public capital markets can provide important closure to the innovation process by facilitating the recycling of capital from one generation of innovative enterprises to the next. Given the distinct needs and characteristics of innovative enterprises, several specialized, "junior" stock exchanges have emerged to facilitate the flow of funds to such enterprises. The ultimate success of these exchanges depends on their scale and trading liquidity, which in turn depends on their abilities to span geographical boundaries, attract institutional investors and develop a network of specialized service providers. Public policy can play a supporting role in this process by facilitating (1) the scaling up of domestic exchanges by attracting foreign investors and enterprises and establishing a support network of analysts, investment bankers and consultants, and (2) the access of domestic enterprises to foreign exchanges by increasing their awareness of the opportunities offered by these exchanges.

Such efforts can be considered and become much more relevant in the context of increased internationalization of VC investment activity. Funds are increasingly being raised and invested across national boundaries, where the best, most promising opportunities lie. Less encumbered flow of capital increases the opportunity costs for investments in particular countries but can also be harnessed to achieve local goals by increasing the supply of local investment opportunities and developing local investment agents with valuable knowledge of these opportunities that can work with and learn from their international counterparts.

V. PUTTING THE PUZZLE TOGETHER

Executive Summary

An integrated framework is required to develop effective public policies for promoting the emergence, development and financing of innovative enterprises. Different types of financial intermediaries are necessary at the various development stages of innovative enterprises. In each of the different phases (seed, start-up, early growth), there is a need to pay attention to four different aspects: fund-raising, investment, value adding and exiting. Government programmes can provide resources and incentives that increase the supply of innovative enterprises and contribute to mobilize private financing.

Policy initiatives need to be both effective and efficient, through appropriate design and monitoring. Programmes must avoid the displacement of private funding, target the right recipients and appropriately measure success. Synergies and complementarities among various programmes require high-level coordination of policies in the areas of regulation, tax, innovation, and early-stage financing.

Comprehensiveness and coordination can be facilitated by instituting effective policy learning mechanisms, taking advantage of national policy experience and that of other countries. Such mechanisms require careful understanding of the goals and results from previous policy interventions, which in turn require proper and effective measurement and evaluation of programme outcomes.

A. Framework conditions

By their nature, and especially in their early, fledgling stages, innovative enterprises pose significant information and managerial challenges related to the identification, evaluation, and realization of their commercial potential. Because of these challenges, markets that are private, rather than public provide financial resources for early development more efficiently. However, the emergence and effective functioning of such markets for private financing is not easy and needs the simultaneous configuration of several interlaced, productive conditions. Policy initiatives seeking to develop an effective infrastructure for financing innovative enterprises and, in particular, a local formal and informal VC industry need to address the fundamental challenge associated with creating markets for private financing. This challenge results from the simultaneity of three necessary elements:

(a) Capital;
(b) Specialized financial intermediaries; and
(c) Entrepreneurs.

Each of these elements can emerge and develop only if the other two are also active. The strong complementary character of the different components of the private financing cycle should be borne in mind when designing policies. Different types of specialized financial intermediaries serve the needs of innovative enterprises at different stages of their development. The functions of these intermediaries and their overall place in the context of developing innovative enterprises

is perhaps best represented by a plant metaphor in regard to the stages in their reproduction and spatial distribution.

(a) Seeds need to be dispersed across vast areas, with the hope of landing on fertile soil. The goal here is to disperse as many seeds as possible, in as many directions as possible, in order to discover even the most remote patches of fertile land that could then be used as stepping stones for further expansion. Similarly, *pre-seed and seed stage intermediaries* such as incubators, grant programmes or microcredit institutions need to engage as many potential entrepreneurs as possible in a way that can efficiently identify promising entrepreneurial ideas.

(b) Once on fertile soil, seeds need to germinate and fund sufficient nutrients to emerge above ground where the sun can activate the photosynthetic propeller. Similarly, *start-up intermediaries* such as seed funds and business angels need to take the promising ventures through the hurdles of product development and initial market testing to reveal small scale commercial success.

(c) Once above ground, plants can enjoy faster growth with their photosynthetic propellers turned on. Similarly, *early-growth and expansion-stage intermediaries* such as venture capital funds can fire up the growth process by accessing and deploying larger amounts of capital and providing critical management expertise and social capital to the new venture. Although VC firms are perhaps the most visible actors in the private financing market, the emergence of the other intermediaries, such as business angels, which are particularly active in early-stage investing, is essential for the development of a large number of high-quality innovative enterprises. Equally important, if the other intermediaries function effectively to produce cohorts of high-potential enterprises, a working VC industry can be instrumental for the ultimate realization of the commercial potential of these enterprises.

For each development stage and financial intermediary, there are four interfaces that ensure that the three components (capital, intermediaries and entrepreneurs), engage and operate in a self-propelling, cyclical process. While each of these interfaces represents a potential policy lever, all four need to be developed and active for the financing process to function and create its impact. In addition, because each lever engages differently with the different intermediaries it seeks to influence, it needs to be attuned to the motivations and operating specifics of each intermediary.

- First, intermediaries need to access sufficient amounts of capital (fund-raising).
- Second, they need to be able to allocate that capital to promising enterprises (investing).
- Third, they need to provide appropriate additional value to these enterprises, to enhance their potential for success (value adding).
- Fourth, they need to be able to liquidate their investments and re-deploy their capital to a new wave of enterprises (exiting).

B. Generic templates for market intervention

Within these framework conditions, government programmes can employ several different generic modes of allocating resources and providing incentives that lead ultimately to increased supply of innovative enterprises and increased mobilization of private funds for the financing of these enterprises. Each of these instruments ultimately seeks to engage private companies and create conditions for the sustenance of their engagement into a well-oiled market for private financing.

Among the first issues to consider in designing a programme is how close the (government) agency will be to the ultimate funding decision for each potential enterprise. The closest involvement is to assume and make the decision. In such cases, important considerations emerge regarding the design and management of decision processes – their degree of centralization, delegation and standardization. In indirect programmes – where the involvement is more remote – there are one or several degrees of separation from the decision makers.

Here is a summary overview of the generic modes of market intervention:

Mode of intervention	Instrument	Recipient(s)
Direct funding	Feasibility grants	Potential entrepreneurs
	Public VC funds	(Potential) entrepreneurs
Indirect funding	Business development grants / loans / equity	Incubators, technology transfer offices, microfinance institutions
	Fund-of-funds programmes	(Private) VC funds
Credit enhancements	Debt guarantees	Financial or microfinance institutions
	Equity guarantees	Seed- or early-stage private investors
Tax incentives	Tax rebates, loss deduction, exemption or deferral of capital gains	Individual / corporate / institutional investors
Technical, infrastructural or knowledge support	Information dissemination	Potential entrepreneurs / investors
	Training and knowledge dissemination	Potential entrepreneurs /incubators / business angels
	Business services (feasibility studies, business planning)	Potential entrepreneurs

C. Comprehensiveness and sustainability

When there are multiple initiatives/programmes within a country, and especially if these initiatives are run by different agencies, the issue of synergies and complementarities among these programmes deserves special attention. A country's set of initiatives can be effective only to the extent that it addresses all of the inactive components of the private finance markets and financing cycles. Achieving such well-rounded, comprehensive interventions requires both an in-depth understanding of the financing mechanisms that work and those that do not, as well as higher-level coordination of policies in the areas of regulation, tax, innovation and early-stage financing. An example of the uncoordinated, ad hoc approach is the allocation of resources to recipient enterprises without careful consideration or support for the conditions in which these enterprises will operate before and after receiving the resources. In contrast, *coordinated* approaches introduce a series of schemes, each building on the experience of previous or seeking to complement concurrent schemes in addressing new constituents or providing increased support for existing constituents.

Comprehensiveness and coordination can be facilitated by instituting effective policy learning mechanisms that can take advantage of both its own and other countries' policy experience. Such mechanisms require careful understanding of the goals and results from previous policy interventions, which in turn require proper and effective measurement and evaluation of programme outcomes. If there remain impediments to the fund-raising, investing, value adding or exiting, programmes will be doomed to fail in their aim to establish a self-sustaining market for innovation finance.

Where programmes aim to foster the creation of a national VC market, their success depends on their ability to enhance private funding and thus encourage active business angel activity and create self-sustaining VC firms. The economic viability of small seed funds has long been in question, based not only on the magnitude of their operating expenses in relation to their size but also on their inability to provide follow-on funding to their companies as these companies develop towards successful exit. In addition, there is a fine balance between the size of a fund and the practicality and feasibility of making seed- or early-stage investments. Creating larger funds runs the risk of their moving towards expansion-stage financing; creating smaller funds runs the risk of their being unsustainable.

Many fund-of-funds programmes address the size and sustainability issue by leveraging private capital as well as providing a compensation structure, such as capping the returns on government funds, with excess returns accruing to the VC managers. Such an approach increases both the fund's ability to provide follow-on financing and the VC manager's potential returns from early-stage investments. In addition, it links the fund with institutional investors, which can serve as the basis for future fund-raising activity. In programmes where such mechanisms are lacking, and funds are entirely funded by public money, the issue of long-term sustainability is particularly potent. This is certainly the case with incubator and seed capital programmes, most of which – due to their recent implementation – are yet to seek a new wave of funding.

Another aspect of sustainability concerns the regional nature of many programmes and the supply/demand for venture capital. Many of the SME financing programmes of European countries have an explicit regional focus. Policymakers face the difficulty that a dearth of

venture capital finance might constrain the economic development of an area but the state's provision of equity finance cannot resolve related issues of, for example, the local level of entrepreneurial experience, the quality of intellectual property and the role of local universities in the development process.

D. Programme / policy evaluation

The implementation of policies and programmes for promoting innovative enterprises immediately raises the question of their evaluation. Evaluation can be made in terms of both whether a programme has achieved its immediate objectives and the ultimate impact on the country's or region's innovation performance. To the extent that policy initiatives explicitly aim to increase the number and/or funding of innovative enterprises, they need to be both effective and efficient, i.e. it needs to be clear that innovative enterprises do emerge or receive funding as a result of the programme's implementation and that the economic and social benefits these enterprises bring outweigh the cost of the initiatives. Determining whether this is the case is not an easy task. Therefore, successful programmes require both careful design – one that anticipates and averts possible challenges and conflicts of interest – and attentive monitoring of operations and results. Some of the challenges that programmes may face and the areas that need special consideration in the design and monitoring of programmes can be summarized as follows.

Displacement of private funding

Would an enterprise have been able to obtain funding if the public programme were not in place? Clearly, if the answer to this question is positive, the programme can be considered redundant and inefficient. But getting the answer is not easy, as evident by the methodological difficulty of studying the broader problem and existence of market failure. Another aspect of this issue concerns whether the programme attracts enterprises with marginally poor quality, i.e. those that would not be backed by private capital even if such capital were amply available. This issue loops back to the design considerations associated with the expertise and selection criteria of the decision makers.

Targeting the right recipients

If left for interpretation by individual agents, the term "innovative enterprise" could apply potentially to a diverse group of enterprises. Carefully derived and tested operational definitions are essential for guiding field decision makers toward supporting the desired group of enterprises. Because "novelty" can apply to a wide range of domains – product, market, process, location, etc. – individual programmes may have a specific focus on one or more of these domains. In addition, similar issues arise with the operational definitions of seed or early-stage enterprises. At what stage should an individual with an idea be considered a seed-stage enterprise? How should early-stage be defined – in terms of age, size, or number of employees?

Measuring success

Success is an elusive concept, as defined in many different ways – survival, growth, profitability, social impact, etc – and applies to a short- or long-term time frame. Employing a common metric of success is important for comparing different programmes, but excessive focus on a particular metric

can also distract from other, longer-term aspects in which an enterprise can benefit the economy and society. In addition, "pressure" to show tangible results can often result in scaling down the selection of enterprises with long-term prospects or the support of efforts that can produce results over the long term, in favour of more developed enterprises or activities that produce more immediate results. But equally, full obliviousness to short-term results in anticipation of long-term consequences raises the issue of whether and how a line should be drawn and the associated decision of whether further funding is warranted. In this regard, the setting of a series of proximate milestones that reflect the development of the enterprise and serve as conditions for further funding – similar to the approach that VC firms take in staging their investments – can reconcile the need to support promising projects with the prudence of disengaging from those that no longer show promise.