

## Finance for technology transfer and commercialisation

Financing for technology transfer and commercialisation may refer to (i) financing the processes and infrastructure of technology transfer and commercialisation, such as technology transfer offices, proof of concept centers, early stage R&D support, IP licensing, prototype development etc., and (ii) financing the results of technology transfer and commercialisation such as supporting joint R&D with industry and investment in spin-off firms. These elements are not always separable; however a common feature is the notion of risk versus return.

### **Building and investment-friendly environment for technology transfer and commercialization**

The whole question of investment capital can only be considered in the context of an individual country's total support ecosystem (policies, culture, business climate, availability of skills, or even religion). A country should:

- Assess the legal framework and national innovation capacity for technology absorption and adaptation and commercialisation and recommend policy changes to facilitate this spin-in/spin out process.
- Build the institutions to facilitate this spin-in/spin-out process.
- Train local staff to handle these highly technical, specialized tasks.

Thus, the main challenges for a developing country or region is to:

- Create a sufficient deal flow of quality opportunities for investment.
- Develop an ecosystem to support deal flow and investments.
- Invest limited amounts of capital in a “smart” fashion, especially to attract private sector participation.
- Access resources needed to scale up successful investments.

Finding early stage financing remain difficult issues even in developed markets. Investment capital is moving to later stages, that is avoiding technology risk, in developed markets and even in some developing markets.

### **Investment in outcomes of technology transfer and commercialization**

A challenge for early-stage technology-based companies is raising investment to support their growth, although not all companies will need investment; some will be able to “bootstrap” – that is manage to generate early sales of products so that paying customers can provide the development funds needed.

For those firms which need investment in order to grow, venture capital is frequently regarded as the only investment to seek, but there may be more appropriate alternatives. Furthermore, a typical technology company developing in a middle-income country is not attractive to venture capital

funds. Also, there may be insufficient deal flow to provide the venture fund with a sufficiently large number of business plans from which to select the potentially most profitable investments. Several country governments are creating 'national investment funds' which invest public funds to attract private sector investors into the early-stage investing space. While government programs may be effective, there are often constraints which discourage private co-investment (World Economic Forum, 2010).

There are alternatives to venture capital which should be considered. Technology based companies in these countries may be better off initially seeking seed level investment. Seed capital investors, including "angel investors," work with much smaller deal flows and typically fund a much higher percentage of potential deals they evaluate.

Models for technology and innovation investment fall generally into these categories:

- Grants may be wholly publicly funded or require matching private sector funds in some public-to-private ratio. No repayment is usually required for grants.
- Loans may range from micro-finance to large scale loans, sometimes with specially adjusted interest rates and with public and/or private sector components.
- Technology firms may have difficulties in providing loan collateral as most of their assets will be intellectual rather than real property. Another form of a loan is a bond issue by a national or regional government, although this is rare in the technology space.
- Equity investments are typical of venture and seed capital funds as well as for angel investors. A share of the ownership of the company is taken in expectation of the share increasing in value because of the investment made and assistance provided by the fund management or other advisory service providers. Return on investment is expected when the investment fund cashes out through a sale to a strategic or a financial investor, merger, public offering, or other exit.
- Guarantees are an under-used facility, but for example a government could guarantee the principle of a loan or the amount of an initial investment thus reducing the risk for private sector investors in high risk situations. Governments could provide guarantees to bonds issued by investment banks.
- Public-private partnerships involve co-financing by the public and private sector partners. Such partnerships are typically used for infrastructure development and large scale engineering projects, but may have underutilized potential in the technology space.

Any investment fund or individual investor will seek projects offering potential for attractive growth and earnings. Key criteria may include:

- A strong and committed core management team with a demonstrated performance track record, commitment, enthusiasm and energy.
- Sales of products or services locally or in other markets.
- Potential for scaled-up of the business.
- Potential for sustainable high growth for the business.
- Ability to sustainable long-term competitive advantage.

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- A viable business model followed by a viable business plan delivering an attractive return on investment.
  - A strategy for a clear investment exit within a reasonable time period.

Public, private or public-private partnership funds will have different criteria depending on whether the objective is to earn a financial return on the investment or social good,

### **Risk Capital in Developing and Middle-income Countries**

Frequent issues raised when discussing investment risk capital in developing countries and emerging markets include:

- Developing countries need to set the right balance between investing in (i) technology commercialisation and (ii) investing in technology absorption, together with investment in building the capacity to support technology translation and development (World Bank, 2010).
- Developing countries should understand that is critically important to have an 'ecosystem' including, but not limited to, such features as: provision of advisory services, a supportive IP regime, access to markets, attainable exits for investments, an effective governance structure, and the rule of law.

### **References**

- World Economic Forum 2010, Part 2, Governments as Venture Capitalists: Striking the Right Balance. The Globalization of Alternative Investments Working Papers Volume 3: The Global Economic Impact of Private Equity Report 2010  
[http://www.weforum.org/pdf/FinancialInstitutions/PrivateEquity\\_VolIII\\_WorkingPapers.pdf](http://www.weforum.org/pdf/FinancialInstitutions/PrivateEquity_VolIII_WorkingPapers.pdf) [1]
- World Bank 2010, World Bank Global Forum Action Plan 2010 <http://www.worldbank.org/sti> [2]

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