

Financing Technology on the Basis of Intellectual Property:

The preliminary role of Intellectual Property in developing technology markets in countries in transition

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Abstract

Technology drives economic growth, yet it is chronically underfinanced. How can that paradox be explained? Intellectual Property (IP) is essential to developing technology markets. It guarantees private property over an innovation. However borrowers, be they research centers or companies often lack the necessary knowledge about IP protection and management. Investors again find it rather difficult to adequately value assets that have not been properly reported. Additionally, innovators operating in countries in transition lack the necessary choice of potential investors. The Venture Capital industry is not fully developed; commercial banks do not have the necessary competencies to value technology and are generally oriented towards funding projects associated with lower risk rates. Public funding is also not at the necessary height to cover the full needs of technology projects.

Possible approaches to solving current asymmetries between investment levels needed and investment levels provided include raising awareness among borrowers and investors on IP protection, management and valuation. An adequate regulatory framework for IP protection as well as guidelines for IP valuation and IP reporting are further actions governments can take to raise overall levels of funding. Finally, the public sector can act as an intermediary, provide loans at low interest rate, grants, tax incentives and insurance schemes to innovators, but also offer a communication platform bringing borrowers and potential investors together.

Innovation can be defined as investment in knowledge made in anticipation of profits. (Rogers 2002). Economists across the political spectrum have well demonstrated that innovation can be considered a proxy for future cash flows and growth opportunities. (see: Schumpeter 1934, 1939, 1942; or Freeman 1982; for further discussion see Idris 2002). From an empirical point of view data supports these theories.

When relating economic growth to the composition of GDP it can be shown that the world's wealthiest nations heavily depend on knowledge-based production and services. (European Intelligence Unit).

Access to finance is a key element that makes or breaks the success of a technology project, be it within companies or research centers. However, Nelson and Arrow (Nelson & Arrow 1962) demonstrated already forty years ago that competitive markets may fail to provide socially optimal levels of technology investment. Technological innovation is surrounded with uncertainty, imperfect monitoring and – in some cases imperfect intellectual property rights. (Rogers 2002). Adequate protection of intellectual property is essential to guarantee ownership of the innovation. Private investors, whether equity or debt investors, are driven by the aim to maximize returns while keeping risks as low as possible. Many early-stage technologies have difficulties in passing this test. Risks associated with the technological viability itself, the uncertainty of the size of the potential market for the technology, and lack of precedent make the valuation of early stage technology firms a non-obvious task to investors.

Little knowledge about intellectual property (IP) and even less experience in valuing and understanding the nature of IP can be seen as key obstacles in access to finance. The skepticism surrounding technology investment is often further hampered by inadequate capital market communication, expressed by inaccurate accounting standards and reporting methods of a firm's IP. As a consequence many technology-based entrepreneurs are underfinanced and poorly positioned to extract the social value of their innovations. (For empirical evidence on this problem see: Kamien & Schwartz 1982, Holmstrom 1989, Teece 1998 and Anton & Yao 1994). Sectors associated with low levels of verifiability are associated with low levels of investments.

As an additional problem entrepreneurs in countries in transition are confronted with the absence or low sophistication of functioning capital markets. A technology project can tap into different sources of funding, be it risk capital or different forms of loans.

Private equity markets are virtually absent or hardly developed in many countries in transition. From a global perspective venture capital is concentrated around five hubs: The US, UK, Canada, Korea and Israel. Yet, even in these countries venture capital markets are small. Taking the US as an example the market size hardly accounts for ½ a percentage point of GDP. (Baygan 2004).

Commercial banks on the other side focus on investments that provide lower rates of return (on average around 7%), but are associated with lower levels of risk. As a consequence late stage firms rather than early stage companies get funded. Banks offer financial instruments for companies that can already offer some historical evidence of revenue flows. To finance early stage technology firms many banks lack in-house competence and business models that would allow them to grasp the value of IP.

Given that capital markets in countries in transition fail to provide the amount of capital needed to provide optimal levels of finance, and considering the positive impact of knowledge based industries on economic growth, governments and development banks are called to take an active role.

Governments need to set an adequate regulatory framework for an IP based growth strategy. They can either provide direct funds to entrepreneurs or offer tax incentives to market participants. Singapore, Malaysia, Thailand or Indonesia are very active in this field and can look back to a successful track record in promoting stage technology and an IP culture. After only a year of intensive examination several Thai banks such as the Thai SME bank are starting to consider IP as collateral. This will significantly decrease the cost of capital for entrepreneurs. Firms and research centers will be able to take loans on the basis of their IP rather than referring to expensive mezzanine finance that require 20-30% of returns. Indonesia has launched several programs of privately managed public venture capital funds that seek to promote IP. Also, research centers like the Technology Institute of Bandung in Indonesia are very active in licensing their IP and forming strategic alliances and partnerships. A recent initiative of the institute includes a partnership with young entrepreneurs in Indonesia that seek to add value to their business model. Success stories include a small agro-business that started using an invention of the institute and doubled its revenues.

Governments and intergovernmental development agencies can also take advantage of their role in promoting private sector initiatives. The public hand can act as an intermediary, can offer insurance services, provide information, offer a platform for networks and communicate trust to the market. All these activities linked to IP promote an IP conscious investment culture and help raise awareness of the value of IP among investors and borrowers.

In many countries in transition technology companies know little about how to audit, value or commercialize IP based technology. As a consequence investors are not able to grasp the value deriving from the borrower's IP. Public initiatives explaining to borrowers and investors the value of IP can help. Training classes for borrowers and investors on the nature of IP and its potential for value creation can be an important first step. There might also be scope for the education of IP professionals who know how to value IP. China, for example, can look back at a successful history in IP valuation after taking this type initiative.

A possible reform of accounting standards might allow companies to put the value of internally generated IP on the balance sheets. Taking Germany as an example recent modifications of US GAAP standards (US accounting standards) have brought the IP perspective on the agenda of CEO's of major multinational companies operating in the country. Companies listed at the New York Stock Exchange, but doing business in Germany are under SFAS 141 and 142 of US GAAP allowed to put intangible assets (including trade names and trade dresses) on the balance sheet. This is optional.

This novelty has provoked a major shift in the country. It appears that from 2004 onwards the biggest firms in Germany will be accounting their intangible assets according to US standards.

Even though the guidelines in SFAS 141 and 142 are quite vague and far from sufficient to allow for adequate accounting of intangible assets, this has provoked a considerable shift in the market.

Also, the institutional framework for obtaining IP protection needs to function. Obtaining IP protection must be affordable, uncomplicated and reliable. This calls for the strengthening of the role of IP offices. In many countries in transition patent search is not conducted at the global level before a patent is granted, obtaining a patent can be very expensive and time consuming. As a consequence the borrower's options to access finance on the basis of IP are limited.

Equally, financial regulations need to guarantee investors their rights in the IP. At the national and international level several initiatives are currently under way. To cite the most prominent one's UNCITRAL is currently elaborating a draft convention on financing on the basis of IP, equally BASEL II defines the term "collateral" as tangible and intangible assets. The Thai and Indian governments have taken similar reforms.

IP is a key driver of a firm's value. It can be valued using various credible and established techniques.

The biggest obstacle in using IP in financial transactions seems to be the myth that intangible assets can not be valued or accounted and henceforth not be considered as a useful financial tool.

However, these are perceptions and views that do not reflect the intrinsic characteristics of IP. Investors AND entrepreneurs often know very little about IP and how it relates to the value of a company. Also, it is not sufficiently associated with technology. Further problems arise from inadequate communication. Lev (Lev 2000) has proven that the price of a technology stock is positively correlated with the firm's efforts to announce licensing agreements, royalty revenues, patenting activities and viable technological developments.

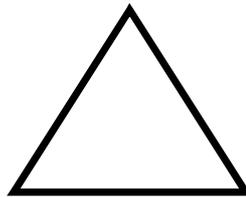
The valuation of IP remains a forecast, remains a view on potential future income streams, but within this framework it is as feasible and reliable as the valuation of tangible assets.

At the macroeconomic level countries cannot afford to ignore IP. Ownership and use of IP is a major driver of economic, social and cultural welfare. At the microeconomic level investors and entrepreneurs cannot afford to ignore IP either. Investors need to understand the drivers of a business. Although IP is a main driver of value, it often goes unnoticed. From an investor's point of view the ignorance about value creating assets leads to inadequate investment decisions. Nor is it advisable for the enterprise to ignore IP. IP management must be an integral part of the strategy of any firm in knowledge based industries. Competing at the edge, be it at the firm, national or international level means picking up the IP perspective.

What can be done to make financing on the basis of IP more effective?

Regulatory Framework

- Offer direct and indirect funds for innovation
- Set standards for IP valuation
- Set standards for IP reporting
- Set an IP legal and institutional framework
- Create awareness for IP



Borrowers

- Understand nature of IP
- Report IP
- Manage IP
- Use IP to enhance value

Investors

- Understand nature of IP
- Audit IP
- Develop and apply IP valuation tools
- Issue IP tailored financial products
- Use IP backed transactions for refinancing

Source: Roya Ghafele

References

- Arrow K.J. Economic Welfare and the Allocation of Resources for Invention // Nelson R.R. (ed.) The Rate and Discretion of Innovative Activity. Economic and Social Factors. 1962, Princeton University Press, Princeton
- Anton J/Yao D. Expropriation and Inventions – Appropriable Rents in the Absence of Property Rights // American Economic Review. 1994, v.84, No1. P 191-209
- Baygan G. Venture Capital: Trends and Policy Recommendations // OECD. 2004, Paris
- European Intelligence Unit (EIU). Country Reports // ongoing, <http://www.eiu.com>
- Freeman C. The Economics of Industrial Innovation // Printer. 1982, London
- Holmstrom B. Agency Costs and Innovation // Journal of Economic Behavior and Organization. 1989, v. 12, No.2 P 305-327
- Idris K. Intellectual Property. A Powertool for Economic Growth // WIPO. 2003, Geneva
- Kamien M.I./Schwartz N.L. Market Structure and Innovation // Cambridge University Press. 1982, Cambridge
- Lev B. Communicating Knowledge Capabilities // Stern School of Business Working Paper. 2000, <http://pages.stern.nyu.edu/~blev/communicating.doc>
- Rogers M. Firm Performance and Investment in R&D and Intellectual Property // Melbourne Institute Working Paper 2002, v.15, No. 2. P 1-27
- Schumpeter J. Theorie der Wirtschaftlichen Entwicklung: Eine Untersuchung über Unternehmensgewinn, Kapital, Kredit, Zins und Konjunkturzyklus // Duncker und Humblot. (1934) 1964, Berlin
- Schumpeter J. Konjunkturzyklen: eine Theoretische, Historische und Statistische Analyse des Kapitalistischen Prozesses // Vandenhoeck und Ruprecht. 1939, Göttingen
- Schumpeter J. Capitalism, Socialism and Democracy // Harper and Brothers. 1942, New York
- Teece D.J. Capturing Value from Knowledge Assets: The New Economy. Markets for Know-How and Intangible Assets // California Management Review 1998, v. 40, No. 3 P 55-79