INTELLECTUAL PROPERTY MANAGEMENT STRATEGY IN NEW TECHNOLOGY-BASED START-UP COMPANIES

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ABSTRACT

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To draw up an intellectual property management strategy is one of the most important tasks to do when starting up technology-based companies, which play a very important role in the knowledge-based economies. IP management due to protection must be regarded as a strategic asset aimed at improving the competitive advantages, increasing the revenue of a technology-based start up company and encouraging to continue to develop new technologies, by securing a technological platform for a future development, preventing competitors from gaining access to emerging markets, creating retaliatory power against competitors and preventing innovative products from being plagiarized.

Through this study the aim is forming a guide including why and how an IP management strategy develop and implement to a new technology-based start up company. Beside these it is proved that from the properties that characterize the start-up configuration of a high-tech firm there can be derived three organizational archetypes of firms each of which requires different IP management strategies.

Keywords: IP Rights, IP Management, IP Strategy, Technology-Based Start-Up Firms, Venture Capital.

ÖZ

YENİ TEKNOLOJİ TABANLI START-UP ŞİRKETLERİNDEKİ FİKRİ MÜLKİYET YÖNETİMİ STRATEJİSİ

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Teknoloji-tabanlı bir şirket oluştururken fikri mülkiyet yönetimine ilişkin stratejiler belirlemek yapılması gereken en önemli işlerden biridir. Fikri mülkiyet yönetimi, teknoloji-tabanlı start up şirketinin rekabet avantajlarını geliştirmek, dolayısıyla karlılığını arttırmak ve yeni teknolojiler geliştirmeye devam etmesini sağlamak amacıyla gelecekteki gelişmeler için güvenli teknolojik platform oluşturmak suretiyle rakiplerin yeni oluşan pazarlara girişlerini engellemeyi, rakiplere karşı caydırıcı güç yaratmayı ve yeni ürünlerinin kopyalanmasını önlemeyi hedefleyen stratejik bir beceri olarak kabul edilmelidir.

Bu çalışmanın amacı teknoloji-tabanlı start-up şirketinde fikri mülkiyet yönetim stratejisinin neden ve nasıl geliştirilip uygulanması gerektiğini inceleyen bir kılavuz oluşturmaktır. Bunun yanısıra yüksek teknoloji firmalarının yapılarını karakterize eden özelliklerden her biri farklı fikri mülkiyet yönetim stratejisi gerektiren üç farklı yeni teknoloji tabanlı firma çeşidi oluşturulabildiği gösterilmiştir.

Anahtar Kelimeler: FM Haklar, FM Yönetimi, FM Stratejisi, Teknoloji-Tabanlı Start-Up Şirketleri, Risk Sermayesi.

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ARIPO : African Regional Industrial Property Organization

BANs : Business Angel Networks

BVCA : British Venture Capital Association

EAPO : Eurasian Patent Office

EC : European Commission

EPO : European Patent Office

EVCA : European Venture Capital Association

ICTs : Information and Communications Technologies

IP : Intellectual Property

IPRs : Intellectual Property Rights

IPO : Initial Public Offer

KOSGEB : Small and Medium Sized Industry Development Organization

LIFT : Linking Innovation Finance and Technology

LIIP : Linking Innovation and Industrial Property

NTBFs : New Technology-Based Start-Up Firms

OAPI : African Intellectual Property Organization

OECD : Organization for Economic Co-operation and Development

OHIM : The Office for the Harmonization of the Internal Market of the European Union

PCT : Patent Cooperation Treaty

R&D : Research and Development

SMEs : Small and Medium Sized Enterprises

S&T : Science and Technology

TEKMER : Technology Development Center

TIDEB : Technology Forecasting and Assessment Directorate

TPI : Turkish Patent Institute

TTGV : Technology Development Foundation of Turkey

TRIPS : Agreement on Trade-Related Aspects of Intellectual Property Rights

WIPO : World Intellectual Property Organization

WTO : World Trade Organization

CHAPTER I

INTRODUCTION

"Imagination is more important than knowledge"

Albert EINSTEIN

Albert Einstein's preference for imagination over knowledge is a starting point, because Intellectual Property (IP) is based on the power of imagination. Einstein understood that it is the ability to stand on an existing foundation of accepted knowledge, and see beyond to the next frontier of discovery that is the source of personal, cultural, and economic advancement (Idris, 2003).

IP is not only based on the power of imagination but also the driving force to build an enterprise to achieve a "dream" of an entrepreneur skilled in any science branch. New Technology-Based Firms (NTBFs) are such business enterprises whose core activity is developing, marketing or exploiting technology (EUR 17030, 2001).

In the '90s, growing attention has been devoted by economists and policy makers to entrepreneurship and NTBFs. The reason may be traced to the evidence that small and new firms account for a substantial share of the new jobs created in those countries such as the US that have displayed a strong employment record (EUR 17038, 2001). According to data from the US Small Business Administration, between 1992 and 1996 small and medium firms those numbers of employees lower than 500 created 11.8 million new jobs in the US, while larger firms lost almost 650.000 jobs. In addition, Acs and Audretsch (1999) show that for the five years period from 1990 to 1995 births of new establishments inclusive of new branches of existing firms contributed 25.9% to the net job creation rate of 7.1%. Gross job creation was found to be heavily concentrated among high growth new firms, especially those that are in innovative industries (Kirchhoff, 1994).

The view has also been rapidly gaining ground that successful high-tech start-ups are an important disciplining and stimulating device for the behavior of established large companies and thus play a crucial role for the renewal of the economic system. The high-tech start-ups are also believed to provide the US with an innovation-based competitive

advantage in key sectors of the so-called “new economy” such as software, e-commerce and communication equipment. Such view is corroborated by the success stories of Microsoft, Oracle, Cisco, American on line, Yahoo!, and other internet outfits (EUR 17038, 2001).

In recent years, knowledge is increasingly treated as a commodity. It is packaged, bought and sold in ways and to extents never seen before. This trend is manifest in various developments, as has several implications. If knowledge is a commodity or asset, then it can be priced and eventually sold as a private good in various ways on the market (EUR 17023, 2000).

An example provided from European Commission report on innovation and technology transfer (EUR 17023, 2000): Just 18 months after its simultaneous floatation on NASDAQ and the London Stock Exchange, UK-based ARM Holdings, whose business is based on licensing it IP, had seen a nine-fold increase in its market capitalization, to 4 billion. The company does not make a single chip itself, but licenses its designs to partners such as Intel, Texas Instruments, Philips and Nokia, and derives 67% of its revenue from fees and royalties.

In line with this trend is the observation that, increasingly, small firms use patents to demonstrate their in-house knowledge as a bargaining chip in their attempts to acquire venture capital and in seeking alliances with other firms. Further since the importance of knowledge has come to the fore so strongly, more and more attempts are made to value knowledge stocks and flows, both at the enterprise level and the country level (EUR 170023, 2000).

Therefore, the modern corporations like NTBFs, as they accept the challenges of the new knowledge economy, have to evolve into a knowledge-generating, knowledge-integrating and knowledge-protecting organization (Teece, 2000). This yields, with the increasingly important role that knowledge and information play in business; IP has become a strategic asset worth protecting (Borg, 2001). Since most of the NTBFs (nearly 53% of the European NTBFs, mentioned in the EC report on growth paths of technology-based companies in life sciences and information technology) start with the legal minimum capital, they very much need to venture capital supply in changing amounts to carry on the research and development facilities to produce new products etc.

Venture capitalists, before investment decision, not only examine the proposed business but also evaluate the management team and the business plans of the candidate NTBF as well. Therefore, the management team of growth-oriented NTBFs should determine a management strategy including their IP management strategies, which are the core of their business to survive.

In this study, it is aimed to constitute a guide including a short description of IP protecting tools to introduce challenges and opportunities and proposing a basic IP management strategy to show the way to the managers to build their own IP management strategies. The proposed IP management strategy is formed by accepting NTBFs are technology-driven kind of small and medium sized enterprises (SMEs). It is hypothesized that from the six dimensions, namely product/market transparency, capitalization, founding team, business model, growth orientation and targeted market, that characterize the start-up configuration of a high-tech firm, there are derived three organizational archetypes of NTBFs each of which requires different IP management strategies.

The study consists of basically three sections in the first one of which introduces the NTBFs, their properties, their place and importance in the knowledge-based economy, their financial needs and the sources to match those needs, the six dimensions that characterize the start-up configuration of a high-tech firm and three organizational archetypes of NTBFs are introduced. A general view on the IP protection tools is also included in the first section.

In the second part, following the discussion of the importance of the IP protection business, a basic management strategy is proposed according to the needs of NTBFs and existing opportunities in the protection and usage of IP world.

In the third part, the situation for Turkish case is summarized and the technology development supports are examined before giving some policy recommendations.

The thesis ends with a general discussion and policy recommendations for NTBFs.

CHAPTER II

LITERATURE REVIEW

2.1. High Technology and Innovation

In order to scrutinize the relation between “High Technology” and “Innovation”, it would be better to examine the definition of innovation and its impacts onto developing high technologies that are well-tightly based on the advanced scientific researches.

According to the definition proposed by OECD (1992; 1993), innovation is “*the transformation of an idea into a marketable product or service, a new or improved manufacturing or distribution process, or a new method of social service.*”

Göker (1998) mentions two remarkable points in the definition one of which is that the emphasis, either as a process or as a result, is on the ‘marketability’. The created innovation can be incremental or radical, but it has to be marketable. The second remarkable point in the definition is that there has not been any implication on the ‘idea’. The idea, as long as a marketable result is obtained, can be related to conventional technologies as well as be related to advanced or high technologies. It can never even be related to technology. Nevertheless, in our era, scientific and technological contents of almost all products, methods, or services, which will be the subject for an innovation process, have increased considerably and, it seems that, are increasing continuously on the basis of generic technologies. Under these circumstances, innovation process itself has increasingly become more linked to technology and, of course, to science as the source of modern technology. In other words, the new ideas and new findings in science and technology have become the main source of innovation. Thus, the innovators are to understand, adopt and use new technologies, sooner or later (Göker, 1998).

Because of the above-mentioned “marketable” property innovation is required to become and to remain “competitive and dynamic” (Lengrand, Miles, Quevreux, 2003). It is well known that innovation is a central element of economic performance. Its growing importance makes it a core feature of the knowledge-based economy into which the increasing importance of knowledge in economic activities has brought the society (EUR 17023, 2000), whose development has also facilitated by the innovation like enabling the

shift to service-based activities and widespread usage of new ICTs. But the nature of innovation is also changing in the knowledge-based economy. Knowledge-based activities stimulate new kinds of innovation and also allow for innovation processes to be reconfigured. In other words, innovations in the knowledge-based activities develop the processes of innovations and vice versa.

Innovation in a knowledge-based economy is diverse and pervasive. Despite of the fact that it has increasingly become more linked to technology, and based on advanced scientific researches; especially successful innovation also depends on organizational, social, economic, marketing and other knowledge. It frequently requires intellectual and artistic creativity. Therefore there is an increasing emphasis on such “intangible assets” within firms (Lengrand, Miles, Quevreux, 2003). Moreover, the nature of knowledge assets is that they cannot be readily bought and sold. Because they frequently cannot be bought, they must be built in-house by firms; and frequently they must also be exploited internally in order for full value to be realized by the owner (Teece, 2000). Therefore, know-how created by using knowledge assets does not usually command significant value until it is embedded in products. Only then can its value be fully extracted.

Budworth (1996) draws a useful distinction between type and degree of innovation:

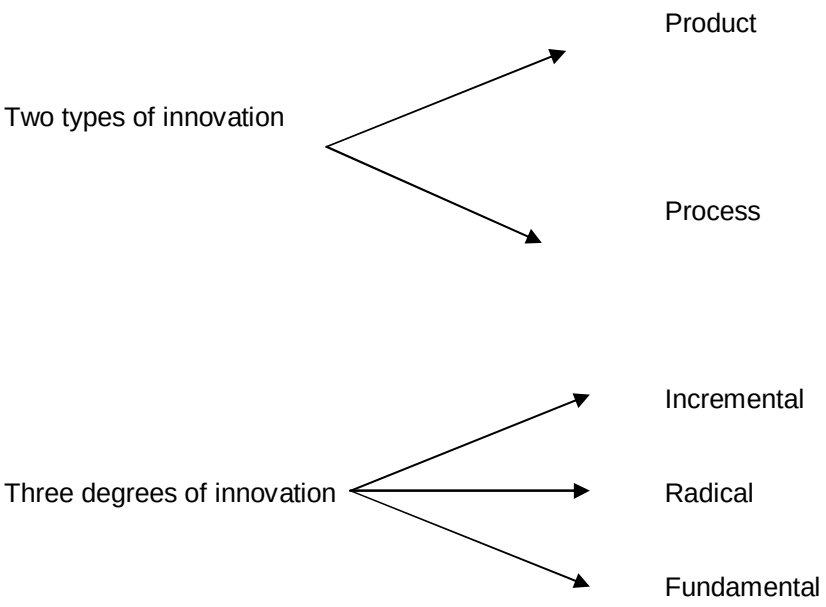

Figure 2.1: The type and degree of innovation (Source: EUR 17030, 2001)

Considering the above distinction and the emphasis of the “marketability” of the OECD’s definition of innovation, European Commission (EUR 17030, 2001) mentions the arrival of a new investor in a technology-based firm is likely to shift the firm’s orientation away from the technological discovery process towards commercial exploitation of a hard product. This implies that organizational innovation is driven by the financial innovation, and that technological discovery could become third priority. The firm is likely to experience all degrees of organizational innovation as the new investor nurtures it for growth and maturity in its market (EUR 17030, 2001). However, the rise of the knowledge-based economy has drawn attention to different aspects of the innovation by recalling that melting of the market borders by the effects of globalization and therefore being increased and getting more violent competition environment which is the ultimate driver of innovation. The pillars of success map to new policy priorities to improve enterprise performance and entrepreneurial dynamism in innovation, and to create the conditions under which enterprises can capitalize on the new situation exactly by becoming more innovative risk-taking enterprises (EUR 17023, 2000).

Under these circumstances in order to succeed at commercializing new technologies in a rapid and precise manner achieve possibilities of attaining a greater market share, premium prices and dominant designs leading to a much sharper competitive edge (Nobelius, 2003), there is a growing trend establishing and encouraging new technology-based start-up (NTBFs) companies.

2.2. A Growing Challenge for Developing High Technologies: New Technology-Based Start-Up Companies

New technology-based start-up (NTBFs) firms are new (or very young) business enterprises whose core activity is developing, marketing or exploiting technology (EUR 17030, 2001).

The emphasis here is not on the firm’s newness, but on its behavior in exploiting its technological discovery. New firms are sometimes the optimal, sometimes the default vehicles for exploiting novel technology especially from radical innovation. Such technology is also exploited by many older firms especially from incremental innovation. However, older firms are unlikely to attract informal investors who provide equity and near equity capital directly to unquoted businesses with which they have no family connection and termed as “business angels” (OECD, 1996), because they have capital reserves,

formal financing channels, an established trading record and collateral. Therefore, older firms do not suffer the early-stage equity gap which is the niche targeted by informal investors (EUR 17030, 2001).

NTBFs have become a model vehicle for achieving innovation. Those, which lead in product innovation, are major sources of technological advance, capable of high growth and prime targets for investors (LIFT, 1999). So, several researchers in many researches analyze the importance of the role that NTBFs play in the current economy (EUR 17054, 2003). Some of the key findings are:

a. The average employment growth rate of NTBFs is higher than that of the other firms – even the other start-up firms – in general (Storey & Tether, 1998).

b. The survival rate of NTBFs is higher than that of the other firms – even the other start-up firms – in general (Storey & Tether, 1998).

c. NTBFs show a more rapid increase in number than firms in low technology industries (Autio & Yli-Renko, 1998).

In order to reach above mentioned consequences some performance data is given in Table 2.1.

Table 2.1: Comparative Performance of Venture-Backed* NTBFs in Europe an USA

	Europe 1991 – 1995		**US 1990 - 1994**	
	NTBFs	**TOP 500 Firms**	**NTBFs**	**TOP 500 Firms**
Employment Growth %	15	2	20	-0.9
Sales Growth %	35	14	35	2
Exports Growth %	30		57	

Table 2.1 (continued)

R&D / Sales Ratio	8.6	1.3		
R&D / Equity Ratio			30	14.7

Source: Coopers and Lybrand, 1996

**: The definition of Venture-Backed NTBFs is discussed below.*

According to Johnson (2004), today's business environment has been fundamentally transformed as a result of the world's recent evolution into the information age, along with the advent of the global economy. Moreover, Aggarwal (1999) argues that the modern information age has led to competition based on the mastery of ideas and technology, which is not restricted by geography and which is governed by new network economics. Aggarwal (1999) posits also that technology and globalization have become mutually reinforcing, with technology facilitating globalization and with globalization enhancing the profitability of technology. NTBFs have proliferated in this new economy and have been observed to employ more proactive and rapid internationalization strategies than traditional firms (Bell et al., 1998).

Behind of the above mentioned success of NTBFs relative to the other firms there are two important influential effects namely external and internal factors.

According to the European Commission report on growth paths of technology-based firms (EUR17054, 2003), an external factor that is entrepreneurial climate is shortly characterized by:

a. Availability of pre-seed capital:

Entrepreneurial climate regions are subdivided into four groups according to the level of availability of initial-phase funding; i.e., pre-seed and seed financing:

- Level 1 indicates that no initial-phase funding is available.
- Level 2 indicates that initial-phase funding is made available through public technology support programs.

- Level 3 refers to the availability of initial-phase funding through public initiatives, or through a mix of private and public initiatives.

- Level 4 means that initial-phase capital is sufficiently provided by the market.

b. Development of capacity of incubation which is the fostering of start-ups to help them overcome the many obstacles on the road to building a firm and consequently reduces the risk of the venture and accelerates its growth by standardized solutions, like “summary templates” (Suchman, 1994) or “pre-processed infusions of relevant know-how”, that limit the trial and error period which firms that do not have access to incubation have to go through:

   Incubation facilities are classified as follows:

   - Level 1 means that incubation activity is non-existent.

   - Level 2 indicates that incubators focus on providing physical facilities.

   - Level 3 indicates that incubators also provide technical counseling.

   - Level 4 indicates that business counseling is available.

c. Level of entrepreneurial community building:

   The degree of development of the entrepreneurial community can also be subdivided into four levels:

   - Level 1 indicates that there is no real community of high-tech start-ups in a region where the firms facilitate. There may exist some new ventures but with few contacts among them.

   - Level 2 indicates that there is a nascent networking activity among NTBFs within the facilitating region, but only ad hoc basis.

- Level 3 indicates that professional organizations are set up to bring high-tech firms and other actors within the entrepreneurial community together and to facilitate the interchange of experience among them.

- Level 4 indicates that competencies regarding business models, management practices, or management systems for starting up a high-tech company and ensuring its growth become common knowledge in the facilitating region.

Romanelli (1989) have argued that external factors like entrepreneurial climates influence a company the most at the moment when its resources are at their narrowest, i.e., at the time the company is founded. This means that these external factors could have a lasting effect on a company's start-up configuration, which might in turn determine the further growth process of the company (Boeker, 1989). In other words, the analysis of the growth process of high-tech firms provides enough evidence to take a closer look at the start-up configurations of them (EUR 17054, 2003), i.e. its better to examine the internal factors to analyze the ability of NTBFs.

According to European Commission report on growth paths of technology-based firms (EUR17054, 2003), it is explained the dimensions that characterize the start-up configuration of a high-tech firm by the *6D-Model* which can be classified as:

a. Product/market transparency:

There is often a huge difference in the way in which high-tech start-ups define the targeted product/market:

- Level 1 indicates that there is no product/market defined by the company. In general this means that the basis for starting up the firm is a pooling of skills, and not a specific application or technology platform.

- Level 2 indicates that there is a technology platform, which may constitute a basis for setting up a company, but further business and commercial development is needed to identify an application niche. In other words, the company has a homogenous pool of technologies, but the market needs to be created.

- Level 3 implies that the company not only knows its technological platform but also has a fairly good idea of how to commercialize its technological concept.

Table 2.2: Clearness of the Product/Market Concept in the Start-Up Phase

	No Product Market	Substantial Development Needed	Clear Product Market	Blank (No Answer)
Founded Before 1995	56%	20%	5%	19%
Founded After 1995	43%	22%	10%	25%
Average	49,5%	21%	7,5%	22%

Source: European Commission report on growth paths of technology-based firms (EUR17054, 2003)

Note: "Blank (No Answer)" means that there were not able to give a score to the company based on the interview reports and or questionnaire returned after the interview or completed during the interview in the analyze executed by European Commission of which results are discussed in the above mentioned report that is EUR17054.

As it can be easily noticed from the Table 2.2, more than half percent of newly founded European high-tech firms do constitute neither their target product nor market in the beginning of their formation before 1995. However after that time by the increasing the availability of pre-seed and/or venture capital during start-up phase of the companies, that percentage is reduced to 43%.

b. Capitalization:

Among the six dimensions that characterize the start-up configuration of a high-tech firm, capitalization during the start-up phase is the most commented in the literature (EUR 17054, 2003). According to the cluster of analysis of the founding capital of the 83 European high-tech companies executed by the European Commission yields three groups of firms in terms of capitalization:

- The first group consists of companies which start with the legal minimum capital depending on the country between 8K Euros to 60K Euro. Up to 1995 when the venture capital opportunity like the pre-seed capital was not much available and widespread in today's manner, almost two thirds of the high-tech start-ups were incorporated with a capital that was the statutory minimum required to found a company.

- The second group consists of companies, which start with a capital ranging between 200K Euros to 500K Euro with an average of 375K Euro. Many of the university funds, public early-phase capital funds and business angels generally invest maximum amounts of 500K Euro. Especially this group of companies is more than the other groups in number.

- The third group comprises of companies, which start with an ambitious capital of more than 1 Mio Euro. Especially high-tech start-ups that are in IT or biotech businesses are present in this group.

Table 2.3: Capital Size at Funding

	8.000-60.000	**200.000-500.000**	**> 1 Mio**	**Blank (No Answer)**
Founded Before 1995	62%	11%	14%	13%
Founded After 1995	43%	27%	19%	11%
Average	52,5%	19%	16,5%	12%

Source: European Commission report on growth paths of technology-based firms (EUR17054, 2003)

As it can be easily noticed from the Table 2.3, a little bit more than half percent of newly founded European high-tech firms are established with a capital between 8Ks-60K in the beginning of their formation before 1995. However after that time

by the increasing the availability of pre-seed and/or venture capital during start-up phase of the companies, that percentage is reduced to 43%.

c. Founding team:

According to the European Commission report on growth paths of technology-based firms (EUR17054, 2003) one of the aspects about which there is a major consensus in the entrepreneurship literature is the impact of the structure of the founding team on the eventual growth process of the start-up. The larger and more functionally diversified the founding team is, the more successful the venture is in terms of growth (Roberts, 1991).

According to the results of the analysis performed in the above mentioned report there are there kinds of founding teams:

- At level 1 the founding teams remain technical. The founders all have a technical degree and very little experience, if any, outside the technical field.

- Level 2 includes those companies in which the founding team largely consists of technical people with some additional experience, such as an MBA, a degree in marketing, etc.

- At level 3 there are highly qualified people with a substantial business background who are recruited as professional managers and are part of the founding team or join the company just after founding.

Most seen is that technology-based start-ups that have an effective founding team where technical and business skills are well-balanced remain the exception in business environments.

Table 2.4: Experience in the Founding Team

	Technical	Technical with some Experience	Balanced Tear of Techniques + Professionals	Blank (No Answer)
Founded Before 1995	63%	13%	7%	17%
Founded After 1995	62%	16%	16%	6%
Average	62,5%	14,5%	11,5%	11,5%

Source: European Commission report on growth paths of technology-based firms (EUR17054, 2003)

As it is demonstrated by Table 2.4, more than half percent of newly founded European high-tech firms are established with the team consist of technical persons in the beginning of their formation before 1995. Even though the increasing the availability of pre-seed and/or venture capital during start-up phase of the companies after that time, that percentage remains almost unchanged.

d. Business model:

The business model dimension in the start-up configuration of a high-tech start-up refers to the degree of product orientation of the company already has at its date of incorporation. The research executed by the European Commission report (2003), has shown that the majority of high-tech firms generally start as technological consulting firms.

This consulting mode could be a common way to launch a technology start-up for scientists whose main asset is their technical know-how, especially when capital and experience are lacking. When starting capital is low, doing consulting work is a means of generating cash flow shortly after the formation of the company. No funding is needed for product development and only a limited distribution network or marketing infrastructure is required. Therefore with little capital requirements, it is easy to maintain control over the firm.

Unfortunately, as Roberts (1991) mentioned, there is always a risk that companies get stuck in this consulting mode and never get round to any product development. For starters that adopt a consulting mode as a kind of “soft start” (Wicksteed, 1990) avoiding the pitfall of never developing an own product, is a real challenge. Even if it is difficult to escape the consulting mode it does not condemn entrepreneurs to doing business on a small scale. Indeed it can be an intermediate step towards a more ambitious project, including a product-based model of a firm (Wicksteed, 1990).

According to the European Commission report on growth paths of technology-based firms (EUR17054, 2003), high-tech start-ups are categorized into three categories:

- Category 1 includes firms that start as technical consulting companies and for at least in the first year after their formation do not have any ambition to adapt a product-oriented attitude.

- Category 2 includes all the companies that start as technical consulting agencies at the time of incorporation with the specific intention of becoming a growth-oriented venture-capital-backed firm (Tiler et al., 1993).

- Category 3 includes all the companies that adopt a product-oriented attitude from day one. They do not invest time or money in side activities such as consulting or non-application-oriented R&D.

Table 2.5: Changes in Business Model

	Technical Consulting R&D	**Soft Start**	**Product Oriented**	**Blank (No Answer)**
Founded Before 1995	56%	23%	10%	11%
Founded After 1995	32%	46%	10%	12%

Table 2.5 (continued)

Average	44%	34,5%	10%	11,5%

Source: European Commission report on growth paths of technology-based firms (EUR17054, 2003)

As it is shown by Table 2.5, a little bit more than half percent of newly founded European high-tech firms are established to serve a consultancy attention on R&D in the beginning of their formation before 1995. However, after that time by the increasing the availability of pre-seed and/or venture capital during start-up phase of the companies, that percentage reduced sharply to 32% that encourages most of the NTBFs to intent of becoming a growth-oriented venture-capital-backed firm from the first day.

e. Growth orientation:

The growth orientation of a company at the time of formation may be one of the most critical factors, which by affects the growth path of the venture. If the founders do not “want” the business to grow, the business “will” not grow.

There are three categories of growth orientation seem to emerge according to the European Commission report on growth paths of technology-based firms (EUR17054, 2003).

- Category 1 includes firms that are not growth-oriented at all. These kind of firms are often set by professors as a cash generating mechanism to supplement their salaries.

- Category 2 includes the companies that the entrepreneurs-founders are willing to let the company grow and they do not really care about remaining in “control” of the company but a long gestation period is needed before it can actually realize any growth. A possible reason for this could be the initial founders’ lack of a clear product/market concept or an initial consulting idea.

- Category 3 includes the companies that have explosive growth plans from day one.

Table 2.6: Growth Orientation in European High-Tech Firms

	No Growth Orientation	Growth but Long Gestation	Strong Growth Orientation	Blank (No Answer)
Founded Before 1995	51%	31%	8%	10%
Founded After 1995	30%	44%	13%	13%
Average	40,5%	37,5%	10,5%	11,5%

Source: European Commission report on growth paths of technology-based firms (EUR17054, 2003)

As it can be easily noticed from the Table 2.6, a little bit more than half percent of newly founded European high-tech firms are established with no growth orientation in the beginning of their formation before 1995. However, after that time by the increasing the availability of pre-seed and/or venture capital during start-up phase of the companies, that percentage reduced to 30% that directs most of the NTBFs to grow as parallel in the case of change in the business model dimension explained above.

f. Targeted market:

The innovativeness of a company, its growth aspirations and its internationally orientation are closely connected. According to the European Commission report on growth paths of technology-based firms (EUR17054, 2003), there are three types of companies due to their target market choice:

- Category 1 includes firms that become internationally oriented almost immediately after being established. Those kinds of companies are called “born globals” or “international new ventures” in the academic literature (Madsen and Servais, 1997).

- Category 2 includes firms that target an international market but take the local market as a point of departure. The logic behind this is that the local market is too small for their technology base. Although their natural business market is highly international, their first clients are local companies. Those kinds of companies are labeled as “early internationals”.

- Category 3 includes firms that exclusively target the local market. In many cases, they are set up to capitalize on a local market opportunity. Those kinds of companies are called as “born locals”.

Table 2.7: Target Markets of European High-Tech Firms

	Born Locals	**International Early on**	**Born Globals**	**Blank (No Answer)**
Founded Before 1995	51%	23%	18%	8%
Founded After 1995	18%	15%	16%	51%
Average	34,5%	19%	18%	29,5%

Source: European Commission report on growth paths of technology-based firms (EUR17054, 2003)

As it can be easily noticed from the Table 2.7, a little bit more than half percent of newly founded European high-tech firms are established with a target of local markets in the beginning of their formation before 1995. However, after that time by the increasing the availability of pre-seed and/or venture capital during start-up phase of the companies, that percentage reduced to very sharply to 18% that encourages most of the NTBFs not just to serve local markets.

From the analysis mentioned in the European Commission report on growth paths of technology-based firms (EUR17054, 2003) there are derived three organizational archetypes of NTBFs from the six dimensions discussed above:

a. The technological SME

The technological SMEs are high-tech companies that target the local market and serve as “R&D boutiques” or “technical consulting”. They start in general with a minimum capital and adopt a business model based on contract research and/or professional services.

b. The prospector firm

The prospector firm is a company that takes a “soft start” with the specific intention of becoming a product-base growth-oriented venture. The soft start allows the company to test the market and the business case, which develops in that market.

c. The venture capital backed firm

The venture capital backed firm is the type of firm which starts with substantial capital and a well-balanced heterogeneous founding team.

Table 2.8: Three Archetypes of European New High-Tech Ventures

	Technological SMEs	**Prospectors**	**Venture Capital Backed Firms**	**Blank (No Answer)**
Founded Before 1995	64%	23%	10%	3%
Founded After 1995	41%	43%	13%	3%
Average	52,5%	33%	11,5%	3%

Source: European Commission report on growth paths of technology-based firms (EUR17054, 2003)

As it can be easily noticed from the Table 2.8, quite more than half percent of newly founded European high-tech firms are established as a technological SMEs in the beginning of their formation before 1995. However, after that time by the increasing the

availability of pre-seed and/or venture capital during start-up phase of the companies, that percentage reduced to 41% that encourages most of the NTBFs not just to serve local markets as a consultant.

In the European Commission report on growth paths of technology-based firms (EUR17054, 2003), a matrix table has done to emphasis the relation between the six dimensions that determine the start-up configuration of a company and the derived archetypes:

Table 2.9: Categorization of High-Tech Firms into Three Different Archetypes

	Technological SMEs	**Prospectors**	**Venture Capital Backed Firms**
Transparency of Product/Market	No product/market identified	Still need substantial development of product, market positioning	Clear product/market concept based on a technology platform
Capitalization	0-60K Euro	375K Euro	>1-4,5 Mio Euro
Founding Team	Technical: No hiring of external managers	Essentially technical: Some of with junior management experience	Core founding team with technical expertise: Hiring of managers with business expertise
Business Model	Consulting and service oriented	Product-oriented, or mix of product-orientation and consulting including learning customer needs and refine product features	Product-oriented

Table 2.9 (continued)

Growth Orientation	Low growth target	Growth orientation of the founders, but long "gestation" needed before growth can be realized	Exponential growth target built in the business model, time to market is essential
Targeted Market	Local	Internationally oriented in an early stage	Born global firms

Source: European Commission report on growth paths of technology-based firms (EUR17054, 2003)

In many cases, the purpose of a technological SME is to provide a substitute for employment and/or other non-entrepreneurial objectives such as technical excellence, independence, quality of life, synergy with academic activity, providing job opportunities to researchers from a professor's lab after the expiry of their fellowships, etc (EUR17054, 2003). It is the type of company that is usually founded by inexperienced researchers. Therefore, consulting and service-oriented business model, which does not require any identification of product/market, or hiring of external management team, or too much capital, is commonly preferred. Since founders focus on maintaining control of the firm, growth orientation is very low and the targeted market is local.

The prospector firm is the kind of company that starts as a consulting organization with the specific aim of increasing the business experience and of adopting a product-oriented attitude. The key element is that the iron cage of institutional influence of the research institutions is tempered by the personal networks of the founders, which not only gives them access to alternative sources of financing but also to alternative organization models (EUR17054, 2003). These founders are more creative in setting up management structures, which allow them to retain a larger share in the company. Despite of the founders' junior management experiences, there is still need substantial development of product, market positioning. Also, product-oriented approach requires more capital relatively to the technological SME. Therefore, target market is wider than local

customers and growth orientation is essentially is more but depending on the realization of the target market after some time.

In general, venture capital backed firms, which are funded after an incubation period of some months, financed by the so-called pre-seed friends and family money, are founded by either individuals with a business experience or internationally oriented incubators. Since, there is a clear product/market concept based on a technological platform, there is commonly seen to hire of managers with business expertise through the advices of the experts of the venture capital financer firm. In addition to these kinds of interventions of the venture financer, exponential growth target built in the business model and the whole world markets are seen as a target market. Leaving the investment of the venture financer after some time with a satisfactory profit make the venture capital backed firm think big relatively to the other types of firms.

According to European Commission report on informal investors and high-tech entrepreneurship (EUR17030, 2001) general strengths and weaknesses of NTBFs are explained as:

Table 2.10: Strengths and Weaknesses of NTBFs

Strengths	**Weaknesses**
Rapid growth	Vulnerable to capital scarcity
Export/Internationally oriented	Reliant on equity
High value added	Erratic cash flows
Quality employment	Limited funds for R&D

Table 2.10 (continued)

Innovative, quickly adaptive	Difficult to manage rapid growth
Disseminate technology	Long investment cycles (often >5 years)
When successful show very high Euro multiple	One product "successes" common
Underpin success of large companies	Vulnerable to government policies
Create tomorrow's large companies	A tiny minority succeed in the long term

Source: Linking Innovation Finance and Technology (LIFT), 1999

A new firm with novel technology contains high uncertainty in both its ends and its means in seeking commercial success. As the firm's technology develops, uncertainty about means diminishes, and both financiers and managers are more able to cope with uncertainty about ends. Hence, firms have most difficulty in raising funds to support research and development activities (CBI, 1993). Therefore, analyzing the firms' ability to benefit from their strengths and reduce the effects of their weaknesses become more significant while evaluating for the venture capital.

As it can be noticed from the Table 2.10, NTBFs are faced with a serious weakness versus each of the strengths. Since NTBFs are concerned with developing new technologies, their employees are technically well qualified and their products or services are high value added. Therefore, their target market is internationally oriented and their business model is export motivated. They are pursuing the new technological developments as well as they are innovative and quickly adaptive to the new technologies. In other words, they disseminate technology and create demand in the market by developing new products, processes or services. Since most of the NTBFs are using the advantages of being in a SME statue like easily adapting to the changing

market and technology conditions relatively to the large companies. Moreover, by the ability of performing R&D activities, NTBFs are generally acting as R&D centers and supply new technologies to the large firms. Each of NTBFs has also potential to create tomorrow's large companies, because of all reasons mentioned above.

On the other hand, NTBFs generally have limited funds for R&D. Therefore; they are concentrated on one product, process or services at the beginning. Also, they are reliant on equity, but this causes really erratic cash flows and being vulnerable to capital scarcity. Since, the rapid growth is very difficult to manage; long investment cycles may not be achieved well and developing new technologies may not be satisfactorily continued. Therefore, usually tiny minority of NTBFs are succeeding in the long term.

2.2.1. Funding of New Technology-Based Start-Up Companies

In knowledge-based economies, economic growth and job creation increasingly depend upon successful innovation, meaning that the results of R&D must be effectively translated into commercial outcomes. Therefore, industry access to finance is a crucial element in the innovation process for translating the results of research and development into commercial outcomes.

The main sources of external finance for NTBFs are banks, informal investors in other words business angels and venture capitalists in other words private equity investments (EUR17030, 2001). Banks that provide early stage dept finance, which is often a primary source of finance for SMEs, are not in the scope of this study. Therefore, only business angels and venture capital investments, which are complementary funds, are examined as a source of NTBFs' finance.

2.2.1.1. Venture Capital Investments

According to OECD (1996), venture capital or private equity can be defined as capital provided by firms of full-time professionals who invest alongside management in young, rapidly growing or changing privately-owned companies that have the potential to develop into significant businesses in local, regional, and global markets. Another definition of venture capital is that it is the financial investment and managerial support of a fast growing start-up company that shows a potential to reach a dominant market position (Vinig et al., 1998).

In both definitions growing potential of the company and being in a position to able to get the big portion of the market share is underlined. Therefore, the objective of venture capital is to realize a high return from investment. The investment usually takes the form of shares or other financial instrument, which can be converted into stock at some future date. They tend to be made with a set “get out” date or stage in mind. As the business matures, an IPO may take place, the business merge or sold, or other sources of capital found. It is at this stage that the venture capitalists would sell their interest in the company and realize their investments. They typically expect a 20-50% annual return on their investment at the time they are bought out (EUR 17042, 2002). To do this, a venture capitalist selects privately owned companies with the best growth prospects and provides long-term equity capital. A venture capital investment is generally characterized by the following key aspects (OECD, 1996):

- Venture capital shares the business risk with the entrepreneur.

- Investment is generally long term, between 3 to 7 years.

- As the capital is at risk, venture capitalists work in a partnership with the entrepreneurs of the business. They assist at the strategic level and provide support and advice to entrepreneurs based on their expertise, experience and contact base. In short, venture capitalists add value to their equity investment and endeavor to maximize the long-term return.

- Venture capitalists look at a company’s market, at the strategy and above all at the management and entrepreneurial team before looking at the financial side of a prospective investment.

- Venture capital has no special need for dividend returns, and investment returns are harvested primarily in the form of capital gains at the exit, when the company is listed on a stock market or when it is sold to another investor.

Venture capital can provide the core capital for the launch, early development, expansion or restructuring of a business. Acquisitions, the development of new products or technologies, the expansion of working capital or simply the reduction of a company’s debt can be financed with venture capital. Venture capital also offers solutions to ownership and management problems. Successions in family-owned companies, or the

buy-out or buy-in of a business by experienced managers will often use venture capital funding.

Several types of investment can be defined within the venture capital spectrum (OECD, 1996):

- *Seed*: to research, assess and develop a concept before a business starts.
- *Start-up and early-stage:* for start-up companies or companies which have been in business for a short time.
- *Expansion or development*: for the growth and expansion of a company.
- *Management buy-out:* to enable existing managers and investors to acquire a business.
- *Management buy-in:* to enable managers and investors from outside a company to buy-in to the company.
- *Turnaround*: for businesses experiencing trading difficulties in order to re-establish prosperity.
- *Replacement capital*: purchase of existing shares in a company simply from other shareholders.
- *Bridge finance or mezzanine*: to prepare a company to be listed.

2.2.1.1.1. The Significance of Venture Capital

It is often claimed that venture capital makes young firms grow faster, create more value and generate more employment than other start-ups (EVCA, 1996). Venture capitalists carefully screen firms, structure contracts to strengthen incentives, and monitor firms (Kaplan and Strömberg, 2001). Empirical research in the US has shown indeed that venture capital-backed firms are more innovative and produce more and more valuable patents (Kortum and Lerner, 2000). They are faster in developing their products and introducing them to market (Kanniainen & Keuschnigg, 2002). They have a higher rate of

executive turnover, reflecting faster managerial professionalization (Hellmann & Puri, 2002).

It is the very essence of venture capital to select the technology-based high-growth private companies and to provide them with the necessary growth capital. Research on the impact of venture capital in the United States, United Kingdom, the Netherlands and in France demonstrates that fast growing companies backed by venture capital create many well-paid and highly-skilled jobs (OECD, 1996). Venture-backed companies also increase investment levels, add value, produce significant tax revenues and export income and invest in research and technology, compared with the largest or "average" companies.

To offset the high risk and the long periods inherent to investment, venture capital must demonstrate high returns to investors as mentioned before. These returns must be in excess of inflation and exceed the returns from 'safer' or more established investments, such as government bonds or public stocks. Only the best growth businesses are retained by venture capital for initial or further investment and support. Furthermore, the venture capital portfolio is constantly monitored and nurtured by profit-driven venture capitalists. Maximizing returns on the selected venture capital portfolio inevitably results in significant benefits for economies. Besides this direct economic impact, venture capital has an important knock-on effect on all companies, encouraging entrepreneurs with examples of companies expanding rapidly with the backing of venture capital (OECD, 1996).

2.2.1.2. Business Angels

Business Angels are wealthy individuals, in most cases ex-entrepreneurs who are willing to share their financial resources and knowledge with young entrepreneurs by investing in high risk-projects (EUR 17054, 2003).

Six types of Business Angels are characterized by Coveney and Moore (1998), from their survey of nearly 500 informal investors. Mason and Harrison (1999) suggest that within each of the six types of Business Angels there are Techno-Angels, investors with a science or engineering background who are interested only in technology-based firms. All types of angels shared the personal characteristics of being predominantly male, middle-aged, well-educated and wealthy. Individual Angel investments range between €16,600 to €415,400, although most Angels invest less than €83,000 (Mason and Harrison, 1999).

According to the European Commission report on Informal Investors and High-Tech Entrepreneurship (EUR 17030), the characteristics of the six types of Business Angels mentioned above are:

a. Entrepreneur Angels

They are the most active, experienced and entrepreneurial informal investors. On average they start four substantial new businesses during the course of their own business careers.

b. Corporate Angels

They often seek to invest in activities related to their own corporate background, which is usually technology-based (NatWest, 1998). This might be to gain access to new ideas and products, or to develop close relationships with NTBFs as part of their long-term strategy for growth. The Corporate Angel investor provides finance for development, and then the small firm provides innovative products, which the investor could not obtain in his main company because of high internal costs or obstructive culture.

c. Income-seeking Angels

They are the least entrepreneurial in terms of businesses founded among the other Angels. Their lesser experience in business means that they have a lower profile and less confidence about direct contact with an entrepreneurial investee.

d. Techno Angels

They are the informal investors who have a science or engineering background, and who are interested only in technology-based firms.

e. Latent Angels

They are more concerned with venture location in terms of proximity than any other Angel type. They also hesitate about how to extract their funds: 40% of

them would invest more if exit routes were more obvious (Coveney and Moore, 1998).

f. Virgin Angels

They rely more heavily on a good business plan than the others. Their relative inexperience at investing informally means that they are less willing to make an intuitive judgment based on the personality of the NTBF founder. Virgin Angels welcome opportunities to meet other Angels for informal discussion and advice.

According to Coveney and Moore (1998), the comparison of the investment criteria and expectations of Business Angels is summarized by Table 2.11:

Table 2.11: Investment Criteria and Expectations of Business Angels

Type	Entrepreneur Angels	Corporate Angels	Income-seeking Angels	Techno Angels	Latent Angels	Virgin Angels
Motivation to Invest	Invest primarily for financial gain, but also attracted by the fun and satisfaction of informal investments.	Invest primarily for financial gain, although they generally earn lower rates of return than private Business Angels do.	Invest to create a job for themselves and financial returns.	Invest for financial gain and job for themselves.	High financial returns and a job for themselves.	Seek higher returns than from the stock market. Want a job or regular income for themselves.

Table 2.11 (continued)

Relations with the Founder of NTBFs	Personality of the venture founder is the most important criterion.	The most important criterion for investment is their impression of the venture founder / manager.	Impression of the venture founder / manager is primary investment criterion.	Impression of the venture founder / manager is primary investment criterion.	Personality of the venture founder / manager is important.	Most important is their impression of the founder / manager of the venture.
Location	Venture location is not important.	Invest more closely to their principal place of work than other Business Angels	Venture location is not important.	Do not consider venture location important.	Proximity to venture. More concerned with venture location than any other Business Angels.	Proximity to venture is important.
Endured Risk Level	More open than other Business Angels to investing outside their own field of experience.	Their own experience in the sector is an important criterion.		Opportunities for co-investment; access to knowledge of other investors.	Clearly available exit routes.	25% cite own experience of the business sector as important criterion.

Source: Coveney and Moore (1998)

According to the Table 2.11, despite of all the differences in each preferring of Business Angels, naturally expectation of high profit, at least more than any safer investment ways, is the main and common motivation for all investors.

2.2.1.2.1. Business Angel Networks

The informal venture capital market is characterized by inefficiencies, which limit its potential role in financing NTBFs. Most business angels want to invest more but cannot find sufficient investment opportunities that meet their investment criteria. But at the same

time, entrepreneurs seeking sources of equity capital express frustration at their inability to identify business angels (Mason and Harrison, 1996). This situation reflects the lack of effective channels for business angels and entrepreneurs to make contact with one another. Because of the considerable time required to search for, and appraise, investment opportunities and the fact that for most investors it is a spare-time activity they generally adopt an ad hoc, unscientific and passive approach, placing considerable reliance on friends and business associates for referrals. Thus, serendipity largely determines the number and quality of investment opportunities that come to an investor's attention. Studies in the United States and the United Kingdom indicate that a majority of informal investors are dissatisfied with their referral sources and believe that there is a need for improved channels of communication between investors and businesses seeking risk capital (Mason and Harrison, 1992).

Thus, mechanisms to overcome the sources of inefficiency in the informal venture capital market, namely the invisibility of informal investors, the fragmented nature of the market, and the high search costs for businesses seeking investors and investors seeking investment opportunities, must be central to any strategy to stimulate informal venture capital activity. The most effective approach is the establishment of BANs to provide a channel of communication between informal investors and entrepreneurs seeking finance (Mason and Harrison, 1996). Their objective is to enable entrepreneurs to bring their investment proposals to the attention of a number of private investors simultaneously and to provide both active and 'virgin' investors with a convenient means of identifying and examining a range of investment proposals while retaining their anonymity until they are ready to enter into negotiations with an entrepreneur. Business angel networks do not function as dealers, investment brokers or investment advisors and are not involved in any negotiations between investor and entrepreneur or in structuring the transaction (Mason and Harrison, 1996).

There are examples of BANs in the United States, Canada and the United Kingdom (Harrison and Mason, 1996). At the count in 1995 there were 37 BANs in the United Kingdom (BVCA, 1995). Most BANs are operated by public sector agencies or not-for-profit organizations, with some or all of their operating deficits met either by government or corporate sponsorship. However, some BANs are operated by the private sector, either as a stand-alone activity or, more commonly, as part of accountancy or corporate finance practices. In view of the preference of most business angels to make investments in businesses located close to home it is not surprising to find that most BANs operate on a local or regional basis.

2.2.1.2.2. Advantages of BANs

According to the European Commission report on informal investors and high-tech entrepreneurship (2001), the advantages of BANs are:

a. BANs try to improve the reliability of information they channel, in order to reduce the quality aspect of the information gap between investors and entrepreneurs.

b. BANs provide a forum for discussion, which enables investors and entrepreneurs to understand more clearly their personal objectives, wishes and requirements.

c. BANs provide a pool of experience, into which the novice investor can tap.

d. BANs provide training for less-experienced investors and entrepreneurs.

e. BANs stimulate demand for private equity finance, by various promotional actions.

2.2.1.3. The Difference between Venture Capitalists and Business Angels

When a company grows from the concept (seed) stage towards becoming a large company, its cash needs are likely to grow with it (Whitehead, 2002). The following figure shows a simple association of different types of investment with the each of the NTBFs stages of development:

While a NTBF is growing, it needs different kinds of funds in different stages. In the first stage, which is the founding stage, NTBF performs the business idea, prepares its business plan and gathers the managing team. In this stage, where the core business is to develop and seek for the ways to commercialize the business idea, pre-seed funds, which are not very high amount and generally supplied from the founders', friends' or family members' own depositions, would be sufficient.

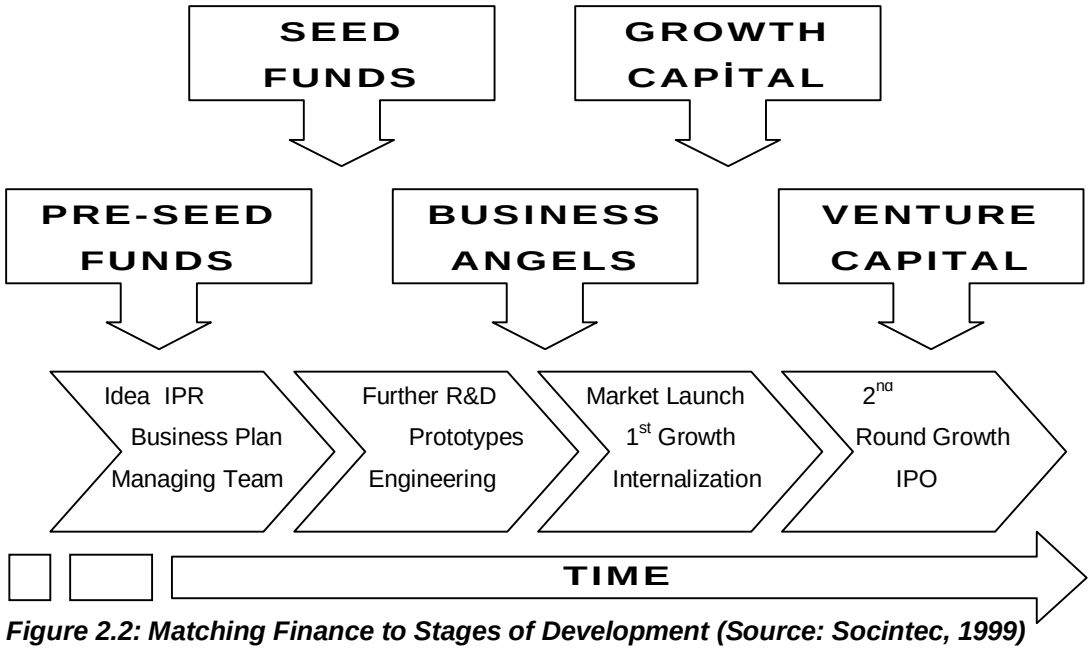

Figure 2.2: Matching Finance to Stages of Development (Source: Socintec, 1999)

When the first prototypes are developed and implemented to the industry, the need for the cash increases because to fix the engineering problems and perform further R&D facilities to improve the product or process. In this stage, NTBFs are generally gain their first customers and try to balance the cash flow between the R&D and management expenditures and earnings from sales. At this stage, if the firm is funded by any kind of "Business Angel" supply which is considerably high amount relative to the pre-seed funds, the firm would achieve the first significant growth and enlarge its target markets in the international manner.

If the firm continues its growing by diversifying its products, services or processes, it would achieve to draw attention of any kind of a "Venture Capital" supply, which is really high amount relative to the Business Angel supplies. By the support of the Venture Capital, the firm would perform 2nd round growth and become a global firm, which are the aim and the motivation of the venture capitalists in order to gain more and more than the amount that risked.

According to the European Commission report on informal investors and high-tech entrepreneurship the differences between Business Angels and Venture Capitalists are:

Table 2.12: Differences between Business Angels and Venture Capitalists

Characteristics	Business Angels	Venture Capitalists
Personal	Entrepreneurs	Investors
Firms funded	Small, early stage	Large, mature
Due diligence before investing	Minimal	Extensive
Investment's location	Of concern	Not important
Contracts used	Simple	Comprehensive
Monitoring after investing	Active "hands-on"	Strategic
Exiting the firm	Of lesser concern	Highly important
Rates of return	Of lesser concern	Highly important

Source: European Commission report on informal investors and high-tech entrepreneurship (EUR17030, 2001)

From the Figure 2.2 and Table 2.12, it can be easily observed that Venture Capitalists are more professional than Business Angels. Venture Capitalists choose firms at the profitability/stability phase in other words completed its survival phase and proved its success in the market preferably international ones. Thus Venture Capitalists perform more serious and excessive investment than the Business Angels. On the other hand, Business Angels invest relatively less but venture a higher risk relatively to the Venture Capitalists, since that investment is generally performed during the survival phase of the NTBFs in other words when the firms need to cash to execute the R&D projects and develop their new products, which have no known definite market place.

2.3. A Brief Analysis of Intellectual Property

Until the 1990's, an organization's assets were usually classified as physical capital such as real estate, goods, manufacturing facilities, equipment and financial capital. However, in recent years there has been an increased awareness of the existence of another type of property assets that is the intangible assets. Intangible assets are different from real

assets in so far as these assets come from human creativity, thought, and inventiveness (LIIP, 2003).

Intangible assets form the intellectual capital of the organization, which are non-material factors that exist in the organization and that contribute to the performance of the business. They are embedded in the organizational design of the organization in form of structural capital, in the employees in form of human capital and in the relationships with the suppliers, customers and partners in form of market capital (Figure 2.3).

According to Idris (2003), those intangible assets such as knowledge, information, creativity and inventiveness are rapidly replacing traditional and tangible assets such as land, labor and capital as the driving forces of economic health and social well-being. In 1982, some 62 percent of corporate assets in the United States of America were physical assets, but by 2000, that figure had shrunk to a mere 30 percent. In Europe, at the beginning of the 1990s, intangible assets accounted for more than a third of total assets and as early as 1992, in the Netherlands, they accounted for more than 35 percent of total public and private investments (Idris, 2003).

Idris (2003) also mentions that, on average, 40 percent of the value of a company that tied up in its intangible assets is not shown in any way on its balance sheet.

For this reason, IP is sometimes referred to as “hidden value”; but whether hidden or expressly valued, it is now clear that IP protecting tools are significant contributors to enterprise value.

Recognizing the value of the intellectual capital can benefit the organization through better management of its assets and lead to improve performance.

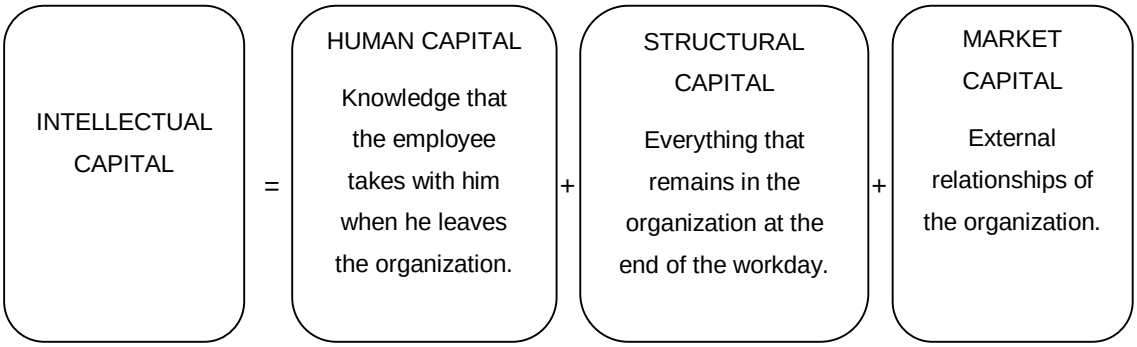

Figure 2.3: The Structure of the Intellectual Capital (Source: LIIP, 2003)

According to Wegen, et al. (1997), intellectual property refers to any product of the human intellect, such as an idea, invention, expression, unique name, business method, or industrial process, which has some value in the market place. Therefore, IP is a "power tool" for economic development and wealth creation that is not yet being used to optimal effect in all countries, particularly in the developing world (Idris, 2003).

In other words, IP creates a legal means to appropriate knowledge. A characteristic of knowledge is that one person's use does not diminish another's. Moreover the extra cost of extending use to another person is often very low or nil. From the point of view of society, the more people who use knowledge the better because each user gains something from it at low or no cost, and society is in some sense better off. Therefore it is said that knowledge has the character of a non-rival public good by the economists (IP and Development, 2002).

The other aspect of knowledge, or products embodying knowledge, is the difficulty of preventing others from using or copying it. Many products, incorporating new knowledge, can be easily copied. Probably most products, with sufficient effort, can be copied at a fraction of the cost it took to invent and market them. Economists refer to this latter characteristic as contributing to market failure. If a product takes considerable effort, ingenuity and research, but can be copied easily, there is unlikely to be a sufficient financial incentive from society's point of view to devote resources to invention (IP and Development, 2002).

Therefore, IP rights can be defined as the rights awarded by society to individuals or organizations principally over creative works: inventions, literary and artistic works, and symbols, names, images, and designs used in commerce. They give the creator the right to prevent others from making unauthorized use of their property that is monopoly rights

for a limited period – typically up to 20 years (Webster, 2001). In other words, IPR allow the creators or owners of the products to receive due reward for their efforts, or to be able to control the way their creations are used (EUR 17052, 2003).

IP is categorized as Industrial Property that includes patents for inventions, trademarks, industrial designs and geographical indications and Artistic and Literary Property that includes copyright (Figure 2.4) for novels, poems and plays, films, musical works, artistic works such as drawings, paintings, photographs and sculptures, and architectural designs, performing artists in their performances, producers of phonograms, and those of broadcasters in their radio and television programs (WIPO, 2003a). Beside these, current technological developments are blurring, to some extent, this distinction, and some hybrid *sui generis* systems are emerging such as integrated computer circuits or database protection (IP and Development, 2002).

When the evolution of IP is examined, renaissance northern Italy is thought to be the cradle of the IP system. A Venetian law of 1474 made the first systematic attempt to protect inventions by a form of patent, which granted an exclusive right to an individual. In the same century, the invention of movable type and the printing press by Johannes Gutenberg around 1440 contributed to the birth of the first copyright system in the world (Idris, 2003).

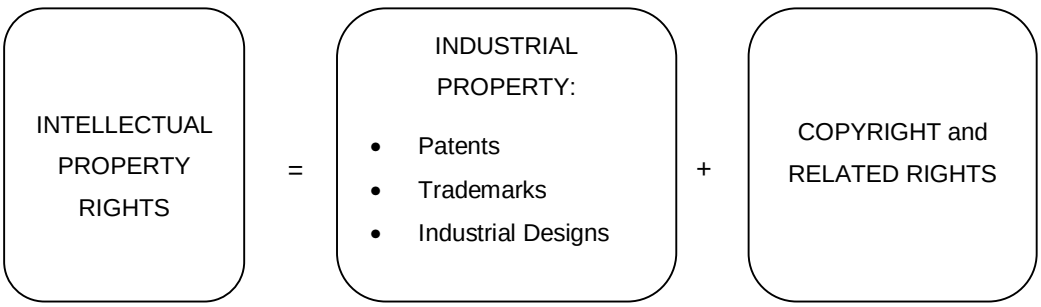

Figure 2.4: Categorization of IPRs (Source: LIIP, 2003)

Towards the end of the 19th century, inventive new ways of manufacture helped trigger large-scale industrialization accompanied by such phenomena as Rapid City growth, expanding railway networks, the investment of capital, and growing transoceanic trade. New ideals of industrialism, the emergence of stronger centralized governments, and stronger nationalism led many countries to establish their first modern IP laws.

The international IP system also started to take root at that time with two fundamental intellectual property treaties, the Paris Convention for the Protection of Industrial Property in 1883, and the Berne Convention for the Protection of Literary and Artistic Works in 1886.

The premise underlying IP throughout its history has been that the recognition and rewards associated with ownership of inventions and creative works stimulate further inventive and creative activity that, in turn, stimulates economic growth. The continuum from

Problem → Knowledge → Imagination → Innovation → Intellectual Property → Solution

in the form of improved products and new technologies, continues to be a powerful driver for the economic development (Idris, 2003).

2.3.1. The Tools for Protecting Intellectual Property

As mentioned in the previous section, patents, trademarks, designs and copyrights are the tools, in other words the elements of IPR protection system to support the intangible assets of the companies or owner of the intangibles. In this section a brief analysis of each is made in a general manner. Most of the detailed description of the technical discussion is attached as an appendix at the end of this study.

2.3.1.1. Patents

Patents are considered to protect technological inventions, either products or processes. An invention is defined as "a creation, an intellectual effort that produces a result, in the technical domain" (IPR Helpdesk, a).

Those three patent protection requirements that must be fulfilled are (IPR Helpdesk, b):

1. The invention must be new, i.e. novelty:

2. It must imply an inventive step, i.e. based on an inventive step:

3. It must be susceptible of industrial application, i.e. industrially applicable:

A patent provides the patent holder with the right to exploit the invention during 20 years in an exclusive manner. The owner of the patent can also prevent others from producing, offering, selling or using his invention, without his permission. Society benefits from the inventor's contribution namely the invention thanks to its disclosure through the patent.

National, Regional and International Patents

There are three types of patents according to the places where they are valid namely national patents, regional patents and international patents.

National Patents

Almost every state in the world has its own patent system. To obtain a national patent, valid for the territory of the country the owner has to file the application to the national patent office by where the patent is granted.

Regional Patents

European Patents

The European Patent System is governed by the Munich Convention, which became valid on 5 October 1973 as amended in Dec 1991, Oct 1995 and Dec 1998. This system establishes a common patent procedure that covers up to 27 countries, including countries, which are not yet part of the European Union. Compared with the national patent system, the European system has several distinct advantages:

- It is financially beneficial if the applicant seeks protection in more than three European countries;

- It provides a unitary and centralized grant procedure in any one of the three official EPO languages that are German, English or French;

- The grant procedure comprises a high quality prior art search and examination, providing a strong patent.

Community Patents

The Community patent system, which is currently the subject of intergovernmental discussion, will not replace but stand alongside the existing European and national systems. However, after its grant, the Community patent will be unitary, i.e. a single industrial property right, which may be revoked or allowed to lapse only in respect of the whole Community.

Eurasian Patent Convention

Under the Eurasian patent system, Eurasian patents can be obtained in one procedure. The patents are granted jointly for a number of republics that were part of the former Soviet Union. However, after being granted, the patents have to be maintained individually in these republics in order to remain effective.

African Regional Industrial Property Organization (ARIPO)

A patent granted under the ARIPO system has the same effects in the designated contracting states as a national patent.

African Intellectual Property Organization (AIPO)

Contrary to the case for European patents and for ARIPO patents, a patent registration with the AIPO Office automatically covers the 16 African AIPO member states at once, without requiring registration and/or validation or confirmation in the various countries.

International Patents

Patent Cooperation Treaty (PCT)

For applicants who seek protection for an invention in each of a large number of countries it is also possible to file an international patent application. In accordance with the PCT, which was concluded in Washington on 19 June 1970, international patent applications can be filed with national patent offices qualified as "receiving" offices, with the European Patent Office, or with the International Bureau of the WIPO. At the moment there are 115 states that have adhered to the PCT.

The Alternatives to an Ordinary Patent

a. The Utility Model

The utility model protects product technical inventions which fulfill the requirements of novelty, inventive step and industrial application; although "inventive step" is defined more broadly than for patents. Process inventions are excluded from the protection of the utility model.

The duration of the exclusive right conferred by a utility model is, as a general rule, ten years; except in Greece, where the duration is seven years, and in Portugal, where the duration is fifteen years.

b. The Short-Term Patent

This is a patent obtained in a swift way, and more cheaply than a traditional patent, which confers the same rights, but for a shorter period of time, normally six years. This possibility exists in the Netherlands and Belgium.

c. The Petty Patent

The term "petty patent" is used to designate the Irish "short-term patent". This is because the Irish short-term patent protects technical inventions (both of product and of process) but requires a lower inventiveness level than for patentable inventions.

2.3.1.2. Trademarks

A trademark is a sign capable of distinguishing the goods or services produced or provided by one enterprise from those of other enterprises (WIPO, 2003b). A trademark forms an essential part of a company’s strategy: enhancing the value of a trademark enables market share to be conserved or gained (OHIM, 2001).

National, Regional and International Routed Trademarks

If a company has registered the trademark of itself in the country where it is located namely home country but when wish to export or grant a license to use the trademark in

other countries, then it is advisable to register the trademark abroad. There are three main ways to do so:

The National Route

The business may apply to the trademark office of each country in which it is seeking protection by filing the corresponding application in the required language and paying the required fees.

The Regional Route

If the company wishes to apply for protection in countries, which are members of a regional trademark system, it may apply for registration, with effect in the territories of all Member countries, by filing an application at the relevant regional office.

Community Trademark

The Community trademark offers the advantage of providing unitary protection in all the countries of the European Union, as a result of a single registration process with the OHIM.

A Community trademark can be filed directly with the OHIM or through the national industrial property office of a European Union state (OHIM, 2001).

The International Route

If the firm's home country is a member of the Madrid system constitute by the Madrid Protocol which is a treaty that provides for the international registration of trademarks including service marks (WIPO, 2001) and its trademark has been registered or applied for in or with effect in that country, it may use the Madrid system which is administered by WIPO to register the trademark in the more than 70 countries that are party to the system.

2.3.1.3. Designs

For businesses, designing a product generally implies developing the product's functional

and aesthetic features taking into consideration issues such as the product's marketability, the costs of manufacturing or the ease of transport, storage, repair and disposal (WIPO, 2003c).

However, from an intellectual property law perspective, an industrial design refers only to the ornamental or aesthetic aspects of a product.

National, Regional and International Routed Industrial Designs

There are three ways of protecting the industrial designs abroad (WIPO, 2003c):

The National Route

Companies may seek protection by applying separately to the national IP offices of each country in which they intend to obtain protection. The process can be rather cumbersome and expensive as translation into the national languages is generally required as well as payment of administrative and sometimes legal fees.

The Regional Route

If a company is interested in a group of countries that are members of regional agreements, which enable the registration of designs in more than one country, then it can consider filing a single application at the regional IP office concerned.

Community Designs

One of the principal objectives of the creation of the European Community in 1957 was to establish a single market (OHIM, a). In order to prepare the single market, different sets of legislation were introduced. By the regulation was adopted by the Council on 12 December 2001, the Community design that has been a reality since 6 March 2002 was created.

The International Route

Companies that wish to register their designs internationally in several countries may also use the procedures offered by the Hague Agreement Concerning the International

Deposit of Industrial Designs, which is a WIPO-administered treaty. An applicant from a Member country to the Hague Agreement can file a single international application with WIPO; the design will then be protected in as many Member countries of the treaty as the applicant wishes.

2.3.1.4. Copyrights

Copyright is a legal term describing rights given to creators for their original literary and artistic works which allow them to control their subsequent use (LIIP, 2003).

It is important to recognize that copyright is not a monopoly. Two people could completely independently create identical items. Provided there is no copying, there is no infringement and both can hold copyright in their respective works.

2.3.1.5. Other Forms of Protection

In the situation of when there is no intellectual property rights protection and the person having the idea decides not to make use of any IPR protection, the other three forms of protection mechanisms mentioned below are applied:

Contractual Protection

Confidentiality agreements guarantee that the information, ideas or data revealed by one person to another will stay secret under the terms of the contract, and so will not be transmitted to third parties. This contract can take place in many different situations, such as in the contractual relation between the employer and his employee; two persons sharing a common project; a person who has an idea and looks for an enterprise to develop it, etc., (IPR Helpdesk, a).

Trade Secrets

A trade secret is information of any type that is actually or potentially valuable to its owner and not generally known or readily ascertainable by the public, and which the owner has made a reasonable effort to keep secret (WIPO, 2002). A trade secret generally has some cost associated with its development, and is not common knowledge in the industry.

Products and processes that are not patentable can be protected under trade secret law.

Unfair Competition Law

This legal discipline tries to ensure fair play in the market. It deals with practices in which someone takes undue advantage of someone else's work.

2.4. Conclusion

Executing innovation facilities and developing marketable products or services to keep existing in a violent competitive environment by recalling that melting of the market borders by the effects of globalization has become more significant for the countries trying to catch up with the developed ones. Unfortunately, creating innovative products or services requires some entrepreneurial environments which allow to incubate new ideas like a creative team formed by technical experts who are aware of the advantages of research and technology development facilities and excited about them, some sufficient amount of capital to survive and continue, and a global target market to serve. In these new knowledge-based economies, one of the solutions to lead to increase the research facilities that reach to innovative and entirely marketable products is to encourage the foundation of new technology-based start-up firms (NTBFs) whose core activity is to develop, market and exploit technology.

NTBFs do not only act as “R&D boutiques” which are major sources of technological advance, capable of high growth and prime targets for investors, but also provide significant and continuous employment opportunities since their survival rate is higher than the other firms in the economies. Therefore, starting up such a NTBF requires a detailed configuration prepared to match the properties and utilize the advantages of the business. According to European Commission report on growth paths of technology-based firms (EUR17054, 2003), the dimensions that characterize the start-up configuration of a high-tech firm by the *6D-Model*, which can be classified as product/market transparency, capitalization, founding team, business model, growth orientation and targeted market.

From the analysis made according to those six dimensions mentioned above, there are derived three organizational archetypes of NTBFs, which are the technological SME’s, the prospector firms and the venture capital backed firms by the European Commission.

The technological SME's are generally founded by the technical experts with a quite limited capital to provide technical consulting to the local markets while the prospector firms, which are more product-oriented, are generally founded by the team including technical experts with junior management skills with relatively high amount of capital to produce or serve to the international markets as well. The venture capital backed firms start with a well-balanced heterogeneous founding team including senior managers as well as technical experts, and substantial capital to produce or serve to the global markets, which may also be designated by them.

Since, industry access to finance is a crucial element in the innovation process for translating the results of research and development into commercial outcomes, the main sources of external finance for NTBFs are banks, informal investors, in other words, business angels and venture capitalists (EUR17030, 2001). While venture capitalists prefer companies that have significant successes in the market, reached to an acceptable size and need relatively high amount of capital to improve their products or services radically, to support, business angels choose firms with a great idea, which may not be commercialized or even not be produced as any prototypes yet, and need relatively small amount of capital to develop the products or services.

In recent years, there has been an increased awareness of the existence of intangible assets, which come from human creativity, thought and inventiveness (LIIP, 2003) and form the intellectual capital of the organization, which are non-material factors that exist in the organization and that contribute to the performance of the business. Since a typical NTBF, whose business entirely depend on its authentic ideas and ability to commercialize them, should consider intellectual property issue as well as mature and implement some kind of IP management skills. A proper IP management strategy provides not only to protect the NTBFs' rights against the possible rivals but also develop a strategy to determine and orientate the markets. The tools to be used for those mentioned purposes are patents, trademarks, designs, copyrights, trade secrets and some kind of contracts.

In the next chapter we deal with the necessity of protecting intangible assets and constitute a basic IP management strategy for NTBFs.

CHAPTER III

MANAGEMENT OF THE INTELLECTUAL PROPERTY ASSETS IN START-UPS

3.1. The Necessity of Protecting Intangible Assets

Knowledge and information has become an essential asset determining the profitability of technology-intensive enterprises. In knowledge-based industries, knowledge and information can be marketed to potential partners or clients separately from the products and services that are based on the application of specific knowledge (Borg, 2001).

In the new, global computer-intensive economy, the knowledge base of the economy can determine the approval of an enterprise as a producer of future solutions. This means that it is crucial that enterprises identify and develop their knowledge base, not least in their market relationships. Knowledge emerges in network relationships between an enterprise and its surrounding organizations, and can be legally protected as IP. A clearer notion of the way IP can be analyzed may improve the economic outcome of investments in innovation.

A high-tech enterprise faces several decisions influencing its position in the market when developing its knowledge base. Key decisions determining the relationships established in a knowledge-intensive market include such as make or buy decisions; organizational association or isolation; the innovation or adaptation of new technology; the protection or exploitation of knowledge; public or private research funding; safeguarding or sharing of IP; and pioneering advantages or disadvantages (Borg, 2001).

In a world of full information, enterprises depend on access to relevant knowledge. In doing so, companies relate to the external environment surrounding the enterprise. The increased cost of innovation and product development points to the need to establish means for handling the company's information requirements. In a competitive environment, knowledge plays a role in determining the ability to compete. Knowledge and information are central to business relationships and affect the company's position relative to its competitors, customers and suppliers (Spender and Grant, 1996). It is not

least through the use of information and knowledge that an enterprise can find new market opportunities and develop new products and services. Linking the analysis of IP more closely to marketing issues and specifically to relationship marketing yields a better understanding of the potential market value of IP. When seen as IP, knowledge and information can be defined as intangible assets based on investments in technology (Rao and Klein, 1984). Finding an appropriate market for innovative ideas is a central aspect of the overall marketing efforts of a high-tech enterprise (Borg, 2001).

IPR are already a part of the strategic options in the knowledge industry. To ensure sustained growth, enhanced profits, market leadership many corporations have designed their project management systems for (Ganguli, 2000):

- Optimized use of inter/intra knowledge base;
- Strategic management of IPR;
- External channels for knowledge and inventions as inputs;
- Internal expertise to manage research and collaborations;
- Clarity on knowledge ownership issues through mutually beneficial licenses;
- Pooling of IPR as in the case of several companies

The emerging scene in the future will seek positive linkages between enhancing competition in society on one hand discouraging monopolistic practices and establishing legal ownership of innovations with enforcement of acquired rights on the other. Strongly inter-knitted societal, moral and ethical issues are already influencing approaches to international trade involving technology management, ownership of knowledge and business processes.

The ability to create IP is not evenly spread, nor is the ability to convert knowledge into marketable products. The debate over the knowledge base of enterprises has concentrated on how to protect it and not on how to take advantage and make proper use of it (Borg, 2001).

The standard explanation for the effectiveness of a new technology-based firm strategy to exploit new technology is that the firm will be successful if it exploits a radical technology. Radical technology undermines the advantages that established firms have in making incremental improvements to technology, undermines firm competence, and turns existing customer relationships into liabilities rather than assets (Christensen and Bower, 1996).

New technology-based firms begin without any competitive advantages other than that embedded in their new technology itself. Yet, to survive, new technology-based firms must develop manufacturing and marketing assets that are used in conjunction with their new technology (Nerkar and Shane, 2003). Therefore, to survive, the new firm uses intellectual property protection to defend the new technology against imitation until such time as its marketing and manufacturing assets can be put into place (Teece, 1986). Broad scope patents facilitate this transition because they provide better protection than narrow scope patents. As Merges and Nelson (1990) mention, the broader the scope, the larger number of competing products and processes will infringe the patent. The use of broad scope patents to defend the new firm against imitation by established firms until the marketing and manufacturing assets can be put in place works well in the markets.

In the rest of this section of the study, a model is suggested to the NTBFs to constitute an IP management strategy to protect and exploit efficiently of their valuable intangible assets.

3.2. Basic IP Strategy

In this section of the study, the document called “Intellectual Property For Business”, prepared by WIPO’s SME Division (WIPO, 2004) to guide the SME’s about the IP management issues is summarized and harmonized to propose and adapt a similar IP management strategy to the NTBFs concerning most of them are also in SME statue despite their core business is quite different than the other regular SME’s.

According to Pitkethly (2001), the concept of Intellectual Property Strategy involves issues of both Intellectual Property Law and Business Strategy. He defines IP Strategy as “The use of IP, either alone or in combination with other resources of the firm, to achieve the firm’s strategic objectives”. Therefore, this encompasses both a firm’s external dealings involving IP, in which the IP is treated as an extra resource of the company to be

used in its overall strategy, as well as internal resource management within a firm aimed at managing the creation and preservation of the company's IP resources.

Managing an enterprise's IP assets is more than just acquiring the formal IP rights through the national IP office. Patent or trademark rights are not worth much unless they are adequately exploited. Moreover, part of a company's valuable IP may not require formal registration but may call for other measures of protection such as confidentiality agreements or trade secrets. Enterprises willing to extract full value from their know-how and creativity should take adequate steps to develop an IP strategy for their business and seek to integrate it within their overall business strategy. This implies including IP considerations when drafting business plans and marketing strategies. A basic IP strategy should include at least those four major policies namely as a policy on "*IP Acquisition*", a policy on "*IP Exploitation*", a policy on "*IP Monitoring*" and a policy on "*IP Enforcement*". In the rest of the study, the proposed basic IP strategy will be constituted by using the above-proposed four policies (WIPO, 2004).

3.2.1. Policy on IP Acquisition

Various forms of IP rights covering different aspects of that product or service may protect a single product or service. NTBFs must consider the best protection package and make sure that all the formal rights are acquired as early as possible. NTBFs should also bear in mind that creating a comprehensive IP portfolio may be a considerable investment. This is particularly the case for patents. NTBFs must therefore carefully assess the costs and benefits of patenting on a case-by-case basis and develop a strategy/policy on patent acquisitions, which is appropriate given their budget and market opportunities.

3.2.1.1. Acquiring and Maintaining IP Protection

Before NTBFs can take advantage of intellectual property (IP) assets it has to acquire IP rights. A number of IP rights need to be granted or registered. At the national level, IP offices of the respective countries are the only institutions entrusted with granting or registering IP rights. The procedure for their acquisition and maintenance may differ from country to country, but the basic principles and features of these procedures are common to most countries. One should also note that IP rights could also, where certain conditions are met, be acquired at a regional or international level.

Before seeking IP protection for NTBFs in a particular country, the managers are advised to study the country's legal system that governs IP issues. There are various sources of information on IP legislation. Probably the best place to start would be the national IP office or copyright office to obtain the details of IP protection in domestic country. It is often advisable to seek guidance from an IP agent or attorney particularly when the relevant IP laws require that an applicant who is not residing in the country be represented by an agent or attorney entitled to practice in that country (WIPO, 1997). The IP office or IP agent/attorney should be able to advise NTBFs as to whether special incentives, in terms of reduced fees, are available to NTBFs for IP acquisition and maintenance.

Procedures for Different IP Rights

The procedure for obtaining protection and maintenance of intellectual property rights by NTBFs is outlined below:

Patents

In a number of countries, patents are granted after the main criteria for patentability, i.e. novelty, inventive step and industrial applicability have been considered satisfied. Many countries, however, do not undertake an examination as to substance due to financial and other constraints. Such offices confine themselves to an examination of the formalities that the companies are required to comply with before filing the patent application. Some of the countries that carry out substantive examination do so automatically upon the receipt of a patent application while others do so only upon the filing of a special request. Such an examination request must be filed within a certain period of time, which, according to the applicable patent law, may be a period of up to several years. Depending upon the possibility to defer examination and whether or not opposition proceedings are allowed prior to the grant of the patent, the procedure for the grant of a patent may be very time-consuming. Effort is therefore made, in many countries and at the international level, to accelerate the procedure prior to grant. In addition, a number of countries provide that patent applications be published after a certain period of time i.e. usually, after 18 months from the filing date or, where priority has been claimed, from the priority date (WIPO, 1997).

The applicant is generally required to pay an application fee and may have to pay an examination fee where an examination is carried out as to substance and an annual

maintenance fee for the application. In most countries, patent maintenance fees are to be paid annually. In accordance with international obligations under the Paris Convention for the Protection of Industrial Property and the Agreement on Trade-Related Aspects of Intellectual Property Rights (the TRIPS Agreement), there is a minimum period of grace of six months for non-payment of maintenance fees, though countries are free to allow longer grace periods. Failure to pay maintenance fees during the grace period would lead to the lapsing of the patent retroactively, i.e., as of the original due date of annuity.

Utility Models

In some countries, inventions may also be protected by utility models, which are also known as "petty patents" or "utility innovations." The conditions for the registration of utility models are usually less stringent since no inventive step or only a less significant inventive step is required, the procedure for registration is faster since novelty and inventive step are usually not examined prior to registration and acquisition and maintenance fees are generally lower than those applicable to patents (LIIP, 2003). Applications are usually to be filed with the national IP Office.

Currently, a small but significant number of countries provide utility model protection. These include: Australia, Argentina, Armenia, Austria, Belarus, Belgium, Brazil, Bulgaria, China, Colombia, Costa Rica, Czech Republic, Denmark, Estonia, Ethiopia, Finland, France, Georgia, Germany, Greece, Guatemala, Hungary, Ireland, Italy, Japan, Kazakhstan, Kenya, Kyrgyzstan, Malaysia, Mexico, the Netherlands, OAPI, Peru, Philippines, Poland, Portugal, Republic of Korea, Republic of Moldova, Russian Federation, Slovakia, Spain, Tajikistan, Trinidad & Tobago, Turkey, Ukraine, Uruguay and Uzbekistan (WIPO, 2004).

In countries where the national legislation does not provide for utility model protection, firms may either apply for a patent or keep the invention as a trade secret.

Trade/Service Marks

In some countries, protection of a mark can be acquired through registration or use. In others, for most trademarks, companies have to necessarily register the trademarks if they want to protect them. Even where companies have the option of protection without

registration, that is, based on use of the mark, it is always advisable to register the mark to obtain a better or stronger protection.

If companies wish to acquire trademark protection for themselves by registration then they must file an application in a national or, where such possibility exists, a regional trademark office. The Office will then, once the required fees have been paid, examine the application. There are a number of reasons for which the application may be rejected. In practice, applications are most frequently rejected on the grounds that (WIPO, 2004):

a. There is a likelihood that consumers will confuse the proposed mark with a mark already on the register or applied for or an unregistered well-known mark;

b. The proposed mark only describes a product or service or a feature of the product or service;

c. The proposed mark consists of a geographical term which is misleading or should not be monopolized by a single enterprise;

d. The proposed mark violates public order or morality; or

e. The proposed mark consists of or contains without authorization an element, which is identical with, or an imitation of a protected official sign, armorial bearing, flag or other emblem, or hallmark of a state or intergovernmental organization.

Where the trademark law of a country provides for an opposition procedure, an application will be published after it has been examined and any interested persons will be provided an opportunity to object to the registration of the mark if they consider their rights likely to be affected by its registration. The Office will then make a decision based on the evidence provided by the two parties and this decision will usually be subject to an appeal.

Depending on national laws, the initial period of registration is not less than 7 years (generally 10 years). However, unlike other industrial property rights, the registration of marks can be renewed upon payment of a renewal fee indefinitely.

Collective Marks

While the definition may vary from one country to the other, collective marks are usually defined as signs, which distinguish the geographical origin, material, mode of manufacture, quality or other common characteristics of goods or services of different enterprises using the collective mark. The owner may be either an association of which those enterprises are members or any other entity, including a public institution or a cooperative. Most countries require that an application for a collective mark be accompanied by a copy of the regulations, which govern the use of the collective mark and do not allow for the licensing of a collective mark (LIIP, 2003). Like trade/service marks, collective marks are also maintained upon payment of renewal fees.

Industrial Design

In most countries, protection of industrial designs can only be acquired through registration. In a number of these countries, no search is made and no examination as to substance is carried out prior to registration of the industrial design. Some countries provide for a search and examination in the event that the industrial design application has been published and a third party has objected to its registration by giving notice of opposition. In very few countries, protection may also be available for unregistered industrial designs.

As a general rule, to qualify for protection through registration, the design must be “new” or “original.” The duration of protection differs from country to country. While the usual term of protection is 15 years (an initial period of five years with the possibility of renewal for two further periods of five years each), some countries provide protection for only 10 years, while others allow even 25. Renewal of protection is usually subject to the payment of a renewal fee. However, unlike marks, protection of industrial designs, once granted, is not subject to cancellation if they are not actively used (WIPO, 2004).

Copyright

Acquisition of copyright protection is usually automatic once your work is fixed in some material form. However, in some cases there may be a possibility or, exceptionally, a need to register copyright.

Challenges in Intellectual Property Acquisition

Challenges that most companies face in acquiring IP protection include the following:

- Inadequate manpower to undertake the necessary groundwork needed for IP acquisition, for example, initial searches and other pre-filing procedures;

- High costs involved, particularly, in the patenting process which may go hand in hand with expenses for the translation of documents and fees for IP agents or attorneys;

- Inadequate “in-house” knowledge of IP rights and procedures for their protection.

To some extent, the burdens associated with IP acquisition may be diminished if the companies have a greater understanding of how the IP system can be used effectively. Companies may also reduce the workload and costs of acquiring IP by applying for IP protection through regional or international arrangements when seeking IP protection abroad making use of special services offered to them, wherever available, or opting for lower levels of protection as in the case of utility model protection, where the legislation of the country or countries in question allow such forms of protection.

3.2.1.2. Protecting the IP Rights Abroad

Sooner or later, many NTBFs operate in more than one market selling their products or services or licensing/franchising their IPRs and know-how beyond their national borders. IP rights, however, are territorial, implying that they are usually only protected in the home country or region where protection has been applied for and obtained. Protecting IP in export markets is therefore crucial so as to enjoy the same benefits of protection abroad as are enjoyed on the domestic market. Firms should carefully consider applying for IP protection well in time in all countries to which you are likely to export or license their product or service in the foreseeable future.

As a general recommendation, NTBFs should make sure to obtain adequate protection in all relevant export markets as early as possible.

With regard to patents for inventions, most countries allow a 12-month priority period from the date of filing of the first application for applying for patents in other countries. Once this period has elapsed they may no longer be able to obtain patent protection in other countries. This may signify an important loss of earnings from their export operations.

With regard to trademarks and industrial designs, most countries provide a 6-months priority period from the date of filing of the first application for applying for trademarks and industrial designs in other countries.

With regard to copyright, if the companies are a national or resident of a country party to the Berne Convention for the Protection of Literary and Artistic Works or member of the World Trade Organization (WTO) bound by the provisions of the TRIPS Agreement, or if they have published their work for the first time or at least simultaneously in one of the above countries, their copyright will be automatically protected in all other countries that are party to the Berne Convention or are members of the WTO.

There are three routes to acquire the protection of IP rights abroad. These are:

National Applications

One option is to seek protection in individual countries separately by applying directly to national Industrial/Intellectual Property Offices. Each application may have to be translated into a prescribed language, which is usually the national language. Firms will be required to pay the national application fees and, particularly in the case of patents, they may need to entrust an IP agent or attorney who will assist them in making sure the application meets national requirements. If the firms are still in the phase of assessing the commercial viability of an invention or are still exploring potential export markets or licensing partners, the national process would appear to be particularly expensive and cumbersome, especially where protection is being sought in a large number of countries. In such cases, the facilities offered by the WIPO-administered systems of international protection for inventions, marks and industrial designs offer a simpler and generally less expensive alternative.

Regional Applications

Some countries have established regional agreements for obtaining IP protection for an

entire region with a single application. The regional IP offices include:

European Patent Office (EPO, for European patents), Office for Harmonization in the Internal Market (OHIM, for European Community trademarks and, in the future, industrial designs), African Regional Industrial Property Office (ARIPO, the regional IP office for English-speaking Africa for patents, trademarks and industrial designs), African Intellectual Property Office (OAPI, the regional IP office for French-speaking Africa for patents, trademarks, industrial designs and, in the future, geographical indications and layout-designs of integrated circuits), Eurasian Patent Office (EAPO, for patent protection in countries of the Community of Independent States), Benelux Trademark Office & Benelux Designs Office (for trademark and industrial design protection in Belgium, the Netherlands and Luxembourg), Patent Office of the Cooperation Council for the Arab States of the Gulf (for patents).

International Applications

WIPO-administered systems of international protection significantly simplify the process for simultaneously seeking IP protection in a large number of countries. Rather than filing national applications in many languages, the systems of international protection enable the firms to file a single application, in one language, and to pay one application fee. These international filing systems not only facilitate the process but also, in the case of marks and industrial designs, considerably reduce your costs for obtaining international protection (in the case of patents, the PCT helps firms in gaining time to assess the commercial value of your invention before national fees are to be paid in the national phase). WIPO-administered systems of international protection include three different mechanisms of protection for specific industrial property rights:

- *International protection of inventions* is provided under the PCT system, the worldwide system for simplified multiple filing of patent applications. By filing one international patent application under the PCT, firms actually apply for protection of an invention in each of a large number of member countries, namely more than one hundred, throughout the world.

- *International protection of trademarks* is provided under the “Madrid system.” The Madrid system simplifies greatly the procedures for registering a trademark in multiple countries that are party to the Madrid system. An international

registration under the Madrid system produces the same effects as an application for registration of the mark filed in each of the countries designated by the applicant and, unless rejected by the office of a designated country within a certain period, has the same effect in that country as a registration in the Trademark Registry of that country.

- *International protection of industrial designs* is provided by the Hague Agreement. This system gives the owner of an industrial design the possibility to have his design protected in several countries by simply filing one application with the International Bureau of WIPO, in one language, with one set of fees in one currency.

3.2.2. Policy on IP Exploitation

IP assets may be exploited in a variety of ways. These may include the commercialization of IP-protected products and services; the entering into licensing or franchising agreements; the sale of IP assets to other firms; the creation of joint ventures; the use of IP to obtain access to other companies' technology through cross-licensing agreements; or the use of IP to obtain business finance. Enterprises should decide in each case how they might best exploit their IP assets both domestically and internationally.

3.2.2.1. Turning Inventions into Profit-Making Assets of Start-Ups

Innovative and creative ideas are at the heart of most successful businesses. Ideas by themselves, however, have little value. They need to be developed, turned into innovative products or services and commercialized successfully so as to enable NTBFs to reap the benefits of the innovation and creativity. IP, patents in particular, can be crucial for turning innovative ideas and inventions into competitive products that significantly increase profit margins.

NTBFs may also use patents to earn royalty revenue by licensing such patented inventions to other firms that have the capacity to commercialize them. This may not only save NTBFs money, but also provide them with a stream of income from their invention or the inventions of employees of NTBFs, without the need to invest in its commercialization.

Reasons for Patenting the Inventions

- **Exclusive rights:** Patents provide the exclusive rights, which usually allow NTBFs to use and exploit the invention for twenty years from the date of filing of the patent application.

- **Strong market position:** Through these exclusive rights, firms are able to prevent others from commercially using their patented invention, thereby reducing competition and establishing themselves in the market as the pre-eminent player.

- **Higher returns on investments:** Having invested a considerable amount of money and time in developing innovative products, NTBFs could, under the umbrella of these exclusive rights, commercialize the invention enabling NTBFs to obtain higher returns on investments.

- **Opportunity to license or sell the invention:** If firms chose not to exploit the patent themselves, they may sell it or license the rights to commercialize it to another enterprise, which will be a source of income for them.

- **Increase in negotiating power:** If firms are in the process of acquiring the rights to use the patents of another enterprise, through a licensing contract, their patent portfolio will enhance their bargaining power. That is to say, their patents may prove to be of considerable interest to the enterprise with whom they are negotiating and they could enter into a cross licensing arrangement where, simply put, the patent rights could be exchanged between their enterprise and the other.

- **Positive image for the enterprise:** Business partners, investors and shareholders may perceive patent portfolios as a demonstration of the high level of expertise, specialization and technological capacity within the company. This may prove useful for raising funds, finding business partners and raising the company's market value.

In many cases, where an enterprise has merely improved an existing product and the said improvement is not sufficiently inventive to be deemed patentable, utility models (or

"petty patents" or "utility innovations") may represent a good alternative, if available in the country in question. On occasions, it may be advisable for NTBFs to keep its innovations as trade secrets, which requires, in particular, that sufficient measures are taken to keep the information confidential.

It is highly advisable for NTBFs engaging in inventive activities to consult patent databases to find out about existing technologies, identify licensing partners in case a technology already exists and avoid duplication of research activities.

What Happens if NTBFs do not Patent Their Inventions

- **Somebody else might patent them:** In most countries (with the exception of the United States), the first person or enterprise to apply for a patent for an invention will have the right to the patent. This may in fact mean that, if firms do not patent their inventions or inventions of the employees of their firms, somebody else, who may have developed the same or an equivalent invention later, may do so and legitimately exclude the enterprise from the market, limit its activities to the continuation of prior use, where the patent legislation provides for such exception, or ask the firms to pay a licensing fee for using the invention.

- **Competitors will take advantage of the invention:** If the product is successful, many other competitor firms will be tempted to make the same product by using the invention but without having to pay for such use. Larger enterprises may take advantage of scale economies to produce the product more cheaply and compete at a more favorable market price. This may considerably reduce the company's market share for that product. Even small competing enterprises can produce the same product and often sell it at a lower price, as they do not have to recoup research and development costs incurred by the inventive firm.

- **Possibilities to license, sell or transfer technology will be severely hindered:** Without IP rights, transfers of technology would be difficult if not impossible. Transfer of technology presupposes ownership of a technology, which can only be effectively obtained through appropriate IP protection. Moreover, wherever negotiations do take place for transferring a given technological development without IP protection over the technology in question, parties are suspicious of disclosing their inventions, fearing that the other side

may run away with the invention. IP protection, in particular patent protection, is crucial for acquiring technology through its licensing.

3.2.2.2. Protecting Innovations by Utility Models in Start-Ups

The main differences between utility models and patents are the following:

- The requirements for acquiring a utility model are less stringent than for patents. While the requirement of "novelty" is always to be met, that of "inventive step" or "non-obviousness" may be much lower or absent altogether. In practice, protection for utility models is often sought for innovations of a rather incremental character, which may not meet the patentability criteria.

- The term of protection for utility models is shorter than for patents and varies from country to country namely usually between 7 and 10 years without the possibility of extension or renewal.

- In most countries where utility model protection is available, patent offices do not examine applications as to substance prior to registration. This means that the registration process is often significantly simpler and faster, taking, on average, six months.

- Utility models are much cheaper to obtain and to maintain.

- In some countries, utility model protection can only be obtained for certain fields of technology and only for products but not for processes.

Utility models are considered particularly suited for NTBFs that make “minor” improvements to, and adaptations of, existing products. Utility models are primarily used for mechanical innovations.

3.2.2.3. Protecting the Trade Secrets of Start-Ups

Trade secrets, which provide an enterprise a competitive edge, encompass manufacturing or industrial secrets and commercial secrets (LIIP, 2003). The unauthorized use of such information by persons other than the holder is regarded as an

unfair practice and a violation of the trade secret. Depending on the legal system, the protection of trade secrets forms part of the general concept of protection against unfair competition or is based on specific provisions or case law on the protection of confidential information.

The subject matter of trade secrets is usually defined in broad terms and includes sales methods, distribution methods, consumer profiles, advertising strategies, lists of suppliers and clients, and manufacturing processes. While a final determination of what information constitutes a trade secret will depend on the circumstances of each individual case, clearly unfair practices in respect of secret information include industrial or commercial espionage, breach of contract and breach of confidence.

Protection of Trade Secrets

Contrary to patents, trade secrets are protected without registration, that is, trade secrets are protected without any procedural formalities. Consequently, a trade secret can be protected for an unlimited period of time. For these reasons, the protection of trade secrets may appear to be particularly attractive for NTBFs. There are, however, some conditions for the information to be considered a trade secret. Compliance with such conditions may turn out to be more difficult and costly than it would appear at first glance. While these conditions vary from country to country, some general standards exist which are referred to in Art. 39 of the TRIPS Agreement:

- The information must be secret i.e. it is not generally known among, or readily accessible to, circles that normally deal with the kind of information in question,

- It must have commercial value because it is a secret,

- It must have been subject to reasonable steps by the rightful holder of the information to keep it secret such as through confidentiality agreements.

Precautionary Measures to be Taken by NTBFs

Trade secrets are widely used by NTBFs. In fact, many NTBFs rely almost exclusively on trade secrets for the protection of their IP although in many cases they may not even be aware that trade secrets are legally protected. It is important, therefore, to make sure that

enterprises take all necessary measures to protect their trade secrets effectively. This includes:

- Firstly, considering whether the secret is patentable and, if so, whether it would not be better protected by a patent.

- Secondly, making sure that a limited number of people know the secret and that all those who do are well aware that it is confidential information.

- Thirdly, including confidentiality agreements within employees' contracts. Under the law of many countries, however, employees owe confidentiality to their employer even without such agreements. The duty to maintain confidentiality on the employer's secrets generally remains, at least for a certain period of time, even after the employee has left the employment.

- Fourthly, signing confidentiality agreements with business partners whenever disclosing confidential information.

Patents or Trade Secrets

Trade secrets are essentially of two kinds. On the one hand, trade secrets may concern inventions or manufacturing processes that do not meet the patentability criteria and therefore can only be protected as trade secrets. This would be the case of customers' lists or manufacturing processes that are not sufficiently inventive to be granted a patent though they may qualify for protection as a utility model. On the other hand, trade secrets may concern inventions that would fulfill the patentability criteria and could therefore be protected by patents. In the latter case, the NTBFs will face a choice: to patent the invention or to keep it as a trade secret.

Some advantages of trade secrets include:

- Trade secret protection has the advantage of not being limited in time (patents last in general for up to 20 years). It may therefore continue indefinitely as long as the secret is not revealed to the public.

- Trade secrets involve no registration costs (although there may be high costs related to keeping the information confidential).

- Trade secrets have immediate effect.

- Trade secret protection does not require compliance with formalities such as disclosure of the information to a Government authority.

There are, however, some concrete disadvantages of protecting confidential business information as a trade secret, especially when the information meets the criteria for patentability:

- If the secret is embodied in an innovative product, others may be able to inspect it, dissect it and analyze it; i.e. "reverse engineer" it and discover the secret and be thereafter entitled to use it. Trade secret protection of an invention in fact does not provide the exclusive right to exclude third parties from making commercial use of it. Only patents and utility models can provide this type of protection.

- Once the secret is made public, anyone may have access to it and use it at will.

- A trade secret is more difficult to enforce than a patent. The level of protection granted to trade secrets varies significantly from country to country, but is generally considered weak, particularly when compared with the protection granted by a patent.

- A trade secret may be patented by someone else who developed the relevant information by legitimate means.

Cases in Which NTBFs may Benefit from Trade Secret Protection

While a decision will have to be taken on a case-by-case basis, in the following circumstances it would be advisable to make use of trade secret protection:

- When the secret is not patentable.

- When the likelihood is high that the information can be kept secret for a considerable period of time. If the secret information consists of a patentable invention, trade secret protection would only be convenient if the secret can be kept confidential for over 20 years (period of protection of a patent) and if others are not likely to come up with the same invention in a legitimate way.

- When the trade secret is not considered to be of such great value to be deemed worth a patent though a utility model may be a good alternative in countries where utility model protection exists.

- When the secret relates to a manufacturing process rather than to a product, as products would be more likely to be reverse engineered.

- When NTBFs have applied for a patent and are waiting for the patent to be granted.

It is important to bear in mind, however, that trade secret protection is generally weak in most countries, that the conditions for, and scope of, its protection may vary significantly from country to country depending on the existing statutory mechanisms and case law, and that the courts may require very significant and possibly costly efforts to preserve secrecy. Patent or utility model protection, wherever possible, will provide much stronger protection.

3.2.2.4. Relevance of Trademarks to the Success of Start-Ups

The trademarks are in many ways the face of the business. They allow the customers to distinguish the products or services from those of the competitors, giving the firm the possibility to better market its goods or services. But trademarks are not just used as identifiers. They are also seen as a guarantee of consistent quality. A customer who is pleased with the quality of the product or service will continue to purchase it based on the quality expectations based upon the known trademark. Firms should, therefore, take great care in choosing and designing an appropriate trademark, protecting it, using it with care in advertising, and policing its misleading or improper use by others.

While selecting a mark, firms should find out whether the envisaged mark or similar ones have already been registered by other enterprises for the category of products or services

and markets that they are interested in. This type of information is obtained by conducting a trademark search. Doing it early is crucial so as to avoid unnecessary conflicts with other enterprises and loss of resources.

Once firms have searched trademark databases for conflicting marks, they should think about finding the best way of protecting it.

Creating or Selecting a Trademark

Creating or selecting a trademark is no easy task. There are, in fact, specialized companies whose main service is to find or develop an appropriate trademark for the firms needs. While there are no hard-and-fast rules of what may be a successful trademark, there are some useful guidelines. Initially, the firms should make sure that their proposed mark meets the legal requirements for trademark registration. Above all, the mark must be sufficiently distinctive to be protectable and registrable with the national and foreign trademark offices (LIIP, 2003). Inherent distinctiveness will also enhance its easy recognition by consumers. Moreover, among the commonly used criteria for creating, designing or selecting a trademark, firms may wish to consider the following:

- The sign should be easy to read, spell, pronounce and remember in all relevant languages.

- It should have no adverse meaning in slang or undesirable connotations.

- It should be suitable for export markets with no adverse meaning in foreign languages, especially if the firms intend to commercialize the product abroad.

- It should not create confusion as to the nature of the product.

- It should be adaptable to all advertising media.

The trademark of choice is likely to fall under one of the following categories:

- *Coined words (or "fanciful" words)*: These are invented words without any real meaning in any language such as Kodak or Exxon. Coined words have the advantage of being easy to protect, as they are more likely to be considered

distinct. On the negative side, however, they may be more difficult to remember for consumers requiring greater efforts in advertising the products.

- *Arbitrary marks* are trademarks that consist of words that have a real meaning in a given language. The meaning of such words, however, has no relation to the product itself or to any of its qualities such as Apple for a Computer. As is the case with coined words, while the level and ease of protection is generally high, there is no direct association between the mark and the product requiring thus greater marketing power to create such an association in the mind of the consumer.

- *Suggestive marks* are marks, which hint at one or some of the attributes of the product. The appeal of suggestive marks lies in the fact that they act as a form of advertising and may create a direct association in the mind of consumers between the trademarks, certain desired qualities and the product. A related risk, however, is that some jurisdictions may consider a suggestive mark too descriptive or not sufficiently distinctive to meet the criteria for trademark protection.

3.2.2.5. Benefiting from Copyright

The exclusive rights, which are accorded, to authors and right holders under national copyright legislation vary from one country to another.

However, exclusive rights usually encompass, for example, the right of reproduction namely right of making copies, the right of public performance, the right of broadcasting, and the right of adaptation. Also an increasing number of countries provide right holders with rights in relation to the distribution of their works over the Internet as well as protection against the circumvention of technological protection measures.

Thus, it would be worthwhile finding out what rights are provided under the national copyright legislation in order for the NTBFs to fully benefit from the protection of copyright and related rights. In order to facilitate legitimate trade of copyright works, it should also be kept in mind that the economic rights granted to authors have a time limit, according to the WIPO treaties, of 50 years after the creator's death. Longer periods of protection

might be provided at the national level. Collective management organizations are usually in a position to provide appropriate information on the issue.

Do also remember that copyright protection usually includes moral rights, which include the right to claim authorship of a work, and the right to oppose changes to it that could harm the creator's reputation.

3.2.2.6. IP: Enhancing the Market Value of Start-Ups

The value of IP is often not adequately appreciated and its potential for providing opportunities for future profit is widely underestimated by NTBFs. However, when IP is legally protected and there is demand for the IP-protected products and/or services in the marketplace, IP can become a valuable business asset.

- IP may generate an income for NTBFs through the licensing, sale, or commercialization of the IP-protected products or services that may significantly improve an enterprise’s market share or raise its profit margins.

- IP rights can enhance the value or worth of NTBFs in the eyes of investors and financing institutions.

- In the event of a sale, merger or acquisition, IP assets may significantly raise the value of the enterprise, and at times may be the primary or only true assets of value.

The strategic utilization of IP assets can, therefore, substantially enhance the competitiveness of NTBFs, which should make sure that they are ready to face the challenge and take measures to exploit their IP and protect it wherever possible. Like physical assets, IP assets must be acquired and maintained, accounted for, valued, monitored closely, and managed carefully in order to extract their full value. But before this can be done, NTBFs must first acknowledge the value of IP and begin to see it as a valuable business asset.

Intellectual Property as a Business Asset

An enterprise’s assets may be broadly divided into two categories: physical assets,

including buildings, machinery, financial assets and infrastructure, and intangible assets, ranging from human capital and know-how to ideas, brands, designs and other intangible fruits of a company's creative and innovative capacity. Traditionally, physical assets have been responsible for the bulk of the value of a company, and were considered to be largely responsible for determining the competitiveness of an enterprise in the market place. In recent years, the situation has changed significantly. Increasingly, and largely as a result of the information technologies revolution and the growth of the service economy, companies are realizing that intangible assets are often becoming more valuable than their physical assets.

In short, large warehouses and factories are increasingly being replaced by powerful software and innovative ideas as the main source of income for a large and growing proportion of enterprises worldwide. Moreover, even in sectors where traditional production techniques remain dominant, continuous innovation and endless creativity are becoming the keys to greater competitiveness in fiercely competitive markets, be it domestic or international. Intangible assets are therefore taking center stage and NTBFs should seek how to make best use of their intangible assets.

One crucial way of doing so is by legally protecting intangible assets and, where they meet the criteria for intellectual property protection, acquiring and maintaining IP rights. IP rights may be acquired in particular for the following categories of intangible assets:

- Innovative products and processes (through patents and utility models);
- Cultural, artistic and literary works including, in most countries, also for computer software and compilation of data (through copyright and related rights protection);
- Creative designs, including textile designs (through industrial design rights);
- Distinctive signs (mostly through protection of trademarks including collective and certification marks);
- Microchips (through protection of layout-designs or topographies of integrated circuits);

- Trade secrets (through protection of undisclosed information of commercial value).

Intellectual Property Protection as an Investment

Making the right investments is crucial for enhancing the market value of NTBFs. Investing in equipment, property, product development, marketing and research can strongly enhance the company's financial situation by expanding its asset base and increasing future productivity. Acquiring intellectual property may have a similar effect. Markets will value the company on the basis of its assets, its current business operations and expectations of future profits. Expectations for future profit may be considerably affected by the acquisition of key patents. There are numerous examples of NTBFs that have seen their market value increase overnight as a result of their acquisition of important patents in key technologies.

Similarly, a good trademark with a good reputation among consumers may also enhance the company's current value and may decisively contribute to making your company's products and services more attractive to consumers. Investment in developing a good IP portfolio is, therefore, much more than a defensive act against potential competitors. It is a way of increasing the company's market value and improving future profitability.

The Value of IP Assets

A crucial point about legal protection of intellectual property is that it turns intangible assets into exclusive property rights, albeit for a limited period of time. It enables NTBFs to claim ownership over their intangible assets and exploit them to their maximum potential. In short, IP protection makes intangible assets a bit more tangible by turning them into valuable exclusive assets that can often be traded in the market place.

If the innovative ideas, creative designs and powerful brands of NTBFs are not legally protected by IP rights, then these may be freely and legally used by any other enterprise without limitation. However, when they are protected by IP rights, they acquire concrete value for the enterprise as they become property rights, which cannot be commercialized or used without your authorization.

Increasingly, investors, stock market brokers and financial advisors are becoming aware of this reality and have begun to value IP assets highly. Enterprises worldwide are also more and more acknowledging the value of their IP assets, and, on occasions, have included them in their balance sheets. Many enterprises, including NTBFs, have begun to undertake regular technology and IP audits. In a number of cases, enterprises have realized that their IP assets are in fact worth more than their physical assets. This is often the case for companies operating in knowledge-intensive and highly innovative sectors, or companies with a well-known brand name.

Auditing the IP

One way, NTBFs may acquire a better position to capitalize on the potential benefits of its IP assets and extract their full value is by conducting an IP audit. Ideally, this should be done by professional IP auditors, but often a preliminary IP audit may be done within the company. This entails identifying, monitoring, valuing NTBFs. IP assets so as to make sure that you are making the most out of them. By doing so, NTBFs would be able to make informed decisions when it comes to:

Acquiring IP assets: Knowledge of the company's intellectual property and of its value will assist them in deciding which type of IP rights to acquire and maintain, and how best to manage the IP assets of the NTBFs

Mergers and acquisitions: Good knowledge of what IP assets NTBFs owns can lead to a significant increase in the value of NTBFs. This is because investors would value a company on the basis of their expectations of future profits, which may, to a considerable extent, be based on the exploitation of IP rights.

Licensing: NTBFs can increase their cash flow revenue by licensing out its IP rights to a third party. An IP audit will assist NTBFs in determining the value of their own IP in order to obtain maximum benefit from license agreements. The revenue resulting there from has the potential of increasing the market value of the NTBFs.

Collateral: A well-structured IP portfolio can also be used as collateral. In such cases lenders will use the IP assets to determine the credit worthiness of NTBFs.

Enforcement: Knowing the value of the IP assets will assist NTBFs in taking decisions on whether it is worthwhile taking action against infringement and in what way this may be done on a case by case basis.

Cost reduction: A well-managed IP register would help them to identify obsolete IP assets thus enabling them to cut-down IP asset maintenance costs, avoid infringing other peoples IP rights, etc. This would undoubtedly lead to a reduction in costs.

By establishing a culture of identifying and cultivating IP assets and strategically using them, an enterprise can increase its revenue, have an edge over its competitors and position itself well in the market; these are strategies that may lead to an increased market value of NTBFs.

3.2.2.7. IP: Crucial for Marketing the Products or Services of Start-Ups

For most NTBFs, marketing products or services is a major challenge. A marketing strategy should establish a clear link between the products or services and the firm, as the producer or provider of such products or services. That is to say, customers should be able to distinguish, at a glance, between the products or services and those of the competitors and associate them with certain desired qualities.

IP, when efficiently used, is an important tool in creating an image for the business in the minds of your current and potential customers and in positioning the business in the market. IP rights, combined with other marketing tools such as advertisements and other sales promotion activities are crucial for:

- Differentiating the products and services and making them easily recognizable,
- Promoting the products or services and creating a loyal clientele,
- Diversifying the market strategy to various target groups,
- Marketing the products or services in foreign countries.

Intellectual Property Rights and Marketing

Different IP rights may contribute to the marketing strategy in different ways:

Trade/Service Marks

A well-crafted mark is often a decisive tool for the success of NTBFs in the market place. It will enable consumers to distinguish products or services of NTBFs from those of the competitors and to associate the products or services with desired qualities. Furthermore, it may play an important part in the ability of the product or service to penetrate a new market, especially if care was taken while selecting or creating the mark so that it appeals to the target market. It is crucial that the firm search for conflicting marks prior to filing an application or using a new mark on their products or services. For this purpose, the firm may wish to use the services of a competent attorney or agent. This would save NTBFs from incurring unnecessary expenses if there is already an identical or conflicting mark in the target market.

Industrial Designs

In today's highly competitive global economy, a visually attractive design alone may enable the firms to captivate a demanding and extremely diversified clientele. Through creative designs, NTBFs could reach out to and appeal to diverse groups of customers from different age groups, regions, cultures, etc. Having design rights on an attractive shape or style of a product may give them the much-needed edge over the competition.

Patents

The market for the newly introduced product can effectively be protected by obtaining patent protection. Being a patent holder, a firm can also open other business avenues such as licensing or strategic alliances.

Utility Models

Effective utilization of utility models, where such protection is available, can help NTBFs stay abreast of its competitors. If strategically used, the protection of utility models can be an effective tool in positioning NTBFs in the marketplace especially if NTBFs are active in

a business where technological advantage plays an important role in determining who holds a larger share of the market. By paying close attention to the competitors' products and their promise of benefits, they can always improve products of themselves in order to provide the same or even greater benefits and protect the innovation as utility models, especially if the criteria of patentability are not fully met.

Marketing the Products and Services in the New Economy

Impact of Electronic Commerce on Intellectual Property and NTBFs

While the Internet can open a lot of opportunities for NTBFs, it may also pose a number of challenges for the effective protection and enforcement of intellectual property rights, in general, and for copyright and related rights, trademarks and patents, in particular. The protection of copyright and related rights in the digital environment, the protectability of e-commerce business methods by patents, the use of trademarks as "conjunction" and keywords, the infringement of trademark rights through the use of a sign on the Internet, the scope of protection of well-known marks and unfair competition in electronic commerce are some of the controversial issues and challenges which NTBFs may have to face.

Domain Names

If the firms intend to do business via the Internet then they need an Internet address, technically known as a domain name. In spite of their different function, domain names often conflict with marks, which are used to identify and distinguish their products or services from those of their competitors. NTBFs should, therefore, avoid using a domain name that is already protected by another enterprise as a mark. When NTBFs is faced with the use of its mark as a domain name by a competitor, they may wish to seek advice on how a dispute can be settled efficiently and at a reasonable cost. While conflicts between marks and domain names can be resolved in courts, many firms may prefer to take advantage of faster and cheaper special procedures under alternative dispute settlement mechanisms.

Getting the Best out of IP Protection

To make sure that NTBFs' marketing program gets the best out of their IP rights, the

following points are worth considering:

- Register or seek protection of the IP assets at the earliest in order to take full advantage of their IP rights while undertaking advertising and other promotional activities.

- Check carefully to make sure that NTBFs does not infringe the IP rights of others. In this respect, it is advisable to conduct trademarks and patent searches before commercializing products and services, which may conflict with the IP rights protected by other persons or enterprises.

- Use, or make reference to, the IP rights in the advertisements and other promotional activities in order to make the customers and potential customers aware of the IP protection of your products and services.

- Monitor the market and be ready to contact an IP lawyer or an official enforcement authority wherever the firms detect infringement of their IP rights that may be damaging firms' profits or reputation. IP rights in fact allow the firms to fight unauthorized copying, imitation and other kinds of infringement. National legislation or case law may also provide protection against unfair competition, such as false allegations aimed at discrediting the products or services, allegations aimed at misleading the public as to the characteristics of the products and services and acts which aim at creating confusion with the products and services.

3.2.2.8. IP: Enhancing the Export Opportunities of Start-Ups

Before embarking on an export operation, enterprises go through a series of crucial steps which range from identifying an appropriate export market and estimating demand, to finding channels of distribution, estimating costs and obtaining funds. Here it is mentioned to outline the main reasons why the firms should also take IP issues into account while planning their export strategy, and look into ways in which IP rights could enhance the competitiveness of NTBFs in export markets.

As IP rights are territorial, i.e., are only available to the applicants in the country or region in which they had been applied for and granted, to enjoy exclusive IP rights in foreign

markets, the firms would have to seek and obtain protection abroad. The main reasons for protecting IP in export markets are outlined below:

- IP rights, especially patents, may open up new export opportunities.

- IP rights, especially trademarks and industrial designs, may help the firms to develop an advantageous market position in export markets.

- IP rights enhance the opportunity of winning loyal clientele for the products and services in export markets.

Exporting the Patented Products

Patent or utility model protection abroad allows the firms to enjoy an important competitive advantage in their export markets. Companies that have adequately protected their inventions abroad have a range of options for exporting their innovative products that may not be available otherwise. These options include:

- Producing the good domestically and exporting the protected good directly or through intermediaries, knowing that no other company will be able to legally produce, sell or exploit the same product in the selected market without the firms authorization.

- Licensing the invention to a foreign firm that will manufacture the product locally, in exchange for a lump-sum payment and/or royalty fees.

- Setting up joint ventures with other firms for manufacturing and/or commercialization of the product in the selected foreign markets.

Using Brands and Designs to Market Goods and Services Abroad

The reasons for protecting trademarks and industrial designs in the domestic market fully apply to foreign markets too. Trademark registration, in particular, enables the firms to maximize product differentiation, advertising and marketing, thus enhancing recognition of the product or service in international markets and establishing a direct link with the foreign consumers. Depending on the nature of the service, a franchising agreement with

firms abroad could be a useful alternative way to earn revenue from the trademark abroad as well.

Companies that export unbranded products will face disadvantages such as:

- Lower revenues as consumers demand lower prices for unbranded goods.

- Lack of customer loyalty, largely due to their inability to recognize the product and distinguish it from the products of competitors.

- Difficulties in marketing and advertising products or services abroad in the absence of a suitable symbol or easy identifier that links their products or services with themselves, as marketing an unbranded product is inherently much more difficult.

With regard to industrial designs, protection in export markets will help not only to strengthen the firms overall marketing strategy but may also be important for customizing products for specific target markets, creating new niche markets for the company's products, and strengthening the company's image and reputation by linking it to a specific design.

International Exhaustion and Parallel Importation

While developing the export strategy, the firm should verify, preferably by consulting a qualified professional, whether a buyer could legally resell in another market IP-protected goods bought from, or with the consent of, the firm without having to seek their consent. This issue will only arise if the firm have already protected or would be protecting the IP rights in the domestic as well as in export markets. Similarly, if the firm has bought goods that are protected by a patent, trademark, industrial design and/or copyright, then it should ascertain whether it would need the formal agreement of the IP owner(s) to sell those goods abroad, that is, in other markets. The firm may be surprised that the answers to these questions are rather complex and may not only be different from one country to another but may also depend on the kind of IP rights involved.

"Exhaustion" of IP rights refers to one of the limits of intellectual property rights. Once a product protected by an IP right has been marketed either by the firm itself or by others

with their consent, the IP rights of commercial exploitation over this given product can no longer be exercised by the firm, as they are “exhausted”. Sometimes this limitation is also called the “first sale doctrine”, as the rights of commercial exploitation for a given product end with the product’s first sale. Unless otherwise specified by law, subsequent acts of resale, rental, lending or other forms of commercial use by third parties can no longer be controlled or opposed by NTBFs. There is a fairly broad consensus that this applies at least within the context of the domestic market.

There are fewer consensuses as to what extent the sale of an IP protected product abroad can exhaust the IP rights over this product in the context of domestic law. The issue becomes relevant in cases of so-called “parallel importation”.

Parallel importation refers to the import of goods outside the distribution channels contractually negotiated by the manufacturer. Because the manufacturer/IP owner has no contractual connection with a parallel importer, the imported goods are sometimes referred to as “grey market goods”, which in fact is somewhat misleading, as the goods as such are original, only the distribution channels are not controlled by the manufacturer/IP owner. Based upon the right of importation that an IP right confers upon the IP owner, the latter may try to oppose such importation in order to separate markets. If, however, marketing of the product abroad by the IP owner or with his consent leads to the exhaustion of the domestic IP right, also the right of importation is exhausted and can thus no longer be invoked against such parallel importation.

The above principles have different implications depending on whether the country of importation, for reasons of law or policy, applies the concept of national, regional or international exhaustion.

The concept of national exhaustion does not allow the IP owner to control the commercial exploitation of goods put on the domestic market by the IP owner or with his consent. However, the IP owner or his authorized licensee could still oppose the importation of original goods marketed abroad based on the right of importation.

In the case of regional exhaustion, the first sale of the IP protected product by the IP owner or with his consent exhausts any IP rights over these given products not only domestically, but within the whole region, and parallel imports within the region can no longer be opposed based on the IP right.

Where a country applies the concept of international exhaustion, the IP rights are exhausted once the product has been sold by the IP owner or with his consent in any part of the world.

National IP offices, or IP agents/attorneys, should be able to inform the firms as to which provisions or case law applies in the relevant country for each type of IP rights.

3.2.2.9. Using IP Assets for Financing of Start-Ups

In recent years, there is growing awareness that IP assets can be monetarized. There are various ways to do so. IP can be sold, licensed, used as collateral or security for debt finance, or it can provide an additional or alternative basis for seeking equity from friends, family, private investors, the so-called “business angels” who invest in unquoted technology-based SMEs and often also provide experience and business skills, specialized banks, some times even from regular banks and venture capitalists as mentioned in the section 2.2 of this study.

In addition, in most countries, the government provides encouragement and support to high-tech start-ups and other innovative SMEs through grants, guarantees, subsidies and/or soft loan schemes, which are provided via various public funding institutions and banks that directly or indirectly recognize the importance of intellectual property assets.

As an owner/manager of an NTBF, therefore, it is important for him to look after the intellectual property of his firm not only as a legal asset but also as a financial instrument.

Using IP Assets to Finance the Business

IP assets may help the firms to strengthen their case for obtaining business finance from investors/lenders. The investor/lender, be it a bank, a financial institution, a venture capitalist, or a business angel, in undertaking an appraisal of the request for equity assistance or loan, will assess whether the new or innovative product or service offered by the NTBFs is protected by a patent, a utility model, a trademark, an industrial design, or copyright or related rights. Such protection is often a good indicator of the potential of the NTBFs for doing well in the marketplace.

IP ownership is, thus, important to convince investors/lenders of the market opportunities open to the enterprise for the commercialization of the product or service in question. On occasions, a single powerful patent may open doors to a number of financing opportunities.

Ownership of IP rights over the creative output or innovations related to the products or services that an enterprise intends to market, guarantees a certain degree of exclusivity and, thereby, a higher market share if the product/service proves successful among consumers.

Different investors/lenders may value your IP assets in different ways and may attach different degrees of importance to IP rights. A clear trend, however, is developing towards an increasing reliance on IP assets as a source of competitive advantage for firms. Thus investors/lenders are increasingly focusing on firms with a well-managed IP portfolio, even though they encounter, even in the developed countries, many new problems and issues while trying to perfect security interests in intellectual property.

The owner/manager of an NTBF must therefore take steps to understand the commercial value of the IP assets of his NTBF, ensure their proper valuation by professionals if need be, and understand the requirements, if any, for their proper accounting in the accounts books and balance sheet. Above all, make sure to include the IP assets of his NTBF in his business plan when presenting it to potential investors/lenders.

The Securitization of IP Assets - A New Trend

Lending partly or wholly against IP assets is a recent phenomenon even in developed countries. Collateralizing commercial loans and bank financing by granting a security interest in IP is a growing practice, especially in the Internet-based SMEs and in high technology sectors.

Securitization normally refers to the pooling of different financial assets and the issuance of new securities backed by those assets. In principle, these assets can be any claims that have reasonably predictable cash flows, or even future receivables that are exclusive. Thus securitization is possible for future royalty payments from licensing a patent, trademark or trade secret.

At present, the markets for IP asset-based securities are small, as the universe of buyers and sellers is limited. But if the recent proliferation of IP Exchanges on the Internet is an indication, then it is only a matter of time before all concerned will develop greater interest and capacity to use IP assets for financing business start-ups and expansions. As more cash flows are generated by IP, more opportunities will be created for securitization.

Importance of Proper Valuation of Intellectual Property for Obtaining Finance

While securitization appears to be gaining ground, conventional lending remains the main source of external finance for most NTBFs. The practice of extending loans secured solely by IP assets is not very common; in fact, it is practiced more by venture capitalists than by banks. If the firm seek to use IP assets as collateral to obtain financing, their IP assets stand a greater chance of being accepted as collateral if they are able to prove their liquidity and that they can be valued separately from their business. Furthermore, they have to show that their IP assets are durable, at least for the period during which they have to repay the loan, and marketable in the event of foreclosure or bankruptcy.

In this respect, it is critical to identify all the IP assets of the NTBFs and to obtain an objective valuation of the identified assets from a competent valuation firm. The value of IP management processes, which identify, log, track and quantify your IP assets, becomes increasingly important in the Internet economy. This is one more reason for the firm to increase in-house awareness of the extent and value of IP asset holdings, including trade secrets, which might be used to collateralize a loan.

In addition, the increasing use of royalty streams arising from licensing to determine the value of intellectual property is a welcome development in enhancing the acceptability of intellectual property assets as valuable assets providing security for debt financing and equity participation.

An NTBF, it is therefore important to keep this aspect in mind while seeking financial assistance in particular, and while developing their business strategy and business plan in general.

3.2.2.10. A Challenge for Profit by Using IP Assets: Licensing of IP Rights and Franchising

Licensing of IP Rights

Definition of a License

The word “license” simply means permission that a person grants to another permission to do something (WIPO, 2003e). A license agreement is a formal, preferably written document recording the circumstances under which a promise is legally binding on the person making it.

There are at least two essential parties: the licensor, the party who owns the IP and is agreeing to let it be used, and the licensee, the party who receives the right to use the IP in exchange for payment.

Therefore, a license agreement is a partnership between an IP owner (licensor) and another who is authorized to use such rights (licensee) under certain conditions, usually for monetary compensation in the form of a flat fee or running royalty that is often a percentage or share of the revenues gained from use of the invention. Simply put, a license grants the licensee rights in property without transferring ownership of the property.

For an IP license to be effective, three basic conditions must be met (WIPO, 2003e):

- The licensor must have ownership of the relevant IP or authority from the owner to grant a license;
- The IP must be protected by law or at least eligible for protection;
- The license must specify what IP rights it grants to the licensee;
- The payment or other economic or IP assets to be given in exchange for the license must be clearly stated.

There are many different types of IP licenses, such as technology licenses, publishing and entertainment licenses and trademark and merchandising licenses.

Advantages of Licensing for the Licensor

Many companies have a portfolio of patents, utility models, proprietary know-how, trademarks and other IP assets that can be licensed. There are many reasons for a company to license out some or all of the IP rights in its portfolio.

A company that owns rights in a patent, know-how, or other IP assets, but cannot or does not want to be involved in the manufacturing of products, could benefit from the licensing out of such IP assets and rely on the better manufacturing capacity, wider distribution outlets, greater local knowledge and management expertise of another company (the licensee). Licensing out could also help a company to commercialize its IP or expand its current operations into new markets more effectively and with greater ease than on its own. If the licensor's trademark is also licensed for use in the market along with other IP, then the licensee's marketing efforts essentially benefit the licensor's reputation and goodwill.

In fact, a trademark license agreement is the heart of any merchandising program, because it delineates the relationship between the owner of a trademark (the licensor) and the producer of the goods or services to which the mark is to be affixed (the licensee). While the licensor is not involved in the manufacturing of the products, he must ensure that the licensee conforms to all conditions concerning maintenance of the quality of the product in relation to which the licensed trademark is used (WIPO, 2003e).

Similarly, licensors with experience in the field of research and product development may find it more efficient to license out new products rather than take up production them. A company that owns IP rights in a technology that it cannot afford to manufacture could consider licensing out the IP rights in that technology for manufacturing and selling products embodying the technology in a specific manner for a specific time and region. Thus, the licensor continues to have the IP rights in the technology and has only given a defined right to the use of that technology.

Licensing out may be used to gain access to new markets that are otherwise inaccessible. By granting the licensee the right to market and distribute the product, the

licensor can penetrate markets it could not otherwise hope to serve. The licensee may agree to make all the adaptations required for entering a foreign market, such as the translation of labels and instructions; the modification of goods to conform to local laws and regulations; and adjustments in marketing. Normally, the licensee will be fully responsible for local manufacture, localization, logistics and distribution.

A license agreement can also provide (WIPO, 2003e):

- A useful tool to reach a market for which the licensor's own production or marketing resources are insufficient; it is sometimes better to find a local partner than to set up a new establishment in a foreign country so as to speed up the entry into a new market, ahead of competitors;

- A means for the licensor to gain rights in improvements, know-how and related products that will be developed by the licensee during the term of the contract; however this cannot always be demanded, as a matter of right, by the licensor;

- A means of turning an infringer or competitor into an ally or partner by avoiding or settling IP litigation, which may have an uncertain outcome or may be costly and/or time-consuming;

- A solution when a product sells best only when it is incorporated or sold for use with another product; or if a number of IP assets, for example patents, owned by different businesses, are required simultaneously for efficient manufacturing or servicing of a product;

- Some degree of control over innovations and also over the direction of evolution of technologies where interoperability is important; this is often the reason why many companies choose to work closely in the setting of technical standards with national and international standard-setting bodies; the licensing of patents becomes obligatory when patented technology forms part of an industry standard.

The licensing out of IP that a business owns but does not need in its own business can be an excellent source of additional revenue, which goes straight toward improving the company's net worth. This is one of the principal reasons for performing a periodical audit

of a company's IP portfolio. A firm may have the resources to exploit its IP through only one product, but the IP may be applicable to other related or unrelated fields of use, products or services.

Last but not least, a license agreement allows the licensor to retain ownership of the IP and at the same time to receive royalty income from it, in addition to the income from its own exploitation of it in products and services that it sells.

Disadvantages of Licensing for the Licensor

The risks of licensing include the following (WIPO, 2003e):

- The licensor's own investment can sometimes generate better profits than operating only, or through, a license agreement.

- A licensee can become the licensor's competitor. The licensee may "cannibalize" sales of the licensor, causing the latter to gain less from royalties than it loses from sales that go to its new competitor. The licensee may be more effective or get to the market faster than the licensor because it may have fewer development costs or may be more efficient.

- The licensee may suddenly ask for contributions, such as technical assistance, training of personnel, additional technical data, etc. All this may simply prove too expensive for the licensor. It is important that the license agreement clearly defines the rights and responsibilities of the parties, so that any future disagreements can be quickly and efficiently resolved.

- The licensor depends on the skills, abilities and resources of the licensee as a source of revenue. This dependence is even greater in an exclusive license where an ineffective licensee can mean no royalty revenue for the licensor. Contractual provisions for minimum royalties and other terms can guard against this, but it is still a concern.

- A license agreement can be disadvantageous when the product or technology is not clearly defined or is not complete. In such a case the licensor may be expected to continue development work at great expense to satisfy the licensee.

Advantages of Licensing for the Licensee

There are various ways in which a license agreement can give the licensor and licensee the possibility of increasing revenues and profits and enlarging market share (WIPO, 2003e):

- There is often a rush to bring new products into the market. A license agreement that gives access to technologies and brands which are already established or readily available can make it possible for an enterprise to reach the market on time.

- The licensee will benefit from superior technology to produce better quality products, or established trademarks to market his products better.

- Small companies may not have the resources to conduct the research and development that is necessary to provide new or superior products. A license agreement can give an enterprise access to technical advances, which would otherwise be difficult for it to obtain.

- A license can also be necessary for the maintenance and development of a market position that is already well established but is threatened by a new design or new production methods. The costs entailed in following events and trends can become daunting, and quick access to new technology through a license agreement may be the best way to overcome this problem. However, this can increase the product cost and affect the market price in unpredictable ways.

- There may also be licensing-in opportunities which, when paired with the company's current technology portfolio, can create new products, services and market opportunities.

Disadvantages of Licensing for the Licensee

- The licensee may have made a financial commitment for a technology that is not "ready" to be commercially exploited, or that must be modified to meet the licensee's business need;

- An IP license may add a layer of expense to a product. It is fine to add new technology, but only if it comes at a cost that the market will bear in terms of the price that can be charged. Multiple technologies added to a product can result in a technology-rich product that is too expensive to bring to market (WIPO, 2003e).

Franchising

The Definition of Franchising

Franchising may be defined as a contractual arrangement under which an entrepreneur or enterprise (the franchiser), who has developed a system for conducting a particular business, allows other entrepreneurs or enterprises (the franchisee) to use that system in accordance with the prescriptions of the franchiser, in exchange for a fee or other monetary consideration. (WIPO, 2003f)

The franchise system is essentially a package comprised of intellectual property (IP) rights relating to one or more trademarks, trade names, industrial designs, inventions and works protected by copyright, together with relevant know-how and trade secrets, to be exploited for the sale of goods or the provision of services to customers. The trade secrets may also include the franchiser's documentation on operating procedures, technical assistance, marketing set-ups, training systems, management policies, accounting practices or even packaging techniques and all other relevant information that helps a franchisee to run the business. The franchiser may also train the franchisees before the starts of the franchise operations and also on an ongoing basis, as the key to success in franchising is successful franchisees.

Franchising is often referred to as a relationship business, or as a mechanism for growing a business through partnership alliances between a franchiser and a number of franchisees. As such, a synergetic relationship between the franchiser and franchisee is one of the key elements of any successful franchise system. An important aspect of any franchise contract is the maintenance of a delicate balance for ensuring that the franchiser's business structure is protected while providing the franchisee enough room for maneuver to exploit the local market.

IP Issues in Franchising

IP rights are at the heart of any franchising agreement. Therefore, it is necessary to clearly identify and list all types of IP, for example the trademark, trade names, copyright, patent, trade secrets or know-how, which the franchiser will be licensing to the franchisee. The most vital part of IP in a franchise is the trademark, since the whole idea is to manufacture, deliver or distribute a product or service under a certain brand, which has already proved to be successful in the marketplace. Before entering into a franchising agreement, a prospective franchisee must ensure that any IP rights being licensed under the agreement exist, are owned by the franchiser, and that the franchiser is competent to license the IP rights. Equally, the franchiser has to ensure that the IP will not be misused by the franchisee.

As the success of a franchise system often depends on know-how and confidential information, the franchise agreements often include clauses stipulating that the franchisee take all reasonable measures to prevent the loss or theft of any of the know-how or trade secrets of the franchiser (WIPO, 2003f).

3.2.3. Policy on IP Monitoring

Consulting patent and trademark databases regularly is important in order to find out about recent technical developments and new technologies, identify new licensing partners or suppliers, new market opportunities, monitor activities of competitors, identify possible infringers, and avoid infringing competitors' rights.

3.2.3.1. Using Patent Information for the Benefits of Start-Ups

Definition of the Patent Information

Patent information is the technical and legal information contained in patent documents that are published periodically by patent offices.

A patent document includes the full description of how a patented invention works and the claims, which determine the scope of protection as well as details on who patented the invention, when it was patented, and reference to relevant literature. About two-thirds of the technical information revealed in patents is never published elsewhere and the

entire set of patent documents worldwide includes approximately 40 million items. This makes patent information the single most comprehensive collection of classified technological data.

Usefulness of Patent Information for NTBFs

Patent information is useful for NTBFs for a number of reasons. Probably the most important one is that patents are a unique source of technical information, which NTBFs may find of great value for their strategic business planning. Most inventions are disclosed to the public for the first time when the patent or, where the law so provides, when the patent application is published. Thus, patents provide a means of learning about current research and innovations often long before the innovative products appear on the market. The technical information contained in patent documents can provide the NTBFs with important insights that may be used to (Ernst, 2003):

- Avoid unnecessary expenses in researching what is already known,
- Identify and evaluate technology for licensing and technology transfer,
- Identify alternative technologies,
- Keep abreast with the latest technologies in your field of expertise,
- Find ready solutions to technical problems,
- Get ideas for further innovation,

From the point of view of the commercial strategy of the enterprise, patent information would help to:

- Locate business partners,
- Locate suppliers and materials,
- Monitor activities of real and potential competitors,

- Identify niche markets,

Finally, the information contained in patent documents could also be used by NTBFs to:

- Avoid possible infringement problems,
- Assess patentability of your own inventions,
- Oppose grant of patents wherever they conflict with your own patent,

The Advantages of Patent Documents as a Source of Information

- They contain information, which is often not divulged in any other form of literature.
- They have a relatively standardized format including an abstract, bibliographic information, a description of, and in most cases also drawings illustrating the invention and full details on the applicant.
- They are classified according to technical fields.
- They provide examples of industrial applicability of an invention.
- They cover practically every field of technology.

3.2.3.2. Conducting Trademark Searches

As a first step to protecting trademarks, the firms are advised to conduct a trademark search to make sure that the mark in question is not already in use by another enterprise in the target markets. Trademark offices in many countries register marks without comparing them with existing trademark registrations and applications received earlier, but leave it to the future competitors to give notice of opposition once the mark or the application has been published/registered. Therefore, obtaining trademark registration in such countries is no guarantee that the trademark will not be infringing on the rights of others. It is therefore important, wherever possible, to search national trademark databases prior to using a trademark for the export operations.

Trademark searches may be conducted through online databases though few countries currently offer such services, specialized firms, or at the national trademark registry.

3.2.4. Policy on IP Enforcement

A clear policy on IP enforcement is crucial due to the losses that may be incurred by the existence of counterfeited goods in the market and the high costs involved in some IP disputes.

3.2.4.1. Resolving Disputes Related to IP

Acquisition and maintenance of an intellectual property right is meaningless if that right cannot be enforced in the marketplace. It is the threat of enforcement which allows an intellectual property right to be exploited as a commercial asset. When viewed in this context, the existence of an effective enforcement regime becomes a central aspect of a well-functioning IP system.

The Reason for Enforcing IP Rights

The main objective of acquiring IP protection is to enable the firms to reap the fruits of those inventions and creations of its employees, which resulted in IP rights for the owners. Its intellectual property assets can only lead to benefits when the acquired intellectual property rights can be enforced, otherwise, infringers and counterfeiters will always take advantage of the absence of effective enforcement mechanisms to benefit from your hard work. In a nutshell, the enforcement of IP rights is essential for the firms in order to:

- Preserve the legal validity of its IP rights before the relevant public authority.
- Prevent infringement from occurring or continuing in the marketplace in order to avoid damage including loss of goodwill or reputation.
- Seek compensation for actual damage, such as loss of profit, resulting from any instance of infringement in the marketplace.

The burden of enforcing IP rights is mainly on the holder of such rights. It is up to the firm, as an IP right holder to identify any infringement/counterfeiting of its IP rights and to decide what measures should be taken. Whereas in most cases the managers would initiate civil proceedings, in the case of counterfeiting and piracy you may consider initiating criminal procedures, if that option is available.

However, it is the responsibility of the national or state governments to establish institutions which facilitate the enforcement of intellectual property rights. The judiciary and, in some cases, the administrative bodies like intellectual property offices or customs authorities are government institutions which may have to deal with infringement or counterfeiting cases. Where border measures are available to prevent the importation of counterfeit trademark goods or pirated copyright goods, customs authorities have a major role to play when it comes to IP enforcement at the international borders of the country. According to the provisions of the applicable legislation, the customs authorities have to take action at their own initiative, on request of the right holder, or execute court orders. Furthermore, in some countries, there are industry associations, which assist their members in enforcing their IP rights such as BSA.

In addition, there is also the option to seek enforcement between parties by a private arbitration or mediation where the firm's contract provides for a dispute to be settled by that means.

Availability of Enforcement Procedures

The TRIPS Agreement obliges members of the WTO to provide the prescribed mechanisms for enforcement of intellectual property rights. The relevant provisions of the TRIPS Agreement seek to ensure that civil, administrative and criminal procedures and remedies meet the prescribed minimum standards regarding evidence and availability of injunctions, damages, other remedies, right of information, indemnification of the defendant and administrative procedures.

For the IP right holder NTBFs, it is of great practical importance to know that judicial authorities in a large number of countries are vested with powers to order prompt and effective provisional measures aimed at stopping an alleged infringement.

In order to prevent the importation of counterfeit trademark and pirated copyright goods, border measures are available to the right holder in many countries through the national customs authorities. As an IP right holder the firm can be helped more easily by the customs authorities at the border; because otherwise they would have to deal with many infringers once the goods have been distributed in the country.

The Way of Enforcing the IP Rights of the NTBFs

It is always useful and often necessary to seek expert advice once a firm has established that someone is infringing its IP rights.

In order to avoid tying up the limited financial and human resources of the firm in formal proceedings, once the managers have found out that someone is infringing the IP rights of their firm, they should first think of sending a letter (commonly known as “cease and desist letter”) to the alleged infringer informing him/her of the possible existence of a conflict between the IP rights of the firm and his/her business activity by identifying exact area of conflict and suggest that a possible solution to the problem be discussed.

It is advisable to seek the assistance of an attorney when one writes such a “cease and desist” letter in order to avoid court proceedings initiated by the alleged infringer protesting that no infringement has taken place or is imminent. This procedure is often effective in the case of non-intentional infringement since the infringer will in most such cases either discontinue his activities or agree to negotiate a licensing agreement.

When the firms are faced with intentional infringement, including, in particular, counterfeiting and piracy, they are well advised to seek the assistance of law enforcement authorities to surprise the infringer at his/her business premises in order to prevent an infringement and to preserve relevant evidence in regard to the alleged infringement. Furthermore, the infringer may be compelled by the competent judicial authorities to inform you of the identity of third persons involved in the production and distribution of the infringing goods or services and their channels of distribution. As an effective deterrent to infringement, the judicial authorities may order, upon request of the owner firm, that infringing goods be destroyed or disposed of outside the channels of commerce without compensation of any sort.

3.3. Conclusion

Generally the starting point of a NTBF is a bright idea, which tends to turn into a commercial product or service at least for a small certain part of the markets. Setting out the fact that most of the NTBFs are in SME statue, the strategy composed of four major policy titles namely as “IP Acquisition”, “IP Exploitation”, “IP Monitoring” and “IP Enforcement” proposed by WIPO SME Division would be harmonized and applied in the given order to constitute a NTBFs IP management strategy.

Firstly, to constitute a proper policy on IP acquisition a firm should consider for each of its intangible asset. There exists suitably what kind of IP issue and how those would be reached. The firm should decide first whether the target intangible asset value for protection with the official IP tools. After that the firm should consider the best protecting package and make sure that all the formal rights are acquired as quickly as possible.

Secondly, to constitute a proper policy on IP exploitation, a firm should consider policies on

- Turning inventions into profit-making assets of it by using the suitable package of IP tool,
- Protecting innovations by cheaper and easily maintained methods like utility models,
- Protecting the intangibles efficiently when unofficial IP tools like trade secrets are chosen,
- Determining and maintaining a suitable IP tool like trademarks for each intangible of the firm,
- Benefiting from each type of protection methods like copyright,
- Determining the usage of the IP tools to enhance the market value of NTBFs,
- Determining the usage of the IP tools to market the products or services of NTBFs,

- Determining the usage of the IP tools to increase the export opportunities of NTBFs,

- Using IP assets for financing NTBFs,

- Using IP assets to profit like as licensing or franchising them.

Thirdly, to constitute a proper policy on IP monitoring, a firm should consider the benefits of using the patent information data as a source of technical information and trademark searches.

Fourthly and lastly, to constitute a proper policy on IP enforcement, a firm should realize the reasons for enforcing IP rights and consider the availability of enforcement procedures.

The above-mentioned policies, each of which have to be determined by the firms themselves concerning with their other management policy issues like sales and marketing strategy, production strategy, R&D strategy, etc. Therefore, for a successful IP strategy, a firm first of all should constitute its business plan, which is a kind of business foresight document of the firm for a period of time and composed of the titles related with each business packages that the firm should consider, and place its IP strategies as one of these titles of its business plan.

In the next chapter, the thesis briefly analyzes the NTBFs and IP issues in Turkey by taking into account the discussions in the third chapter.

CHAPTER IV

NTBFS AND INTELLECTUAL PROPERTY ISSUES IN TURKEY

In Turkey, the institution related to the intellectual property issues is Turkish Patent Institute (TPI), which was established in 1994 in order to contribute to the technological progress of Turkey, constitute the free competition environment in the country and improve the R&D facilities. TPI is responsible for founding the rights related to patents, trademarks and other industrial rights under the restrictions of related laws, providing the protection of mentioned rights and presenting the released information and documentation related with the IP rights for the public benefits. TPI is a public organization and tied to the Ministry of Industry and Trade (TPE, 2003).

Despite, TPI was established in 1994, IP-related laws were first appeared in 1871 as "Alamet-i Farika Nizamnamesi" in the Ottoman Empire period. Although, some developments like contracting Paris Convention related to the international union in protection of industrial properties or participating the WIPO's establishment agreement were occurred in the period from 1871 till 1994, the studies in this field were very much behind in respect of industrially developed countries (Yalçıner and Kurt, 2004).

After 1995, the studies on IP issues were accelerated. Quite amount of IP-related laws like the trademark, patent/utility model, industrial design and geographical sign related law, the law related to the patent protection on drugs became valid, courts specialized on IP-related issues were established and Turkey participated to the various international agreements like WTO's TRIP's Agreement, which is trade-related aspects of intellectual property rights, Stockholm article of Paris Convention, Strasbourg agreement on internationally classification of patents, NIS agreement on internationally classification of goods and services used for trademark registrations, Vienna agreement related to classification of figurative elements in the trademarks, PCT agreement related to international application system for patents, Budapest agreement related to micro-organisms, Locarno agreement on internationally classification of industrial designs, Madrid protocol about international registration of trademarks, and European Patent Convention (EPC) (Yalçıner and Kurt, 2004).

In Turkey, all national and international applications of patents, trademarks and designs-related issues are under the authority of TPI while copyright related issues are under the authority of Ministry of Tourism and Culture. There are also some but not sufficient financial mechanisms to support TPI's above-mentioned purposes for the R&D facilities of the industry or software developer firms. The TPI's implementations on patents, trademarks and designs and the financial supports for the technology developing firms are explained in details in the following sections.

4.1. TPI's Implementations on Patents and Utility Models

The general patentable criteria, as mentioned in the second part of this study and explained in the appendix part namely novelty, basing on an inventive step and industrially applicable, is naturally valid in TPI evaluations.

Unlike most of the countries, in Turkey there are two kinds of patents one of which is an examined while the other one is non-examined. Examined patents contain an investigation report while non-examined ones do not. Therefore, examined patents are valid for twenty years and provide more reliable protection but non-examined ones have seven years use and do not provide as strong protection as the others. Unfortunately, examined ones are relatively expensive than the non-examined ones. Moreover, a non-examined patent can be converted into an examined patent if an investigation is requested within seven years period from the application date and the result of the investigation report is positive (TPE, 2004a).

In Turkey, there is also an alternative system for the patents called utility models, which provide ten years of protection. Unlike patents, utility models do not require to exceed the state-of-the-art. In other words, to be supplied of the novelty and industrially applicable criteria are sufficient to obtain a utility model certification. Moreover, since utility model certification process does not include research and examination operations, they are cheaper than the patents and the time period for obtaining them is also shorter according to the patent certification (TPE, 2004a).

No matter which type of a protection is preferred, it should be emphasized that there is an annual fee, determined by TPI for each year, to continue the validity of the protection. This means not only to obtain a kind of protection but also keep it alive brings a high cost to the owner of the protection.

TPI accepts not only national applications but also international applications of Turkish citizens and foreign applications targeted to Turkey's market. For instance, in PCT system, TPI are responsible for accepting the applications and transmit them to WIPO and related researches institutions. The rest of the process continues between the applicant, WIPO and related researches institutions (TPE, 2004a). Similarly, European Patent applications can also be carried out by the mediation of TPI.

One of the responsibilities of TPI is to determine the patent attorneys who are experts to pursuit the applications to TPI or the other patent offices. It is almost a must to counsel with the patent attorneys especially during international applications[1]. For instance, for the applications to a foreign patent office, if the applicant is not residing in that country, he should work with a patent attorney from the related country. After being a side of EPC, Turkish patent attorneys automatically become European Patent attorneys. This means, any applicant who resides in one of a non-member country of EPC, wants to apply for European Patent and has to choose a European Patent attorney who may work with Turkish patent attorneys also.

4.2. TPI's Implementations on Trademarks

In Turkey, TPI examines and registers trademarks according to the criteria mentioned in the second part and the appendix part of the study.

Registered trademarks are valid for ten years periods, which can be renewed infinite times by the applications of the owners. The renewal proposes should be done in six months before the last day of the month that the protection ends. In case of missing the renewal period, by paying additional fee, the period can be extended to six months beginning from the last day of the month that the protection ends (TPE, 2004b).

[1] For more information related to the applications and further implementations, www.turkpatent.gov.tr can be examined.

Since registering a trademark requires a certain amount of costs, it would be helpful to request a pre-search whether the proposed trademark has already been registered for the proposed goods and services classes. TPI also provides this kind of service, which an applicant can benefit by paying a relatively small amount of fee before the formal application (TPE, 2004b).

If a registered trademark were not be used for five years one after the other without an acceptable reason, the related trademark would be cancelled by the decision of the court (TPE, 2004b).

Like patents, TPI also accepts international applications except for the Community Trademark due to the Madrid Protocol. Unfortunately, the Community Trademark applications can only be made directly to OHIM or the trademark register offices of the member states (TPE, 2004b).

A trademark like any other tangible assets such as commercial goods, can be sold, licensed or inherited. Therefore, any changes in the possession of the trademark should be informed to TPI to correct the registration-related records (TPE, 2004b)[1].

4.3. TPI's Implementations on Designs

In Turkey, like the other IP issues mentioned above, TPI also examines and registers designs according to the criteria explained in the second part and the appendix part of the study.

Designs registrations are valid for five years from the application date and there is an opportunity to renew for five years periods up to twenty-five years (TPE, 2004c).

If the proposed designs are belong to the same secondary classes, belong to the same set/team, different pieces of a composed product or able to perceive united when more than one objects presented together, they can be proposed as a multiple application. Multiple applications provide a chance to obtain protection for more than one design by just one application (TPE, 2004c).

The publication of the design during registration period can be postponed up to thirty months especially, for the rapid changing fashioned sectors. In the postponed era, designs would be away from the public examination (TPE, 2004c)[1].

4.4. Technology Development Supports for Industry and Software Developer Firms

R&D facilities require a firm's serious amount of energy, capital and time. Moreover, undetermined nature of the results of technology development activities makes the firms approach hesitantly to such facilities. Therefore, in order to encourage the firms to develop their products or processes, there should be effective financial support mechanisms to share the risks of firms' innovative activities.

Even the financial support mechanisms for the R&D facilities of firms are not sufficient in Turkey, there are two important organizations namely TIDEB (Technology Forecasting and Assessment Directorate) whose aim is to strengthen industrial research and technological development ability in accordance with national S&T policy (TIDEB, 2004), and TTGV (Technology Development Foundation of Turkey) whose aim is enhancing the industrial competitiveness of Turkish producers, at the international markets, by supporting technological innovation activities in Turkey (TTGV, 2004a), to finance technology development projects of industry and software developer firms.

TIDEB's support contains personnel, equipment, travel, consultancy, in-country R&D outsourcing, material and patenting costs and grants between min 25% for large firms and min 32% for SME's and up to 60% of the total R&D project expenses for both type of firms (TIDEB, 2004).

TTGV's support contains personnel, equipment, expenditures, travel and consultancy costs and contributes up to 50% of the total project budget. The maximum amount provided by TTGV is 1 million USD with no minimum amount stipulated (TTGV, 2004b). TTGV also provides support for the TPI patent application expenditures of the product or process that is developed at the end of the supported project.

While, TIDEB supports every project that TTGV has already supported if applied, the main difference for the applicants between both supports is TIDEB grants on the contrary

TTGV requests to begin the repayment without any interest after 6 months or 1 year later following the completing of the projects.

By the year 2004, TTGV has started the pilot action of a new project called TTGV Entrepreneurial Fund (Girişim Fonu) which is a Venture Capital Fund investing in early-stage technological start-up companies in Turkey. The objective is to help build a select number of large, highly successful global companies in the areas of Information and Communications Technologies, Life Sciences (Biotechnology & Healthcare), Advanced Microelectronics, Advanced Material (Polymer, composite material, semi-conductors, etc.), (TTGV, 2004c).

Unlike VakıfRisk or İşRisk which are the first examples of venture capital firms, generally aim to invest to the firms living their venture capital stages of the growth phase mentioned in Figure 2.2 and later stages in Turkey, TTGV Entrepreneurial Fund aims to invest especially in the start-up grade of the business angels stage of the seed funds phase mentioned in Figure 2.2. This means relatively small firms such as the technological SME's and prospector firms, which are defined in the second part of the study can benefit from TTGV's investment opportunity while venture capital backed firms can benefit from the financing opportunities of VakifRisk or İşRisk in Turkey.

Moreover, to improve SMEs share and efficiency in Turkish economy and enhance their competitive capacity, there is a non-profit, semi-autonomous organization which is called KOSGEB (Small and Medium Sized Industry Development Organization) (KOSGEB, 2004). KOSGEB has also incentives on supporting R&D on the project basis. This is partially done through the TEKMERs (Technology Development Centers) which incubator like institutions established by KOSGEB and are successful in boosting the performance of NTBFs both in terms of economic and technological aspects (Akçomak, 2003). The firms outside the incubator building can also apply for the KOSGEB support as well as the firms that locate their business in a TEKMER. The support can either be in the form of a grant or should be repaid. The support is for a diversified set of activities but the maximum amount of the support is $42.000 currently however the firms themselves should cover 15% of the amount (Akçomak, 2003).

4.5. Conclusion

Although, the recent crucial developments, existing since 1990's in the IP and venture capital investments fields in Turkey, such as founding TPI, TTGV or the other above mentioned organizations and therefore new legislation accelerate encouragement of the establishment and diffusion of more NTBFs that directly have positive effects to the economical growth, they are not sufficient to compete with the induced economic conditions in the global arena.

The statistics of TIDEB and TTGV would be a significant indicator to realize the status of the NTBFs in Turkey. The number of supported projects by TIDEB since 1995 when it was established is 2042. The approximate total project cost is $1246 million which is the volume of R&D generated by this support in Turkey (TIDEB, 2004b). In addition, TTGV has supported 448 R&D projects, granted $157 million and generated $324 million R&D volume since 1991 when it was established in Turkey (TTGV, 2004d). Those amounts are significant but not sufficient when all the NTBFs are considered.

In order to increase the number of patents which can be assumed as a significant indicator of an increase in innovative facilities, the R&D activities should be increased in industry and therefore, more effective financial mechanisms such as not only finance the activities during R&D but also cover the facilities before and after phases of the R&D, especially during production and marketing stages, should be organized. In real, the relation among patents, R&D and financial support is not so linear, but they are vital stops, which can be intervened effectively by the national innovation system policies.

The above-mentioned intervention may be made in the following ways:

- Types of supports and their contents can be diversified. For instance, international patent expenditures, marketing facilities targeted to the global markets, foreign market searches or purchasing technical consultancy on IP-related issues can be added to R&D support.

- In Turkey, the concept of "Business Angel" has not defined properly yet. Therefore, establishing effective Business Angel bodies and a proper network among them can be encouraged. To achieve this for instance, information meetings or courses about investing to the new technology-based firms can be

organized for the potential investors seeking for new investment areas while creating interesting businesses for themselves.

- Almost each above-mentioned organization has similar final targets. Although each of them has a different point of view to the general concept, they all aim to improve the standards. Therefore, an effective and alive network can be established among them to increase the synergy. For instance, common projects can be organized or a huge comprehensive project can be developed and each organization contributes to the project by using their own opportunities.

- Firms can be informed about the R&D issues, project management issues, IP issues and their advantages etc. in a detailed manner to create and increase the awareness in the society. To achieve these new supports can be organized.

- Like the firms, various activities can be organized for the university students to increase the awareness and to encourage the entrepreneurial behaviors among them. For this reason, entrepreneurship programs that have already commenced in some universities (for instance METU) can be organized.

- An effective entrepreneurial climate should be created to increase the innovative activities. To achieve this, the support of the government would be a must. For instance, tax exemptions can be applied for the technology developers.

CHAPTER V

CONCLUSIONS and POLICY RECOMMENDATIONS for NTBFs

According to the EC report on growth paths of technology-based companies in life sciences and information technology, it seems that the entrepreneurial climate and the institutional components of this climate largely influence the founding configuration of a high-tech start-up and its incubation period.

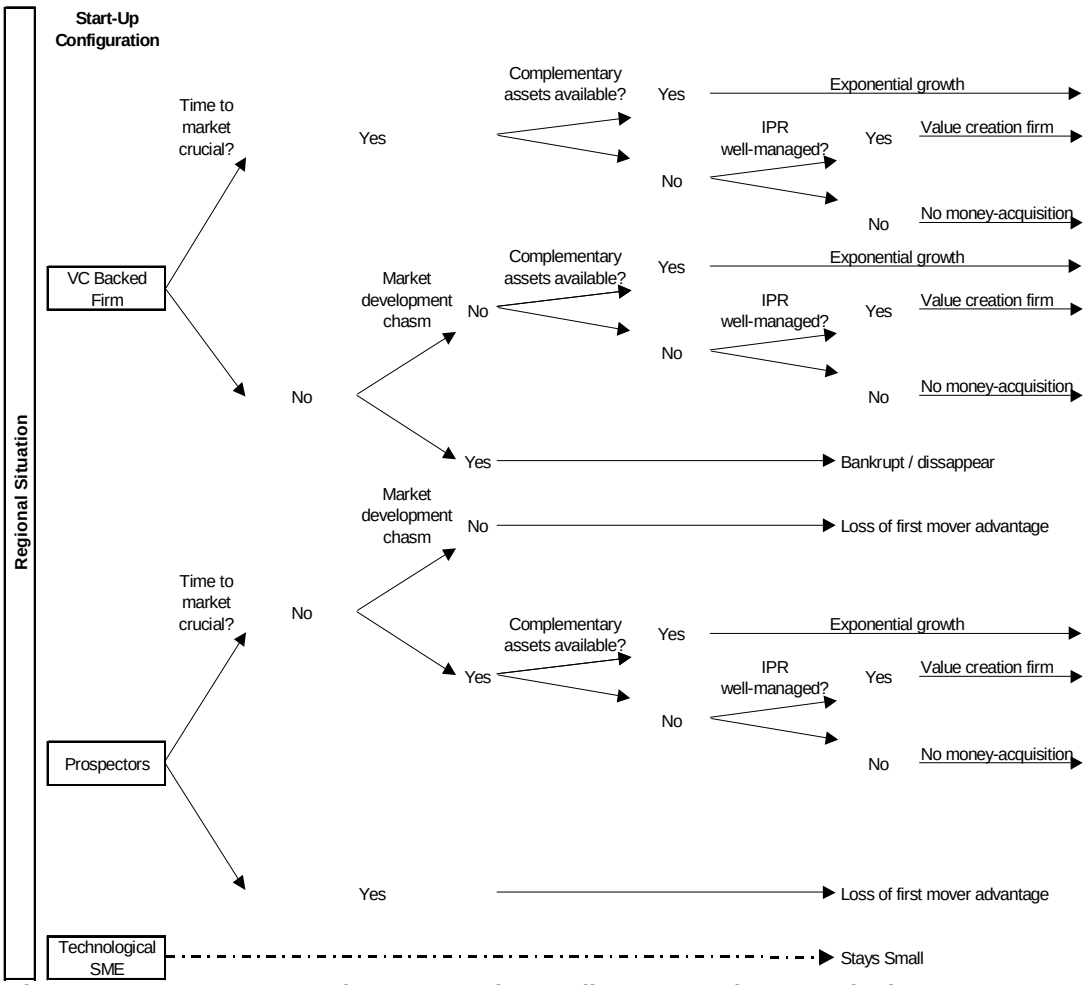

Figure 4.1: An Integrated Framework Leading Towards Growth (Source: EUR 17054, 2003)

If time to market is crucial, this implies that high-tech start-ups which start as prospectors stand little chance of becoming a high-growth company. However if they manage their IP portfolio well, they can show considerable growth in terms of value and capitalization (Figure 4.1).

When time to market is important but not crucial – like in the “no” case of prospector – it is very likely that they will be outpaced by a similar high-tech start-up in a developed entrepreneurial climate (i.e. one that can start as a venture capital backed firm). In that case, they will lose the first mover advantage and will not be able to surprise the incumbent firms that currently dominate the market. Again, growth through vertical integration (i.e. manufacturing and distributing) becomes a very difficult operation. It is more likely that the company will be a knowledge development firm, which can increase its value and capitalization by licensing its proprietary technology platform (Figure 4.1).

If time to market is not important at all, prospectors have the best chances because they follow a less risky strategy. The venture capital backed firms need faster market access and quick results to satisfy their investors. If the mainstream market is not ready yet for the high-tech product, they may have to enter a market of early adapters. This category often needs a considerable degree of consulting, which venture capital backed firms normally do not offer. Moreover, it might take too long before the mainstream market is developed. Consequently, the high expectations of the venture capital backed firm are not met and the company goes bankrupt. In this case the prospector type holds the advantage (Figure 4.1).

But even if the prospector type wins from the venture capital-backed type, there is no guarantee for an exponential growth. Again, the situation of the complementary assets in the downstream market will determine the potential success. If the established incumbent firms let themselves be taken by surprise by these young ones (and they are likely to do so if the innovation developed by the high-tech firm has a radical effect on the incumbent company in the organizational sense), the high-tech firm may establish an exceptional growth path. Radical innovations change the routines of established firms so that they need more time to react (Figure 4.1).

As a result, it is to be expected that only a few high-tech start-ups will eventually established a growth path. Whether or not this will actually happen depends on a large number of factors that are difficult to predict in the founding phase. It may be expected the highest number of growth companies in the most developed entrepreneurial climates

since venture capital backed firms often succeed in outpacing prospector companies. The pitfall in this environment is that too many new ventures may want to start as venture capital-backed firms, even if the targeted product / market is not sufficiently developed. In an emerging environment, only the prospector companies that targeted product / markets with a low priority for time to market stand a chance of establishing an exponential growth path. Only in poor entrepreneurial climates, it is not expected to find any high-growth firms (Figure 4.1).

In addition to the recommendations mentioned in the conclusion part of the fourth chapter of the study the following conclusions and policy recommendations can be argued:

- For the technological SME's:

    - Although technological SME's act as "R&D" boutiques, their business model is generally consulting and service oriented and the target market is local. Therefore, spending lots of capital to keep the IP protection for each idea in hand would be unnecessary since most of them would not even turn into a commercial product. Managers can concern trade secrets as well as national patents or utility models as a choice.

    - On the other hand, firm can concern to use the opportunity of converting ideas into profit-making assets as an additional income by licensing or franchising. To do this, relatively powerful protections like patents instead of trade secrets can be considered.

    - The firm can concern about the "Business Plan" and try to set an IP management strategy according to the other strategies like sales and marketing as a part of the plan.

    - Managers' necessary awareness about IP issues would be enough to determine the IP-related strategy and follow the IP-related works. Otherwise, a consultancy can be obtained from an attorney especially in case a larger firm may deal with the new technologies developed by the technological SME and request a type of joint with it.

- Since the firm has low growth target, the possibility of concerning the organizational identity facilities would be low. Therefore, the tendency of creating a trademark would also be low. Actually, firm never may not need to do that since their customers may not have any other choice to obtain the related consultancy or service from any other firm.

- For the prospector firms:

  - Since their business models are product-oriented, all of the IP protection tools become more significant relatively than the technological SMEs.

  - Since, the targeted markets are international, firm should consider the international protection tools as well as the national ones. Therefore, doing a proper market research become more significant since the results would affect the strategy.

  - Firm should consider defensive protection tools as well as the offensive ones. This means that some patents, for instance, can only be used to prevent rivals to develop their business or vice versa can be used to continue to develop a product despite the strong rivals.

  - In this case, concerning about the “Business Plan” and trying to set an IP management strategy according to the other strategies like sales and marketing, production etc. as a part of the plan become more vital.

  - Although, managers have junior management skills and would probably set the IP-related strategies, working with a consulting attorney firm to follow up the situation would be essential because of the many number of patents, designs or trademarks.

  - When the firm develops new products or it would be essential to adapt to the changing market conditions, the old IP tools can be converted into a kind of income by licensing, selling or etc.

  - Since, the organizational identity facility is more crucial than the technological SMEs case, forming a trademark is also more significant.

Moreover, it is a necessity to create a difference from the rivals in the market.

- For the venture capital-backed firms:

    - The firm is relatively large to the other types of firms and is in its growth phase or later. Therefore, IP management would be a more complex issue than the others. To cope with there may be a need to an in-house IP team beside the attorneys from the liaison offices.

    - Since a venture capital type of funding desire to enhance the growth, IP issues become more significant for the investors not to face with any infringement problems. Moreover, the possessions of various IP tools would increase the bargaining power of the firm during the investment research phases.

    - OId IP tools can easily be converted to an income agent by licensing out or selling the rights to firms located in the less developed countries.

    - Not only to get a kind of IP protection but also to continue to it requires really serious amount of capital. Therefore, the protected issues that would not need to be protected anymore should be determined and stopped to protect. As a result, these kinds of analysis should be done periodically by the IP team.

As a result, in a typical NTBF, the effective IP management strategy should be developed according to the archetype of the firm. While constructing the strategy, six dimensions that are explained in the second part of the study should be considered.

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APPENDIX A

THE TOOLS FOR PROTECTING INTELLECTUAL PROPERTY

As mentioned in the second section, patents, trademarks, designs and copyrights are the tools, in other words the elements of IPR protection system to support the intangible assets of the companies or owner of the intangibles. In this appendix a brief analysis of each is made in a general manner.

1. Patents

Patents are considered to protect technological inventions, either products or processes. An invention is defined as "a creation, an intellectual effort that produces a result, in the technical domain" (IPR Helpdesk, a). It is a technical solution to a technical problem. This solution can be qualified as an idea: a person has made an intellectual effort in order to determine precisely the technical problem and a way to resolve this problem. This person builds up an apparatus, a scheme, or something that materializes his idea in the "concrete world".

The European Patent Convention enumerates a non-exhaustive list of things that are excluded from patentability such as discoveries, scientific theories, mathematical methods, aesthetic creations, schemes, rules and methods for performing mental acts, playing games or doing business, and computer programs and presentations of information rather than explicitly provide a definition of invention. The main argument for the exclusion of discoveries is that they are already part of the physical world. But for the others it is their lack of technical character.

By the way, patents protect ideas once they have been materialized when it is perceptible to the senses and fulfill the three patent protection requirements. In fact, it is the materialization of the idea, which enables the idea to be protected.

Those three patent protection requirements that must be fulfilled are (IPR Helpdesk, b):

1. The invention must be new, i.e. novelty:

   In order to be patentable the invention must be new. An invention is considered to be new if it does not form part of the prior state-of-the-art. Most patent offices follow the concept of "absolute" novelty, which means that the invention has never been made public in any way anywhere in the world, for example in written or oral descriptions or by use, before the filing date of a patent. It is recommended to obtain information about the state-of-the-art by carrying out a novelty search.

2. It must imply an inventive step, i.e. based on an inventive step:

   The patentable invention must also represent an inventive step. This means that, from the point of view of a person skilled in the relevant area of technology, the invention does not obviously follow from the state-of-the-art. Therefore, it is crucial to define whether the step, which led to the invention, was expected by an expert skilled in the relevant area or whether it exceeds the expected step of further development. The inventive step requirement is intended to prevent patent rights from forming barriers to routine development. Various factors, depending on the field of the application, are taken into account to determine what an inventive step is.

3. It must be susceptible of industrial application, i.e. industrially applicable:

   An invention must be capable of being produced or used in some kind of industry. This criterion is met if the invention can be produced or used in any kind of industry, including agriculture. "Industry" is meant in its broadest sense as anything distinct from purely intellectual or aesthetic activity. It does not necessarily imply the use of a machine or the manufacture of an article.

   An invention is considered not to be susceptible of industrial application if it relates to a medical treatment or medical diagnostic method.

A patent provides the patent holder with the right to exploit the invention during 20 years in an exclusive manner. The owner of the patent can also prevent others from producing,

offering, selling or using his invention, without his permission. Society benefits from the inventor's contribution namely the invention thanks to its disclosure through the patent.

On the other hand, anything, which ordinarily fulfils the criteria of being an invention, but contradicts with morality, is not patentable. Plant or animal varieties or biological processes for the breeding of plants and animals are not patentable.

The following results are also considered not to be patentable inventions:

- Discoveries, scientific theories or mathematical methods,
- Aesthetic creations,
- A scheme, rule or method for performing a mental act, playing a game or doing business, or computer software producing no technical effect,
- The presentation of information.

National, Regional and International Patents

There are three types of patents according to the places where they are valid namely national patents, regional patents and international patents.

National Patents

Almost every state in the world has its own patent system. However, there are a couple of national differences in the patent systems. Most states, such as in Europe, apply the so-called first-to-file rule. According to this rule, the first applicant has priority over any subsequent applicant. In some other countries, such as in the US, the corresponding rule is known as first-to-invent. According to this principle, in the event of conflicting applications, the person who first made the invention is entitled to the patent and not the person who first applied for the patent.

To obtain a national patent, valid for the territory of the country the owner has to file the application to the national patent office by where the patent is granted.

Regional Patents

European Patents

The European Patent System is governed by the Munich Convention which became valid on 5 October 1973 as amended in Dec 1991, Oct 1995 and Dec 1998. This system establishes a common patent procedure that covers up to 27 countries, including countries which are not yet part of the European Union. Besides, several non-Contracting States have concluded an Extension Agreement with the EPO, providing European patent applicants with an efficient way of also obtaining protection in these countries. The extension system concerns Albania, Lithuania, Latvia and the Former Yugoslav Republic of Macedonia. The first European patent was granted in 1978 and since then more than 900,000 applications have been filed (IPR Helpdesk, c). Compared with the national patent system, the European system has several distinct advantages:

- It is financially beneficial if the applicant seeks protection in more than three European countries;

- It provides a unitary and centralized grant procedure in any one of the three official EPO languages that are German, English or French;

- The grant procedure comprises a high quality prior art search and examination, providing a strong patent.

Community Patents

The Community patent system, which is currently the subject of intergovernmental discussion, will not replace but stand alongside the existing European and national systems. A Community patent will be granted following a common procedure similar to the current European patent. However, after its grant, the Community patent will be unitary, i.e. a single industrial property right, which may be revoked or allowed to lapse only in respect of the whole Community.

The Main Differences between the European Patents and the Community Patents

The main differences between the two systems are (IPR Helpdesk, c):

- The Community patent will be indivisible and will have a unitary and autonomous effect for all the territory of the European Union. The European patent remains unitary only up to its grant. After that, it divides itself into several national patents that cover the countries designated by the applicant.

- The European patent is governed by national laws after its grant. For the time being, no common European authority ensures a uniform interpretation of patent law. Therefore, case law may differ from one country to another. For its part, the Community patent will be subject to a common authority as a last resort. It will be governed by Community law.

- The European patent permits the selective designation of the countries where it will take effect. The Community patent will take effect for all the territory of the European Union. It should be noted however, that the Convention on the grant of European patents covers 12 States which are not Members of the European Union, namely Switzerland, Monaco, Liechtenstein, Cyprus, Turkey, Republic of Bulgaria, Czech Republic, Republic of Estonia, Hungary, Republic of Romania, Slovenia and the Slovak Republic.

Eurasian Patent Convention

Under the Eurasian patent system, Eurasian patents can be obtained in one procedure. The patents are granted jointly for a number of republics that were part of the former Soviet Union. However, after being granted, the patents have to be maintained individually in these republics in order to remain effective. The contracting states are Armenia, Azerbaijan, Belarus, Georgian Republic, Kazakhstan, Kyrgyzstan, Moldova, The Russian Federation, Tadzhikistan, Ukraine, and Turkmenistan.

African Regional Industrial Property Organization (ARIPO)

A patent granted under the ARIPO system has the same effects in the designated contracting states as a national patent. The contracting states are Botswana, Gambia, Ghana, Kenya, Lesotho, Malawi, Mozambique, Sierra Leone, Somalia, Sudan, Swaziland, Tanzania, Uganda, Zambia, and Zimbabwe.

African Intellectual Property Organization (AIPO)

Contrary to the case for European patents and for ARIPO patents, a patent registration with the AIPO Office automatically covers the 16 African AIPO member states at once, without requiring registration and/or validation or confirmation in the various countries. The member states of this convention are Benin, Burkina Faso, Cameroon, Central African Republic, Chad, Congo, Gabon, Guinea, Guinea-Bissau, Ivory Coast, Mali, Mauritania, Niger, Republic of Equatorial Guinea, Senegal and Togo.

International Patents

Patent Cooperation Treaty (PCT)

For applicants who seek protection for an invention in each of a large number of countries it is also possible to file an international patent application. In accordance with the PCT, which was concluded in Washington on 19 June 1970, international patent applications can be filed with national patent offices qualified as "receiving" offices, with the European Patent Office, or with the International Bureau of the WIPO. At the moment there are 115 states that have adhered to the PCT.

The states party to the European Patent Convention can be designated as a single block. Thus, a European patent is also available by way of the Patent Cooperation Treaty.

The advantage of the system is (IPR Helpdesk, b):

- By filing only one international application with one Office, an applicant can obtain the effect of regular national filings in any of the designated PCT Contracting states without initially having to hand in a translated application or pay national fees. The national patent granting procedure and the related high expenses are

postponed, in the majority of cases, by up to 18 months or even longer in the case of some Offices, as compared with the traditional patent system.

- No "international" patent will be granted as a result of an international application, which merely represents a preliminary stage of the regional or national procedure. Each international application is the subject of an international search, the aim of which is to discover relevant prior art.

- On request, an International Preliminary Examination Report can be issued which provides a preliminary and non-binding opinion as to whether the invention appears to be new, involves an inventive step, and is industrially applicable. This preliminary work is used by the individual national patent offices and by the European Patent Office when the international application has entered the national or regional phase, respectively. Such applications have a special importance in those states where the patent offices do not examine patent applications for novelty and inventive step.

- The PCT system also makes it possible to file an application in a single language for a large number of states world-wide, while claiming the priority of the original application, even shortly before the expiry of the priority period.

- In contrast to national or regional applications, additional time in which to decide on the states in which patent protection is finally sought. In other words, when an international patent application has been filed, all national procedures in the designated states are delayed until the end of the 20th month from the priority date. Alternatively, if an international preliminary examination is requested before the end of the 19th month from the priority date, all national procedures in the designated states are delayed until the end of the 30th month from that date. This delay gives applicants more time before the national requirements have to be fulfilled. In particular, the subsequent costs for the national procedures can be paid later. Furthermore, the substantive examination and other processing of the international patent application before the national offices are facilitated by the international search, which enables necessary amendments to be made to the application even before the national procedure starts.

The PCT procedure consists of two main phases, the international and the national phase.

The international phase consists of the following four steps:

- Filing of the international application by the applicant,
- International search report,
- Publication of the international application and the international search report
- Optional: the international preliminary examination report

The international phase is followed by the national phase wherein the patents are granted by the national or regional patent offices.

The Alternatives to an Ordinary Patent

a. The Utility Model

The utility model is a legal institution the origins of which go back to 1891 in Germany. It was created to cover a gap in the law. The German patent office only granted patents for inventions that were new and displayed a certain level of inventiveness. But there were a great number of inventions consisting of industrial creations with little technical or constructive complexity, characterized by the fact that they generally consist of a formal modification of objects in common use and simple tools, where, despite the simplicity of the innovation, there was nonetheless a technical advance on what was previously known. These "small inventions" were not patentable, but the German legislature took the view that they did not deserve to remain unprotected seeing as they had an undeniable economic value. That is why the legislature deemed it necessary to create a specific exclusive right, different from the patent, suitable for protecting these minor inventions. The utility model was soon adopted by other countries (IPR Helpdesk, d).

The utility model protects product technical inventions which fulfill the requirements of novelty, inventive step and industrial application; although "inventive step" is defined

more broadly than for patents. Process inventions are excluded from the protection of the utility model.

The procedure for obtaining this form of protection is a simple registration procedure. That is, the competent administrative body only examines the fulfillment of the formal requirements for application. Once this formal examination has been successful, the body will proceed to grant the utility model. This way, the time during which the applicant has a provisional protection is shortened considerably. As a general rule, six months after the filing of the application a utility model can be obtained, which means obtaining a full exclusive right over the invention.

The duration of the exclusive right conferred by a utility model is, as a general rule, ten years; except in Greece, where the duration is seven years, and in Portugal, where the duration is fifteen years.

b. The Short-Term Patent

This is a patent obtained in a swift way, and more cheaply than a traditional patent, which confers the same rights, but for a shorter period of time, normally six years.

This possibility exists in the Netherlands and Belgium. In fact, it does not mean that a legal right different from a patent is recognized legally, but that respective patent laws allow the possibility of obtaining a patent without fulfilling all of the procedural requirements necessary to obtain an ordinary patent, with the proviso that the duration of the exclusive right is then shorter.

In the Netherlands and Belgium, protection by means of a short-term patent is for technical inventions that fulfill the patentability requirements that are novelty, inventive step and industrial application. There is no lesser inventive step requirement, nor are process inventions excluded.

c. The Petty Patent

The term "petty patent" is used to designate the Irish "short-term patent". This is because the Irish short-term patent protects technical inventions (both of product and of process) but requires a lower inventiveness level than for patentable inventions.

2. Trademarks

A trademark is a sign capable of distinguishing the goods or services produced or provided by one enterprise from those of other enterprises (WIPO, 2003b). A trademark forms an essential part of a company's strategy: enhancing the value of a trademark enables market share to be conserved or gained (OHIM, 2001).

Any distinctive words, letters, numerals, drawings, pictures, shapes, colors, logotypes, labels or combinations used to distinguish goods or services may be considered a trademark. In some countries, advertising slogans are also considered trademarks and may be registered as such at national trademark offices. An increasing number of countries also allow for the registration of less traditional forms of trademarks such as single colors, three-dimensional signs (shapes of products or packaging), audible signs (sounds) or olfactory signs (smells). However, many countries have set limits on what can be registered as a trademark, generally only allowing for signs that are visually perceptible or can be represented graphically (WIPO, 2003b).

The exclusive rights over a trademark may be obtained in two ways (IPR Helpdesk, e):

- By use:

  The right over a mark belongs to who uses a specific sign for the first time and in an effective way to designate products or services in the market. Some legislation includes the protection of non-registered marks when these have certain popularity in the market and are recognized by the consumers.

- By registration:

  The creation of the exclusive right over a mark is obtained by means of the registration of the sign in a Mark Office. Through the registration, the holder obtains the right to have exclusive use of the mark, as well as the right to forbid third parties to use identical or similar signs.

  The protection granted by the registration of a mark is larger than the protection conferred by its simple use. Hence, the defense means bestowed upon a trade mark are more effective, for it is easier to prove who the holder is.

National, Regional and International Routed Trademarks

If a company has registered the trademark of itself in the country where it is located namely home country but when wish to export or grant a license to use the trademark in other countries, then it is advisable to register the trademark abroad. There are three main ways to do so:

The National Route

The business may apply to the trademark office of each country in which it is seeking protection by filing the corresponding application in the required language and paying the required fees. Some countries may require from the applicant to use the services of a locally-based trademark agent for this purpose.

The Regional Route

If the company wishes to apply for protection in countries, which are members of a regional trademark system, it may apply for registration, with effect in the territories of all Member countries, by filing an application at the relevant regional office. The regional trademark offices are:

- The African Regional Industrial Property Office (ARIPO),
- The Benelux Trademark Office for protection in Belgium, the Netherlands and Luxembourg,
- The Office for the Harmonization of the Internal Market of the European Union (OHIM),
- African Intellectual Property Organization (AIPO).

Community Trademark

The Community trademark offers the advantage of providing unitary protection in all the countries of the European Union, as a result of a single registration process with the OHIM. Before The Community trademark was created, companies could use two

distinct procedures to protect their trademarks in the entire territory of the European Union: the national method and the international method (OHIM, 2001). The Community trademark gives its proprietor a unitary right enforceable in all the Member States of the European Union through a single procedure, which simplifies trademark policies at European level.

Access to the Community trademark is generally open to all categories of applicants, i.e. any natural or legal person may obtain registration of a Community trademark. Therefore any natural and legal person of the countries of the European Union may deal directly with the OHIM. However, companies from countries outside the European Union (those which do not have their domicile, a seat or a real and effective establishment in a European Union state) must be represented by an approved agent or by a legal practitioner in all proceedings with the Office, apart from filing an application for a Community trademark.

A Community trademark can be filed directly with the OHIM or through the national industrial property office of a European Union state (OHIM, 2001).

The International Route

If the firm's home country is a member of the Madrid system constitute by the Madrid Protocol which is a treaty that provides for the international registration of trademarks including service marks (WIPO, 2001) and its trademark has been registered or applied for in or with effect in that country, it may use the Madrid system which is administered by WIPO to register the trademark in the more than 70 countries that are party to the system.

Advantages of Using the Madrid System

The principal advantages of using the Madrid system are that the trademark owner can register his trademark in all the countries party to the system by filing:

- A single international application;
- In one language;

- Subject to one set of fees and deadlines.

Thereafter, the international registration can be maintained and renewed through a single procedure.

3. Designs

For businesses, designing a product generally implies developing the product's functional and aesthetic features taking into consideration issues such as the product's marketability, the costs of manufacturing or the ease of transport, storage, repair and disposal (WIPO, 2003c).

However, from an intellectual property law perspective, an industrial design refers only to the ornamental or aesthetic aspects of a product.

As a general rule, an industrial design consists of:

- Three-dimensional features, such as the shape of a product,

- Two-dimensional features, such as ornamentation, patterns, lines or color of a product; or

- A combination of one or more such features.

As a general rule, to be able to be registered, a design must meet one or more of the following basic requirements, depending on the law of the country (WIPO, 2003c):

- The design must be "new". A design is considered to be new if no identical design has been made available to the public before the date of filing, or the application for registration.

- The design must be "original". A design is considered original if it has been independently created by the designer and is not a copy or an imitation of existing designs.

- The design must have “individual character”. This requirement is met if the overall impression produced by a design on an informed user differs from the overall impression produced on such a user by any earlier design, which has been made available to the public.

In the digital world, protection is gradually extending in some countries to a number of other products and types of design. These include electronic desktop icons generated by computer codes, typefaces, the graphic display on computer monitors and mobile telephones, etc.

Designs that are generally barred from registration in many countries include the following (WIPO, 2003c):

- Designs that do not meet the requirements of novelty, originality and/or individual character,

- Designs that are considered to be dictated exclusively by the technical function of a product; such technical or functional design features may be protected, depending on the facts of each case, by other IP rights such as patents, utility models, or trade secrets etc.

- Designs incorporating protected official symbols or emblems such as the national flag,

- Designs which are considered to be contrary to public order or morality.

In addition, it is important to note that some countries exclude handicrafts from design protection, as industrial design law in these countries requires that the product to which an industrial design is applied is “an article of manufacture” or that it can be replicated by “industrial means”.

National, Regional and International Routed Industrial Designs

There are three ways of protecting the industrial designs abroad (WIPO, 2003c):

The National Route

Companies may seek protection by applying separately to the national IP offices of each country in which they intend to obtain protection. The process can be rather cumbersome and expensive as translation into the national languages is generally required as well as payment of administrative and sometimes legal fees.

The Regional Route

If a company is interested in a group of countries that are members of regional agreements which enable the registration of designs in more than one country, then it can consider filing a single application at the regional IP office concerned. Regional IP offices include:

- The African Regional Industrial Property Office (ARIPO) for industrial design protection in English-speaking African countries;
- The Benelux Designs Office (BDO) for protection in Belgium, the Netherlands and Luxembourg;
- The Office for Harmonization in the Internal Market (OHIM) for Community designs in the 15 countries of the European Union;
- The African Intellectual Property Organization (AIPO) for protection in French-speaking African countries.

Community Designs

One of the principal objectives of the creation of the European Community in 1957 was to establish a single market (OHIM, a). In order to prepare the single market, different sets of legislation were introduced. By the regulation was adopted by the Council on 12 December 2001, the Community design that has been a reality since 6 March 2002 was created.

The advantages of the Community design are (OHIM, a):

- Strong and uniform protection throughout the European Union via a single legal system.

- Simplified formalities: a single application, a single language of filing, a single administrative centre and a single file to be managed

- Community-wide exploitation of the companies' rights.

- An even wider potential market with the future enlargement of the European Union, which will mean that the scope of Community design protection will be even greater.

Applications may be made either at national industrial property offices or directly at the OHIM in Alicante, in Spain.

The International Route

Companies that wish to register their designs internationally in several countries may also use the procedures offered by the Hague Agreement Concerning the International Deposit of Industrial Designs, which is a WIPO-administered treaty. An applicant from a Member country to the Hague Agreement can file a single international application with WIPO; the design will then be protected in as many Member countries of the treaty as the applicant wishes.

The agreement provides applicants with a simpler and cheaper mechanism for applying for industrial design registration in various countries. The costs of an industrial design registration under the Hague Agreement vary depending on the number of designs to be protected and the number of countries where protection is sought.

4. Copyrights

Copyright is a legal term describing rights given to creators for their original literary and artistic works which allow them to control their subsequent use (LIIP, 2003).

It is important to recognize that copyright is not a monopoly. Two people could completely independently create identical items. Provided there is no copying, there is no infringement and both can hold copyright in their respective works.

The kinds of works covered by copyright include:

Literary works such as novels, poems, plays, reference works, newspapers, and computer programs; databases; films, musical compositions, and choreography; artistic works such as paintings, drawings, photographs, and sculpture; architecture; and advertisements, maps, and technical drawings (WIPO, 2003d).

The field of copyright and related rights has expanded enormously with the technological progress of the last several decades, which has brought new ways of spreading creations by such forms of worldwide communication as satellite broadcast and compact discs. Dissemination of works via the Internet is but the latest development which raises new questions concerning copyright. The WIPO Copyright Treaty and the WIPO Performances and Phonogram Treaty that are often known together as the “Internet Treaties”, set down international norms aimed at preventing unauthorized access to and use of creative works on the Internet or other digital networks (WIPO, 2003d).

Copyright does not depend on official procedures. A created work is considered protected by copyright as soon as it exists. However, many countries have a national copyright office and some laws allow for registration of works for the purposes of, for example, identifying and distinguishing titles of works.

5. Other Forms of Protection

In the situation of when there is no intellectual property rights protection and the person having the idea decides not to make use of any IPR protection, the other three forms of protection mechanisms mentioned below are applied:

Contractual Protection

Confidentiality agreements guarantee that the information, ideas or data revealed by one person to another will stay secret under the terms of the contract, and so will not be transmitted to third parties. This contract can take place in many different situations, such

as in the contractual relation between the employer and his employee; two persons sharing a common project; a person who has an idea and looks for an enterprise to develop it, etc., (IPR Helpdesk, a).

Trade Secrets

A trade secret is information of any type that is actually or potentially valuable to its owner and not generally known or readily ascertainable by the public, and which the owner has made a reasonable effort to keep secret (WIPO, 2002). A trade secret generally has some cost associated with its development, and is not common knowledge in the industry. Even negative information, such as research options, that has been explored and found worthless, can be a trade secret. Practically any type of technical and business information can be protected as a trade secret provided that it meets these requirements. The following are a few sample categories (WIPO, 2002):

- Data compilations, for example lists of customers (the more information a list contains, the more likely it is to qualify for trade secret protection);
- Designs, drawings, architectural plans, blueprints and maps;
- Algorithms and processes that are implemented in computer programs, and the programs themselves;
- Instructional methods;
- Manufacturing or repair processes, techniques and know-how;
- Document tracking processes;
- Formulas for producing products;
- Data compilations, including certain databases;
- Business strategies, business plans, methods of doing business, marketing plans;

- Financial information;
- Personnel records;
- Schedules;
- Manuals;
- Ingredients;
- Information about research and development activities.

Products and processes that are not patentable can be protected under trade secret law. However, enterprises rely on trade secret law, which does not require registration, to safeguard the details of research and development, including draft patent applications and patent applications before their publication.

Since, contrary to patents, trade secrets are protected without registration, that is, trade secrets are protected without any procedural formalities; a trade secret can be protected for an unlimited period of time. Moreover, it may not cost anything. For these reasons, the protection of trade secrets may appear to be particularly attractive for SMEs.

Nevertheless, trade secret protection is limited. A trade secret holder is only protected from the unauthorized disclosure and use of the trade secret by others and from another person obtaining the trade secret by improper means. Indeed, it is illegal to acquire another's trade secret if one knows or has reason to know that the trade secret has been acquired by improper means. Improper means include theft, bribery, misrepresentation, breach or induced breach of a duty to maintain secrecy, or espionage by electronic or other means. Reverse engineering or independent derivations alone are not considered improper means. Reverse engineering is the determination of someone else's trade secret information via examination and testing of publicly available information. It is obvious that as soon as new information, products or equipment are made available on the market, competitors may analyze the process in order to understand and imitate or reproduce it (IPR Helpdesk, f).

Unfair Competition Law

This legal discipline tries to ensure fair play in the market. It deals with practices in which someone takes undue advantage of someone else's work.

Unfair competition law does not necessarily apply to competitors. Many States apply the principle of good faith, so a practice would be unfair if it is contrary to this principle, without taking into account the condition of competitor or non-competitor of the person who commits such a practice. Nevertheless, some countries would qualify this behavior as "parasitic" if non-competitors do the abuse.

In the case of an idea as such, this will be part of the public domain, and could be accessible to everybody. The principle of free competition applies; everyone has the right to use that idea whatever maybe the form. Therefore, nobody can claim against a third party arguing that it is his idea (IPR Helpdesk, a).