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INTELLECTUAL PROPERTY INFORMATION FOR SMES: TYPES, AVAILABILITY, FORM, SOURCES, ACCESS AND COST

Dr. Kari Sipila, Senior Advisor, Foundation for Finnish Inventions, Espoo, Finland

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INVENTION ACTIVITY IN FINLAND

The Republic of Finland, a member of the European Union, lies in the north of Europe. Finland borders Sweden in the west and Russia in the east. Some 5.2 million people live in Finland. Finnish territory covers 338,000 square kilometers and includes 60,000 lakes. The whole country is covered in a blanket of snow in the winter, but summers are warm and beautiful.

Finland is a modern and progressive country with good social services and highly developed and specialized industries. The most significant industries deal with the processing of wood and metals, and, most recently, with information technology. Finnish high-tech exports grew over the ten-year span between 1989 and 1998 from 1 billion to 7 billion U.S. dollars. Finland's GNP per capita totaled EUR 23500 USD in 2001, which was close to the mean for the European Union.

Some 130,000 students attend Finland's 20 universities. Men and women are equally represented. Finnish Government and corporations both invest heavily in research and development – currently a combined total of 3,4% of Finnish GNP, or near 5 billion U.S. dollars. When measured on the basis of patent applications per capita, Finland ranks among the first in the world with almost 500 annual applications per million residents.
Only Japan, Germany and USA have a higher ratio of patent applications to population.

Notable Finnish innovations include, among others, Nokia mobile phones and communications networks; Raisio Group's cholesterol-reducing margarine, Benecol; Polar-Electro's Polar-brand heart rate monitor; Vaisala radiosondes, SSH Internet encryption systems marketed by F-Secure Ltd, and many other innovations and new applications related to paper machinery, ship building and environmental technologies. Finland is among the world leaders in cellular phones per capita.

International evaluations of Finnish innovation activities and competitiveness have shown that Finland ranks in these fields among the first ones in the world (http://virtual.finland.fi). The Finnish know-how, invention activity, networking and the various programs and funding for advisory services, evaluation, patenting, product development and commercialization of inventions are on a high level when compared internationally.

The Foundation for Finnish Inventions

The Foundation for Finnish Inventions is an Innovation Center, which supports and helps private individuals and entrepreneurs to develop and exploit invention proposals both in Finland and internationally. It is a non-profit organization and of a foundation and it gets most of its financing from the Ministry of Trade and Industry. The Foundation is at the forefront in advising, evaluating, financing, developing and marketing invention projects in different areas of technology. It serves as a link between private inventors, innovators, small and medium-sized enterprises, universities, research institutes, consumers, businesses and industry in Finland or in other parts of the world, whether it is a matter of setting up production, licensing or any other means of exploiting an invention. (www.innofin.com).

Funding is aimed at smaller companies and private individuals who need help with development and commercialization costs. The general repayment principle is that the Foundation receives a share of the income generated by the invention. If the venture fails, the Foundation stands to lose it's financing. The Foundation for Finnish Inventions gets the bulk of its funds from the Finnish Ministry of Trade and Industry. The Foundation's annual budget is 5 million euros. Foundation staff numbers 25, in addition to whom there are 16 regional innovation managers and 12 innovation managers in major universities stationed in all parts of Finland.

The Foundation receives 17,000 advisory requests and 1000 funding applications each year. Three hundred applications are approved. In addition to funding the project managers give remarkable added value in the patenting and development phases of the inventions. The Foundation supports commercialization of inventions for instance through Invention market in Internet, license offers and legal assistance. One of five financed projects turns into a marketable product, which is either manufactured by the inventor entrepreneur or licensed to another manufacturer.

Many governmental and private organizations, like Tekes, provide research or product development financing or venture capital to Finnish small and medium-sized technology companies and larger corporations. Inventors' associations are important information exchange and advocacy groups for Finnish inventors.

Finnish invention activity is also promoted through national and regional, or industry specific, competitions, seminars, exhibitions and awards. The most important of these is the annual InnoFinland project, which culminates in the presentation of InnoFinland Awards by the President of Finland, currently Mrs. Tarja Halonen, to successful new innovative companies or inventors.

From inventions to innovations

Successful innovative enterprises invest in research and development and often it brings results. Although small and medium-sized companies often suffer from lack of resources, know-how and innovative environment, they still manage to produce important inventions and patents. The result is evident in the form of new products, improved competitiveness and success. Commercially successful inventions are innovations. In a recent study conducted by Statistics Finland profitability in firms active in research and development was found to be on a clearly higher level than in non-R&D firms.

European Union recognized in the June 2000 meeting of the Heads of State or Government the importance of small enterprises. (http://europa.eu.int). The main lines of action include

- Education and training for entrepreneurship
- Cheaper and faster start-up
- Better legislation and regulation
- Availability of skills
- Improving online access
- More out of the single market
- Taxation and financial matters
- Strengthen the technological capacity of small enterprises
- Successful e-business models and top-class small business support
- Develop stronger, more effective representation of small enterprises` interests at Union and national level.

Many of these items are related to technology, patents, innovations and entrepreneurship.

Innovations and success in an enterprise depend greatly on the ability to develop, acquire and apply new scientific knowledge and know-how. Research and development within the enterprise, along with the existing and developing expertise of its personnel, provide a basis for the propagation, development and exploitation of competitive inventions. Also cooperation with universities brings added value to the work. Information and know-how turn into a strategic resource for the enterprise. Often new enterprises are established based on potential and interesting invention, which may become a successful invention.

The success of an innovation may result from

- Technical advantages and / or
- Commercial advantages

These advantages may result from

- Novelty and inventiveness
- Level of technology and technical features
- Operational characteristics
- Markets and business potential

Competitive advantages can also be attained, if the innovative product is hard to

- Build
- Buy
- Copy
- Substitute

The importance of an invention to an enterprise can be analysed according to the following principles:

- What are the technical features and level of the technology?
- Is it new and patentable?
- What and where are the markets, who are the buyers?
- How important is the product for the enterprise and for its growth, competitiveness and image?
- What kind of human and financial investments do the new product and its development require?
- Does it fit in with the enterprise’s line of production?
- What are the risks of the project?
- What are the profit expectations?
- What is the life cycle of the product?
- Are financiers interested in the new product?

There must naturally be a balance between goals and resources.

The main phases involved in developing an invention into a commercially successful innovation include

- Planning (technical, schedules, business, financing)
- Evaluation (novelty and IPR, market potential, technical features, business)
- Patenting (strategy, domestic and international)
- Product development (technical, production, commercial)
- Marketing and commercialisation (own production or licensing, domestic, international)

All these phases require specialists and financial resources. Commercialisation is the key to making the invention successful and to earn revenues.

Intellectual Property Strategy and Policy

Technological and economic development worldwide leans heavily on new and competitive products. They can be classified on the basis of their significance at different levels of sophistication and in different sectors of the economy, from high-tech to everyday products. Some reach international success, while others are noted within their home region or country. Technology and inventions promote general welfare and also play an important role in the production of services.

In most industries, intellectual property rights, especially patents and their exploitation, hold key significance in the development and commercialization of new products. Businesses should have an intellectual property strategy as part of their corporate planning and strategy.

An intellectual property strategy defines the principles that intellectual property rights are designed to serve and how patent matters and other intellectual property matters are handled within the enterprise. The purpose of patent policy is to support the business operations of an enterprise. Neglecting patent matters may turn into a threat to development in an internationally expanding business.

The patent and intellectual property policy of a business should include, among others, a definition of intellectual property rights, the organization of corporate activity designed to protect intellectual property rights (or just patents), making and acquisition of inventions and available sources, instructions on how to secure and maintain adequate patent protection, instructions on acquiring, tracking and otherwise utilizing patent information, protecting corporate patents, licensing behavior and publication policies.

Corporate patent policies may be divided, for example, into low and high profile policies, aggressive patent policies of businesses involved in international markets, and patent policies followed by businesses engaged in the commercial exploitation of intellectual property rights or transfer technology.

The patent policies of diversified businesses can be classified as follows:

1. Build a patent portfolio commensurate with the scope of your operations and technological sophistication and exploit it in your business
2. Respect and avoid infringing on the patents and intellectual property rights of others
3. Enforce and protect your own intellectual property rights
4. Seek to enter into liberal cross-licensing arrangements and/or find an ally.

Even a simple patent policy is vital for smaller companies since their business is often based on only a few key products.

Intellectual Property

The most important intellectual property rights include

- Patents
- Utility models
- Trademarks
- Industrial designs
- Integrated circuits
- Copyrights.

They allow the inventor or creator to benefit from his invention or creative work.

Inventions and their ownership

Development, growth and competitiveness are based on new ideas. Society continuously expects new ideas, inventions and commercially successful innovations from private citizens, from enterprises and large corporations as well as from researchers and other persons working in scientific and technological development. All the available resources for creativity and inventiveness must be utilised. However, the development of an invention into a successful innovation requires significant human and financial resources and support organisations. In this way knowledge and know-how can be utilised and transformed into competitiveness, economic growth, new jobs and also into welfare.

Anyone, whether a private person, researcher or research team, corporate employee or product development team, may come up with an invention. An inventor or a researcher is often alone with his invention - he needs advice, support and networks. An employee inventor may have a large organisation and many specialists around him. The enterprise may also have the requisite resources to get the invention rapidly onto the market.

Generally, an individual owns his or her invention personally, whereas an enterprise or a corporation owns an invention made by its employee if it is related to the employer's business.

In addition to legislation related to IPR, in many countries there is a law, which defines the ownership of inventions (for instance in Germany the German Employee`s Invention Law from year 1957 or in Finland: Act on the Rights to Employee Inventions 656/1967). That type of law applies to inventions made by employees either in private or public employment. In some countries that kind of law is not applicable to university teachers or researchers like generally in the U.S. or in Germany from year 2002 on. If these inventions are not property of the university by law or agreements, they are like any other invention made by a private person. Local laws define the ownership in detail.

However, generally the employer acquires the right to exploit the invention made by an employee, if the invention falls within the employer`s field of activities. The employee has to offer immediately the invention to the employer, which has to decide within some months whether he will exercise his rights to patent, develop and exploit the invention.

The employee has the right to receive a reasonable compensation from the employer. The companies usually have rules for the procedure and compensation. The amount is usually paid in several phases according to the development and success of the invention. If the employee is not satisfied to the compensation, he can appeal first to an advisory organisation, Employee Inventions Board and later on the parties may meet each other at court.

In practice, often the compensations are relatively small, but in some cases of very successful innovations, the compensations have been remarkable. Anyway, even small compensation often encourages the employees to activity in the field of inventions.

Reasons for patenting

A patent gives the inventor the right to decide the fate of his or her invention. The inventor may manufacture and sell the product himself or may assign his rights to someone else. A patent is a right granted and published for any device, substance, method or process, which is new, involves an inventive step and can be used industrially.

The legal protection afforded to intellectual property has commercial significance to the owner since the owner may; for instance, preclude others from taking advantage of the protected intellectual property in their business. Businesses – manufacturers, merchants, etc. – need to, in fact, establish a name or brand for their products so that customers can tell them apart from other products. Likewise, an inventor must secure an exclusive right to his invention, a patent, so that not just anyone can exploit the invention in his or her business.

In a Finnish research study, businesses gave the following reasons as the most important rationales for their patent interest:

- Securing the basis for continued manufacturing operations
- Utilizing patent publications in product development
- Pre-empting competitive market entry
- Using a patent in marketing
- Monitoring competitors by following patent publications
- Avoiding patent infringements and disputes
- Evaluating the level of technology in an industry
- Using patents as a medium of exchange
- Licensing agreements.

Components of the benefit – usually economic – derived from important patents include:

- Pre-eminent market position
- Pre-empting competitive entries
- Pricing flexibility with new technologies
- Quick payback period for investments
- International expansion
- Strategic patent alliances
- Patent ownership as an advantageous negotiating tool
- Breathing space afforded by patent protection
- Favorable image.

The protection afforded to the inventor or inventing organization by a patent is an indisputable advantage, which does, however, require some expenditures. A patent provides a head start on the competition, even from the secrecy point of view generally 18 months. Filed patent applications can also be used to intimidate competitors through, for instance, corporate communications. Patents serve as flexible instruments of trade through licensing and sublicensing and thereby open opportunities to earn substantial income and to expand internationally. However, in cases of dispute patents must be vigorously defended.

However, in some fields the intellectual property rights are problematic. Information and communications industries as well as biotechnology are examples of fields, which have developed, very strongly in recent years. Consequently, the ground rules for intellectual property rights and their exploitation have not kept pace with this development in many countries. Particular attention should be paid to rapid development of necessary legal protections in fields such as these. Now often many IT-companies compete in the markets with other means than the strong use of IPR.

For example in Finland, the world's largest mobile phone manufacturer, Nokia, invests annually approximately 1 billion U.S. dollars and the labor of several thousand employees into research and product development. Nokia files some 500 patent applications each year. IBM is the leading U.S. patent applicant. Next in line in the U.S. are Canon, NEC, Motorola and Sony. Each day, two thousand patent applications are filed around the world.
A patent alone, however, is not enough. The invention must be developed into a marketable product.

Patent information sources and costs

Patent databases function as a vast source of information for inventors and businesses that wish to find the latest technology in their field or are trying not to infringe on competitors' patents. Some of the patent information is not free of charge.
Aside from databases available in most Patent offices, a considerable amount of patent information may be found also on the Internet, for instance

Home pages of local patent offices
www.wipo.int (WIPO, also classification)
http://ep.espacenet.com, (EPO)
www.uspto.gov, (US Patent office)
www.delphion.com (former IBM, charge)
www.rupto.ru (Russia)
www.jpo.go.jp (Japan)
www.surfIP.gov.sg (IPO Singapore, charge)
www.derwent.co.uk (service company, charge)

For commercialisation, mostly for licensing, there exist also several market places or data banks, for instance

www.innofin.com (Finland, free)
www.yet2.com (International, charge)
www.invention-ifia.ch (inventors associations)
www.lesi.org (LESI)
www.tii.org (TII)

Patent information is available as printed material and nowadays electrically, which is very practical. It is possible to make search in many ways for instance by filing or publication numbers, applicants, inventors, references, International Patent Classification (IPC), keywords or by combinations of above.

Patent documents give a lot of information especially

- For novelty research and protection
- For information and technology assessment

Additionally, patent documents give valuable information for instance in

- Inventions in different countries and fields according to the classification (IPC)
- Both history of technology and the latest inventions in each fields (the application is public after 18 months of filing)
- Information of inventors and applicants and also historical data of them.

With the information of the patent documents it is also possible

- To avoid R&D projects for inventions which already exist
- To add the level of technology in different fields and countries
- To make new inventions as improvements to existing patents
- To find inventions which can be licensed
- Follow patenting activities of competitors or other companies
- To follow inventions which may be near or infringe existing or your patents
- To consider new business opportunities

The costs of the use of patent information vary remarkably. The costs depend on time that the researcher uses and the costs of the use of Internet and data banks. Additionally, it may sometimes be advisable to use a consultant or information service if there are no own resources available because of time or the field of research. Also big savings can be reached by avoiding investments in wrong research or development projects.

VARIOUS PERSPECTIVES ON VALUE OF INTELLECTUAL PROPERTY RIGHTS

The value of intellectual property rights varies when viewed from different perspectives. These include:

- The inventor's perspective.
- The inventing enterprise's perspective.
- Licensee's perspective.
- Social and perhaps global economic perspectives.

Some objectives related to the value of an invention or intellectual property rights are convergent, while others diverge. These objectives may be economic in nature, such as financial gain, growth, profitability, stability and other rewards. They may also include social esteem, prestige, power, respect, reputation, international expansion and social welfare.

Social objectives for inventiveness, exploitation of intellectual property rights and innovation include increased economic activity, entrepreneurship, employment, tax revenue, international competitiveness and general public welfare.

Evaluation of the commercial potential of an invention entails several parts and stages, such as:

- Marketability, market potential and competitiveness.
- Novelty, inventiveness, patentability.
- Level of technology involved.
- Manufacturing viability.
- Operational issues.
- Business potential and environment.

The main objective with any invention after patenting is to develop it into a marketable product and an economic success. Computing the value of an invention, and the related patent, is very difficult, especially in advance of marketing. A patent alone only produces expenses, as does developing an invention into a marketable product. The value of an invention and the attendant technical and commercial risks change greatly as product development and commercialisation progress. This value frequently goes up, but only a fraction of inventions made in the world turn out to be breakthrough innovations. In many cases, the inventor's expectations for the success of his or her invention come crashing down if a patent is not granted, the product does not function as expected, costs get too high, the product does not sell, or a competitor enters the market with a better new product.

Conclusions

Products stemming from inventions and related intellectual property rights have, despite their many development stages and difficulties, a great impact on businesses and their competitiveness, success, development, and also employment. Businesses must undertake new product idea generation, acquisition and development timely and with a long-term view, not only after troubles start to mount up.

Finally, perhaps the most significant competitive tool now is timing: you have to hit the market at the right time and with the right products. Due to advanced communications services and extensive international cooperation, gathering and effectively utilizing information is more important now than ever before.