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**THE ROLE AND FUNCTION OF AN INNOVATION CENTER IN A DEVELOPING
ECONOMY**

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Table of Contents

	<u>Page</u>
Introduction	3
Innovation Centers	3
Starting the Innovation Center	4
Innovation Center and the Development of an Invention into a Product	4
Advice and Evaluation of Inventions	5-6
Patenting of Inventions	6
Product Development	6-7
Marketing	7
Financing Opportunities	7
Communications	7
Case: Finnish Invention and Innovation Activities	8
The Innovation Center: The Foundation for Finnish Inventions	8-9

Inventions and innovations are in many countries the cornerstones of successful competitive products and business reforms. The new ideas may come from the needs of markets, from customers, from university research, from development work or "out of the blue?".

Very few ideas are ready from the start - inventions must be developed into marketable products. During their early life, inventions must be taken care of, just like plant seedlings, to allow them to grow and develop. Particularly in the idea creation and development phase, several projects should be under way simultaneously, because not all of them will be successful. After several phases, many inventions - but by no means all of them - can be converted into finished products that are taken into production and marketed. The development phase requires plenty of creative effort, know-how and financial resources, for which outside expertise is usually needed.

INNOVATION CENTERS

In many countries the government has decided to support the inventions development work. The support includes often in addition to advising and consultancy work also financial support to cover part of the development costs of the invention. The organisational models vary. Often an Innovation Center is established. It may have offices in different parts of the country. Sometimes the work is made in a technology center or linked to a university. It may also be a part of some ministry or other governmental organization. It is also good if private organizations are linked to the Innovation Center.

The main tasks of the Innovation Center may include:

- Promotion and communications of innovative activities;
- Advising and evaluation of inventions;
- Advising and assisting in securing intellectual property rights, mostly patenting;
- Assisting in the project management and product development, for instance in building prototypes;
- Advising in marketing and commercialization of the innovative new products; and
- Financing partly or fully of the patenting, product development and commercialization costs of an invention.

The work of the Innovation Center may also include:

- Advising on the establishment of new enterprises;
- Incubator activities for start-up companies or co-operation with technology parks;
- Participation or co-operation with venture capital activities, especially in the early phase seed financing;
- Educational or training activities for inventors and entrepreneurs;
- International co-operation and business contacts.

STARTING THE INNOVATION CENTER

The legal form, financial resources and the size of the Innovation Center may vary. The start of an Innovation Center may be modest, first 2 – 4 persons and a board representing the interest groups. The director and the staff should be experienced in patenting and other intellectual property rights related matters as well as product development and marketing. Some legal expertise and office routines are also needed. The office should be equipped with modern information technology including internet connections to data banks related to patenting and marketing. The possibility to finance invention development costs is recommended, because then it is possible to get the inventions faster to the market.

Anyway, it is essential that it is a confidential service organization where inventors and entrepreneurs can get assistance in the field of innovations and that it is a cradle of new business opportunities and successful innovations. Another important principle is that an Innovation Center needs time and patience - the results will come slowly.

INNOVATION CENTER AND THE DEVELOPMENT OF AN INVENTION INTO A PRODUCT

Innovation Centers can assist innovators and entrepreneurs in many ways, when developing the inventions from idea to a marketable product using, for example, the following phases and means:

- Patent, technical and marketing information related to the invention is collected and then the invention is evaluated;
- The results of the evaluation are reviewed;
- A patent application is submitted possibly with the assistance of a patent agent, and the appropriate international patenting is dealt with in good time;
- A plan for implementing the project is drawn up;
- Product development, further research or a prototype is produced for further evaluation, testing and for the commercialization;
- The characteristics of the invention are tested (a check is made to see whether it meets, e.g., the quality and safety requirements set for the product) and new prototypes are made if necessary;
- A business plan is drawn up with the focus on the commercialization of the invention (market surveys, marketing material etc.);
- The invention can be manufactured and marketed either as the current or new company's own production or a licence agreement on its commercialization can be concluded with a company in the sector; and
- The marketing and manufacturing of the innovative product starts by different means to companies or other customers often first domestically and later on internationally.

It is good to remember that exploiters and buyers are generally more interested in the competition situation and commercial success than in the idea itself.

ADVICE AND EVALUATION OF INVENTIONS

An Innovation Center must possess considerable expertise in advising on matters relating to the evaluation and development of inventions, their patenting and related strategy as well as in marketing. As far as possible within resources, the Center also offers general advice by telephone. The most common questions The Innovation Center is asked are :

- I have an invention, is it an invention?
- What is a patent and how do I get it?
- What are the invention development phases and costs?
- How and from where can I get financing?
- Can you help me in marketing?
- How much do I earn, will I become a millionaire?

There are some general principles to inventors, who think they have made a feasible invention:

- Do not present your invention publicly (at fairs, in the media, in articles) before the patent application. This is very important issue especially for researchers;
- Assess the advantages, topicality and market-worthiness of the invention: what problem does the invention resolve, how can it be made into a product and who needs it;
- Investigate novelty and patentability;
- Evaluate the technical solution, effectiveness, economicalness, costs and funding and manufacturability compared to competitors on the market;
- Determine the ownership of your invention; and
- Approach advisory, assessment and financing organizations at a suitable stage (the Innovation Center).

At this stage already, the inventor should make a full check-list and plan for his invention: customers, requirement, technical development stage, novelty and patent situation, funding, manufacture, who would be responsible for directing the project, sales, the potential for an employment-related invention, description of product idea and presentation material. A business plan should be made already in an early phase and updated during the development of the project.

It is good to remember that financiers often assess the inventor`s personal chances of turning an idea into a product for the market. The way in which the idea is presented is also very important.

A good idea, invention or innovation and related products may be recognized in advance by the following earmarks, which usually are the main evaluation criteria of an invention to be developed and eventually financed:

- The product is market driven; it is in demand;
- The product is inventive, novel, and patentable;
- The product is significant to the business and to employment;

- The product is functional, capable of being produced and economical;
- The product has a suitable level of technology;
- The product can be launched quickly;
- There is personal or organizational commitment behind the development project and the product; and
- Investors are interested in the venture.

It is important to find out the good and promising inventions already in the early phase and finance their development. Only the good inventions will get more public or private funding or investments later on.

The evaluation of the market potential is a key factor during the entire product development phase. As the process approaches the commercialization phase, the focus shifts to marketing and commercialization tasks.

The Center can also consult outside experts for evaluating invention proposals. The experts are primarily from universities and research institutions, and abide by the confidentiality which must be a principle of the Innovation Center.

PATENTING OF INVENTIONS

The Innovation Center shall provide expert assistance for the protection of inventions, usually by means of patenting.

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) of about 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.

Patent databases also function as a vast source of information for inventors and businesses who wish to find the latest technology in their field or are trying not to infringe on competitors' patents. Aside from databases available in most Patent offices, a considerable amount of patent information may be found also on the Internet, for instance at www.patents.ibm.com, <http://ep.dips.org>. or <http://pctgazette.wipo.int>.

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.

PRODUCT DEVELOPMENT

In the product development phase the idea or invention is made concrete by design and by making a prototype and testing and improving it.

The work is done in a prototype workshop, which can be part of the Innovation Center. It produces observation models and develops, builds and tests prototypes. The plans are made confidentially in collaboration with the inventor. The prototypes and their testing can also be commissioned elsewhere, for example, at institutes of technology, universities or private confidential workshops.

MARKETING

The Innovation Center shall provide assistance in the marketing and licensing of inventions.

The industrial and commercial implementation of invention projects are promoted by the various methods of marketing and marketing communication. New products or inventions after a patent application are presented to entrepreneurs by means of direct marketing or at innovation or sector fairs and other business events or via the various media. The Center can also have printed lists of marketable inventions or internet can be used.

The Center can also help the inventor with establishing links and with contractual issues with both domestic and foreign businesses.

The customers of the Center can obtain contractual and legal assistance in negotiations aimed at exploiting an invention, for instance by using a license agreement.

FINANCING OPPORTUNITIES

The patenting and development of inventions into marketable products may be expensive. That is why it is recommended that an Innovation Center can provide support funding to inventors.

Support funding is generally used for paying the costs of patenting, product development and commercialization relating to the development of an invention. The funding may be in a form of grant, support funding, loan or guarantee. In a subsidized risk financing model a conditional refund to the Center depends on the success of the project and on the revenue received from it by the recipient. If the invention fails to be exploited economically, the recipient of the support funding is under no obligation to refund the support money to the Center.

COMMUNICATIONS

The Innovation Center should be active in the field of communications and other innovation promotion activities like invention contests and awards. It is essential to have available leaflets and booklets related to patenting and other phases of the invention development process. Internet-contacts are important. Information of innovation activities

and successful projects are often interesting to different audiences, including students, as well as to press, tv and radio.

CASE: FINNISH INVENTION AND INNOVATION ACTIVITIES

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 1988 and 1997 from 1 billion to 7 billion U.S. dollars. Finland's GNP per capita totaled 21,659 U.S. dollars in 1996, 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% of Finnish GNP, or nearly 4 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 Sweden have a higher ratio of patent applications to population.

Recent 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; SSH Internet encryption systems marketed by Data Fellows; and many other innovations and new applications related to paper machinery, ship building and environmental technologies. Finland is the world leader in cellular phones per capita.

An international evaluation of Finnish invention activity was completed in 1998. The evaluation team considered Finnish know-how, invention activity and the various programs and funding for advisory services, evaluation, patenting, product development and commercialization of inventions to be exemplary and of high quality when compared internationally.

THE INNOVATION CENTER: THE FOUNDATION FOR FINNISH INVENTIONS

In Finland, public authorities support and promote the development of inventions into products as well as research and product development efforts. The Foundation for Finnish Inventions supports and promotes the creation, development and utilization of inventions in Finland. The Foundation serves as a link between private inventors, innovators, small and medium-sized enterprises, universities, research institutes, consumers, businesses and industry in Finland or other parts of the world whether it is a matter of setting up production, licensing or any other means of exploiting an invention.

The Foundation's basic services include consultancy, advising and evaluation of inventions, financing invention protection, product development, marketing and commercialization costs as well as communications and other promoting activities. The Foundation and local innovation managers annually receive some 8.000 requests for advice. The invention proposals received by the Foundation amount to over 2.000 of which some 900 become funding applications. Approximately one in five of the average 300 funded projects is commercialized every year. Central criteria for obtaining funding include market proximity, innovativeness and patentability of the invention, as well as the level of technology. The funding is risk financing and is intended for developing inventions made by private individuals and small businesses into marketable products, produced either by the inventor-entrepreneur himself or by means of a licence or other type of exploitation agreement. When the inventor or entrepreneur receives income from his invention, also the Foundation gets revenues. In case of failure the Foundation carries the risk.

The industrial and commercial exploitation of invention projects is promoted by various methods of marketing and marketing communication. New products are presented to entrepreneurs at invention fairs and other such events, through different media and through direct marketing. The Foundation maintains an Invention Market, which is a constantly updated Internet marketplace offering new business and product ideas for entrepreneurs. The Invention Market can be found at the Internet address www.innofin.com, and it is available in English.

Part of the Foundation's mission is to participate in international, domestic or regional projects that promote the creation of inventions and general innovativeness. Examples of these are invention competitions and the national Innofinland project, whose prizes the President of Finland presents each year.

The Foundation of Finnish Inventions obtains the major part of its funds from the Ministry of Trade and Industry as government financing. The Foundation was established in 1971. Its premises are located in Helsinki metropolitan area in Espoo close to the University of Technology. The staff of the Foundation is 20 persons. Moreover, the Foundation has 15 regional innovation managers, 4 of whom are located in universities. The annual budget is 5 million U.S. dollars.

The Foundation has published two advisory books: the Patent Application Guide and Licensing Guide. Current information on the invention sector can be found on the Foundation's home pages on the Internet at www.innofin.com.

The other important organizations involved in technology development and enterprise funding in Finland are Technology Development Centre Tekes, Finnvera Corporation, the Finnish National Fund for Research and Development Sitra, and the Employment and Economic development centres, which are joint regional service centres of three ministries - the Ministry of Trade and Industry, the Ministry of Agriculture and Forestry, and the Ministry of Labour. In the private sector, financiers and investors include banks, venture capital investors and other business promoters.

Co-operation is essential in the Foundations work. In addition to inventors, entrepreneurs and innovative companies, a lot of work is done with other financial institutions,

schools, universities and research organizations, public authorities, patent agents, consultants, incubators, associations and international companies and organizations. The work is also rewarding. With successful innovations it is fine to share the inventor`s feeling of success.

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