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COMMERCIALIZATION OF INVENTIONS AND RESEARCH RESULTS:
MARKETING AND BUSINESS PLANNING

*Presented by Mr. Kari Sipilä, Executive Director, Foundation for Finnish Inventions
Espoo, Finland*

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New technologies and inventions create many business opportunities, but they only bear fruit after they have been given the form accepted and needed by the markets. The best innovations lead to internationally successful businesses.

From the very beginning, the invention should be considered as a business opportunity for the enterprise to be founded or to the existing enterprise. Inventions are made within the enterprise, or by private inventors or university researchers who may offer inventions (after the patent applications) for the use of the enterprise. Inventions made within the enterprise can start off more smoothly but on the other hand, the enterprises would be wise to accept the principle that an equally good or even better product idea may well come from outside their own organization.

Enterprises can enhance their operations also by cooperating with others or by networking in order to utilize the best expertise of various enterprises or persons in areas such as research, testing, production, marketing or internationalization.

EXPLOITATION – THE KEY TO SUCCESS

Even though an invention may be good and it may have survived the patenting and product development processes, and even if the enterprise involved is dynamic and innovative, the invention will not yet bring a competitive advantage or success. Only the most difficult stage in the process, commercialization, can bring income – up to that point the venture has only taken up time and money. Thus these costs should be considered as investments rather than expenses.

The right to exploit an invention belongs to the owner of the invention, if nothing else has been agreed. The most common exploitation alternatives include:

- Production within current or new enterprise;
- Licensing to one or several manufacturing and marketing companies;
- Acquisitions;
- Partnership arrangements; and
- Combinations.

The inventor may take care of the *p r o d u c t i o n* of his invention. He or she may be the owner of an existing company or he may start a new enterprise. That company will then manufacture and market the invention. Often the Innovation Centers can assist the inventor to start his own enterprise. If the inventor-entrepreneur exploits the invention himself, the patent need not be as strong as when the invention is licensed to someone else. It is not always wise, however, to build a company around one product, and a good inventor will not always make a good entrepreneur. Networking, on the other hand, often produces good results by providing access to the best available innovation, financing, manufacturing and marketing expertise of individuals or smaller companies. Patents also have value as capital which may be exchanged for equity in a newly formed company.

Acquiring and selling *l i c e n s i n g* rights are today among the cornerstones of the operating strategies of manufacturing and technology firms. As a practical matter, this

involves a complicated combination of technical innovation, law, economics and management. Many inventors and also companies want to license their inventions to a company that will manufacture and market the product.

An invention must be considered as a business opportunity from the start, as incremental business for the enterprise. The analysis of whether to produce a product is identical regardless of whether the invention was made in-house, by an employee, or whether it is offered to the enterprise for exploitation by an outside inventor. Inventions made within the enterprise may be easier, though, when suitable means of production already exist and the invention relates to existing operations. On the other hand, it is good to remember that outsiders can produce just as good, or even better, ideas for products. This requires the patenting and development of inventions to a marketable state, often with prototypes and demonstration videos, and special marketing skills and resources.

Small and medium-sized technology enterprises usually have limited resources at their disposal and therefore focus on the essential, that is production and marketing. Their corporate and product development, therefore, should be based on the acquisition of product ideas, research information and know-how that is as ready as possible to be applied by the enterprise.

For many small and medium-sized technology companies the fastest way to acquire new products or technologies is some type of acquisition activity. This may mean, for instance:

- Entering into a licensing arrangement which will allow the enterprise to manufacture and sell, for compensation, a given product or technology which has been protected by means of a patent, for example;
- A partnership arrangement with the person or company who owns the know-how or patent;
- Acquiring the enterprise which controls the desired product or technology;
- Acquiring devices, prototypes, personnel, or other resources; and
- Subcontracting product development, information research and other tasks to outside experts or research institutions.

An agreement is usually reached when all parties benefit from the deal.

Partnership arrangements include co-operation agreements between the inventor and the manufacturer. Especially important it is with advanced research inventions.

Sometimes combinations of above are used. The innovative product may be manufactured and marketed domestically by the inventors' enterprise and internationally by other companies based on license agreements.

RESEARCH RESULTS

In case of innovative university research results, it is also one kind of invention to invent when a research result can be patented. It is important that the research results are not published before a patent application has been filed. Because universities and research institutions are sources of large numbers of potential innovations, it is important to arrange for

adequate information of patenting and invention development activities. Universities are an important area for Innovation Centers. University inventions can be developed and commercialized like any other inventions, although often the university researchers' skills and know-how are needed during the whole development and commercialization process.

COMMERCIALIZATION METHODS

Inventions can be commercialized by many different means depending on whether the goal is to enter into a licensing deal or market and sell a finished product. These means include:

- Direct personal and phone contacts with manufacturing and marketing companies;
- Licensing notices and offers through e-mail, fax, letters and booklets;
- Demonstrations, such as prototypes, test results and videos;
- Electronic marketplaces, such as www.innofin.com for Finnish inventions;
- Commercialization projects;
- Marketing and legal consultants;
- Trade fairs, exhibitions and matching and partner search events;
- International networking, like TII and BIC;
- Conferences and lectures;
- Cooperative research projects and technical and scientific publications;
- Advertising campaigns; and
- Other media, including radio and television.

In the case of licensing, initial contact should lead to negotiations. Thorough preparation is essential. The likelihood of success in these discussions can be increased by assembling the appropriate negotiating team, along with expert advisors, making sure that the negotiations are carried out at the proper organizational level, and that team members are well informed about the topic and know the backgrounds of their counterparts. A new and fast growing alternative distribution channel for marketing and selling finished products can be found in the Internet and electronic commerce.

BUSINESS PLANNING

A preliminary business plan is essential already in the early development phase of the invention, although a lot of the basic information is preliminary. The plan must be reviewed when more detailed facts are available for instance of the manufacturing price and competitor's products. The preliminary business plan also serves as a tool to determine, which form of exploitation is used. Also the financiers, including the Innovation Center, Venture Capital companies and banks require a business plan. The basic purpose of a business plan is to introduce the facts of the company and the innovative product as well as plans related to manufacturing and marketing. It is essential to show costs, revenues, financing and profits during the early life span of the project, for instance for 5 – 7 years.

The main items of a business plan include as follows:

1. Background and summary of the activities;

2. Markets and their development;
3. Goals, strategy;
4. Marketing plan;
5. Product development plan;
6. Production plan;
7. Owners, management and organization;
8. Evaluation of risks;
9. Financial plans, budgets and administration;
10. Funding proposal; and
11. Attachments.

It is also important to evaluate the commercial potential and risks of the invention. It may include following stages:

- Marketability, market potential and competitiveness;
- Novelty, inventiveness, patentability;
- Level of technology involved;
- Manufacturing viability;
- Operational issues;
- Business potential and environment; and
- Commitment and skills of the inventor, entrepreneur and management.

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 commercialization 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.

The need for computing the value of an invention or a patent typically arises in the context of commercialization of an invention, especially through licensing. This valuation is also needed, for example, to arrive at a purchase price for a corporation. Intellectual property rights may also be used as collateral for a loan or as consideration for equity in a company. Valuation also becomes necessary if the inventing employee is to be compensated for the invention, or in legal disputes and bankruptcies.

The commercial value of an invention should be calculated several times during the product development process as inputs needed for the computation become clearer. The commercial value of a patent alone is often limited, but its commercial significance is amplified by product development, the product itself, and the intellectual investment of people behind the project, as well as corporate financial investment.

The emphasis of product development and investment analyses and business plans is not on the value of the patent itself but rather on the operating, financial and scheduling plans for the development project and on preparing for future business. Decisions to develop products,

therefore, contain technical and economic risks. Minimizing these risks is an essential part of business planning.

Aside from manufacturing a product in-house, an enterprise may derive additional benefits from licensing the product abroad, sublicensing or barter. Good products also add luster to a company's image and trademarks. In any case, even when computations are performed only after the development process, total product revenues should exceed total investments and expenses for the venture to be an economic success.

CONCLUSIONS

The goals of innovation activities are internationally successful and profitable innovations and thus better competitiveness, entrepreneurship and employment. The potential and capacity of enterprises for innovation does not only depend on technical and financial resources. Innovation requires also expert know-how in many areas such as management and business planning intellectual property rights, the innovation process, production, marketing and cooperation skills. Networking is often advantageous. Understanding and managing various parts of the process is essential for securing the development of innovation activity. The public sector promotes innovation activity in many ways, but the responsibility and capacity for success lie with the enterprise itself.

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