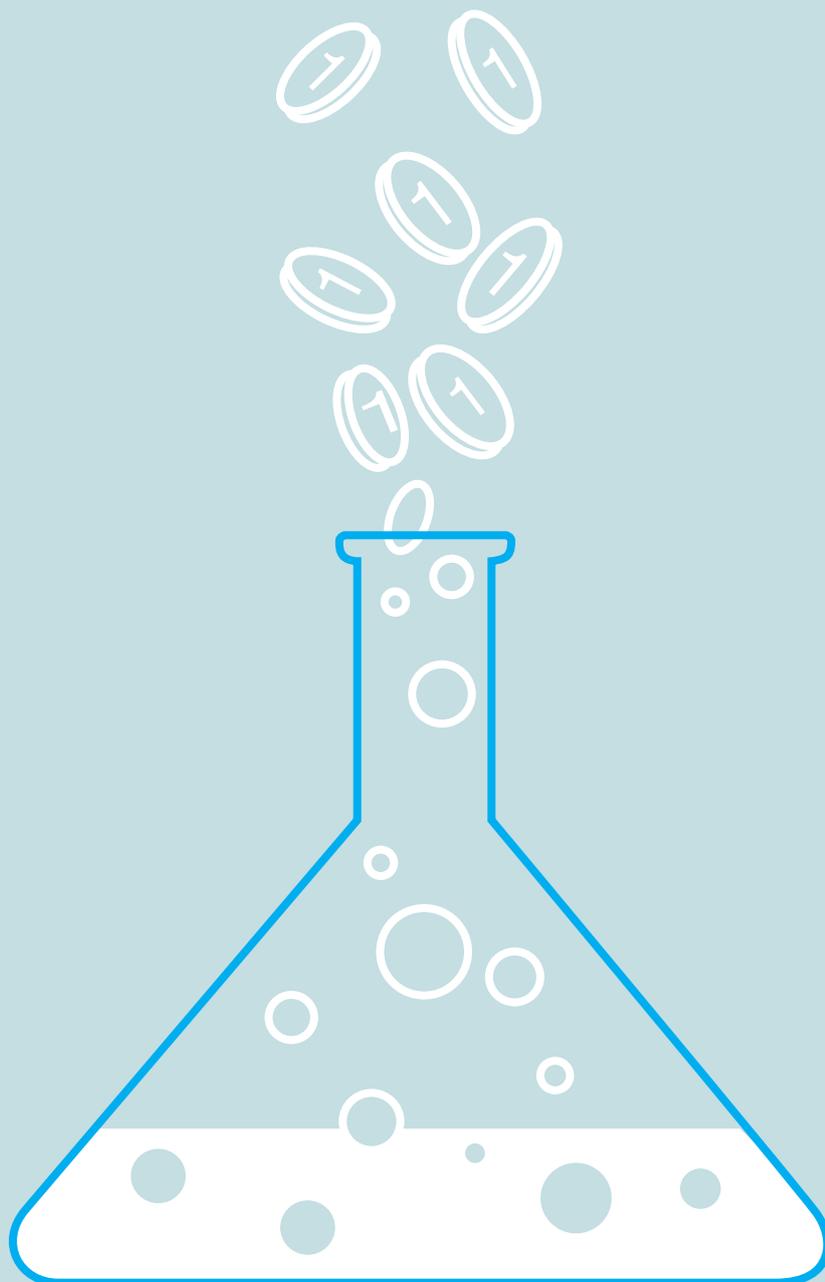


IP VALUATION AT RESEARCH INSTITUTES

AN ESSENTIAL TOOL FOR TECHNOLOGY TRANSFER

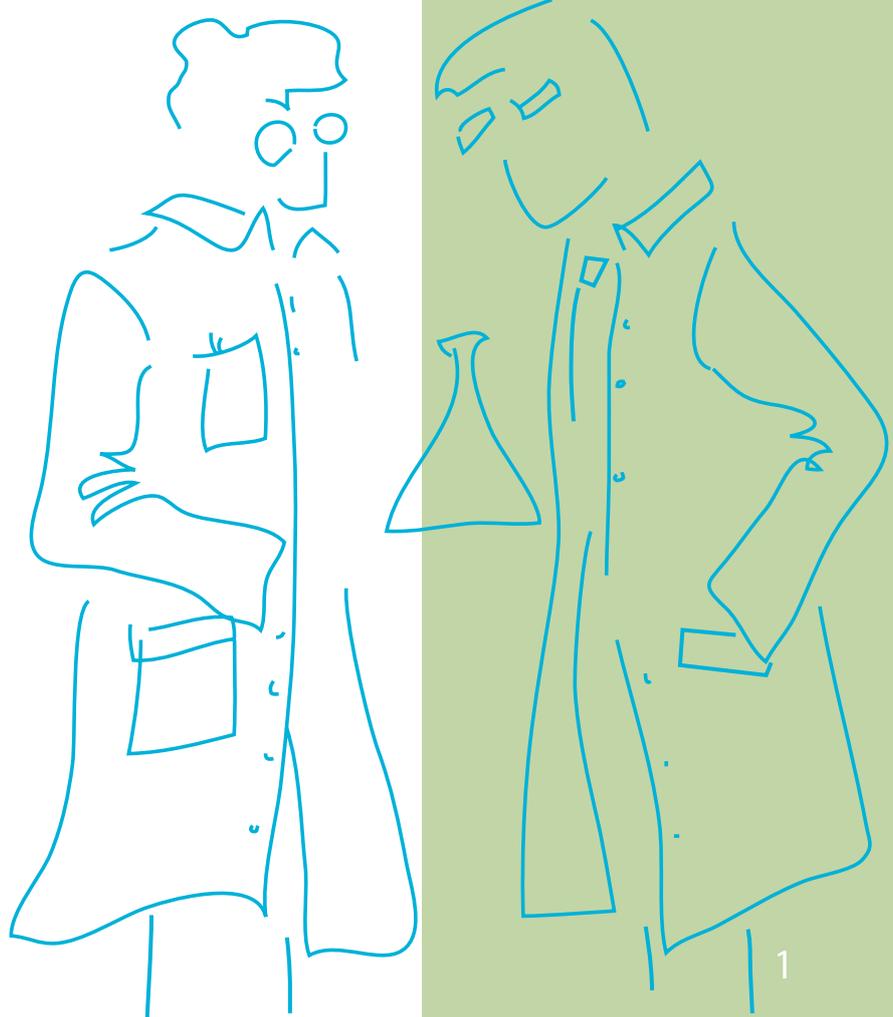


Hungarian Intellectual
Property Office

INTRODUCTION

The efficient transfer of Intellectual Property (IP) to industry and enterprise partners is increasingly a key objective for many research institutes. Successful and sustainable technology transfer strategies can lead to better cooperation between research institutes and industry. The income received from licensing out technology and forming spin-off companies can be an important factor in making research institutions more financially sustainable. The optimisation of the technology transfer process towards value creation can lead to more successful transfers and increased income from IP assets.

IP valuation is a tool which can be used to assist research institutes in developing technology suitable for transfer. The use of IP valuation tools can also assist with the technology transfer process itself. The results of even the most basic IP valuation approaches can provide management with key information on which to base decisions. The results can also be used to communicate the value of technology internally and outside the institute. Acting on these valuation results can add value to the IP asset and ensure the maximisation of income.



RESEARCH INSTITUTES AND THE IMPORTANCE OF IP

Research institutes convert (often public) resources and financing into research results, contributing to the institutes' IP portfolio. These results of successful research activity, new technologies, may then be exploited through technology transfer to generate income.

Technology transfer involves the assignment of technology, developed and generated in one place, to another through routes such as technology licensing, franchising or establishing spin-off entities. The entities receiving the technology will in some way use these scientific and technological advances to create value-added goods or services which are then sold. Part of this income is transferred back to the institute, for example through royalty payments. In effect, research results are converted into an income stream for the research institute. This income stream in turn may be used to finance further developments or new research. All being well, this cycle continues indefinitely with money from exploitation activity paying for research in the pipeline.

This report, aimed at an audience familiar with IP and technology transfer as a process, details why IP valuation could be a key tool for research institutes and sets out some of the fundamental methods used to value IP assets. The report focuses specifically on the IP valuation initiatives of the Hungarian Intellectual Property Office (HIPO) and introduces case study material in the form of a valuation conducted by the HIPO under the IP Valuation Pilot Project.

The purpose of this paper is to call for increased partnerships and developments in the field of IP valuation within and for research institutes. An aim is to introduce a standardised, transparent, accepted and affordable methodology toolbox specifically to value IP developed at research institutes. These valuation tools may be adjusted to individual requirements and used to overcome obstacles in the technology transfer process. The sharing of best practice between partners with similar goals is the first step towards introducing such tools.

In this paper a research institute is taken to represent an establishment where scientific research and development (R&D) takes place. Generally, these institutes are public financed and include universities as well as specialist research centres in various fields such as agriculture, chemistry, biotechnology etc. The term research institute may also include private research facilities where research activity of a technological nature takes place for private owners.

Many institutes face the challenge of diversifying their funding streams in order to support their research activities, of moving towards full recovery of research costs, and fostering their financial management of research activities. In the future, institutes may increasingly be expected to account for R&D expenditures and become more financially sustainable.

IP VALUATION AT RESEARCH INSTITUTES

TYPES OF IP: WHAT ARE WE MEASURING?

Intellectual Property (IP) is a specialised classification of intangible assets that are created by human intellectual and/or inspirational activity and can enjoy special legal recognition and protection. Patents, trade marks, designs and copyright are examples of IP assets protected by IP rights. As most of the IP developed at research institutes is in the form of technology, this report focuses specifically on the valuation of patentable technology (technology suitable for a patent application or already the subject of a patent). The terms “research result”, “technology”, “invention” and “IP” are used as synonyms in this paper.

TECHNOLOGY TRANSFER AS STRATEGIC EXPLOITATION OF IP

In the last 15 years there has been a marked increase in the number of research institutes which have become leaders through targeted R&D activity and the effective exploitation of their research results. The adaptation of open innovation practices will increasingly dominate R&D in the future, with technology transfer being the key process through which exchanges of knowledge between parties will be channelled.

In many research institutes, the development of technology is initially driven by scientific objectives. Later, the development phases of the technology turn towards finding commercial uses and will begin to be driven by market needs. At this point the role of technology transfer becomes important as it is key to exploiting these research results. Technology transfer offices (TTOs) affiliated to individual research institutes often have the task of finding industry and enterprise partners, making deals and exploiting the technology. All being well, these offices help identify and protect research results and act as a mediator between the parties present in the technology transfer.

WHY VALUE IP AT RESEARCH INSTITUTES?

There are numerous routes to exploit research results, some of which are simplified below;

- The development, patenting and eventual commercialisation of a technology together with an industrial partner,
- The development and patenting of a technology for licensing to an industrial/enterprise partner who will then commercialise the technology.
- The development and patenting of a technology followed by the formation of a spin-off company to specifically develop the idea for the marketplace.

For any of these routes to work effectively a large amount of information must be available to the development team, the institute and affiliated TTOs. Important choices must be made along the way by decision makers and effective communication is necessary for successful cooperation.

“For most universities, the benefits of university technology transfer provide the following: more efficient licensing and development of government funded technology, income to school and researchers, an increase in interactions between academia and industry, new business creation, local economic development, and the creation of new jobs”

Bhakuni, N: From Conception To Commercialization – University Technology Transfer Practices In The United States in LES Nouvelles (June 2006)

OBSTACLES IN TECHNOLOGY TRANSFER

There are many high quality innovative ideas and concepts under development at research institutions. Relatively few of these are developed to a level where they are ready to be exploited through out-licensing and spin-off companies. Even fewer reach a stage where they are successfully transferred.

There are a number of obstacles preventing technologies with potential from being efficiently transferred. It is often the case that research is not always successful, or not relevant to industry. In this case technology transfer is not possible. At other times a potential success is not always obvious. There is often insufficient information available about the technology under development, for example potential fields of use, markets and potential partners. The importance of the technology can be under-communicated or miss-communicated between important decision makers within and outside the research institute. The true worth and utility of the technology may not be fully understood. As a result, the technology may not be exploited, or may not be exploited strategically and in the most optimal ways.

An important factor to enable successful technology transfer is the breaking down of these barriers. IP valuation is a tool which can be used to address these obstacles and the valuation process brings a number of advantages at different stages of development and exploitation. Below are summaries of some uses for IP valuation within research institutes.

USES FOR IP VALUATION WITHIN RESEARCH INSTITUTES

IP valuation tools can be used very effectively in the research institute and technology transfer environment to facilitate the following actions:

- a. Decision making
- b. Adding value to IP assets
- c. Communication
- d. Indicator / monitoring

A) DECISION MAKING

During the development and exploitation phases of a technology, there are a number of key turning points. At these points correct decisions must be made regarding the IP in question.

Research and development phase

During the development of a technology, there are different times when managerial decisions are required. For example, the project leaders must decide at any given time whether the research is worthwhile and the development direction will bring sufficient results. If not, the research direction can be changed or the project abandoned.

At the point where there has been an innovative breakthrough in a project, decisions must be made whether the institution wishes to claim the results and take ownership of the IP. This decision involves costs and responsibilities to the institute. The potential of the technology must be considered and this greatly depends on future industrial applicability of the research, and its ability to generate income. An understanding of value drivers is required to make such decisions. An IP valuation can be a key tool here.

Protection phase

If the institute wishes to claim the technology as a service invention a patent application will usually be made. As the concept matures, the decision whether and with what strategy the technology should be protected is decided by the institute, ideally with the assistance of the research team. It could become necessary to protect

the IP through moving on to further patenting phases (PCT, other patent jurisdictions). Not every invention will necessarily lead to further patent applications, and an IP valuation will provide information to make these decisions. As the PCT phase of protection involves increasing costs for the institute, only valuable technologies with potential will be considered.

Technology transfer phase

Once the IP is adequately protected, technology transfer routes are usually considered. The most efficient method of generating income must be decided (two examples are given on page 6). The conditions of exploitation are subject to negotiations, but key elements of the negotiation process may be reinforced by information gained from conducting an IP valuation.

B) ADDING VALUE TO IP ASSETS

The results of R&D have a value. Steps can be taken to increase this value by changing certain key factors surrounding and influencing the IP asset. For example, an IP asset will be more valuable if ownership rights are 100% legally certain and documented, if the technology has been tested at an industrial level or if the right-holders have sufficient funds to enforce IP rights. An IP asset will be less valuable if the ownership rights are uncertain, the technology has never been tested or the right-holders have insufficient funds to go to court in case of patent infringement. An IP valuation will help identify the key uncertainties surrounding the technology, which reduce its value. As part of the development and exploitation strategy, these issues can then be addressed and corrected.

C) COMMUNICATION

Decisions in all development and transfer phases require the cooperation of different parties, including academic staff, research staff, students, directors, the technology transfer office (TTO), and other members of the institute hierarchy. The attributes, importance and value of the technology in question must be communicated internally for all parties to fully understand value aspects and to be able to make well founded decisions. Often the support of different parties is required before the transfer of technology is possible. Information gained from the valuation process can help achieve this.

The importance of the IP asset must also be communicated externally, to potential transfer partners and actors in industry who will potentially obtain rights to commercialise the technology. Under certain circumstances the results of the IP valuation may also be used to communicate the benefits of the IP to partners who have expressed an interest in licensing.

D) INDICATOR / MONITORING

IP valuation can be a useful tool to help management decide whether the investment into research has created the quantity and quality of R&D results expected. It is, therefore, a useful way to measure whether research funding is efficiently allocated to R&D projects. When accountability for expenditure at project level is required, it is also an excellent means to convey the value of R&D results.

As public funds have been largely employed in the creation of IP, there is substantial public expectation that benefits should accrue. The “cost-benefit” balance is important to many funding bodies. Successfully transferred technology can lead to an increase in regional economic development through stimulating institute-industry partnerships and the creation of new enterprises.

TECHNOLOGY TRANSFER ROUTES

1. LICENSING AND JOINT EXPLOITATION

The licensing out of a technology to industry or enterprise partners is an exploitation option commonly used by research institutes. Entering into joint exploitation schemes such as IP pools or cross-licensing agreements is also a possibility, and these options are increasingly used in “open innovation” scenarios.

Licensing, depending on the terms and conditions, can result in income for the owner of the IP in the form of periodical royalty and milestone payments. Specifying the exclusivity, territory, permitted uses and the timeframe of licences can lead to a myriad of possible licence combinations with many different partners, producing many independent income streams.

Achieving successful utilisation through this route requires knowledge of the technology value. Often, the calculation of license terms such as minimum royalties, lump sum payments and royalty rates are linked to the income (or cost savings) attributed directly to the IP being licensed.

HOW CAN IP VALUATION ASSIST WITH LICENSING ACTIVITY?

In order to enter a beneficial licence agreement, institutes must know as accurately as possible the value of the IP concerned. Conducting an IP valuation will provide key information to assist with the licensing process by identifying problem areas, giving benchmark values, forecasting income and providing a market outlook. This information can be used in negotiating and drawing up the terms and conditions of the license contract. An accurate IP valuation allows both the licensor and licensee to estimate ideal financial terms and thus to address the specific needs of both parties.

The deliverable at the end of the valuation process would enable a decision about 1.) whether the license transaction is worthwhile, and 2.) under what terms and conditions the institute should be willing to enter into such a transaction.

2. SPIN-OFF COMPANY FORMATION

Establishing a spin-off company to commercialise IP is another possible technology transfer route. Spin-off companies in this case can be defined as independent companies originating from research institutions with the primary goal of commercialising the parent organisation’s knowledge. “Spin-offs” represent an opportunity to set up a business that is based on the institute’s technology and know-how. The relationship formed between the parties can be particularly advantageous: it can serve as a permanent platform for technology transfer, offering the institute a more attractive perspective than licensing out individual patented technologies. Spin-offs can build a bridge between the innovation capacities of the research institute and the market for products and services.

IP assets or rights to use the IP are transferred from institute to the spin-off company. One way of transferring IP rights is through a license agreement. The other is through the institute having part-ownership of the spin-off and transferring the IP to the company by way of contribution-in-kind.

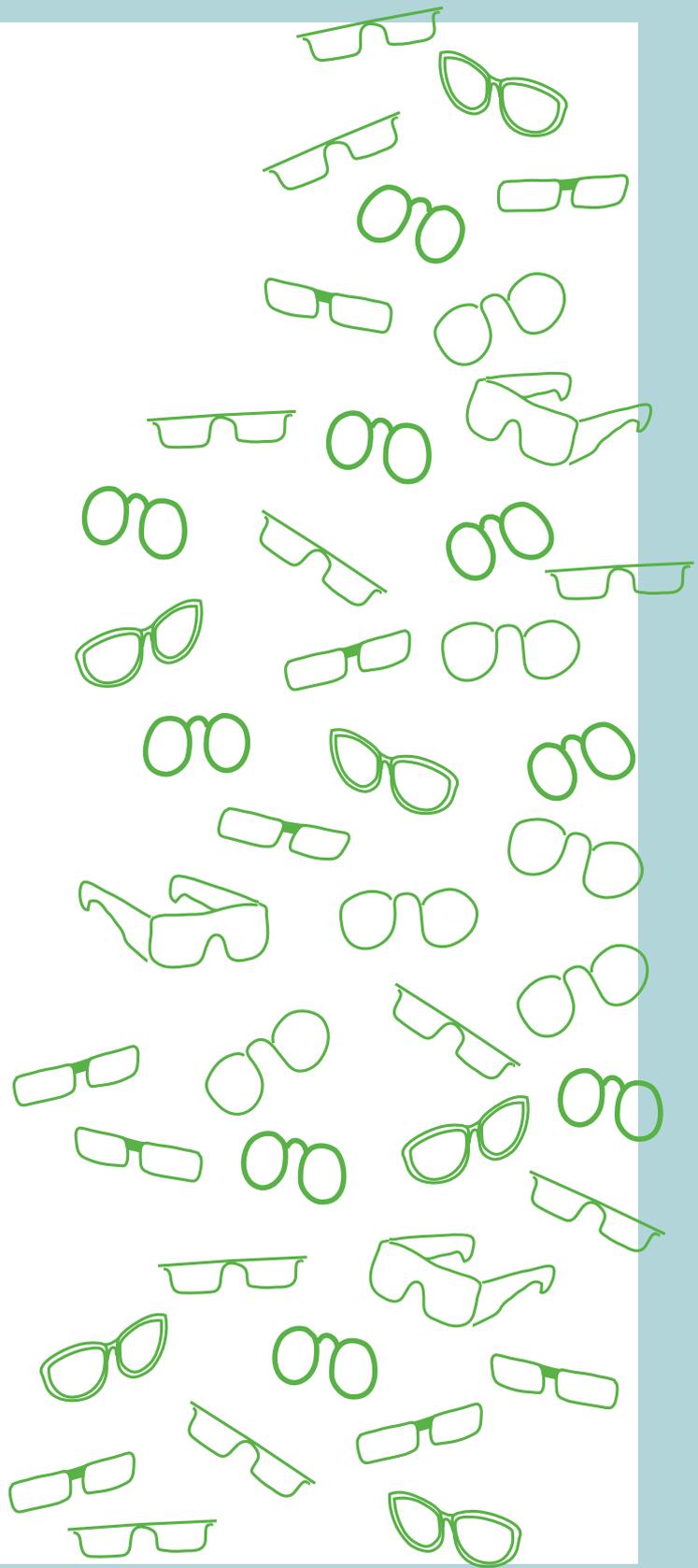
The institute and a spin-off are generally linked by a cooperation agreement. This includes details about how the technology will be managed by the spin-off. Particularly it specifies the spin-off’s commercialisation activities including profit participation for the institute and provisions for the use of institute assets by the spin-off for the mutual benefit of the parties. All these terms and conditions require a reasonably accurate knowledge of the IP asset.

Involving investors is usually a key issue regarding the commercialisation of technology. The injection of external capital into a spin-off company involves the allocation of the spin-off company’s shares between the investor and the research institute. The shares are allocated according to the value put into the company by each party; money from the investor and IP as contribution-in-kind from the research institute. The research institute and the investor should agree on the value of the IP in order to conduct such a capital increase.

HOW CAN IP VALUATION ASSIST WITH SPIN-OFF COMPANY FORMATION?

The deliverable at the end of the valuation process provides information which decision makers can use to decide if a spin-off company is the best way of exploiting the technology. If this is the case then an accurate valuation can assist with creating beneficial cooperation agreement terms and conditions.

If the technology is to be licensed to the spin-off, an IP valuation can provide information for agreeing to license terms and conditions (see Licensing and joint exploitation above). If the contribution in kind option is chosen, IP valuation can help in establishing the contribution value of the IP to the spin-off company.



METHODOLOGY FOR VALUING IP ASSETS

A number of approaches have been proposed for the valuation of IP assets. Each has their own set of unique strengths and weaknesses (see table 1 on page 11). To gain accurate and usable results, it is important that the valuer selects the most appropriate method or combination of methods for each individual case. In practice, a valuation toolbox is likely to include many of the methods listed below.

Approaches to IP valuation are generally divided into quantitative and qualitative methods. Quantitative methods attempt to calculate the monetary value of the IP asset and include “cost”, “market” and “income” based approaches. Qualitative methods provide a value guide through the rating and scoring of an IP asset based on factors that can influence its value. The descriptions below provide a brief overview of the different approaches.

COST BASED APPROACHES

WHAT IS IT?

One approach to valuing an IP asset is through calculating the costs of developing it. In this way the sum of R&D expenditures and other costs related directly to the development of the IP asset are taken to be its monetary value. Depending on the circumstances, it is important that all costs incurred in creating the IP are included, such as patent attorney and patent application costs.

HOW DOES IT WORK?

Cost based valuation may be done historically (historic cost approach), through calculating the cost of development, at the time the technology was developed. Alternatively, a principle of substitution may be used (replacement cost and reproduction cost approaches). Here, the costs of developing a similar technology either externally or in-house are calculated at the date of the valuation.

WHEN IS IT USED?

This approach gives a useful benchmark for IP value in cases where the future uses and benefits of a technology are not yet evident. The cost approach is most useful in cases where there is no economic activity to review, such as with early-stage technology. Also, the information to conduct the valuation is generally available to the valuer, making the valuation practical and affordable.

Using the replacement cost approach is especially useful during license negotiations. A potential licensee for the IP will not pay more than the investment required to develop its own IP with similar functionality. The approach, therefore, provides a valid benchmark from which to begin negotiations.

In any technology transfer transaction it is often the aim to negotiate a income stream which at least covers the development costs of the IP (its historical cost). If this is not possible the R&D investment has not been a profitable one from a monetary point of view.

A crucial point, however, is that there is no direct correlation between cost of development and the future income potential of an IP asset. Simple ideas can be the most valuable, just as expensive developments can often fail. For this reason the use of cost based approaches for valuing IP has limited use and may only serve as a guideline for true value.

The bottom line is that market information can be very useful in analysing and valuing technologies, but it seldom is comprehensive enough to provide the basis for a satisfactory conclusion of value on its own.

Drews, D.: Patent Valuation Techniques,
LES Nouvelles, March 2007.

MARKET BASED APPROACHES

WHAT IS IT?

The idea behind market based approaches for valuing IP assets is that an active market decides the accurate price of an IP asset. Market based approaches work by comparing the IP asset being valued to other similar IP assets which have been licensed or sold before, under similar circumstances. The price established on the market for other similar IP assets, adjusted for the specific environment, is taken to be the value.

HOW DOES IT WORK?

Market based methods value IP by looking at recent comparable transactions (for example a license deal or a sale) between independent parties. The terms and prices at which these deals are made within the same industrial sector will give a good indication about the value of the IP. Market based methods include comparable market price approaches (comparing the subject IP with similar IP assets bought or sold) and comparable royalty rate approaches (comparing the subject IP with similar IP assets licensed).

The comparable royalty rate method is probably the more common and involves identifying and analysing licence transactions involving similar technologies. This is often aided by the fact that many sectors use industry averages as a basis for setting royalty rates in license agreements. The terms of the license and the royalty rates used in transactions related to similar IP are the bases for the comparison. From this information important information about the value of the subject IP asset may be calculated.

WHEN IS IT USED?

Whilst the market method is theoretically the most accurate, the information required to make such comparisons often does not exist or is not publicly available. This is because there are limited active markets for IP assets, with few comparable exchanges of IP assets between two independent parties. If sale or licensing does occur in the relevant sector, the required pricing information is not usually public. Another issue is that of establishing what IP assets can be considered to be similar, for the sake of comparison. By definition, a patented technology is unique, and, therefore cannot be compared per se. Only its functionality may be analysed with respect to another technology.

INCOME BASED APPROACHES

WHAT IS IT?

The most basic definition of IP 'value' is based on the ability of an IP asset to generate future income. The value of an IP asset is, therefore, directly related to its potential to generate a stream of income.

HOW DOES IT WORK?

Income based methods measure the potential income from an IP asset in the future. This income stream is discounted back to the date of the valuation to give a present value for the technology. The value of the technology is appropriately adjusted for risk by changing the discount rate in relation to the risks surrounding the development and exploitation of the IP asset. The discount rate used in the calculations must incorporate all of the risks that have an impact on income.

To conduct an IP valuation using an income based method, a valuer will need to estimate: an income stream either from product sales or the licensing out of the asset, the duration of the IP asset's useful life, and have an understanding of risk factors. These parameters are based on observations of relevant markets, including size, growth trends, market share dynamics among participants and overall market risk characteristics.

There are many income based valuation methods, each with variations according to the reason for valuation and the type of industry. Approaches such as the discounted cash flow (DCF) method calculate the potential future cash-flows from the IP asset and appropriately discount these. The result is the present value of the IP asset. Other examples of income based methods include the risk adjusted net present value (rNPV) and relief from royalty methods.

WHEN IS IT USED?

Income based methods are commonly understood approach to asset valuation. They are most useful when valuing an IP asset that actively generates income. This method may be used with regard to the sale of products incorporating technology, cost savings attained through using a technology, or alternatively for income generated through licence royalties.

QUALITATIVE APPROACHES

WHAT IS IT?

Qualitative methods provide a value guide for an IP asset through the analysis and scoring of different factors related to the IP asset. These factors or “value drivers” can influence the value of the IP asset either positively and negatively. In the same way as factors such as location, numbers of rooms, nearby schools etc. affect the value of a house; a combination of value indicators related to the IP asset will determine its value.

HOW DOES IT WORK?

These methods provide a non-monetary value for the IP asset in question. Specific factors related to the IP asset are chosen for analysis, particularly those which have a significant impact on the value (the so called “value drivers”). The factors are rated and scored to determine strengths and weaknesses and to create a value guide.

Qualitative “value driver” based approaches include those which analyse patent data, specific aspects of the patent application documentation (number or quality of claims, citations etc.). There are also qualitative approaches which analyse and score more general

aspects related to the IP asset. These indicators can include aspects related to legal and IP protection backgrounds, the technology and development level, market details, financial factors and very importantly, the management competencies of the organisation that will exploit it. A good example is the IPScore® software developed by the Danish Patent and Trademark Office.

WHEN IS IT USED?

Quantitative valuation approaches (income, cost, market based) give an indication of the estimated monetary value of the patent, and this approach is often insufficient as a basis for recommending development and exploitation decisions. Qualitative evaluation methods are often used to assist decision makers here. They are most useful for comparing, categorising and ranking technologies within a portfolio or against competitors’ technologies. They are also useful for assessing the uncertainties and opportunities related to individual IP assets. For example: While the outcome of a quantitative valuation may be: “The IP asset is worth € 50 000.” The result of a qualitative evaluation may be: “The technology is of strategic importance for an attractive market; it can be enforced efficiently but only if significant investment is received or financially stable licensees are found.”

WHO CARRIES OUT THE VALUATION?

The skills needed to carry out the valuation depend very much on the purpose (see “Key issues for valuers” on page 12). A thorough valuation requires expertise in many areas, including technical, IP rights, marketing, finance and strategy, so it is a good idea to use an interdisciplinary team. To ensure a meaningful result, the team should include experts in the technology subject-matter, the relevant markets and in conducting valuations. Such a team can also give advice on how to interpret and profit from the valuation results.

A basic valuation, with a minimum of cost and a fast delivery can be conducted in-house and will provide some answers and information. Some online tools (such as IPScore® - see later) are available free and

can give a good idea of IP value for purposes such as internal management. However, the quality of the valuation is determined by the expertise and knowledge that is used. In house experts can lack experience, access to data and can be biased.

Table 1
ADVANTAGES AND DISADVANTAGES OF VALUATION APPROACHES

	ADVANTAGES	DISADVANTAGES
COST BASED APPROACHES	<p>IP assets can become visible in the company's books and patent awareness is increased.</p> <p>Useful indicator of IP value in the case of IP whose future benefit is not yet evident.</p>	<p>No direct correlation between cost of development and the future revenue of IP assets .</p> <p>Future revenue from IP assets is not considered.</p> <p>The cost method can encourage overspending.</p>
MARKET BASED APPROACHES	<p>Relatively straightforward valuation concept.</p> <p>Useful to check the validity of other approaches.</p>	<p>Limited formal markets for IP.</p> <p>Relevant pricing information not usually public.</p> <p>Uniqueness of IP makes direct comparison difficult.</p>
INCOME BASED APPROACHES	<p>Relatively simple concept.</p> <p>Likely availability of required inputs from company's financial statements and market information - may be possible to identify/forecast cash flows.</p>	<p>Can be an uncertain method and subject to subjective assumptions.</p> <p>Both uncertain and distant cash flows and the discount rate have to be estimated.</p>
QUALITATIVE APPROACHES	<p>Useful for identifying strengths and weaknesses of an IP asset.</p> <p>Can assist with development and exploitation decisions.</p> <p>Can assist with adding value to an IP asset.</p>	<p>The value drivers used in the valuation are subjective – they must be chosen with care.</p> <p>The links between the factors and IP value have been established, but the exact importance of each factor is open to interpretation.</p>

KEY ISSUES FOR VALUERS

There are a number of key issues which valuers must address before conducting an IP valuation. The circumstances of the valuation will determine the appropriate valuation approach or a combination of approaches which should be chosen.

DEFINING THE IP ASSET

What exactly is the IP asset being valued?

The IP asset must be clearly identified and differentiated from non-related tangible and intangible assets. If separate appraisal is required for a specific IP asset, it can be difficult to separate two interdependent technologies which complement each other. Usually, the IP asset being valued is closely linked with other technologies, or know-how. Rather than valuing a technology as a stand-alone asset, it is often more accurate to value it in conjunction with some of these related assets. So the focus of the valuation could be a bundle consisting of the technology itself, trade secrets and know-how.

PURPOSE OF VALUATION ASSESSMENT

What will the valuation results be used for?

Conducting an IP valuation is never just for curiosity. The results will be used for a specific purpose. Generally speaking, the context in which the IP asset is viewed is the single most important determinant of value. The type of value result (non-monetary, monetary) required is determined by the purpose of the valuation. For example, assisting management decisions may require only non-monetary results. A valuation to assist with setting up license deals will often require a monetary valuation.

CLIENT

For whom is the valuation being done?

Different valuation approaches provide different bundles of information which are relevant to different types of clients. In this particular case, research institutes are the clients and will require specific value information about their own R&D results.

VALUER

Who is doing the valuation?

IP valuation may be done in-house within the institute and with an affiliated TTO, using established protocol and with support from the research team, management and intermediaries. The benefit of using an in-house team is that there is sufficient access and cooperation already in place. However, using experts in-house will introduce bias into the valuation which must be considered. A more interdependent valuation may be done by external professionals with skills and experience in IP valuation, and with relevant knowledge of the subject area.

SPECIFIC VALUATION DATE

The date of the valuation

The date of the valuation will influence the methods used and how they are used, and in the case of income based methods, the discounting process.

INFORMATION AVAILABLE AND ACCURACY OF INFORMATION

The most important factor to consider when valuing IP and selecting the appropriate toolbox is the availability of relevant, accurate input information. It is impossible to conduct a market based valuation if for example market data and information about similar transactions is not available. It is always better to use actual data or historical results than to rely on assumptions.

SUPPORTING INNOVATION: IP VALUATION AND NATIONAL INTELLECTUAL PROPERTY OFFICES

Many national intellectual property offices (NIPOs) have the competence to support innovation in their individual regions. A number of NIPOs have identified IP valuation as a key supporting device and a tool to overcome obstacles in the commercialisation of technology. They have acted to provide innovative stakeholders (research institutions and small and medium sized enterprises) with information, support and in some cases IP valuation tools. For example, the Danish Patent and Trademark Office developed an IP valuation software tool (IPScore®) for use specifically by innovative SMEs. This tool has been further developed by the European Patent Organisation and is presently available on their website¹. The United Kingdom Intellectual Property Office has developed information booklets on the topic of IP valuation within its IP Healthcheck initiative². IP PANORAMA, a promotional tool, was developed jointly by the World Intellectual Property Organization (WIPO), the Korean Intellectual Property Office (KIPO) and the Korea Invention Promotion Association (KIPA) and can be accessed from the WIPO website³.

NIPOs have a number of advantages as valuers of IP assets. A significant amount of the information required for an accurate valuation is available in-house, where the offices already have extensive knowledge and expertise in all technological areas and industrial property rights issues. Coupled with extensive stakeholder networks, NIPOs are in a position to compile knowledge on any subject area related to technology and innovation.

As promoters of value orientated thinking and as disseminators of information, offices are also in an advantageous situation, already having comprehensive networks and cooperating with research institutes at various levels.

IP VALUATION AT THE HUNGARIAN INTELLECTUAL PROPERTY OFFICE

The Hungarian Intellectual Property Office (HIPO) is the government office for the protection of intellectual property⁴. The HIPO's functions and competences, besides official examinations and procedures in the field of industrial property, are to contribute to innovation support with its own initiatives. The purpose of these initiatives is to measurably increase intellectual property awareness and innovative activities of domestic innovation actors. These include small and medium sized enterprises (SMEs) and publicly funded research organisations.

One area in which the HIPO has been increasingly active in recent years is the provision of targeted services aimed at these innovative actors. This has continued to strengthen the function of the office as provider of high quality services in the field of innovation support.

The HIPO has identified the need for IP valuation to support innovation in a number of user environments including technology transfer, government R&D grants and innovative SMEs. As a result, the Office has established a clear focus on developing methods and services for the valuation of IP assets, specifically technology.

1 IPScore launch page: www.epo.org/searching/free/ipscore.html

2 UKIPO IP Healthcheck: <http://www.ipo.gov.uk/iprpricebooklet.pdf>

3 WIPO IP Panorama: (<http://www.wipo.int/sme/en/multimedia/>)

4 Hungarian Intellectual Property Office website:

www.sztnh.gov.hu (Hungarian), www.hipo.gov.hu (English)

IP VALUATION INITIATIVES AT THE HUNGARIAN INTELLECTUAL PROPERTY OFFICE

IP VALUATION METHODOLOGY TOOLBOX AND SERVICE DEVELOPMENT

Since 2005 the HIPO has been active within the field of IP asset valuation, setting up an IP valuation working group to conduct research in the field. The aim of the initiative is to create a methodology toolbox and services which may be used to value IP assets in different environments.

IP Valuation Pilot Project

To address the issues regarding the exploitation of technology developed at research institutes, the HIPO, jointly with the Hungarian Academy of Sciences has initiated a pilot project. The project is intended to test methods and develop an efficient methodology toolbox to be used to value patentable technologies.

DISSEMINATION OF INFORMATION ABOUT IP VALUATION

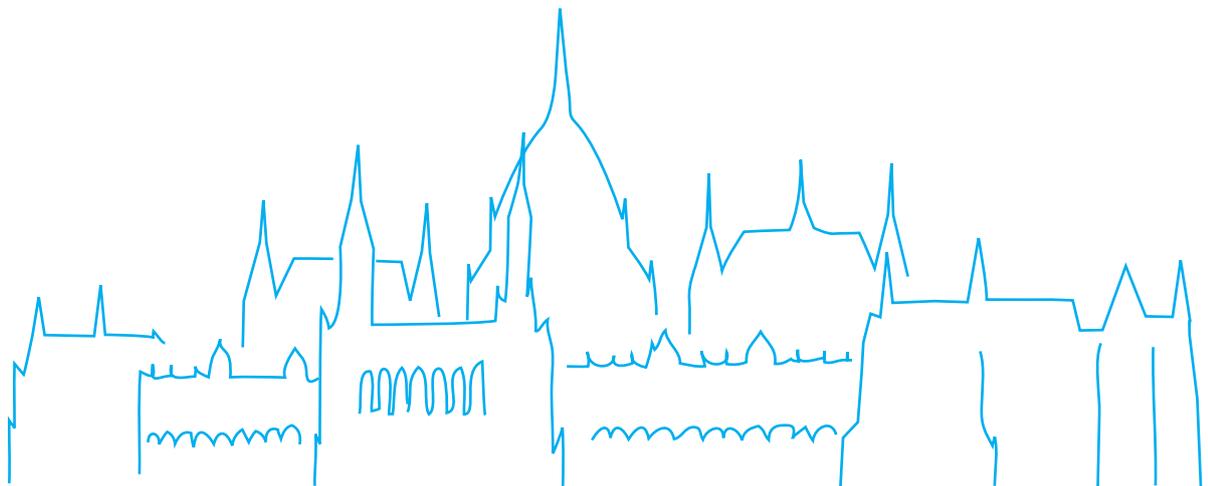
Events and Seminars

The HIPO regularly organises events and seminars in cooperation with Hungarian and international partners on IP valuation and related subjects. The aims of these events are to raise awareness of issues, challenges and developments related to IP valuation and to initiate partnerships between stakeholders.

In cooperation with the World Intellectual Property Organization (WIPO), the HIPO began dialogue on the topic of IP valuation for research institutes at the seminar entitled „IP Asset Valuation for Technology Transfer” which took place in Budapest on 28th October 2010. Presentations are available on the seminar website (http://www.hipo.gov.hu/hirek/hirek_201011031302.html). The seminar brought together experts in technology transfer with IP valuation professionals. The purpose of the seminar was to discuss how IP valuation tools and methods can be used by research institutes and technology transfer offices (TTOs). The discussions focused mainly on the possibilities for introducing IP valuation best practise into the technology transfer process and increasing cooperation in this field.

IP Valuation Forum

The HIPO operates a webpage dedicated to raising awareness of and advancing the issues surrounding the valuation of IP assets. The IP Valuation Forum is dedicated to promoting the use of IP valuation to facilitate the leveraging and utilisation of IP assets for the benefit of stakeholders. The interface of the forum is an English language website (<http://ipvaluation.hipo.gov.hu/>) available through the homepage of the HIPO.



IP VALUATION PILOT PROJECT

The HIPO and partners are active in research as well as the continuous adaptation of international “best practice” methodology to local circumstances. The IP Valuation Pilot Project, aimed at developing effective valuation tools for use by research institutions will be completed in 2011. A cooperation agreement with the Hungarian Academy of Sciences has enabled the HIPO to work together with an number of research institutions in order to test and develop a suitable framework and interface for the valuation process. Since 2009 a number of technologies developed at the research institutes of the Academy have been valued. One of these valuations is demonstrated in the following case study.

CASE STUDY: MICROSCOPE SYSTEM

A specific IP valuation conducted by the HIPO was a “microscope system” developed by scientists working within the Institute of Experimental Medicine. At the time of the valuation the technology was already fully developed and demonstrated with operational prototypes, but was not integrated into any products. The technology under valuation was to be embodied within a physical product, a microscope instrument.

The right-holder, as the client, presented the HIPO with a specific set of needs. Firstly, the value of the technology was required to assist the right-holder with specific internal management decisions. The client had a number of projects under development and the value of this technology was important to make decisions about resource allocation for projects in their portfolio. Specifically, information was required to support the decision to further invest into developing the technology into a viable product. The right-holder planned to license-out or sell the technology to an as yet unidentified commercialisation partner, a large company with the capacity to manufacture and sell equipment based on the technology. For this transaction the client required information related to the value of the technology and associated know-how, market and income estimations and a monetary value to use in license negotiations. Thirdly, the client was interested in adding value to the IP asset, making the technology more valuable before negotiating with potential license partners.

IP VALUATION SUMMARY

DEFINING THE IP

Patents had been applied for in a number of jurisdictions. The technology was defined by the patent applications claims. Associated know-how related to the patent was also included.

PURPOSE OF VALUATION ASSESSMENT

- portfolio management decisions/resource allocation
- potential license-out of IP asset
- potential sale of IP asset
- adding value to the IP asset

CLIENT

Right-holder of the technology and know-how

VALUER

Hungarian Intellectual Property Office (HIPO). The valuer was independent and in no way associated with the right-holder.

VALUATION DATE: 1st February 2009

INFORMATION AVAILABLE AND ACCURACY OF INFORMATION

The following experts provided information for the valuation:

- R&D team leader
- expert in the field of the technology/ industrial property expert (from the HIPO)
- Independent market expert from industry (optical instruments)
- Legal/ industrial property expert

IP VALUATION METHODS USED

Qualitative analysis:

“Qualitative analysis using value drivers” approach

Income based approach:

“Discounted cash flow (DCF)” approach.

METHODOLOGY TOOLBOX

The IP valuation toolbox used by the HIPO is intended for the valuation of patentable technologies. The current toolbox contains a number of methods which can be selected and combined to give robust answers to specific valuation uses and circumstances. The methods used in the toolbox are under continuous development.

The circumstances of the technology being valued determined the most appropriate valuation approach and combination of methods. The HIPO used a combination of methods appropriate to the technology being valued and the valuation environment. To give robust results, two valuation methods were selected from the toolbox, the “qualitative analysis using value drivers” method and the discounted cash flow (DCF) method.

The valuation of the technology is conducted with the assistance of a number of professionals as part of a working group. The participants were selected because of their knowledge in the relevant area. The information requirements for the valuation were met by the experts in the working group. The results of these methods would provide data which will fulfil the needs of the client.

QUALITATIVE ANALYSIS

“QUALITATIVE ANALYSIS USING VALUE DRIVERS”

The “Qualitative analysis using value drivers” method is a qualitative valuation tool being developed at the HIPO. It is based on a number of “best-practice” methods available, including the IPScore® tool. These have been adapted to include specific criteria important in the region, especially the innovation environment in Hungary.

Similarly to other qualitative methods, this method intends to give a deeper insight into many of the independent and interdependent factors that can affect the value of the technology. There is a strong positive or negative relationship between each of these factors and the value of the technology. The value of the IP asset is linked to how the IP asset being valued performs in five key areas (see table 2 on page 17). Each key area has around 10 factors which are analysed and given a score.

RESULTS OF THE VALUATION

The result of the method is an uncertainty-opportunity “profile” of the technology. Each factor in the five individual categories is analysed and scored to build the profile. The results are presented in a report incorporating graphs and charts for visual representation.

The profile can be used to assist with IP portfolio management, making efficient investment and development decisions, risk analyses and economic efficiency analyses. It may be used as a communication tool and presented to potential licence partners as an independent opinion about the value of the IP asset.

The profile gives a clear indication of issues that should be addressed related to the IP asset. Uncertainties which are present and which could pose a problem in the development and commercialisation of the technology are highlighted. Opportunities that could be further elaborated in relation to the IP asset are also identified. Acting on this information can add value to the IP asset for example before entering transfer transactions such as licensing.



Table 2:
FACTORS THAT CAN AFFECT THE VALUE OF
THE TECHNOLOGY, GROUPED INTO CATEGORIES

AREA UNDER ANALYSIS	DESCRIPTION
Technology/Development	The technological level and uniqueness of the technology in comparison with substitute technologies.
Legal / IP rights protection / Infringement and Enforcement of rights	Certain aspects related to the legal and IP rights protection status of the technology.
Financial / Forecasted costs	The financial status of the right-holders, the related future development, commercialisation and production costs, and the ability to enforce IP rights.
Management / Strategy	The factors surrounding the exploitation strategy of the IP asset, the competence of the management team.
Product / Market / Commercialisation / Forecasted income	The conditions of the target market and forecasted income from the technology.

ACHIEVEMENTS

One main purpose of the valuation was to collect important information about the IP asset which could be used for portfolio management decisions and resource allocation within the right-holder's organisation. The value of the technology to the right-holder was established. It was concluded that the action of licensing out the technology fitted well within the business strategy of the right-holder and their partners. The information from the IP valuation assisted the management team in making efficient resource allocation decisions.

Secondly, value information was required to assist the right-holder with the potential license-out or sale of an IP asset. The valuation highlighted a number of potential uncertainties related to the technology, which could have been potential hurdles during license negotiations. Uncertainty surrounding any asset decreases its value. If the uncertainty is removed the value will increase. As a result of the IP valuation, the management team were able to isolate and solve a number of uncertainties related to the technology.

INCOME BASED APPROACH (DISCOUNTED CASH FLOW)

The discounted cash flow (DCF) method used at the HIPO has been developed from quantitative valuation techniques used to value different types of assets. The method builds on the knowledge and experiences of the market experts used within the valuation working group.

The calculations in the model involve estimating the future costs and income from the IP assets under a specific scenario (eg. a licensing out the technology) at each period of its lifecycle. These periodical cash flows are then discounted to give a present value for the technology. The discounting of the cash flows enables the time value of money and the riskiness of the forecasted cash flow to be considered in the calculation. A number of different discount rates are used in the DCF model to simulate different levels of risk, enabling the user to get a wider picture of the IP asset's value.

RESULTS OF THE VALUATION

The DCF method is an income based approach and the results are expressed in monetary terms (in this case Euros). The value is expressed using a value scale. The results are presented in a report incorporating graphs and charts for visual representation.

The information gained from this method can be used when a monetary value is required in technology transfer. In this case the information can be used to provide key data and information to assist with the licensing process by giving benchmark values, forecasting income and providing a market outlook. It would enable a decision about 1.) whether a license transaction is worthwhile, and 2.) under what terms and conditions the right-holder should be willing to enter into such a transaction. The information can be used in negotiating and drawing up the terms and conditions of the contract. The results may also be used as a communication tool and presented to potential licence partners as an independent opinion about the value of the IP asset.

ACHIEVEMENTS

One main purpose of the valuation was to collect information about the IP asset which could be used for resource allocation within the right-holder's organisation. Information was required to support the decision to further invest into making the technology into a viable product. Using the information about future costs and income from the IP valuation this decision was made within the organisation.

Secondly, monetary value information was required to assist the right-holder with the potential license-out or sale of the IP asset. The valuation created a viable commercialisation scenario and gave specific results which were used in license negotiations as benchmark values.

EXPECTED RESULTS OF THE IP VALUATION PILOT PROJECT

The overall aim of the pilot project is to develop a set of tools which can be used within the research institute environment to value technology developed there. The IP valuation tools developed during the pilot project will be available for research institutes to use within their own technology transfer network.

It is expected that the use of these tools will result in an increase in the efficiency of the technology transfer process through the removal of obstacles, filling information gaps and better communication. The results of each IP valuation process are expected to help institutes add value to their IP assets through identifying uncertainties and mitigating these.

The number and quality of technology transfers are expected to increase after the introduction of the tools. These transfers should also result in stronger partnerships between research institutions and industry/enterprise. Finally, an increase in income from technology transfer is expected for the participating research institutes.

THE FUTURE OF IP VALUATION AT THE HIPO

The adaptation and development on IP valuation methods is a continuous process. The HIPO and partners will continue the development of tools for the benefit of research institutes. It will be increasingly important to involve more research institutes and technology transfer offices from Hungary and from other countries to continue the methodology development.

The specific foci of further developments will be the widening of methods used, creating a standard approach and transparent methodology, reducing costs while keeping quality of valuations to a high standard.

STANDARDISATION INITIATIVES

Though there are guidelines about which principles to respect when conducting an IP valuation or setting up an IP valuation report, there is not presently a standard or generally accepted process. The process of IP valuation greatly depends on the individual circumstances, aim of valuation, the cooperation of the client, the independence of the valuer, as well as the professional preferences of the analyst. There is not a standard way with which these are translated into use through the available methodology. The result of this is inconsequentiality. It is not possible to compare the value of the same technology valued by two individual valuers. Methods used to value IP assets must have a high-degree of transparency and include breakdowns of all the necessary steps and features. Methodologically, one IP valuation should be comparable to another. A common valuation "language" would enable stakeholders to settle their negotiations and disputes in a much quicker, more harmonised and more profit-sharing way.

The initiatives of the HIPO are intended to create a toolbox with standardised features, which can be altered for individual circumstances. They should retain transparency, consistency and produce comparable results. This will be achieved by systematic documentation of methodology and the development, introduction, application and dissemination of guidelines.

COST REDUCTION OF VALUATION METHODS AND SERVICES INITIATIVES

The quality of a valuation must reach a certain level for the results to be robust, valid and usable. At the same time, research institutes have limited resources to conduct IP valuations. Determining the optimal relation between the quality of the valuation service and the cost is a key development goal (price must be reduced to an affordable level with an acceptable level of quality).

The relation between the quality of a valuation service and the cost of the valuation is, therefore, very important. The initiatives of the HIPO aim to create cost effective methods with minimum transaction costs.



CONCLUSIONS

This report details why IP valuation could be a key tool for research institutes and technology transfer offices. Specific valuation tools can be used during the development of technology, preparing for technology transfer and during the technology transfer process itself.

As the IP developed at research institutes is predominantly in the form of technology, this report focuses specifically on the valuation of patentable technology (technology suitable for a patent application or already the subject of a patent). The main ways of exploiting technology developed at research institutes (licensing out and forming spin-off companies) are discussed, and the links with IP valuation established.

The report sets out some of the fundamental methods used to value IP assets. Used as tools, these methods will provide vital information and results. This data may be used to make effective decisions, communicate the significance of the technology, and monitor the effectiveness and returns of investment into R&D. The results of the IP valuation process may also identify uncertainties surrounding the technology which reduce its value. These issues can be addressed and neutralised to add value to the IP asset.

This report focused specifically on the IP valuation initiatives of the Hungarian Intellectual Property Office (HIPO) and introduced case study material in the form of a valuation conducted under the IP Valuation Pilot Project.

The purpose of this report is to call for increased partnerships and developments in the field of IP valuation within and for research institutes and TTOs. An aim is to take steps forward in introducing a standardised, transparent, accepted and affordable methodology toolbox specifically to value IP developed at research institutes. These valuation tools may be adjusted to individual requirements and used to overcome obstacles in the technology transfer process. The sharing of best practice between partners with similar goals is the first step towards introducing such tools.

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Selected Internet resources:

IPScore® launch page: www.epo.org/searching/free/ipscore.html

UKIPO IP Healthcheck: www.ipo.gov.uk/iprpricebooklet.pdf

WIPO IP Panorama: www.wipo.int/sme/en/multimedia/

Hungarian Intellectual Property Office: www.hipo.gov.hu

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As the governmental office for the protection of intellectual property, the Hungarian Intellectual Property Office performs official examinations and procedures in the fields of patents, trademarks, industrial designs and copyright and participates in the preparation of IP legislation. The Office has an important role in supporting the national science and innovation policies and facilitating economic growth through promoting the identification, protection and utilisation of industrial property.

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