

PUBLIC FINANCED RESEARCH AND INTELLECTUAL PROPERTY RIGHTS:
THE TENSION BETWEEN *OPEN ACCESS* AND
THE IPR-CENTERED MANAGEMENT MODEL

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The presentation focused on three institutions of patent law at higher educational institutions and public research organizations (PROs):¹ the rights connected to the R&D results born under employment and the related relationships; the patentability of technical solutions made as an improvement of a patented invention; and the warranty rights for licensing transactions.² Intellectual property producers play more and more important role and responsibility in the modern systems of innovation. This relatively new role, i.e. being an innovator under the paradigm of *Open Innovation*,³ however, is often inconvenient for the organizations and their scientists. They perceive a twofold responsibility: responsibility on one hand for the efficient investment of the public supports; on the other hand responsibility for the eventual failures and side effects of productized intellectual properties. This two sorts of responsibilities require a special care by the universities and research institutions. Furthermore, it can be perceived that the same actors working in different socio-economical environment react differently to the same normative challenges: in spite of the existence of a finely elaborated patent law, the prosecution for the protection and exploitation of the academic foreground resulted in new IP management problems and tasks. Third, quite different attitudes of a scientist and an entrepreneur⁴ can be seen towards the innovation, see e.g. a) the diffusion of knowledge vs. commercialization of IP; b) free access of knowledge to everyone vs. monopoly rights; and c) profits vs. a step forward in the academic hierarchy/scientific reputation.⁵ The practical responses to these problems have in some cases had effects on the legal regula-

¹ In this respect the first legal source issued by the EU was the Commission Recommendation C(2008)1329 on the management of intellectual property in knowledge transfer activities and Code of Practice for universities and other public research organizations.

² István MOLNÁR: Legal Actions of the European Union on the Management of Intellectual Property in the Knowledge Transfer Activities of the Universities and Public Research Institutions. *Acta Jur. et Pol. Szeged, Publicationes Doct. Jur.* IX, 10 (2009) 357-362.

³ Henry W. CHESBROUGH: *Open Innovation: The New Imperative for Creating and Profiting from Technology*, Harvard Business School Press, Boston, 2003, 43-62.

⁴ Joseph A SCHUMPETER: *The Theory of Economic Development*, Harvard University Press, Cambridge, 1934, 57-94.

⁵ This controversy still exists, even though Buenstorf states that there is no evidence for the decrease of the quality of research if the scientist act as an inventor, too. See Guido BUENSTORF: Is commercialization good or bad for science? Individual-level evidence from the Max Planck Society, *Research Policy* 38 (2009) 290-291.

tion (e.g. on the level of IP policies), in other cases the challenges are still to be resolved.

To understand the problem, an empirical research: research has been conducted in the South Great Plain Region, Hungary relating to the IP protection and invention exploitation indicators of the PROs.⁶ The results of this empirical research were used to select the above-mentioned three different substantive legal problem of the patent law, which may deserve specific attitude or special care in the universities' IP-activities. The research was based on primary data collection and its statistical analysis. The database obtained contains the R&D results produced by PROs, which were disclosed as inventions by their inventors at the technology transfer departments. The life of the IP applications was analyzed regarding its patenting prosecution, the territory thereof; and the exploitation (licensing agreements, spin-off enterprises). The data sources were a) invention disclosure documents; b) the results of patentability tests; c) the results of the novelty research; d) documents produced in the duration of the patenting prosecution; e) licensing contracts; f) articles of associations and other incorporation documents of spin-off enterprises⁷, furthermore interviews conducted with their managers. The characteristic behaviours of the scientists have been surveyed using questionnaires. The inventions produced in the South Great Plain Region have been analyzed by sectioning their evolution to the following periods: the pre-application phase, the patenting prosecution and the technology transfer phase. The statistical analysis has been conducted using the standard tools of descriptive statistic.

To illustrate the results, in the following some metrics are shown. Table 1 shows the basic data of the novelty search of academic inventions made by the Hungarian Patent Office.

Result of the search	Proportion of novelty searches	# of novelty searches
Prior art document marked with X ⁸	40,00%	14
Prior art document marked with Y ⁹	37,14%	13
Prior art document marked with A ¹⁰	82,86%	29
Prior art document marked with D ¹¹	14,29%	5

Table 1: Novelty search of the analysed inventions

⁶ The research was sponsored by the National Office for Research and Technology in the framework of a research project ID No. DA_ELEM_07-INNOVTIT.

⁷ The spin-off was defined in line with the definition of OECD, for detailed explanation see István MOLNÁR / László SZIGETHY: *Analysis of the Business Potential of the Academic Intellectual Property and its Effect on the Regional System of Innovation*, South Great Plain Regional Innovation Agency, Szeged, 2010, 17.

⁸ The document destroys the novelty of the invention claimed.

⁹ The document alone or in combination with other documents affects the inventive step according to the invention.

¹⁰ The document belongs to the state of the art, but does not affect the patentability.

¹¹ The document may be relevant, if the priority cannot be acknowledged.

Notes:

Number of disclosures filed with the TTOs: 113

Number of patent applications filed by the PROs: 61

Novelty search completed: 35

The overall results of the above-mentioned novelty search made by the Hungarian Patent Office can be summarized as follows.

Result of the search	Proportion of novelty searches	# of novelty searches
Search report raising documents only category A	34,29%	12
Search report raising documents other than category A	65,71%	23
Altogether	100,00%	35

Table 2: The final result of the novelty searches

The possibility or willingness for filing of an international (e.g. PCT) patent application determines the commercialization opportunities of the inventions. In the table below, the PCT phases started by the above-mentioned patent applications are illustrated.

Start of the PCT /national phases	PCT: Proportion of the # of priority applications	PCT: # from the priority applications	National phase: Proportion of the # of priority applications	National phase: # from the priority applications
Started	50,81%	31	21,31%	13
Not started	49,19%	30	78,69%	48
Altogether	100,00%	61	100,00%	31

Table 3: PCT phases based on the priority patent applications

It can be seen that only half of the priority patent applications filed were continued in the international phase. It is especially unfavourable, as only about 50% of the invention disclosures made were filed as priority patent applications. The target markets (countries/regions) of the patent applications are summarized below, in Table 4.

Target country	Proportion of applications	# of applications
Europe ¹²	20,97%	13
USA	11,29%	7
China	6,45%	4
India	4,84%	3
Japan	3,23%	2

Table 4: The target countries of the above-mentioned patent applications

¹² This means the regional phase of the process according to the European Patent Convention.

It can be seen above that the majority of the patent applications has been filed with the European Patent Office. This is in harmony with our expectations, for two reasons: on one had, the scientist feel the commercialization of the new invention less complicated in Europe than in overseas countries; on the other hand, the European Patent System is easy to be managed, requires no legal representative whose residency is abroad, therefore less expensive, but covers a huge population and consequently, great commercialization potential. The number of licensing transactions is low, but is in line with the international metrics. Table 5 demonstrates its details.

Year	Proportion of licensing contracts of the overall #	# licensing contracts
2006	42,86%	3
2007	14,29%	1
2008	0,00%	0
2009	42,86%	3
Overall	100,00%	7

Table 5: The number of licensing transactions

Here we mention, there were about 13 new spin-off companies established in the analyzed period of time, and the majority of the above-mentioned licensing transactions seveded the transfer of thechnology to the spin-off firm.

The above facts highlight the specific situation of the universities and other public research organizations, which situation derives from the historical “*universitas*” role and their increased responsibility in the modern times. The university as an intellectual property producing entity possesses on one hand specific attitude towards IPRs and faces specific challenges, on the other hand, and there may exist IP management methods that can be used in substantially all PROs. In the environment of *Open Innovation* the knowledge transfer from the PROs to the industry and its IP aspects may exert a specific “resistance” amongst the university scientists: this – among others – may be detected in the early movement of *Open Access*.¹³ The *Open Access* knowledge is scholarly information, which, though in a number of cases would be patentable, is not protected by a patent, therefore it is of public domain. The *Open Access* knowledge, however, cannot meet the expectations¹⁴ of the industry,¹⁵ as it is not protected from the competitors.¹⁶

¹³ Alan P. RUDY, et al.: *Universities in the Age of Corporate Science*, Temple University Press, Philadelphia, 2007, 18-34.

¹⁴ A number of authors qualify the knowlegde coming from the university as „stimulating”, see Paul A. DAVID / Bronwyn H. HALL / Andrew TOOLE: Is public R&D a complement or substitute for private R&D? A review of the econometric evidence, *Research Policy* 29 (2000) 498, 497-529.

¹⁵ VON HIPPEL discussed the resources of the „useful” knowledge, see Eric von HIPPEL: *The Sources of Innovation*, Oxford University Press, New York, 1988, 3-10.

¹⁶ Nelson and Winter analised the decision making proress at compaines in view of the external sources of innovation. See Richard R. NELSON / Sidney G. WINTER: *An Evolutionary Model of Economic Change*, Harvard University Press, Cambridge, 1982, 275-354.

Despite the high number of invention disclosures, the real economical effect of the inventions lags behind the potential effects. The fundamental research mission of the scientists conflict the priorities of the industrial research.¹⁷ The majority of the researchers are reluctant to defer the publication of the research results for IPR considerations.¹⁸ A considerable fraction of them, however, expressly refuses IPR protection in order that they be able to disseminate the research results. A number of scientists think that IPR protection sets them back from the dissemination of knowledge.¹⁹ The IPR tools are not used skillfully by the PROs:²⁰ scientists quite often publish their inventions before filing of a patent application, thereby destroy their own novelty. This may be explained by – among others – the insufficient interest of the inventors.

In business terms the *Open Access* knowledge is inappropriate for the industry. The only acceptable public financed knowledge management model for the industry is the so called IP-centered approach, which is based on the tools of classical industrial property protection. A clear *Open Access* and a clear IP-centered model cannot be followed at the same time. It seems to be reasonable to establish in the future an “Open Access tolerant”, at the same time IP-centered model at the PROs, which – besides the obligation of a quick publication of the knowledge using the Internet as a platform – enables the protection of the intellectual property rights as well.²¹ It would be therefore reasonable for the research organizations to establish a legal background that serves both of the above-mentioned models, to give at least a guideline to the employees, taking into consideration the specific institutional features. The central element of my recommended policy is the academic freedom accompanied by the awareness of the consequences of the decisions.²²

The constitutional law in Hungary acknowledges and supports the freedom of scientific life and arts. This fundamental right makes possible the appropriate protection of the researchers’ interests. However, what can be found in the German model,²³ and is missing from the Hungarian, is the link between the above-mentioned fundamental right and the acts. The present rules do not reflect to the fact that in the environment of the university the researcher, needs to face a number of challenges. A few problematic issues, which may be reasons for the above-citet poor statistical results are as follows: a) the unfavourable practice relating to the service inventions; b) in case of abandonment of the patent rights by the employer the uncertainties regarding the transfer of the inven-

¹⁷ See Partha DASGUPTA / Paul A. DAVID: Toward a new economics of science, *Research Policy* 23 (1994) 487-521.

¹⁸ Paul A. DAVID: Common agency contracting and the emergence of “open science” institutions, *The American Economic Review* 88/2 (1998) 15-21.

¹⁹ Paul A. DAVID / David C. MOWERY / Edward W. STEINMUELLER: Analysing the economic payoffs from basic research, *Economics of Innovation and New Technology* 2 (1992) 73-90.

²⁰ This is especially surprising in view of the fact that the organizational changes to support IP centered innovation have started as early as 1970’s; see Nicholas S. ARGYRES / Julia P. LEIBESKIND: Privatizing the intellectual commons: universities and the commercialization of biotechnology, *Journal of Economic Behavior & Organization* 35 (1998) 427-454.

²¹ István MOLNÁR / Gábor NÉMETH: University IPR Protection and Industrial Liasons in an Open Innovation Environment: Open Access or Monopoly Rights? *IP and Copyright Review* October, 114/V (2009) 5-26.

²² The empirical research reveals that the model may function, see Kira R. FABRIZIO / Alberto Di MININ: Commercializing the laboratory: Faculty patenting and the open science environment, *Research Policy* 37 (2008) 914-931.

²³ § 42 des Gesetzes über Arbeitnehmererfindungen (ArbNErfG).

tions back to the inventors; c) the legal measures regarding the inventor's bonus; d) involvement of the scientists in a spin-off enterprise. To resolve the above-mentioned conflict, it is not sufficient to mention the academic freedom as a fundamental right, the specification of it in legal regulations at lower levels of legal sources is also necessary.

Another topic to be focused on may be the patentability of the so called improvement inventions, that is, knowledge created as a result of a prolonged research in a topic, which – considering the earlier patents filed by the inventors – is not necessarily patentable in view of the prior art constituted by the own patents. In spite of the fact that the problem had already been addressed by our first Patents Act of 1895,²⁴ the presently available tools for the protection of new technologies are problematic from one or more point of view. It can be seen that the aims to improve the existing patents are helped by the tools as follows: one group is when some actions preceding the filing date of the patent application are given legal consequences: such is the grace period,²⁵ which lately is considered as an option also by the European Patent Office. Another group is exemplified by the US provisional patent application,²⁶ or the German model of internal priority,²⁷ the latter also existing in Hungary. In order to effectively protect the interests of the inventors employed by PROs, there is need for a legal tool, which: a) can suitably manage the lack of time to elaborate all embodiments of the invention; b) makes it more difficult for the competitors to patent around the original patent; c) can be maintained together with the extended concept of state of the art; d) ensures longer period of time for its application; e) cost effective; and f) simple.

As for the dynamic side of the management of the inventions created by PROs: i.e. licensing transactions, the university-specific problem is that the inventions produced at the universities usually are the results of basic science: in their commercialization process a lot of technological challenges and legal risks may be expected.²⁸ For the contents and consequences of the warranty linked to the licensing transactions, further details are not provided by law, in spite of the recognized and expressed need. The aim of the warranty (liability) for the technical operability is to ensure the minimal level of technical quality of a product in all contracts. Licensing the right of utilization of an intellectual property requires the redefinition of the objective of the general rule of warranty. Here the number one objective is the reasonable share of risk between the parties, ensuring the willingness of the licensor to act in good faith and to cooperate, furthermore, ensuring that the obligations undertaken by the parties be in fact performed. A university-specific aim is the reasonable limitation of the monetary value of the warranty obligation such that the university need not face punitive damages. The aim of the licensee is the enforcement of a responsible behaviour of the licensor using severe warranty rules.

²⁴ István MOLNÁR: The Development of Selected Institutions in the field of the Intellectual Property (IP) Protection (1895-1995), *Acta Jur. et Pol. Szeged, Publicationes Doct. Jur.* VII (2007) 211-243.

²⁵ US Patent Act, Art. 102(b).

²⁶ US Patent Act, Art. 111(b).

²⁷ Innere Priorität: Patentgesetz, § 40.

²⁸ See more at István MOLNÁR / Péter MEZEI: Warranty and Product Liability from a University Point of View, *IP and Copyright Review* 115 (2010) 19-54.

In order to bring the licensor's and the licensee's aims in harmony, it seems reasonable to find legal models which are more suitable to achieve this requirement than the presently existing rules.²⁹ This may encourage the parties to pay attention to the warranty issues, which would present advantageous and safe construction on both contracting sides, and would be a pledge of a long-term cooperation of the parties.³⁰

²⁹ See e.g. Pfaff DIETER / Christian OSTERRIETH: *Lizenzverträge – Formulkommentar*, Verlag C.H. Beck, München, 2004, 194.

³⁰ Other concerns can be found at J. PETERS: Limiting Licensor's Liability, *Les Nouvelles Littéraires* 2826 (1982) 69.

