



POLICY FORUM: PATENT LAW

New Rules for German Professors

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Today, German patent law is undergoing fundamental changes. A law that was enacted on 7 February 2002 aims to increase patenting activity and redistribute the profits generated by inventions made at universities. Under this law, university professors no longer hold exclusive intellectual property (IP) rights to their inventions. Will it improve the situation?

German Patent Law: Old Versus New

According to the German "Arbeitnehmer Erfinder Gesetz" (ArbEG) or Inventors' Law, an employee must give his or her employer written notice of a technical invention. The employer can claim rights to the invention or leave these rights with the employee. If the invention leads to revenues and the employer has made a claim to the invention, the employer must remunerate the employee in accordance with a complex legal framework. In industry, the calculation, organization, and payment of inventions have been regarded as time-consuming and costly (1).

Until 7 February 2002, German university professors were exempt from the legal obligation of notifying their employer (the university) of their invention. Inventions made by professors (2) were considered to be "free" inventions, belonging to the inventors (see the figure on this page). This Hochschullehrerprivileg (professor's privilege) was a consequence of Article 5 of the German constitution, which pertains to the freedom of science and research. The professor, despite the fact that his or her funding came from the university and hence the taxpayer, had the right to file a patent application and then to seek a licensee or other means of commercial exploitation of the invention.

Because the patent process is costly, most inventions made at German universities were only brought to the patent offices by the private initiative of the inventor or (more frequently) by a third party, usually an industry collaborator. The inventor was the sole beneficiary of all financial in-

come gained by commercialization of the invention. For the most part, however, the financial risks involved in filing and prosecuting the patent application outweighed the entrepreneurial ambitions of the scientist, and few patent applications were filed. Roughly 90% of all inventions made as patent applications before the German Patent and Trademark Office stem from employees of firms or nonuniversity research institutes (3).

The German ministry for science and education (BMBF) argued that the professor's privilege was depleting the country of an economically valuable asset and inhibiting science and technology transfer. Universities will have the chance to protect all commercially valuable inventions by patenting them. Now, university scientists must also give their university notice once an invention has been made unless they have no intention of publishing their findings. In exchange for the loss of the professor's privilege, a university scientist will in future receive 30% of all revenues generated through the exploitation of an invention. By law, the same invention is remunerated differently depending on whether the employer is in industry or academia, so a professor could receive more than 100 times the remuneration than a colleague who makes an equivalent invention in industry (4). However, the professor gets nothing if the university does not gain any money. In the past, most R&D contracts between universities and industry have not provided for remuneration for the transfer of patentable inventions from university to industry.

Other European Routes

In striking contrast to the new German legislation, an Italian researcher will, as of October 2002, be the exclusive proprietor of an invention made at an Italian

university (5). Inventors must notify the university and must file patent applications on their own. The university is to receive up to 50% of the profits obtained through exploitation of the patent. If the inventor does not exploit the invention within 5 years of its conception, the university acquires the right to exploit the invention (6, 7).

In the United Kingdom, each university has its own rules, and much depends on the context in which the invention was conceived (8). Cambridge University has angered some of its professors by proposing that it should hold the rights and patents to all concepts and inventions they create. The university could potentially, as of next year, hold all rights stemming from work done at the university, with the exception of written material like books and articles. Faculty members would keep a share of the profits that declines as the profits increase.

The French government also set forth guidelines for calculating compensation for inventions by public employees, including university professors-researchers.



Would Robert Koch have fewer rights today?

In 1890, the Minister of Culture, Gustav von Gossler, told the Prussian parliament "The question is, who has the right to the compound, who is the owner of the invention? Not a moment was I in doubt that Prof. Koch is the owner of [his] invention. To my knowledge we never believed throughout the history of the Prussian educational administration it would be possible, if a teacher within his own scientific practice invented a compound ... that we could claim the rights thereto for the state." (19, 20).

To promote the transfer of publicly funded research to industry, it passed a law in 1982 easing the status of publicly funded researchers to facilitate their mobility into existing private entities or start-up firms. (Public researchers as civil servants would formerly have the duty to work exclusively for the State as the public employer and were prohibited from deriving outside personal gain in the course of such employment.) A further 1999 law on innovation and research enables civil servants to found companies exploiting their R&D results (which are owned by or subject to exploitation rights of their public employer). Alternatively, the researcher may work as a scientific consultant for or have a stake in a private company. The new law also en-

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dorses the establishment of autonomous "industrial and commercial units" within public research entities (9).

Implications in Germany

The desired result of the revised ArbEG is that more inventions see the light of day and are brought to the patent offices before they get published. This is supposed to lead to active licensing transfer from university to industry and to more companies being founded on the basis of intellectual property conceived within the university environment.

In the past, technology transfer know-how in Germany only existed at larger research establishments. In 1970, the Max-Planck-Gesellschaft (MPG) established an IP asset management firm, Garching Innovation GmbH, which is a wholly owned subsidiary of the MPG that now employs about 15 people and has a gross income of about €20 million per year (US\$19.5 million) (10). Establishing such a firm was reasonable as the scientists did not have the professor's privilege and there were many IP potential assets to manage. Similar firms exist for the Helmholtz Gemeinschaft and other larger research establishments.

To shed light on the potential implications of the loss of the professor's privilege, one may compare the number of researchers employed at the Max-Planck Institutes (11) with those at German universities. In January 2002, the MPG had 80 institutes and employed ~3200 researchers. In contrast, the universities (including the medical faculties) and technical colleges in Berlin alone employ ~11,800 researchers (12).

Unlike the larger U.S. universities, most German universities have little or no experience in technology transfer. It is rare to find a technology transfer officer at a German university who has industry experience and even minimal training in patent law. In contrast, inventors in industry usually have their own patent department.

The German Ministry for Science and Education (13) has tried to tackle this problem by providing 100 million DM (€46.2 million or US\$45 million) of funding to be used before 2004 (14) for the foundation of technology transfer companies or sites in the various states of Germany and further means associated with technology transfer such as public relations. One of the many problems with this approach is that the money put forward for this new infrastructure is by no means enough. The 2 years of funds that have been offered will not cover years 3 to 6 when most patent costs arise. The Ministry has also not considered the long time lag for revenues to trickle back into the uni-

versities. This delay will be a real problem for the new IP asset management firms.

Companies founded to handle intellectual property, find an industry partner, and license out the technology, may have a very hard time living from what is left when the 30% percent have been deducted, the bills for the patent attorneys paid, the patent office fees paid, and all employee salaries paid. Only a few of the 19 companies (15) established to date for technology transfer are likely to survive the first few years unless the ministry grants additional long-term funding. A few companies do stand a chance of surviving long enough to profit from long-term revenues because they were founded and funded with the aid of substantial capital assets from investors other than the universities or the ministry.

The new law demands that inventors give written notice of their invention 2 months before publication. The employer then has 4 months to decide whether he or she wants to claim the rights. This time may turn out to be too long for scientists who need to publish quickly to compete with their peers. It remains to be seen how the need for diligent high-quality patent protection competes in practice with the need to publish quickly. Grace periods that would permit publication up to 12 months before patent application are being discussed by the European Union, which may be one way of reconciling academic and commercial interests (16).

The revised ArbEG also has a substantial impact on "contract research"—research that is sourced out by industry to universities—and on collaborations between industry and university. In the past, it was typically sufficient for industry to strike a deal with the desired professor, who held the rights to any future inventions. Now, industry must strike two separate deals, with the university and the professor. The professor needs to give up his right to publish (because he has no obligation to give notice and transfer rights if he does not plan to publish), thereby ensuring that rights will eventually flow to industry and the university must take on an obligation to transfer future rights to invention(s) to the industry partner.

The revised law puts a bureaucratic burden on the shoulders of the professors. German professors now have new duties, which, when taken seriously, mean extra work. Before publishing, professors must assess whether or not an invention was made. If so, they must notify the university (which entails forms, paperwork, and meetings with lawyers) and must assist in such activities as drafting the patent application. Often, proofreading of a patent ap-

plication draft will not be sufficient; for example, extra experiments may be required to substantiate the invention (such as animal model experiments in pharmaceutical research).

Conclusion

Europe clearly trails the United States when it comes to licensing revenues from university inventions. In 1980, the Bayh-Dole Act permitted universities and small businesses in the United States to elect ownership of inventions made with federal funding and to become directly involved in the commercialization process (17). The University of California system and Columbia University alone accounted for \$400 million of the \$1.26 billion in U.S. technology transfer revenues (18). It remains to be seen whether the revised German Inventor's Law can equally spur the number of patents filed and the licensing revenues received, and whether German professors see it as a chance or a burden.

References and Notes

1. Under the ArbEG, a German scientist and a U.S. scientist working for the same firm may receive differential financial recognition for a joint invention. Many multinational firms have incentive schemes, so that a certain amount of money is paid for patentable inventions to inventors in countries that, unlike Germany, do not have federal guidelines for compensation of employees.
2. The privilege applied to full professors, associate professors, and lecturers in full-time employment. Visiting professors only fell under the exemption if they were employed full-time.
3. K. Bartenbach, F. E. Volz, in *Arbeitnehmererfinderrecht*, K. Haertel, A. Krieger, G. Kaube, Eds. (Luchterhand, Neuwied, 2001), pp. v–vi.
4. K. Bartenbach, O. Hellebrand, *Mitt. d. Dt. Patentanw.* **93**, 165–170 (2002).
5. Article 24^{bis} of the Italian patent law as of October 2002, passed as law no. 383 on 18 October 2001.
6. Before passage of the new legislation, the invention belonged to the university, provided that the employment contract indicated that the invention was a research target to be pursued. The inventor had the right to obtain a supplementary compensation.
7. V. Piccarreta, personal communication.
8. L. Hoarton, personal communication.
9. E. Logeais, personal communication.
10. B. Hertel, personal communication.
11. See www.mpg.de/deutsch/ueber/zahlen.html
12. from Bundesbildungsministerium 1999; available at www.berlinews.de/archiv/2382.shtml
13. Bundesministerium für Bildung und Forschung, www.bmbf.de
14. See www.bmbf.de/677_3283.html.
15. Bundesministerium für Bildung und Forschung "Erfindungen für den Markt—Die BMBF-Verwertungsoffensive."
16. EU Workshop relating to the "patenting vs. publishing dilemma" and the Grace Period issue, Brussels, 24 June 2002.
17. U.S. Government Accounting Office Report to Congressional Committees, *Technology Transfer, Administration of the Bayh-Dole Act by Research Universities*, 7 May 1998, see www.cogr.edu/bayh-dole.htm.
18. Association of University Technology Managers Licensing Survey (2000).
19. F-E Volz, *Das Recht der Arbeitnehmererfindung im öffentlichen Dienst* (Carl Heymanns Verlag KG, Cologne, 1985), pp. 9–19.
20. X. Biberfeld, G.R.U.R. [Deutsche Vereinigung für gewerblichen Rechtsschutz und Urheberrecht] (1898), p. 186.