

# Surface Convergence Masking Contrasting Styles Of Technology Transfer: The Case Of Joint Industry Ownership Of Japanese University Inventions

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On the surface, the convergence of the Japanese and U.S. systems of university-industry technology transfer is almost complete. Japanese national universities, which conduct most university research in Japan, have been incorporated as independent administrative since April 2004, although they remain under the purview of the Japanese Ministry of Education, Culture, Sports, Science and Technology (MEXT). This was actually the fourth in a series of legal reforms that began in 1998 with the passage of a law authorizing the establishment of technology licensing organizations (TLOs) that could license some university inventions and channel royalties back to the inventors, their laboratories and their universities. Now as a result of these reforms, the legal framework governing university-industry technology transfer in Japan is very similar to that in the U.S. Japanese universities now own nearly all inventions made by their researchers, including inventions by most graduate students and industry employees working in university laboratories.

Universities have also begun to claim ownership of inventions made under collaborative research agreements with industry. In other words, rarely do they assign to the industry partner the right to apply for patents on inventions made in university laboratories in the course of collaborative research. Rather, they offer the industry partner a license to such inventions (or to the

university's portion in the case of joint university-industry inventors). The same holds true for many of the major Japanese government research institutes (GRIs), such as the National Institute of Advanced Science and Technology (AIST) which since 2001 has been an incorporated entity under the Japanese Ministry of Economy, Trade and Industry (METI), and also the Institute for Physical and Chemical Research (Riken) under MEXT. Thus, even with respect to inventions arising under collaborative agreements with industry, the Japanese and U.S. systems of ownership of inventions arising in universities and GRIs are nearly identical.

Under article 73 of Japan's Patent Law, the consent of all co-owners of an invention is necessary before it can be transferred to any third party, even by non-exclusive license. In contrast, a joint owner of a U.S. patent can transfer rights over the patented invention to a third party

without the consent of the other joint owners. Thus, if an in-house researcher of a company is named as a co-inventor along with university or GRI researchers, the company would have a lock on Japanese patent rights without having to make any commitment to pay royalties to the university or to develop the invention.<sup>1</sup> The collaborator would have rights to use the invention and the university or GRI could not transfer its rights to any third party without the company's permission. Of course the company also could not transfer its rights to a third party without the university's permission, but in the case of a large company planning to develop the invention in-house, this probably is not a major impediment.

This is not merely a theoretical concern. Economic pressures are forcing many Japanese companies to rely more on collaborative research with universities than on basic research in their own laboratories.<sup>2</sup> The number of joint research agreements between universities and companies has risen dramatically since 2000.<sup>3</sup> Finally, my own research suggests that upwards of a third of patent applications by major universities and GRIs are jointly filed with private companies that have sponsored the research, and in most of

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1. This would also apply in the case of patents obtained in other countries requiring joinder of all co-owners for transfer. In practice, it may apply even when patent applications are not made (see text below).

2. Asahi Shinbun. 2004. Seeking profit, firms leave basic R&D to universities. p. 21 of combined International Herald Tribune-Asahi newspaper(15 Jan.).

3. MEXT 2003, The situation regarding collaborative research between national universities and companies in fiscal year 2002 [In Japanese: Kokuritsu daigaku nado no kigyuu nado tono kyoudou kenkyuu no heisei 14 nendou no jissai jyoukyou ni tsuite].

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these cases a company researcher is named as a co-inventor. To my understanding, this rate of co-inventorship is considerably higher than in most U.S. universities. Whether these named industry co-inventors would actually qualify as inventors under a careful application of the criteria of various national patent laws rarely is subject to scrutiny. On the other hand, joint research (as opposed to commissioned research) is the most rapidly growing form of sponsored research in Japan, and my own observations also suggest that many joint research projects do involve frequent in-depth interactions with industry researchers. Therefore it is quite possible that a more interactive style of university-industry collaboration is evolving in Japan compared to the U.S.

In any case, Japanese universities/GRIs are aware of the possibility that industry sponsors that co-own inventions might not pay the universities any royalties (even to cover the universities' share of patent application costs) and might not make a good faith effort to develop the inventions. Therefore, following incorporation, they have begun to include in their collaborative research contracts provisions that override the effects of article 73—provisions that give the universities/GRIs the right to license their co-ownership rights to a third party unless the collaborating company negotiates an exclusive license for the university's/GRI's ownership interest (see table). These clauses usually require the exclusive licensee to pay patent prosecution cost plus a modest management fee. They also usually provide for the exclusive license to change to non-exclusive status if the company does not make a good faith effort to develop the invention. Although such clauses are standard in license agreements from U.S. universities/GRIs to companies sponsoring collaborative research,<sup>4</sup> many Japanese companies are voicing opposition to such clauses—even though some of these companies have sponsored research in U.S. universities and understand well the U.S. system.

One explanation for these complaints is that prior to the incorporation of Japanese universities, companies that supported university research usually obtained outright title to inventions through informal transfers from the professors whom they supported. Alternatively, under the terms of formal sponsored research contracts, they could co-own resulting inventions and, under article 73, they could control the inventions as they pleased so long as this did not involve transfers to third parties.<sup>5</sup> Thus, even though the demands of universities and GRIs are modest, this represents a change from the absolute control that companies had before incorporation.

Nevertheless, major Japanese universities and GRIs are reporting that when the sponsoring company declines to license exclusively the university's/GRI's co-ownership interest, the university/GRI rarely is able to interest any other company in a license of the university's co-ownership rights. In other words, joint ownership may continue to give the sponsor control over inventions, even if the university/GRI retains a theoretical right to license its share to third parties.

Another tactic sometimes employed by companies whose employees are listed as co-owners on joint inventions relating to complex

integrated systems (for example, bonding techniques applicable to next generation integrated circuits) is to say they are not interested in applying for patents—and also not interested in transferring their co-inventorship rights to the university. Under such circumstances, the university is not able to license IP rights to other companies or to form a startup based on the discovery. The invention is never disclosed in a patent application, and important details are not published in academic journals because industry sponsors exercise de facto censorship. The amount of background information necessary to practice the invention is sufficiently high that in order for any other company to do so, the university inventors would have to spend considerable time working with competitors of the sponsor—an act of betrayal that few would countenance.

Therefore, if a substantial proportion of inventions are jointly owned, as appears to be the case in Japan, sponsors are able to leverage their support for university/GRI research to monopolize the fruits of a substantial amount of publicly funded research<sup>6</sup> without any opportunity for the TLOs to determine objectively whether the sponsors have incentives and ability to effectively develop the full range of technologies covered by the inventions they co-own. In other words, co-ownership of a large proportion of university/GRI inventions threatens to circumvent the mandate of universities/GRIs to try to ensure that commercializable publicly funded-research results are transferred to the companies most able and willing to develop them.

This problem is not unique to Japan. In Germany and some other European countries, industry sponsors can negotiate in advance for ownership or co-ownership of all inventions arising under the projects they fund. Such projects sometimes cover a broad range of research within a major laboratory or even several laboratories, and the intellectual property (IP) ends up monopolized by the sponsor.

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4. For example, §7.6 of the NIH/PHS model Cooperative Research and Development Agreement (CRADA).

5. Kneller, RW. 2003. University-industry cooperation and technology transfer in Japan compared with the US: another reason for Japan's economic malaise? *University of Pennsylvania Journal of International Economic Law* Vol. 24(2) pp 329-449. A summary is at: Kneller, RW. Transformation of Japan's national universities into administratively independent corporations. *Les Nouvelles* 39(1) (March 2004) pp. 1-5.

6. Rarely do the sponsors cover all the costs, including university salaries and stipends, associated with collaborative research. This applies particularly to Japanese universities, where a substantial proportion of government competitive R&D funding is for applied research projects involving industry collaborators.

Even in cases where the sponsored research contract gives the sponsor only the right to a non-exclusive license, if the terms of the research project are broad, this effectively prevents a start-up from being based upon any of the discoveries arising within the purview of the sponsored research agreement. MRI related engineering and software research sponsored by large electronics companies is one such example mentioned by the heads of both U.S. and German TLOs. In the German MRI case, the sponsor often conditions funding to a laboratory on the sponsor being able to own outright most of the inventions to emerge from the laboratory. In the U.S. case, the sponsor more typically receives the right to non-exclusively license a broad range of inventions.

The requirement that the sponsor have at least a non-exclusive license to the inventions it helps fund has clear merits from the sponsor's perspective. Corporations value freedom to operate, especially freedom to use the inventions they help pay for. Also they do not want their support to end up directly aiding competitors. Moreover, if a more interactive form of university-industry collaboration is indeed evolving in Japan, to some extent this largely positive development may depend upon the sponsor's assurance that they will have complete control over the discoveries they help to fund. Therefore, there is no simple solution to this issue. The appropriate resolution probably depends upon carefully negotiating the scope of sponsored research projects so that

they are not overly broad, ensuring the freedom of university inventors to publish details of discoveries made with industry sponsorship, and some flexibility on the part of sponsors to accommodate university researchers who want to start their own companies—startups which probably will need some degree of exclusivity to the researchers' / founders' inventions. Thus, some of the key issues facing Japan's nascent system of university / TLO-based technology transfer are also issues of concern in other countries.

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### Ownership of inventions arising under sponsored research agreements.

Affiliation Of Inventors	U.S. GRI + Co. (CRADA)		U.S. Univ. + Co.		Japan GRI + Co.		Japan Univ. + Co.	
	Who owns?	Rights of non-inventing party	Who owns?	Rights of non-inventing party	Who owns?	Rights of non-inventing party	Who owns?	Rights of non-inventing party
Univ./GRI Only	GRI	Can negotiate exclusive license	Univ.	According to contract, max = exclusive license	GRI	Can negotiate exclusive license	Univ.	<i>According to contract, max = exclusive license</i>
Univ./GRI + Co.	Both. If Co. does not negotiate exclusive license, GRI can license to 3rd party.		Both. If Co. does not negotiate exclusive license, Univ. can license to 3rd party.		<i>Both. §73 avoided by contract. If Co. does not negotiate exclusive license, GRI can license to 3rd party.</i>		<i>Both. §73 avoided by contract. If Co. does not negotiate exclusive license, Univ. can license to 3rd party.</i>	
Co. Only	Co.	Gov. has use right	Co.	Usually none	Co.	Usually none	Co.	Usually none

*Italics* → recent changes