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Editor's Preface

Welcome to the 2007 edition of the *AUTM Journal.* We have four outstanding articles in this issue, and while the topics may be diverse, they are all relevant to the university technology transfer profession.

This issue opens with the Legalink submission, aptly named with the descriptive title, "Who Has Standing to Sue Third-Party Patent Infringers and the Factors Affecting Standing that Every Technology Manager Should Know." In this piece, Russell E. Levine, PC, Christopher R. Liro, and Breana Smith review when a licensing company has standing to sue on its own and suggest types of contract language to enable standing by a licensing company. The authors also review case law in support of their conclusions.

The next article, "A New Technology Transfer Paradigm: How State Universities Can Collaborate with Industry," focuses on new metrics for state universities to measure their success in technology transfer. Authors Catherine S. Renault, PhD, Jeff Cope, MSM, Molly Dix, MIP, and Karen Hersey, JD, list potential changes both within and outside of universities to develop better relationships between state universities and industry.

Michael B. Dilling, PhD, Lisa C. Beveridge, and Mercy S. Chen, PhD, contributed the third article, "The Use of In-House Patent Management Professionals at Academic Institutions." Reporting on a survey conducted by the Baylor Licensing Group at the 2006 AUTM Annual Meeting℠, the authors observed increased productivity of the licensing staff when an office retained an in-house patent management professional. The data also suggest these professionals may lower the costs of provisional and nonprovisional filings.

The issue concludes with "Innovative Collaborations: A Focus on Legal Issues Surrounding Academic Collaborations with For-Profit and Government Entities." Adapted from a talk and manuscript from the 2005 AUTM Western Region meeting, Jeffrey A. Bojar, JD, and Jon Kappes, JD, discuss multiparty collaborations and consortia. In this concise article, the authors address antitrust, patent pooling, and issues relating to negotiating and executing consortium agreements.

Finally, please note that this edition of the *AUTM Journal* is the last in its present form. During the coming year, the AUTM Communications Task Force and AUTM headquarters will revise many of AUTM's communication tools to provide AUTM members and external audiences more proactive, succinct and technologically advanced communications. The changes will roll out over the next year. Therefore, AUTM will not publish a second edition of the *AUTM Journal* in 2007.

If you are interested in working with the communications group at AUTM, please do not hesitate to contact me at kirsten.leute@stanford.edu. We will have some exciting volunteer opportunities arising in the near future!

— Kirsten Leute, Editor
Stanford University

Who Has Standing to Sue Third-Party Patent Infringers and the Factors Affecting Standing that Every Technology Manager Should Know

Russell E. Levine, PC, Christopher R. Liro, and Breana Smith

Abstract

When a university grants a patent license to commercialize the patented invention, an important but sometimes overlooked aspect is what roles the university and the licensee will take in any litigation asserting the patent. While the university may want to vest full responsibility for litigation against third-party infringers in the licensee in an effort to avoid the burdens of litigation, even an express license term to this effect may not achieve the parties' desired result. Moreover, the university may find that restrictions from, for example, the Bayh-Dole Act, preclude a transfer of rights sufficient to allow the university to avoid participating as a party to any litigation against third-party infringers. This paper examines the issue of when a licensee has standing to sue on its own, identifies how universities may structure licenses to achieve this result, examines obstacles, and presents factors for technology managers to consider to help overcome those obstacles.

Introduction

A hypothetical university develops a new chemical compound. Sensing its usefulness in industry, it applies for and, several years later, receives a U.S. patent. The university also grants to a major corporation what it calls an *exclusive* license to its patent application and any patents that issue from it. The university also includes a clause in the license agreement that allows the licensee to sue infringers without involving the university. In exchange, the university receives royalties from its licensee.

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All is well until a third party appears to be infringing the patent. The licensee, who stands to suffer substantial losses from the third-party infringing use, relies on the clause in the license agreement allowing it to sue infringers and initiates a suit against the third-party alleged infringer. But, in the litigation brought by the licensee, the accused infringer challenges the licensee's standing to sue in its own name, without joining the university as a co-plaintiff. The court decides that, notwithstanding the language in the license agreement, the licensee does not have standing to sue on its own. The case is dismissed.

The scenario described above is not uncommon and likely comes as an unexpected and expensive result to both the university and the licensee. While many technology managers and university counsel are well-aware of the basic terms of a license agreement, many do not consider the specific issue of standing and how competing clauses within the agreement may affect a licensee's standing to bring suit for infringement in its own name and without the need for the university as a co-plaintiff.

Since the passage of the Bayh-Dole Act in 1980, which allowed universities to retain more ownership of inventions created using federal research funds, universities have been increasingly successful in licensing rights to practice their patents. In many cases, the relationship between university-licensor and corporate licensee is ideal. The university has invested substantial funds and energy into the development of technologies. At the same time, the university may lack the capabilities to market those technologies for profit. On the other hand, the technology company may lack the research resources but has a far greater ability to develop and market a product that practices the patent.

Yet during the negotiation of the license, neither party may consider fully what will happen if and when the licensed patent is infringed by a third party. Many patent license agreements grant the licensee a broad right to sue for infringement. Such language, however, may not be sufficient to convey upon the licensee legal standing to bring an infringement claim. Further, depending on the total scope of rights granted to the licensee, a court may determine that the university is the *only* party that is entitled to sue.[1] If the university is willing to pursue the claim, there is no problem. But, if the university is unwilling to pursue the claim, the value of the license is lessened.

This article discusses the important role of the license agreement itself in conveying or not conveying independent standing to sue on the licensee. This article will focus specifically on the factors courts consider when deciding whether the licensee has or does not have such standing. Courts typically ask what rights the university retains and what rights the university granted to the licensee and on what conditions.[2] University licensors should be cognizant of and consider these factors when negotiating and drafting license agreements to increase the likelihood that their licensees will be found to have independent standing to sue third-party infringers if that is the objective.

Factors Considered in a Standing Analysis

For a party to bring a lawsuit, it must have standing to do so. Depending on the terms of a license agreement, a licensee may have independent standing to sue on its own, may have standing only if the patent owner is a co-plaintiff, or may have no standing at all.

The Patent Act provides a remedy to the patentee, the definition of which includes "not only the *patentee* to whom the patent was issued but also the successors in title to the patentee,"[3] and such entities may bring suit on their own to enforce the patent. Moreover, licensees who have received "all substantial rights" under the patent also have independent standing because a "grant of all substantial rights in a patent amounts to an assignment—that is, a transfer of title in the patent—which confers constitutional standing on the assignee to sue another for patent infringement in its own name."[4]

Standing is determined by looking not at the title of an agreement or at a specific clause in the agreement, but rather at the rights granted or not granted to the licensee.[5] A licensee has independent standing only where all of the "substantial rights" of the patent are conveyed to the licensee.[6] These essential rights of the patent include the right to exclude, the right to sue infringers, and the right to transfer.[7] Other factors, including retention of the rights to practice and publish, also may be relevant. Short of a grant of all essential rights, the licensee will not have independent standing to sue. If the licensee was not transferred all substantial rights but nonetheless is an exclusive licensee, then it may bring suit only if the university is a co-plaintiff.[8] If the licensee is a nonexclusive or bare licensee, it may not bring suit at all.[9] The substance, and not the bare words, of the agreement between the

licensor and licensee is what is relevant. For example, even a document that purports to be an assignment may be found by a court not even to rise to the level of an exclusive license.[10]

Exclusivity

Exclusivity to a patent is an essential right for a licensee to obtain standing, but by itself is not sufficient to ensure *independent* standing. In general, there are two basic types of license agreements: exclusive and nonexclusive.[11] Under an exclusive license, a patentee typically grants all rights to make, use, and sell under the patent to a single (thus exclusive) licensee.[12] An exclusive license need not be worldwide, but may provide exclusive rights to practice a patent within a given limited territory.[13] Further, under an exclusive license, the patentee may allow the licensee to sublicense its rights to a third party, as discussed in "The Right to Transfer" later in this paper. Universities may find it advantageous to offer exclusive licenses for patents that require significant outside investment for development or production, since corporations typically will not undertake such development and production in the absence of exclusivity.

Nonexclusive licenses, on the other hand, are those licenses that do not expressly preclude the licensor from licensing the patent to others. However, a license may still be exclusive where some rights to make, use, and sell the invention have been retained by the patentee.[14] Essentially, nonexclusive licenses can be seen as waivers of infringement because they do not transfer the core property rights created by the grant of a patent.[15] Nonexclusive licenses are sometimes referred to as *bare* licenses because the patentee has provided only a bare waiver of infringement.[16]

Accordingly, nonexclusive licenses do not confer standing—*at all*—to the licensee to sue for infringement because the licensee does not receive the property rights afforded to patentees and suffers no legal injury from infringement.[17] Nonexclusive licensees do not have the right to join the licensor in a suit for infringement.[18] Moreover, and of utmost importance to a university technology manager, nonexclusive licensees have no right to sue for infringement *even if* there is a contractual clause attempting to convey such right.[19]

The Right to Sue

Once exclusivity is established, a licensee's right to sue (or, conversely, to indulge infringement by electing not to sue)[20] is perhaps the most critical factor in determining whether a licensee has independent standing. Although merely granting the licensee the right to sue alone is not sufficient to convey independent standing, the right to sue is often a linchpin because "the right to sue is the means by which the patentee exercises 'the right to exclude others from making, using, and selling the claimed invention.'"[21]

For instance, in *Biagro Western Sales Inc. v. Helena Chemical Corp.*,[22] the court found the licensee to be an exclusive licensee with *some* rights, but *not all* substantial rights that would provide for independent standing. The patentee, the University of California, had exclusively licensed a patent to Biagro Western Sales. When Biagro attempted to sue defendant Helena Chemical, Helena filed a motion to dismiss for lack of standing and failure to join an indispensable party, namely the University of California. The court agreed, finding that, regardless of what rights were conveyed to the licensee, "Plaintiff does not have the most important right: an unconditional ability to bring an infringement suit in its own name."[23] While the right to sue was not dispositive, restrictions on the right to sue tipped the scales against the plaintiff's independent standing.

Sicom Systems Ltd. v. Agilent Technologies[24] is another example of a court's refusal to find standing based on a limited right to sue granted to the licensee. In *Sicom*, the Canadian government was assigned a patent for a digital signal transmission channel monitor and subsequently entered into a license agreement with plaintiff Sicom, termed an *exclusive license agreement.* However, even despite language in the agreement that granted Sicom the exclusive right to sue commercial infringers, the court held that Sicom lacked standing because the licensor retained the right to sue noncommercial infringers.[25] Similarly, Sicom did not have the ability to indulge infringement outside of the "commercial sphere." The court also held that provisions that required Sicom to notify the Canadian government if it intended to sue, to consult the Canadian government in the event of litigation, and to obtain written consent from the Canadian government before settling also weighed against independent standing.[26]

In contrast, in *Ciba-Geigy v. Alza*,[27] the court found independent standing largely because the university-licensor provided an unrestricted grant of the

right to bring infringement litigation. In this case, the University of California licensed its patent to Ciba-Geigy under an exclusive license agreement. Although the defendant Alza Corp. attempted to dismiss Ciba-Geigy's infringement suit on the grounds that Ciba-Geigy lacked standing, the court rejected this claim. The court found important that the University of California granted Ciba-Geigy the right to sue infringers and agreed to not file any infringement suits of its own.[28] The license also allowed that Ciba-Geigy could pursue the litigation on its own, with the University of California not required to participate. Because the decisions on enforcement lay with the exclusive licensee, it had all substantial rights and, thus, independent standing.

The Right to Transfer

The right to transfer is another factor that influences a court's determination of whether all substantial rights in the patent were transferred and, accordingly, whether a licensee has independent standing. "A licensee's right to sub-license is an important consideration in evaluating whether a licensing agreement transfers all substantial rights."[29] The right to transfer, or sublicense, the patent directly implicates "the total utility and value of the license" agreement.[30] Therefore, courts consider not only whether the licensee has been granted the right to sublicense, but also whether there are any restrictions on that right.

In Prima-Tek II LLC v. A-Roo Co.,[31] for example, the court held that significant limitations on the sublicensing ability of the licensee vitiated its claims for standing. While the court acknowledged that every limitation would not serve to undermine the licensee's standing to sue in its own name,[32] in this instance, where licensee Prima-Tek I could only license to a singular and predetermined party, all substantial rights in the patent were not transferred. Accordingly, the court held that, because the licensee's rights were "significantly diminished by the sub-licensing requirement," the licensee lacked standing to sue in its own name.[33] Similarly, a right to sublicense that requires additional royalties to the patentee based on sublicensed sales is considered less substantial than one that does not.[34]

Other Rights Reserved by Licensor

Other rights retained by the licensor also may affect whether a licensee has independent standing. These include, for example, whether the university reserves the right to practice, publish, and use the patent for further research. Although, from the perspective of the researcher, maintaining the right to practice and publish the patent may be a substantial benefit, the university may be making itself an indispensable party to litigation or could prevent the licensee from bringing suit altogether if the retention provides for the possibility for further licensing by the university. For instance, in *Biagro*, the court found no independent standing based on, among other factors, that the licensee was required to provide progress and royalty reports to the university and must observe the university's rights to publish and use the patented technology.[35] Likewise, in *Abbott*, the court found no independent standing based in part on the patentee's retention of the right to make, use, and sell the patent for its own benefit.[36]

In another example, in *Aspex Eyewear v. Miracle Optics*, although the license included transfer of many rights considered "substantial," such as an exclusive right to make, use, and sell products covered by the patent; the right to sue for infringement; and rights to sublicense, it was nonetheless deemed less of a transfer of all substantial rights and, thus, did not create independent standing.[37] The license was for a limited period of time and included a hard date for the return of these rights to the patentee, and the court held that "[b]y having rights for only a limited portion of the patent term, it simply did not own the patent."[38]

On the other hand, it is important to remember that the patentee can keep *some* rights while still conveying all substantial rights. In other words, independent standing may be conveyed with a license that is somewhat short of a full and absolute assignment. For example, in *Vaupel*, independent standing was found despite the retention of a veto right on sublicensing, a reversionary right in the event of bankruptcy or termination of production, and a right to receive infringement damages.[39] In *Speedplay*, independent standing was found despite a term allowing the licensor to bring suit and to veto assignment in some cases.[40] And in *Ciba-Geigy*, independent standing was found despite terms requiring that the licensee notify the licensor if it intended to sue, that would allow the license to be converted to a nonexclusive license if the licensee could not meet market demand or defaulted, and

that provided the university the right to use the patent for educational purposes.[41] Crucially, the cases do not hold that these rights are not important or that they can always be freely retained, but that, under the facts of the cases—and in consideration of the rights that were transferred—they did not limit the grant to a degree that would preclude independent standing.[42]

Obstacles and Tradeoffs to a Transfer of all Substantial Rights

As is evident from the above discussion, there is a substantial tradeoff in terms of the university's control over the patent and a licensee's having standing to sue. Some universities, for example, as a matter of policy, may want to license certain technologies to all market participants and, thus, not grant exclusive licenses. If that is the case, the technology manager should realize that a licensee will be unable to file a suit against third-party infringers at all, and that the university will be responsible for any litigation. Importantly, as discussed, this is so even if the license purports to allow a licensee the right to bring or join in an infringement suit.

Similarly, even if there is an exclusive license in place, the university may wish to place limits on the licensee's ability to sublicense or transfer and may wish to continue to research and publish on the subject matter of the patent in a way that could be seen to impact "all substantial rights" under the patent. If that is the case, the technology manager should take into account that a court may not consider the license to confer a sufficient transfer of rights to provide independent standing and so the university may still find itself involved in future litigation, albeit likely to a lesser degree than had the license not been exclusive.

Moreover, aside from the particular technology transfer or licensing policies or objectives of a university, other restrictions may limit a university's ability to transfer "all substantial rights" under a patent. For example, previous settlement of a patent dispute may be seen as a license that would prevent subsequent exclusive licenses if the settlement allowed continued practice of the patent.

More commonly, university research sponsored by the U.S. government may be controlled by the Bayh-Dole Act and by funding agreements that must comply with the act.[43] To the extent that a patent is a "subject invention" under the act, the act prohibits assignment without approval of the sponsoring federal agency,[44] provides for retained rights by the federal gov-

ernment to practice or have practiced the invention for or on behalf of the United States,[45] and provides march-in rights to force a compulsory license under certain circumstances.[46] State laws and policies may include similar requirements and restrictions. At least one court has ruled that the Bayh-Dole Act provisions in the abstract do not preclude a license from transferring all substantial rights and do not turn an otherwise exclusive license into one that is nonexclusive.[47] However, the patent and license in that case were ruled not to be covered by the act in the first place, and there have not been cases reported that squarely address the question of whether a license that complies with the Bayh-Dole Act can ever convey all substantial rights.

When considering these tradeoffs and limitations, an important point is that, while a university may not be able to effectively shift full litigation responsibility to a licensee, specific license terms may address some of the specific burdens of litigation.[48] In other words, the issue of standing, while important, does not create an all-or-nothing proposition. For example, a university recognizing that it would not be likely to escape involvement in litigation altogether could agree with the licensor to apportionment of the costs of and recovery from any litigation. Such contractual provisions are further important because, in some instances, a licensee may be able to compel a licensor to participate in the litigation as a necessary party.[49]

Conclusion

For a licensee to have standing to sue third-party infringers alone and in its own name, the license agreement must convey what the courts characterize as "all substantial rights." While there is no absolute bright line between an agreement that conveys all substantial rights and one that does not, an agreement likely would be considered as sufficient if it provided the following to the licensee:

- Exclusive rights to make, use, sell, or offer to sell the patented invention;
- Unrestricted rights to sublicense the patent; and
- Rights to sue for past, present, and future infringement and the right to decide not to sue infringers.

To the extent that a university may elect or otherwise be prohibited by law from conveying these rights, transferring exclusive rights to the invention, i.e., to make, use, sell, or offer to sell, within a limited geographic area, will provide the ability for the licensee to sue, but the university likely will have to participate as a co-plaintiff in any litigation.

Notes

1. Roger D. Blair and Thomas Cotter, *The Elusive Logic of Standing Doctrine in Intellectual Property Law*, 74 TUL. L. REV. 1323, 1347 (2000).
2. *Id.*
3. 35 U.S.C. §§ 100(d) & 281.
4. *Intellectual Prop. Dev., Inc. v. TCI Cablevision of Cal.*, 248 F.3d 1333, 1345 (Fed. Cir. 2001).
5. *Mentor H/S, Inc. v. Med. Device Alliance, Inc.*, 240 F.3d 1016, 1017 (Fed. Cir. 2001); *Vaupel Textilmaschinen KG v. Meccanica Ero Italia S.P.A.*, 944 F.2d 870, 875 (Fed. Cir. 1991).
6. *Mentor*, 240 F.3d at 1017.
7. *Ciba-Geigy Corp. v. Alza Corp.*, 804 F. Supp. 614, 630 (D.N.J. 1992) (essential rights include the "right of exclusivity, the right to transfer and most importantly the right to sue infringers") (quoting *Calgon Corp. v. Nalco Chem. Co.*, 726 F. Supp. 983, 986 (D. Del. 1989)).
8. *Intellectual Prop. Dev.*, 248 F.3d at 1348.
9. Id. at 1345.
10. *Penril Datacom Networks, Inc. v. Rockwell Int'l Corp.*, 934 F. Supp. 708, 712 (D. Md. 1996).
11. *Id.*
12. *Textile Prods., Inc. v. Mead Corp.*, 134 F.3d 1481, 1484 (Fed. Cir. 1998) ("[I]f a patentee-licensor is free to grant licenses to others, licensees under that patent are not exclusive licensees."); *Rite-Hite Corp. v. Kelley Co., Inc.*, 56 F.3d 1538, 1552 (Fed. Cir. 1995) ("To be an exclusive licensee for standing purposes, a party must have received, not only the right to practice the invention within a given territory, but also the patentee's express or implied promise that others shall be excluded from practicing the invention within that territory as well.").
13. *Sicom Sys. Ltd. v. Agilent Techs., Inc.*, 427 F.3d 971, 976 (Fed. Cir. 2005).
14. *Abbott Labs. v. Diamedix Corp.*, 47 F.3d 1128, 1132 (Fed. Cir. 1995).
15. *A.L. Smith Iron Co. v. Dickson*, 141 F.2d 3, 6 (2d. Cir. 1944) ("[T]he reason why [a non-exclusive licensee] is not permitted to sue is because has nothing to protect.").
16. *Intellectual Prop. Dev.*, 248 F.3d at 1345.
17. *Rite-Hite*, 56 F.3d at 1552.

18. *Intellectual Prop. Dev.*, 248 F.3d at 1345.
19. *Ortho Pharm. Corp. v. Genetics Inst., Inc.*, 52 F.3d 1026 (Fed. Cir. 1995) ("A patentee may not give a right to sue to a party who has no proprietary interest in the patent.").
20. *See Abbott*, 47 F.3d at 1132 (finding no independent standing and noting that "although Abbott has the option to initiate suit for infringement, it does not have the right to indulge infringements, which normally accompanies a complete conveyance of the right to sue").
21. *Sicom*, 427 F.3d at 979 (quoting *Vaupel*, 944 F.2d at 875).
22. 160 F. Supp. 2d 1136, 1148 (E.D. Cal. 2001).
23. *Id.* at 1147.
24. 427 F.3d 971, 978 (Fed. Cir. 2005).
25. *Id.* at 979.
26. *Id.*
27. 804 F. Supp. 614, 630 (D.N.J. 1992).
28. *Id.*
29. *Prima-Tek II v. A-Roo Co.*, 222 F.3d 1372, 1380 (Fed. Cir. 2000).
30. *Applied Interact, LLC v. Vt. Teddy Bear Co.*, No. 04 Civ. 8713 HB, 2005 WL 1785115 (S.D.N.Y. July 28, 2005); *see also Penril*, 934 F. Supp. at 711 ("restraint on alienation is clearly at odds with true ownership").
31. 222 F.3d at 1380.
32. *See Vaupel*, 944 F.2d at 875.
33. *Prima-Tek II*, 222 F.3d at 1380; *see also Sicom*, 427 F.3d at 978 (no standing when among other reasons patentee had right to approve sublicenses).
34. *Speedplay Inc. v. Bebop, Inc.*, 211 F.3d 1245, 1251 (Fed. Cir. 2000).
35. 160 F. Supp. at 1147.
36. 47 F.3d at 1132.
37. 434 F.3d 1336, 1342 (Fed. Cir. 2006).
38. *Id.* at 1343.
39. 944 F.2d at 875-76.
40. 211 F.3d at 1251-52.
41. 804 F. Supp. at 631-33.
42. *See Biagro*, 160 F. Supp. 2d at 1147 (distinguishing *Speedplay*).

43. *See Madey v. Duke Univ.*, 413 F. Supp. 2d 601, 610-615 (M.D.N.C. 2006).
44. 35 U.S.C. § 202(c).
45. *Id.*
46. 35 U.S.C. § 203.
47. *Ciba-Geigy*, 804 F. Supp. at 628-29, 634. The court is this case also rejected the argument that because the license agreement allegedly failed to comply with the Bayh-Dole Act, that it was a legal nullity leaving the licensee with no rights at all.
48. *See Ortho*, 52 F.3d at 1034.
49. *Intellectual Prop. Dev.*, 248 F.3d at 1347 ("[T]his court adheres to the principle that a patent owner should be joined, either voluntarily or involuntarily, in any patent infringement suit brought by an exclusive licensee having fewer than all substantial patent rights.") (citing *Indep. Wireless Tel. Co. v. Radio Corp. of Am.*, 269 U.S. 459, 468-69 (1926)).

A New Technology Transfer Paradigm: How State Universities Can Collaborate with Industry

Catherine S. Renault, PhD, Jeff Cope, MSM, Molly Dix, MIP, and Karen Hersey, JD

Abstract

In some states, policy-makers, pressed by local and regional industrial interests, are debating how to "reform" technology transfer at public universities. *Reform* in this context is generally understood to mean redirecting university technology transfer activities to increase the benefits of state-funded research to local industries. Progress toward this goal is often constrained by federally mandated laws applicable to technology transfer at universities[1] and by university policies that have been placed by state legislatures outside the purview of policy-making state officials.[2] Calls for change have also been countered by the view of many universities that the system is not broken.

Suggested reforms range from abolishing the Bayh-Dole Act that gives universities the flexibility to transfer ownership of federally funded inventions to local industries to making structural or management changes within universities that will incentivize innovation and/or expedite licensing of new ideas. This article proposes a new paradigm: instead of measuring the success of technology transfer by counting numbers of patents and licensing deals, we suggest measuring knowledge flows between state universities and their localities. This approach should produce a more accurate picture of the full impact that universities have on their regions.

Catherine S. Renault, PhD, is the science advisor to the governor of Maine and director of the Maine Office of Innovation. Jeff Cope, MSM, and Molly Dix, MIP, are program managers in technology commercialization with RTI International, Research Triangle Park, North Carolina. Karen Hersey, JD, is a visiting professor of law, Franklin Pierce Law Center, Concord, New Hampshire.

Introduction

Technology transfer offices at universities are under increasing scrutiny. Industry representatives, when asked about ways in which universities could or should become more involved in local or regional economic development, often cite getting better quality results from university technology transfer. Local, state, and regional economic developers express a similar concern. A recent technology-based economic development conference included one session subtitled "Our Bipolar Relationship with Universities."[3]

Industry complains about the time required to get a deal done and the difficulties of negotiating with universities. State and regional economic developers are troubled by state universities auctioning their technologies to the highest bidders to the detriment of local companies. They also express concern as to why professors are not more willing to collaborate with the companies around them.

Many academic studies of university technology transfer, as well as reports from the Association of University Technology Managers (AUTM), refute the notion that the system is not effective.[4] However, historically, the focus for most universities has not necessarily been regional.

Despite the data showing, for instance, that, in 2005, more than 3,200 patents were issued to U.S. universities, and more than 4,900 licenses were granted to commercial companies and 628 new startups created,[5] the din from industry and economic developers strongly suggests that these accomplishments alone are not always considered sufficient. This paper discusses several reforms in the public discourse and suggests an alternative paradigm for changing the approaches of university technology transfer offices (TTOs) to shore up the interface between the university, the local and regional business community, and economic developers.

The intent of this paper is not to be prescriptive, but to emphasize that organizations respond to metrics—actions of organizations and people are driven in part by how they are measured. We advocate that metrics be broadened to support universities in shifting toward managing their intellectual assets for the benefit of economic development. RTI works with a wide range of clients and respects that varied solutions are needed to benefit different organizations and their missions. We believe that a shift is possible without a one-size-fits-all mentality, but advocate that organizations consider knowledge flow as the basis for measuring success.

Built-in Barriers to Overcome

Most universities subscribe to the notion that their central mission is the open and free dissemination of knowledge for the greater benefit of society. The university fulfills this mission through teaching, research, and public service. Historically, many academic institutions and their faculty have viewed innovation for profit and entrepreneurial activities as not only outside of, but potentially contrary to, an educational mission.

Regardless, with the increasingly knowledge-based economy of the twenty-first century, universities are being called upon to play an expanded role in society—and for the most part they are. Universities today are collaborating with industry and generating ventures on a scale and in ways previously unthinkable.[6] Industry-sponsored research, intellectual property (IP) licensing, corporate internships, business incubators, and startup companies are providing great educational and revenue-generating opportunities for students and universities. These activities are leading to new products and services that benefit the public. They also create new industries and jobs for the national, as well as the local, economy.

However, to make this work, both academia and the for-profit sectors have had to reach some accommodation with one another. Those endeavoring to reshape university structures or forms of IP management will need to start with the institution's core values and principles and consider how best to make sure they are reflected in changes to IP management policies and practices.

Transitioning technology out of universities typically involves consideration of intellectual property rights that may apply to it. Here, U.S. law, beginning with the Constitution,[7] is virtually preemptive of state laws in defining what those rights are and who has the authority to exercise them.[8] Another federal law critical to university technology transfer at both federal and state levels is the Bayh-Dole Act.[9] The law requires universities and nonprofit research institutions receiving federal financial assistance for research (basically federal research grants, contracts, or cooperative agreements) to disclose, protect, and commercialize for the public benefit any patentable inventions discovered during the funded research program. Since research funded by federal agencies involves use of U.S. taxpayer dollars, this controlling legislation does not recognize preferences for local industries as the beneficiaries of university research. In fact, language in the introduc-

tory portions of the act can be read as contrary to establishing this kind of preference.[10]

On the other hand, a workaround may be found in the one preference that is established under the act that favors licensing to small businesses.[11] Other federal laws and regulations setting limits for university research and technology transfer practices can be found in U.S. tax law, including certain limitations on the use of facilities and equipment financed by tax-exempt bonds,[12] antitrust considerations, and export-control regulations that define fundamental research.

As these barriers indicate, very little inducement is found in prevailing federal law to ease the transfer of innovation to industry or to support local and regional economic development. Since the states themselves can do little to improve the situation in the face of countervailing federal laws, the universities must become creative in finding ways in which they can ratchet up their contributions to local economies and societies.

Existing Reform Agenda

The public discourse seeking to encourage universities to form closer relationships with industry and to place a greater emphasis on local and regional needs has produced numerous recommendations for change. Several of these are briefly discussed below. A distinction is made between proposals dealing with university policies that can be implemented internally and those seeking to amend the federal and state legal environment in which universities operate and which require the intercession of outside authorities.

This paper presents four major university policies and procedures and two reforms in discussion outside the university realm that may be relevant to improving relationships between universities and local businesses and economic developers.

Proposals for Change within State Universities

Change Promotion and Tenure Considerations

Recent discussion on many campuses has addressed the possible benefits if campus cultures and attitudes were changed to become more accepting and encouraging of entrepreneurial activities among students and faculty. One recommendation is to expand promotion and tenure policies to reward entrepreneurial behaviors.[13] Counting patents as publications, measuring

interaction with corporate partners (using metrics such as industry-sponsored research and consulting with industry), and valuing licensing and startup activity as positive measures of achievement in promotion and tenure considerations would support and advance cultural change.

Standardize University-Industry Agreements

This approach is promoted repeatedly among economic developers and industry alike as a way to streamline university-sponsored research and licensing processes.[14] Introducing the use of standard templates for collaborative research, technology licenses, and other technology transfer-related agreements between universities and industry should lessen the time frame for negotiations. Since these agreements are two-sided, to be effective, they must be developed in collaboration with industrial partners.

Change Royalty Structures

The royalty structures commonly applied by universities often do not meet the needs of industry and, because they are perceived as a barrier, impede economic development. There is pressure in the community for universities to offer fixed-rate royalties, fixed fees, or no fees when licensing university-developed technology. A major part of the argument for more accommodating royalty structures comes from local taxpaying industries claiming they have already paid for the infrastructure and means by which an innovation is developed. While local industry perception of entitlements may be self-serving and not a valid basis for selection, state universities, in making decisions as to priorities, do have the capability to adjust the relative values they place on supporting local economies versus generating royalty revenues.

Use Different Metrics

Traditional technology transfer metrics used today (e.g., invention disclosures, patents filed and issued, licenses executed, and startups formed) have become widely accepted predominantly as a result of the *AUTM Licensing Survey*™. AUTM itself recognizes that these metrics do not always convey the full impact of technology transfer activities, such as public benefit and quality-of-life improvements, and has embarked on two initiatives to paint a clearer picture of the impact of technology transfer. *The Better World*

Project[15] speaks to the quality-of-life improvements made by university technologies. State universities, together with state economic development organizations, might consider adopting a "better state project" to showcase the local and regional contributions of state universities. AUTM has also formed a Metrics Task Force to propose new metrics that could be included in the annual *AUTM Licensing Survey*. Perhaps state and/or regional economic development organizations should be given a seat at the table in helping to develop measurements that would more accurately take into account state interests in the performance of their public universities.

Reforms Outside of Universities

Repeal or Reform of Bayh-Dole

The last five years have produced several recommendations for the repeal or reform of Bayh-Dole. Many of these suggestions have been rather tightly focused on issues surrounding the patenting of research tools such as DNA segments and protein structures.[16] Some repeal recommendations are suggested by the biomedical ethics community concerned that large companies are getting too much benefit from ideas nurtured largely by federal funding.[17] It is debatable whether "fixing" Bayh-Dole in a way that reduces patenting (as some articles suggest) will help states seeking to build new businesses. States are most likely not in a position to champion changes in Bayh-Dole, even if there were consensus as to what the changes should be. The focus for state universities should be on finding ways to work within Bayh-Dole, such as locally exploiting the small-business preference, and explaining to state policy-makers how Bayh-Dole works to ensure timely and effective use of the universities' innovations.

State Initiatives

At least four state legislatures have attempted to enter the debate. In 2006, the North Dakota legislature commissioned a study on IP policies and procedures, responding to concerns expressed by the business community. In the same year, the Virginia legislature amended its legislation[18] regarding adoption of patent and copyright policies by state universities to allow for the assignment of interests in state university-developed IP. Interpreted by some to mean that Virginia corporations sponsoring research at the state

universities may have resulting IP assigned to them, as opposed to licensed, this is a variant of the flat-fee proposals. New York is in the formative stages of studying its options with respect to IP developed at its public universities. A bipartisan Roundtable on Intellectual Property Policy[19] is working toward the goal of developing a comprehensive statewide policy. In the 2007 session, the Maine legislature considered a bill to mandate "favorable" pricing of intellectual property and to assert the state's ownership position of IP arising from state funding.[20]

Suggestions for a New Paradigm

Many of these recommendations are worthy of consideration and some should be implemented. But, another solution may be to rethink the measurement systems currently used to assess outcomes. The current paradigm in many U.S. universities (public and private) rests on the twin objectives of encouraging faculty to disclose innovation and maximizing revenues. Some TTOs do add economic development to their goals, but there is little evidence that these are other than a small minority. The following offers some ways universities can broaden their management practices to encourage relationships with industry that have a positive impact on economic development.

Measure Spillover and Knowledge Transfer

Assuming that organizations and their staffs act in ways consistent with how they are managed and measured, the twin objectives mentioned above may lead offices to fixate on patenting for the sake of counting patents and licensing technology to the highest bidder, who may or may not be local. Neither of these behaviors is likely to increase the interaction of state universities with their surrounding localities. The outcome, then, will continue to be dissatisfaction from some industrial and economic development sectors.

We propose an alternative: a new paradigm for university technology transfer, one based on outcomes that benefit economic growth as well as outcomes that have traditionally been seen as desirable for the university. These outcomes are more closely aligned than is generally believed. The paradigm considers the role universities play in developing new knowledge and innovation that spills over into local and regional economies.[21] Many observers fail to grasp that this spillover happens in numerous ways outside

the TTO. Goldstein and Luger[22] characterize the university as a multiproduct entity that effects regional economic development in eight ways, including formal technology transfer, but also including the training of students, informal transfer of know-how, building of knowledge infrastructure, and supporting a creative regional milieu.

Others have characterized the appropriate role of the university as increasing knowledge flows. Donald Siegel's presentation at the National Science Foundation workshop on Advancing Measures of Innovation[23] suggests several new proxies for knowledge generation. In Table 1, Siegel's measures are aligned with Goldstein and Luger's modalities of university regional roles.

Table 1. Comparison of Modalities and Measures for University Roles in Regional Growth

Modalities of University Roles	New Measures
Formal technology transfer	• Numbers of disclosures, licenses, and startups
Informal transfer of know-how	• Citations of patents and articles • Co-authoring • Firm retention in university research joint ventures • Firm survival • New products commercialized • Growth in employment and sales of firms
Training of students	• Job mobility of students • Hiring of engineering and science graduates
Building of knowledge infrastructure	• Productivity of university TTOs
Supporting a creative milieu	

This analysis shows that some measures are still missing, such as the number of graduates, including those in science and engineering, who remain in the region after graduation; the amount of sponsored research from regional partners (industry and/or nonprofit research institutions); and measures of the creative community, such as Richard Florida's composite diversity index.[24]

With these added, Table 2 suggests a new set of measures[25] that more fully capture the university's multidimensional role in a region, taking the singular focus off the formal technology transfer role.

Table 2: Suggested Metrics of University's Contribution to Economic Development *(italics indicate our additions)*

Modalities of University Roles	New Measures
Formal technology transfer	• Numbers of disclosures, licenses, and startups • *New jobs created, new products introduced, new revenues and investments received by licensees* • *Amount of sponsored research from regional partners (industry and/or nonprofit research institutions)*
Informal transfer of know-how	• *Amount of sponsored research or research joint ventures with regional partners* • Citations of patents and articles *from university researchers* • Co-authoring *between university and industry or nonprofit researchers* • Firm *participation and* retention in university research joint ventures • Firm survival *after collaboration with university* • New products commercialized *after collaboration with university* • Growth in employment and sales of firms *after collaboration with university*
Training of students	• Job mobility of students • Hiring of engineering and science graduates • *Number and percent of graduates who remain in the region*
Building of knowledge infrastructure	• Productivity of university TTOs • *Jobs created through university incubator or research park*
Supporting a creative milieu	• *Composite diversity index*

Note that these metrics do not include a number of widely used indicators, such as number of patents filed and issued and amount of revenue generated from licenses, because these are byproducts of the activities that should be encouraged. These "old" indicators have caused the dysfunctional behavior ascribed to university TTOs, and, therefore, to change results for the better, should be downplayed.

Using new metrics will enable universities to refocus on the two things they see as fundamental to their missions: education of students and performance of research. The metrics will encourage universities to seek curricula and educational partnerships that are meaningful and useful to regional clusters to maximize local hiring of their graduates. The metrics also encourage universities to seek research funding from regional industry and nonprofit research institutions in addition to federal sources. These joint research projects will result in informal know-how transfer, especially of tacit knowledge, but will also stimulate the production of innovation that can be licensed in the region. Further, locally funded research projects result in full- or part-time employment opportunities for students who also get practical knowledge to supplement their classroom teaching.

Broaden the Guiding Principles of Technology Transfer Offices

The question remains, How does one impart change at the technology transfer office working level? Introducing guiding principles that TTOs might follow in their licensing practices has recently been suggested by a group of public and private institutions. This document, titled "In the Public Interest: Nine Points to Consider in Licensing University Technology," has been made publicly available on the AUTM Web site.[26] Slight changes to these guiding principles can help balance the inherent difficulty in working with industry at a national or local level. TTOs at state universities might consider adapting the idea of guiding principles as a means of strengthening their relationships with local and regional interests. We offer the following variations from a few of the guiding principles that might be useful. Our additions are in bold and comments in italics.

1. Universities should reserve the right to practice licensed inventions **and to find ways for other nonprofit and state and regional public-interest organizations to benefit.**

2. Exclusive licenses should be structured in a manner that encourages technology development, use, **and regional impact.**
3. **State** universities should anticipate and help to manage technology transfer-related conflicts **and be prepared to help local and regional actors overcome them.**
4. Ensure broad access to research tools **and strive to provide a bridge to regional users with access and training.**
5. Consider including licensing provisions that address unmet needs, such as those of **a state's** neglected patient populations or geographic areas, giving particular attention to improved therapeutics, diagnostics, and agricultural technologies for **regional benefit** and the developing world.

Conclusion

This new paradigm, then, refocuses the measurement of technology transfer activity from a narrow set of metrics to a broader list of indicators of knowledge flows that benefit local and regional economic development and broadens the responsibility for university participation from the TTO to the wider university community. Because the broader measures encompass the traditional missions of universities—education and research—they will align more closely with the activities desired by industry and economic developers. This new paradigm will do much to quell dissatisfaction currently felt by local industries, economic developers, and universities themselves over the current state of affairs.

Notes

1. Example, The Bayh-Dole Act (35 U.S.C. 200-212).
2. For example, North Dakota grants broad exclusive authority to the State Board of Higher Education to develop regulations and policies for governing state universities (N.D.C.C. Ch. 15-10-17 §7).
3. State Science and Technology Institute, November, 2006.
4. J.G. Thursby and M.C. Thursby, "University Licensing and the Bayh-Dole Act," *Science* 301 (2003):1052.
5. Association of University Technology Managers, *AUTM 2005 Licensing Survey* (Northbrook, IL: AUTM, 2007).
6. For example, Berkeley-Novartis five-year, $25 million plant genomics research agreement (1998).

7. Article 1, Section 8, Clause 8 of the *U.S. Constitution.*
8. 15 U.S.C. 1051-1127, 15 U.S.C. 1511, 35 U.S.C. and 44 U.S.C. 1337-1338.
9. 35 U.S.C. 200-212.
10. 35 U.S.C. 200.
11. 35 U.S.C. 202(c)(7)(D).
12. IRS Rev. Proc. 97-14.
13. E.g., Donald Siegel, David Waldman, and Albert Link, "Assessing the Impact of Organizational Practices on the Relative Productivity of University Technology Transfer Office: An Exploratory Study," *Research Policy* 32 (2003): 27-48; Catherine Renault, "Academic Capitalism and University Incentives for Faculty Entrepreneurship," *Journal of Technology Transfer* 31 (2006): 227-239.
14. Government-University-Industry Research Roundtable, Industrial Research Institute, *Simplified and Standardized Model Agreements for University-Industry Cooperative Research* (Washington, DC: National Academy Press, 1988).
15. Association of University Technology Managers, "Better World Project," http://www.autm.net/betterworldproject.cfm.
16. Rebecca Eisenberg and Arti K. Rai, "Bayh-Dole Reform and the Progress of Biomedicine," *Law and Contemporary Problems*, 66 (2003): 289.
17. Michael I. Heller and Rebecca Eisenberg, "Can Patents Deter Innovations: The Anticommons in Biomedical Research," Science 280 (1998): 698-701.
18. Code of Virginia, §23-4.3 and 23-4.4, amended by HB 134, March 11, 2006.
19. New York State Assembly Task Force on University-Industry Cooperation, "A Special Report," http://assembly.state.ny.us/comm/UnivIndCoop/20060817 (accessed December 13, 2006).
20. State of Maine Legislature "Summary of LD 1802, http://janus.state.me.us/legis/LawMakerWeb/summary.asp?ID=280024754.
21. Adam Jaffe, "Real Effects of Academic Research," *American Economic Review* 79, (1989): 957-970.

22. Harvey A. Goldstein and Michael I. Luger, "Assisting Economic and Business Development," in *Planning and Management for a Changing Environment*, eds. M.W. Peterson, D. Dill, and L. Mets (San Francisco: Jossey Bass Publishers, 1997).
23. Donald Siegel, "University-Industry Knowledge Flows: An Overview," in *Advancing Measures of Innovation: Knowledge Flows*, *Business Metrics and Measurement Strategies* (Arlington, VA: National Science Foundation, 2006), http://www.nsf.gov/statistics/workshop/innovation06/.
24. Richard Florida, The Rise of the Creative Class (New York: Basic Books, 2003): 261-262.
25. Some of these metrics come from Ken Swartzel and Jeff Cope, "The North Carolina Technology Development Initiative—Interim Report," presented to University of North Carolina General Administration, June 2003.
26. The referenced report can be downloaded from http://www.autm.net/aboutTT/Points_to_Consider_letter.pdf.

The Use of In-House Patent Management Professionals at Academic Institutions

Michael B. Dilling, PhD, Lisa C. Beveridge, and Mercy S. Chen, PhD

Abstract

This manuscript reports the results of a survey that was conducted by the Baylor Licensing Group at the 2006 Association of University Technology Managers (AUTM) Annual Meeting℠. The purpose was to gather data on the use of in-house patent management professionals (IHPMPs) as they relate to the productivity of licensing professionals at academic and nonprofit institutions. To accomplish this, we gathered data on the prevalence of using IHPMPs and the job responsibilities associated therewith and the extent to which these professionals had an impact on specific parameters related to productivity of the technology transfer office. We collected 76 responses to our survey, and 32 respondents (42%) reported that they use IHPMPs at their institutions. Duties for these professionals include: (1) coordinating patent prosecution activities with outside patent counsel (75%), (2) drafting provisional patent applications (50%), (3) assisting with licensing activities (50%), (4) review and execution of confidential disclosure and material transfer agreements (50%), and (5) preparation of nonprovisional patent applications and responses to office actions (25%).

We focused our data analysis on comparing those offices that retained an IHPMP solely for patent-related matters to those that utilized their IHPMPs for licensing activities and to those that did not employ IHPMPs (collectively named *licensing professionals*). We observed an increase in the number of disclosures managed per licensing professional and the number of license agreements executed per licensing professional in those offices in which the IHPMP was focused solely on patent-related activities. Our data also suggest that retention of an IHPMP may impact provisional and nonprovisional patent-application preparation cost.

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Introduction

Most academic technology transfer offices have historically relied upon the use of outside patent counsel to prepare and prosecute patent applications associated with inventions developed at the university. Like many technology transfer offices, the Baylor Licensing Group at Baylor College of Medicine uses a cradle-to-grave case-management model in which licensing professionals are responsible for all aspects of technology disclosure management, including marketing activities, patent strategy coordination, and negotiation and maintenance of license agreements.[1] Additionally, the role of the licensing professional at Baylor has expanded such that managers often work extensively with faculty members to identify mechanisms (funding, access to outside expertise) that will foster the development of technologies to make them more attractive candidates for commercialization. The key strength of the cradle-to-grave model is that the licensing professional develops considerable expertise associated with all aspects of his or her projects. Unfortunately, as a result, the broad scope of activities may weaken his or her productivity on each individual activity.

After learning about the use of in-house patent management professionals (IHPMPs), we became interested in exploring the use of such professionals at academic technology transfer offices as a mechanism to increase the operational effectiveness and/or productivity of the office. Our premise was that an IHPMP on staff could allow licensing professionals to focus more time and energy on activities related to marketing and licensing technologies. These activities, after all, are the goal of the technology transfer office.

Academic institutions frequently file provisional patent applications for inventions that may require further developmental work before conversion to a nonprovisional application or for inventions for which a licensee has not yet been identified.[2] Filing the provisional allows the faculty to meet their commitments for publishing while preserving any patent rights associated with the publication. However, it still provides a year before which additional costs must be incurred. The hope is that a licensee will be identified in that year that will agree to pay the additional costs of patent prosecution. If not, the provisional can be abandoned. Therefore, we further hypothesized that retention of an IHPMP could have a positive impact on an institution's patent budget if provisional applications were prepared in house.

Data Collection

A preliminary survey conducted over the phone in 2005 with a small group of technology transfer offices, some of which use IHPMPs, suggested that retention of an IHPMP can have a positive impact on office operations and productivity. This motivated us to develop a survey instrument to obtain and analyze a more systematic data set related to the use of IHPMPs in academic institutions.

We developed a survey document (see appendix) and distributed it to attendees of the 2006 AUTM Annual Meeting. The survey was conducted at our networking table during all hours the networking and exhibit areas were open. Survey participants were asked to fill out the survey with the promise of a free gift (disclosed only after the survey had been completed). Data were collected from any volunteer willing to complete the survey document. We requested contact information, so that follow-up interviews to verify the data could be conducted.

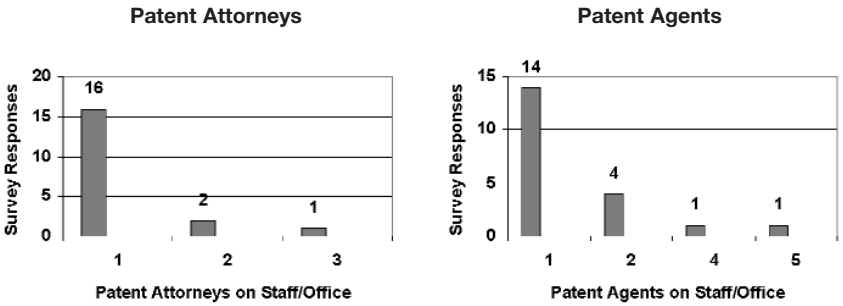
Additionally, we collected data related to patent management practices, including the number of applications filed/prosecuted and the costs to file a patent application. Respondents who admitted they did not know the exact numbers were encouraged to provide estimates. We attempted to further define the estimates during postsurvey research and primary interviews, especially when numbers reported by different respondents from the same school were inconsistent. Only data that could be independently verified by (1) a second respondent from the same school, (2) a confirmation phone call to the school, or, as appropriate, (3) the most recent *AUTM Licensing Survey*™, were used in the analysis. A two-way T-test was used for statistical comparisons between respondent groups.

The In-House Patent Management Professional: Prevalence and Responsibilities

We analyzed a total of 76 responses to the survey, all from academic and nonprofit research institutions. Thirty-two respondents (42%) indicated that they employ at least one IHPMP in their operation. Among the positive respondents, we noted an approximately even split between offices that employ patent attorneys in an in-house capacity vs. those that utilize patent agents (Figure 1).

We also examined whether there was a difference in the size of the licensing office (number of licensing full-time employees (FTEs)) among respondents who employ at least one IHPMP vs. those who do not. We found no statistically significant difference between the two groups. The mean office size among the positive respondents was 4.3 FTEs (median of 3 FTEs) vs. 5.8 FTEs per office (median of 3 FTEs) among the respondents that indicated they do not employ an IHPMP.

Figure 1: Type of Professional Employed as IHPMP



IHPMP Responsibilities

We explored the duties and responsibilities of IHPMPs, and the majority of respondents who reported employing an IHPMP (75%) stated that they coordinate and/or manage patent prosecution activities with outside counsel. Other significant duties are summarized in Table 1. Just nine of the respondents (28%) who reported using an IHPMP indicated that they utilized these professionals solely for patent-related work and their duties did not include licensing-related responsibilities or responsibilities for negotiating other agreements such as sponsored research agreements, etc.

IHPMP Reporting Relationships

We gathered data on the reporting relationship of IHPMPs, and these data are summarized in Table 2.

Stated Reasons for Using an IHPMP

Among the respondents who reported using an IHPMP, we asked them to state and rank the reasons that their institution used an in-house patent

Table 1: Responsibilities of IHPMPs

Responsibility	Number of Respondents
Coordinate/manage patent prosecution with outside counsel	24 (75%)
Draft provisional patent applications	16 (50%)
Licensing activities (marketing/negotiation)	16 (50%)
Confidential disclosure agreement review/execution	16 (50%)
Material transfer agreement review/execution	15 (47%)
Consulting agreement review/execution	12 (37.5%)
Sponsored research agreement review/execution	9 (28.1%)
Draft nonprovisional patent applications	8 (25%)
Prepare office action responses	8 (25%)

Table 2: Reporting Relationships of IHPMPs

IHPMP Reports To:	Number of Respondents
Only the technology transfer office (TTO)	20 (64.5%)
Only the general counsel office (GCO)	4 (12.9%)
Both the GCO and TTO	3 (9.7%)
Primary to TTO, dotted line to GCO	4 (12.9%)
Primary to GCO, dotted line to TTO	0

management professional. Although the ranking data were inconclusive, survey respondents did state that the key reasons for using an IHPMP were (1) to allow licensing personnel to focus on licensing issues, (2) patent budget cost control, (3) improved service to the faculty, and (4) improved quality of the patent applications. Anecdotal comments also supported these reasons.

The IHPMP: Impact on Technology Transfer Office Productivity and Patent Costs

TTO Operations

We hypothesized that employing an IHPMP who exclusively focuses on patent-related responsibilities would free up licensing professionals to focus their efforts on marketing and licensing activities. We compared data collected from respondents who retain IHPMPs solely for patent-related responsibilities to data from the remaining respondents, including both those who do not retain an IHPMP and those who do retain an IHPMP, but whose duties include both patenting and licensing-related matters. We observed an increase in both the number of disclosures per licensing professional (18%, $p<0.14$) and in the number of license agreements executed per licensing professional (22%, $p<0.13$) in the former group compared to the other two groups.

Patent Costs

We also sought to determine whether having an IHPMP had any impact on costs associated with preparing both provisional and nonprovisional patent applications. We compared data collected from respondents who retain IHPMPs whose duties include drafting provisional applications (denoted as "Prov+") to data from respondents who retain in-house patent professionals who do not draft provisional applications (denoted as "Prov -") or respondents who do not retain IHPMPs (denoted as "No-IH"). We observed a significant decrease (31.1%, $p<0.002$) in the average provisional patent cost in the Prov group compared to the No-Prov group as well as to the No-IH group (33%, $p<0.003$) (Figure 2a).

When costs associated with preparing nonprovisional patent applications were examined, similar results were observed. Average nonprovisional patent preparation costs were significantly lower in the NonProv+ group (30.6%, $p<0.04$) compared to the Non-Prov- group or the No-IH group (27.8%, $p<0.05$) (Figure 2b).

Collectively, these data suggest that IHPMPs who draft provisional and nonprovisional patent applications are providing this service at a reduced cost when compared to applications prepared by outside counsel.

Figure 2a:

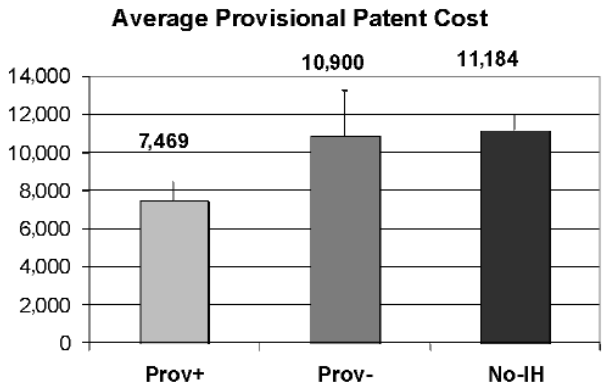
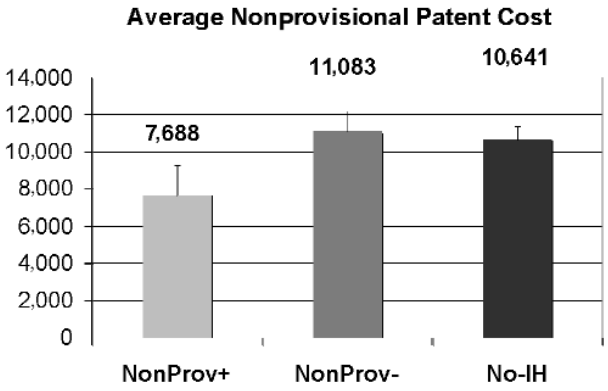


Figure 2b:



Discussion

The data from our survey respondents demonstrated that the practice of employing an IHPMP is much more common in academic technology transfer offices than we had anticipated. We were somewhat surprised by the prevalence of this practice, given our assumptions that most technology transfer offices relied exclusively on outside patent counsel to manage the institution's patent portfolio.

We found that the most common job responsibility for the IHPMPs of our respondents was the coordination and management of patent prosecu-

tion activities with outside patent counsel. This finding was not surprising given the volume and diversity of the patent work associated with many universities. Our data also demonstrate that a significant number of respondents rely on an IHPMP for drafting of provisional and nonprovisional patent applications, indicating that many academic institutions see value associated with moving patent application preparation activities in house.

One prominent example of this model is the University of Virginia Patent Foundation (UVAPF).[3] Staff there stated that the key benefits of in-house patent counsel include a reduction in unreimbursed patent costs, enhanced patent portfolio management, and more personal attorney-inventor relationships. Several factors motivated UVAPF to move to an in-house model, including a need to reduce out-of-control unreimbursed patent costs, dissatisfaction with the work product produced by outside counsel, and a lack of local high-technology patent attorney talent. To implement its model, UVAPF hired two experienced patent attorneys (with an average of seven years of experience) with appropriate technical backgrounds and provided them with appropriate support staff. UVAPF realized that, in order for the in-house counsel model to be effective, it was necessary to bring professionals on board with sufficient experience and expertise that would be comparable to, if not better than, that provided by outside counsel.

Retaining an IHPMP on staff to coordinate activities with outside counsel helps to allow licensing personnel to focus on their core responsibilities. However, half of the respondents who reported using an IHPMP also reported that this person had licensing-related responsibilities, and many also reported that their IHPMP reviewed material transfer, confidential disclosure, sponsored research, and consulting agreements as well. Interestingly, we noticed that such additional responsibilities occurred more often in cases where the IHPMP reported to the OGC, rather than those who reported to the TTO. However, a majority of the respondents who utilize an IHPMP stated that this person reported to the technology transfer office, an indication that many institutions recognize that the IHPMP is there to serve the interests of the TTO.

We presume, in cases where the IHPMP is responsible for a variety of tasks other than management of patent-related matters, that these institutions are still largely reliant on outside counsel for management of the institution's patent portfolio.

We also considered the possibility that IHPMPs with additional non-patent management-related responsibilities may be employed by smaller institutions such that the volume of patent-related work alone is not sufficient to justify having an IHPMP solely devoted to patent activities. However, this issue may be independent of the size of the office and might instead be aligned with the overall mission and goals of the office.

Why are some academic institutions choosing to bring patent management activities in house? The most frequently cited reasons among our respondents were to (1) improve the process of patent prosecution management, (2) reduce costs associated with patent prosecution, and (3) take the load off licensing professionals and allow them to concentrate on their core tasks. Prior to this survey, there were some data that suggested that universities using an IHPMP model were achieving these desired results. The University of Houston (UH) reduced its unreimbursed legal expenses by half after adopting a hybrid model in which provisional patent applications are prepared in house by an IHPMP and then filed by outside counsel. This practice allowed UH to be able to afford to file additional patent applications where they would not have been filed in the past.[4]

Similarly, UVAPF noted that by moving patent prosecution activities in house, the costs dropped to $185 per hour (including all overhead) vs. a range of $295 per hour to $325 per hour when this work was done by outside counsel.[5] The cost savings have allowed UVAPF to be more flexible with regard to filing patents on inventions that aren't yet licensed. Both UVAPF and the Dana Farber Cancer Institute cited an improved level of service to faculty inventors as a consequence of bringing patent management activities in-house.[6] Our data demonstrated that the cost of filing a provisional patent application was lower in cases where this work was done by an IHPMP.

One of our goals with the survey was to attempt to determine if managing patent prosecution activities in house produces results in terms of augmenting TTO productivity. Does having an IHPMP on staff to manage patent-related matters allow licensing personnel more time to focus on licensing-related matters? Our data suggest that, in cases where the IHPMP focuses on patent-related matters, licensing personnel are managing more disclosures and executing more agreements than their counterparts who do not have an IHPMP or those who use them for other matters in addition to patent portfolio management. We suspect there may be other potential

benefits associated with the use of an IHPMP, including relieving licensing professionals of time-consuming and complex intellectual property issues related to specific agreements or relationships.

Examples might include conducting prior art searches, assessing patentability, responding to office actions, and resolving inventorship issues and disputes. Therefore, we conclude that retaining a professional on staff to focus on patent-related workflow matters can have a positive impact on technology transfer office productivity by allowing licensing personnel to focus on licensing-related matters.

Limitations and Opportunities

Data were collected from any volunteer willing to complete the survey document. Although there was no attempt to ensure that the data collected were representative of AUTM membership as a whole, one might argue that, since the venue was a popular event attended by a good cross-section of AUTM members, the data is likely to be at least largely representative of AUTM membership.

Another limitation of the data is that patent cost estimates supplied by survey respondents for patent applications prepared in house (except as noted at UVAPF) may or may not incorporate added overhead costs that would be reflected in the cost of an application prepared by outside counsel. Such overhead costs should be considered when interpreting this analysis.

One important question that we did not address relates to the quality of applications prepared by IHPMPs vs. those prepared by outside counsel. Do universities that move patent drafting activities in house receive similar quality work as those who use outside counsel? Is the quality better? Worse? How can this be measured?

Although we made no attempt to clarify this issue, there is some anecdotal indication that universities using an in-house model have experienced an enhanced level of faculty inventor-patent attorney communication. This might suggest that the use of an IHPMP may enhance the quality of the institution's patent applications. However, considering patent application quality is difficult to measure, it is not surprising that an argument has been made that hiring an IHPMP could give the illusion of saving money, but might actually be costing the institution in the long run if the patent management is not done in an efficient and knowledgeable manner.[7]

Conclusion

Our data suggest that the use of an IHPMP may improve the productivity of a licensing office. We recommend that technology licensing offices that are considering decisions related to expansion, organizational changes, or personnel workload and job responsibilities examine the potential impact of incorporating an IHPMP into their office structure.

Notes

1. Jon Sandelin, Office of Technology Licensing, Stanford University, "Models for Transfer Offices of Public Research Organizations: Comparing Asia and United States," 2006, www.ficci.com/media-room/speeches-presentations/2006/dec/r&d/PlenarySessionVI/Jon_**Sandelin**.ppt.
2. Terry Williamson, "Provisional or Non-provisional Patent Application—Which Should You Choose?" *Ezine Articles*, April 2007, http://ezinearticles.com/?Provisional-or-Non-provisional-Patent-Application—Which-Should-You-Choose?&id=533588.
3. Alan Bentley, "I Can't Believe We Didn't Do This Sooner: The Creation of an Academic In-house Patent Department" (presented at the 2006 AUTM Annual Meeting, Orlando, FL).
4. John Warren, "Full House" (presented at the 2006 AUTM Annual Meeting, Orlando, FL).
5. Bentley, "I Can't Believe."
6. Bentley, "I Can't Believe," and Ojas P. Mehta, "In House, Outhouse, or Full House: Best Practices in IP Management" (presented at the 2006 AUTM Annual Meeting, Orlando, FL).
7. Coe A. Bloomberg and Jones Day, "Developing an Intellectual Property Portfolio for the Academic or Not-for-Profit Institution," *Nature Biotechnology* 23 (2005): 119-121.

Appendix: The Survey Instrument

Survey respondents were asked to respond to the following questions specifically related to IHPMP use.

1. Have you ever considered bringing patent prosecution management in-house? If so, and you have decided NOT to bring it in-house, briefly explain why not.

If you use in-house patent management professionals, please answer (the following)...

2. Type of professional/number:
   a. Patent attorney _____
   b. Patent agent _____
   c. Other (describe/number) _____
   _____

3. Duties of in-house patent management professionals (check all that apply)
   - ❑ a. Prepare provisional patent applications
   - ❑ b. Prepare nonprovisional patent applications
   - ❑ c. Prepare responses to Office Actions from USPTO
   - ❑ d. Coordinate and/or manage patent prosecution with outside counsel
   - ❑ e. Licensing activities (marketing, negotiation, etc.)
   - ❑ f. Consulting agreement review or execution
   - ❑ g. SRA review/execution
   - ❑ h. MTA review/execution
   - ❑ i. CDA review/execution
   - ❑ j. Other responsibilities (explain) _____
   _____

4. What is the reporting relationship for these patent professionals:
   - ❑ a. Reports only to the general counsel's office
   - ❑ b. Reports only to the technology transfer office
   - ❑ c. Dual reporting to both offices
   - ❑ d. Primary to GC, dotted line to TT
   - ❑ e. Primary to TT, dotted line to GC

5. Reasons for using an in-house patent management professional (check all that apply and rank them with 1 = most important reason, etc.)
   - ❑ ____ a. Control patent budget costs
   - ❑ ____ b. Allow licensing personnel to focus on licensing issues
   - ❑ ____ c. Improved service
   - ❑ ____ d. Improved quality
   - ❑ ____ e. Other (describe) _____
     _____

6. How has having an in-house patent management professional changed your patent management practices?

Innovative Collaborations: A Focus on Legal Issues Surrounding Academic Collaborations with For-Profit and Government Entities

Jeffrey A. Bojar, JD, and Jon Kappes, JD

Abstract

In recent years, multiparty collaborations have increased in number and complexity. The purpose of collaboration is technology development and commercialization. Collaborations provide parties access to pooled capital, technology, management, and intellectual property (IP) resources. Pooling these resources and assets provides members of a collaboration a means for expanding their business capabilities and attaining rights not available to either party acting alone. Due to the complexity of the subject and readers' familiarity with certain topics, e.g., Bayh-Dole, this article is not intended to address all issues in a comprehensive manner, but rather to identify high-level legal issues surrounding university collaborations with both private and government entities and can be used by members and their counsel as a starting point when establishing innovative collaborations.

In this article, the first section addresses IP issues that commonly arise in multiparty collaborations. The second section addresses the corporate legal issues in consortia, including antitrust, patent pooling, and issues relating to negotiating and executing consortium agreements.

Intellectual Property Issues Lurking in Collaborations

Inventorship

Unlike most IP rights, inventorship cannot be controlled by contract. Inventorship is explicitly controlled by statute; whoever invents patentable subject matter is entitled to a patent thereon. According to 35 U.S.C. § 116, when an invention is made by two or more persons, they must apply for a patent jointly.[1] Each person claiming to be a joint inventor must contribute

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to the conception of the invention. In the context of multiparty collaborations, it is likely that many individuals qualify as joint inventors.

The legislative history of § 116 provides insight as to why the section has such minimal joint inventorship requirements.[2] Congress last substantially amended § 116 in 1984. In enacting these amendments, Congress was primarily concerned with accommodating the modern paradigm of the research and development team at a corporation, university, or other large organization. Such research teams, particularly in the biomedical industry, are often large in number and develop products that take years to mature. As a consequence, researchers may work on a particular project over a long period of time, sometimes sporadically, and each team member's quantitative contributions to the final invention may vary. With the 1984 amendments, Congress attempted to encourage collaborative research by codifying certain rules existing in the case law.[3]

The rules of joint inventorship increase the interplay between patent counsel and researchers. It is recommended that research projects involve counsel early in the process to evaluate collaborators' roles on a team. Experienced patent counsel may be able to control inventorship and the number of inventions contained in each patent, notwithstanding the rule in § 121 that each patent contain only a single invention. By including additional inventive concepts in a single patent, joint inventors may gain ownership rights to subject matter to which they did not substantially contribute. For those reasons, the right to control the prosecution of patents resulting from collaborative research enterprises is important and highly negotiated.

Ownership

Collaborations define ownership and exploitation rights by contract because the statutory grant of ownership is so broad.[4] Members of a collaboration are in the unusual position of being both a transferor and a transferee of IP. As transferor, a party is interested in transferring to the joint venture only those portions of its IP assets as will allow the joint venture to succeed, but not so much that it loses ultimate control of its IP portfolio or competitive advantage. On the other hand, as a principal to the collaboration, a transferee is interested in seeing that the collaboration pools substantial IP from participants, increasing the venture's chances for commercial success.

Therefore, an intellectual property rights (IPR) agreement should be established at the genesis of a collaboration and, at a minimum, address the key issues of background technology, collaboration-developed technology, and government-funded technology.

Background Technology

For the venture to succeed, it must have access to technology required to pursue its development goals. Owners of such background technology must participate and disclose their property rights in the technology used in the collaboration. In addition, the IPR agreement should consider the possibility that a member might withhold disclosure of certain proprietary information and knowledge, only to extract unreasonable royalties from members of the consortium that have dedicated resources to the development of the resulting technology.

The contribution of IP assets to the collaboration may be in the form of an assignment or a license. However, there are several reasons why an assignment may prove too rigid a form of transfer. First, an assignment may place severe limitations upon an assignor's ability to exploit IP rights in markets or industries other than those of the collaboration. Second, if the collaboration is organized solely for the limited purpose of fulfilling a specific business objective, there may be a finite time in which the IP rights are of use. Third, members may be understandably hesitant to assign their valuable IP rights to a venture that, although heartily sought, is wholly untested. For these and other reasons, a license may prove a more flexible form for transferring IP rights to the consortium.

The value of underlying IP contributed by license will depend on the specificity of the licensor's grant to the joint venture. Several important items to consider when drafting include the license's scope, duration, and exclusivity, which are not addressed in more detail due to the compressed format of this article.

Collaboration-Developed IP

Once there is an agreement as to the respective IP contributions for collaboration members, the negotiations must turn to member rights to collaboration-developed technology. The results of these negotiations vary. In some cases, the royalties from collaboration-developed IP are distributed based

on the quality and quantity of IP initially provided. Other policies are based on which members of the consortium invented the technology. Other agreements provide that all royalties are shared equally by all consortium members. Last, members may be awarded a temporal right of exclusion over other members or industry.

Ownership of collaboration-developed IP is further complicated by the Bayh-Dole Act, which permits universities to exert ownership rights over technology developed using federal funds.[5] These issues will be described further below.

Creation of Art

The Cooperative Research and Technology Enhancement (CREATE) Act of 2004 has made the sharing of information with joint research partners safer for public institutions. The CREATE Act amends § 103(c) of the patent law to allow teams to work together while preventing certain prior knowledge of either party from acting as an obstacle to patentability of future joint inventions. The purpose of the act is to promote cooperative research involving universities, the public sector, and private enterprises.[6]

In practice, there are several considerations to remember to benefit from the act. First, the act limits the prior art exclusion to inventions made as a result of activities undertaken within the scope of a joint research agreement. Because the scope of the joint research agreement will define what inventions of the parties to the agreement can be protected under the CREATE Act, the parties should define the scope carefully. One option is to draft the joint research agreement broadly so that the parties get the broadest scope of benefit from the CREATE Act and so the prior art exclusion can apply to unexpected inventions that might be outside the scope of a narrowly drafted joint research agreement. This is an attractive option for universities that engage in far-ranging research with outside partners since a broad scope can provide blanket protection for such research collaborations. A broader scope also makes it easier to enter into joint research agreements earlier since a specific scope of the collaboration need not be defined. Early entry into joint research agreements is important since an invention can only be protected under the CREATE Act if it was made after the joint research agreement was in effect.

However, a joint research agreement with a broad scope makes protection of the CREATE Act available to a wider range of inventions, protection which may not be to the benefit of other parties to the joint research agreement. For example, a broad range of inventions of one of the parties could be protected from prior art of the other parties if the scope of the joint research agreement is broad. Therefore, parties should carefully consider the scope of the joint research agreement.

Corporate and Antitrust Concerns of Collaborations

Antitrust

When competitive (or potentially competitive) entities cooperate, the question of antitrust is always present. As a result, two federal agencies are charged with identifying and prosecuting antitrust violations: the Antitrust Division of the Department of Justice (DOJ) and the Bureau of Competition of the Federal Trade Commission (FTC). Fortunately, these agencies recognize that collaboration is a vital development tool. However, competitor collaborations also have the potential to harm competition and consumers by increasing the ability or incentive to raise prices or reduce output, quality, service, or innovation below what likely would prevail in the absence of the collaboration. These potentially conflicting outcomes (pro- and anticompetition) are apparent in the structure of relevant antitrust laws that, in many cases, require a balancing test to determine the overall competitive effect of a collaboration agreement.[7]

The primary procompetitive benefit from collaboration is the achievement of increased efficiencies. Collaboration may enable firms to offer goods or services that are cheaper, more valuable to consumers, or brought to market faster than would otherwise be possible. Efficiency gains often stem from combinations of different capabilities and resources.

In the specific case of a public or private research institution, the likelihood for antitrust violations is particularly diminished. Collaborations involving universities and other research institutions are generally classified as research-and-development (R&D) collaborations and would typically be analyzed under the rule of reason.[8] Through the combination of complementary assets, technology, or know-how, R&D collaborations seek to enable participants to more quickly and more efficiently develop new or improved goods, services, or processes. Therefore, the antitrust concerns for

these collaborations are markedly less than in other collaborative arenas. The question that may arise is whether the collaboration agreement acts to reduce the R&D effort that would be exerted in the absence of an agreement. According to the guidelines, "R&D agreements are most likely to raise competitive concerns when the collaboration or its participants already possess a secure source of market power over an existing product and the new R&D efforts might cannibalize their supracompetitive earnings."

Filing under the National Cooperative and Research Production Act

Under traditional antitrust doctrine, a party found liable for antitrust violations is accountable for treble damages to private parties, which has historically created a disincentive to engage in joint ventures. To allay those concerns, the National Cooperative Research Production Act of 1993 (NCRPA) was adopted to limit and clarify antitrust liability for joint research and development ventures.[9] The act states that qualifying agreements will be scrutinized under the rule of reason[10] and limits the possibility of treble damages being assessed to actual damages, plus interest and costs.[11]

To qualify for the NCRPA benefits, parties must fulfill two general requirements: the venture must fall within the statutory definition of a *joint venture* and a party to the venture must timely file a notification statement with the FTC and the DOJ containing the required elements under the statute.

The decision to file under the NCRPA is a strategic one. The benefits provided by the statute—rule-of-reason scrutiny and limitation on damages—are substantial. However, parties considering filing under the NCRPA should weigh the possible disadvantages. First, it alerts the agencies of the activity. Second, it alerts the public or possible competitors of the activity. It is possible that, in some instances, collaborations would prefer to exist under the radar, rather than subject itself to immediate agency inquiry. In other cases, it may be economically detrimental to inform competitors of the venture. In the context of university–industry collaboration, notification would seem preferable.

Finally, the benefits afforded under the act are available only for conduct that is within the scope of the purpose and objectives disclosed. Therefore, the purpose and objectives stated in a joint venture's NCRPA

notification should be as broad as possible. The greater the breadth of the notification, the more protection is afforded. Unfortunately, there has not yet been litigation in which a party has sought to assert the benefits afforded by its NCRPA filing.

Business and Legal Issues Associated with Consortia

The decisions made at the conception of a group joint venture are critical for creating a successful endeavor. There is no one-size-fits-all method to structure or manage a consortium. If a preexisting model is used as a starting point, it is important to adapt it to the needs of the actual parties involved.

Operationally, consortia fall into four general types: (1) small, low-budget; (2) hosted consortia; (3) staffed consortia; and (4) hybrid consortia. The small consortia have low dues and depend on the efforts of member employees. These tend to have less ambitious goals (although not always). An example would be an open source software organization such as Linux. Hosted consortia will have most or all of their supporting services provided by an outside service or a single member. This type of organization generally enables the consortium to achieve its goals in a more deliberate, efficient, and coordinated manner. This structure is potentially well-suited for the university environment, which may have the physical infrastructure and administrative resources required. Staffed consortia operate with a payroll of anywhere from one to dozens of employees dedicated to the venture's endeavors. Hybrid consortia may have an executive director, but typically look to a service entity for administrative, financial, and other needs. The decision of structure will depend on the project goals, member resources, and timeframes. Most consortia are managed by a board of directors comprised of personnel from member companies and institutions.

Once a basic structure has been developed, several operative documents are needed for implementation. These include a certification of incorporation (if incorporating), partnership agreement, bylaws, IP rights policy, technical committee policies and procedures, and membership applications.

The budgets of consortia vary dramatically based on the needs of the organization. The Linux community is successfully operating on a very small budget. However, where goals are primarily commercial and driven by corporate priorities, a budget of some size is necessary. The budget pri-

marily consists of dues paid by members. In a mature consortium, the operating budget can be derived from a specific overall percentage of royalties collected from licensed technology.

The considerations of IPR and antitrust often overlap during the formation phase of consortia. Specific details regarding IPR and antitrust considerations have been laid out in other portions of this paper.

Governing Procedures

A consortium's bylaws are its heart and soul. To a large extent, the bylaws (along with the rules of technical committees) will determine eventual success or failure. They determine whether the organization is easily managed; whether it avoids needless exposure under the antitrust laws; whether its members feel fairly represented and, therefore, renew their memberships; and whether it is sufficiently flexible to evolve and flourish.

For example, a crucial factor for a stable, sustainable organization is its method of representing members on the board of directors. There are a variety of effective formulas (some organizations have changed from one method to another at several points in their evolution). These include economic models (those who pay the highest dues get the board seats) and arbitrary solutions (the first members to join get the seats, while later members stand in line for an opening). Other models place a premium on democratic values or objectivity. For example, a certain number of seats may be allocated to each type of member to ensure that all interest groups are heard from.[12]

Most consortia have different membership categories, each category having different rights. These rights may include voting for or nominating directors; participating in committees; early access to technology or standards; and reduced-price or free access to standards, certification, or other services. In some cases, members must pay higher dues to exercise these rights.[13]

Typically, consortium activities are performed by technical committees, work groups, and special-interest groups, as well as by nontechnical governing bodies, such as business, audit, and executive committees.

Choice of Entity

Although a consortium can be formed as a partnership or under a less formal contractual arrangement, it is often preferable to adopt a corporate structure. A corporate structure provides a variety of advantages including: limitation of liability concerns, ease of entry and exit, ensuring current deductibility of fees, and availability of detailed corporate statutes (as compared to less extensively defined partnership laws) to define the rights and liabilities of the participants, among others. Many consortia elect to operate as tax-exempt trade associations under Section 501(c)(6) of the Internal Revenue Code. A few also qualify as public charities under Section 501(c)(3), which offers more advantages but results in more restrictions at the state and federal level.

Conclusion

As the economy continues to rebound, universities and industry seek innovative ways to invest in and government looks for productive methods of fostering technology research and development. To this end, multiparty collaborations including complex consortia are seeing a resurgence. These consortia pose several sophisticated legal and business issues that should be addressed prospectively to avoid member conflicts and regulatory violations.

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Notes

1. 35 U.S.C. § 116.
2. *See generally* Patent Law Amendments Act of 1984, Pub. L. 98-662, § 104(a), 98 Stat. 3383, 3384 (codified at 35 U.S.C. § 116 (2000)); Comm. Of The Judiciary, 98th Cong., Section-By-Section Analysis of H.R. 6286, Patent Law Amendments Act of 1984, 130 Cong. Rec. 28,069 (1984).

3. Specifically, Congress adopted the joint inventorship definition in *Monsanto Co. v. Kamp*, 269 F. Supp. 818, 824 (D.D.C. 1967) and the "non-all-claims" rule in *SAB Industry AB v. Bendix Corp.*, 199 U.S.P.Q. (BNA) 95, 104 (E.D. Va. 1978).
4. According to 35 U.S.C. § 262, *"In the absence of any agreement to the contrary*, each of the joint owners of a patent may make, use, offer to sell, or sell the patented invention within the United States, or import the patented invention into the United States, without the consent of and without accounting to the other owners" (emphasis added).
5. Bayh-Dole University and Small Business Patent Procedures Act of Dec. 12, 1980, Pub. L. No. 96-517, 94 Stat. 3015-3028 (codified as amended at 35 U.S.C. § § 200-211, 301-307 (1994)).
6. 35 U.S.C.§ 103(c).
7. Principally, the National Cooperative Research Act of 1984 (NCRA) and the National Cooperative Research and Production Act of 1993 (NCRPA) (codified together at 15 U.S.C. §§ 4301-06).
8. *See* 15 U.S.C. §§ 4301-02.
9. Codified at 15 U.S.C. §§ 4301-05.
10. 15 U.S.C. § 4302.
11. 15 U.S.C. § 4303(A).
12. *See generally*; *Forming and Representing High-Technology Consortia: Legal and Strategic Issues*, Andrew Updegrove (1994) available at http://www.consortiuminfo.org/metalibrary/detail.php?EID=421&PID=4.
13. *See Evaluating Whether to Join a Consortium* available at http://www.consortiuminfo.org/evaluating.