Drafting Effective Collaborative Research Agreements and Related Contracts

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ABSTRACT

Best practices in IP (intellectual property) management are built on a foundation of licensing and contracting expertise. A contract defines a bargain that parties enter into, and, as such, defines the relationship and the expectations of the parties. It is therefore critical to carefully draft contracts that clearly, and objectively, indicate the intentions of the parties. Avoid stilted, legalistic jargon when drafting contracts; instead, strive for direct, simple, and accurate language. In written agreements, be sure to include the terms and provisions covering the grant itself, such as payments, dispute resolution, intellectual property emerging from the R&D, IP ownership and confidentiality, and other related legal terms and definitions. However, remember that generic templates do not exist. The relationship and goals of the parties will define how the agreement is structured. The actual document will also vary, depending on whether the parties are public or private sector entities, on whether the license is a collaborative-research agreement or a sponsorship agreement, and on the business and legal culture.

1. INTRODUCTION

Human relationships are the engine of innovation; they drive the creative use and management of intellectual property (IP). Patents, trademarks, and copyrights provide mechanisms through which actors in the private and public sectors can build relationships, coordinate activities, assign responsibility, and allocate the benefits arising from innovation and its distribution. The contract links these actors and the various IP regimes. Contracts, which define in legal terms the form relationships take, mediate the interaction among those with knowledge, skills, and/or resources in order to create something new, improve what already exists, or distribute what has already been created. In this chapter, we first discuss some of the basic tenets of good contract drafting, that is, emphasizing clarity and simplicity and avoiding the slavish use of standard-form contracts, which may contain provisions unsuitable to specific contracting cultures and contexts. Later in the chapter, we discuss sound drafting practices for research contracts and for more complex collaborative research and sponsorship contracts.

Because contracts are about relationships—with all the ambiguities, pitfalls, and excitement of human relationships—contracts are difficult to capture on a dry document composed by lawyers. A written contract can never fully describe a relationship nor the full set of contractual arrangements that embody the relationship. The extent to which judges and arbitrators interpreting a dispute rely on the written document itself—in contrast to the external evidence about the relationship between the parties—varies from jurisdiction to jurisdiction. For example, in common law jurisdictions, contractual interpretation tends to be more contextual, with greater allowance made for external evidence about the broader relationship. The civil law, however, tends to

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focus more on actual contractual wording and the dictates of the *civil code*. However, irrespective of jurisdiction, the written contract is the strongest objective manifestation of the intentions of parties as they enter into a relationship.

Parties can most easily avoid disputes if the contract describes, as fully and simply as possible, the bargain made by the parties. This notion has important consequences for contract document drafting. Long-winded sentences, boilerplate provisions and impossible-to-understand definitions only complicate lives and understanding in a futile attempt to remove doubt concerning, and ambiguity of, complex and evolving relationships. Such lengthy documents are not only unreadable by the actual signatories to the contract but do little to provide guidance to the business people and judges who may eventually have to settle disputes based on those documents.

Instead of thinking about contractual documents as an attempt to pin down every last aspect of a relationship between parties in complex legal jargon, this chapter suggests a different approach, one drawn from the experience of large corporate law firms: explain the provisions of the bargain as simply as possible, in a logical sequence, using plain language. By explaining the bargain in a clear and accessible manner, not only are the chances better that the parties will comply with the essence of the contractual relationship, but also business people and judges will resolve disputes in conformity with the fundamental intentions of the parties.

Undoubtedly there is temptation to use standard form contracts and boilerplate provisions to lower transaction costs and legal fees, but in the end, the use of poorly written or inappropriate contractual provisions may lead to greater costs, rather than save money. That is not to say that every contract need be drafted from scratch; the use of contractual precedents is a judicious use of legal resources. Select precedents that are well written and constructed. Parties to the contract should question the relevance of each provision to the bargain within the appropriate cultural context. When using clauses from standard form contracts, the key question to ask is: do you understand the language and does it accurately describe the arrangements between the parties, given the cultural and legal context?

1.1 *Explaining the bargain: The art of contract drafting*

If one were to read court decisions about contracts, one would soon see that judges struggle not as much to determine what the documents say, as to determine the nature of the relationships underlying the contracts. When judges find this difficult because the contract document is confused and convoluted, they are more likely to misinterpret the original agreement between the parties. Such misinterpretations lead to decisions that run against the allocation of responsibilities and benefits that the parties originally intended, increasing uncertainty and undermining the business rationale for the contract. What judges seek to find in contractual documents are objective indications of what the parties intended to do: Who was to take on what risks? Who was to benefit from the results of the contract? How were the parties to deal with disputes and controversies? Judges want to understand what the parties bargained for so that they can figure out who should do what, when, and where.

A good contractual document is one that sets out the bargain as clearly and simply as possible; a bad document is one that muddles it with too many words, arcane language, and legal mumbo jumbo. The job of a lawyer is to identify the essence of the relationship so that the parties and judges understand exactly what the business deal is about. This involves setting out the contract in a structured way that focuses on the essential elements of the bargain.

The simplest contract is one in which one party promises to deliver something to another in return for something (monetary or otherwise). If a dispute arises, the parties agree to follow a set procedure (such as arbitration or mediation) or to sue in court (litigation).[1] This progression should be defined in the contract (for example, mediation procedures, followed by binding arbitration).

Further, the agreement should clearly explain *how* one party is to deliver something to the other, the heart of what Article 1 should cover. Article

2 should deal with payment: to whom should the payment be made? in what currency? in which form (electronic, bank draft, for example) and when? One could also add a few sentences dealing with late payments: will there be interest charged and, if so, how much? how would a currency crisis (for example, currency cannot be exported out of the country) be dealt with? The third article deals with resolving problems: steps to be taken if the receiving person is unsatisfied with what was delivered, either in terms of quality or quantity; how the parties would resolve the conflict; what the first person should do if he or she is not paid. The parties can agree to litigation or arbitration but may first prefer to set up a mechanism through which they can elevate the problem to senior management who, presumably, want to avoid the costs and embarrassment of going to court or arbitration.

The key to drafting these articles is to keep the essence of the bargain clear and as uncomplicated as possible. Sentences should be short, free of vague adjectives, and be written in the active voice. The vocabulary should be accessible both to business people (with technical knowledge but limited legal knowledge) and judges (with limited technical knowledge but with extensive legal knowledge). Use correct grammar and a simple vocabulary. If the document would get low grades from a secondary school teacher, do not use it. In fact, sometimes legal disputes turn on grammar. One recent commercial dispute in Canada, worth $2 million (Canadian), was resolved on the basis of a rogue comma.[2]

After the parties explain the main provisions of the bargain, the parties will need to define words and phrases used in the contract. The parties should include clauses that take into account the local law that applies to the contract. These clauses can have important implications for the bargain, and so writing them requires expert legal knowledge. Such clauses can deal with what would happen if there were natural disasters or labor strikes, or how much leeway is given with regard to time lines, or how to calculate exchange rates. This information must be relevant to the local area, however, because the detailed legal rules of one place, say California, U.S.A., may be quite different from the detailed legal rules in another place, say Uttar Pradesh, India.

Written contractual documents depend to a large extent on local customs. That is, the contract can be meaningful only within the set of business practices and norms that exist in the place where the contract is to be performed. As practices and norms vary tremendously, so do the contractual documents that serve to reflect contractual relationships. So, for example, contractual documents in the United States tend to be very detailed and long, while a contractual document on a similar topic will be shorter and much less detailed in Germany. Exporting one style of contractual document from one place to another can be risky, since the business people and courts will have difficulty interpreting a document written for a different place with different customs. This is another good reason to avoid a slavish devotion to standard-form contracts and why this chapter does *not* include a sample contract with boilerplate provisions, but instead sets out only the main elements of a contract.

Of course, when the parties are from two different places, say Uttar Pradesh and California, the parties must adopt a more generic style of contractual language that reflects, to the extent possible, the practices in both jurisdictions. This is not principally for legal reasons; the contractual document will be interpreted in accordance with the laws and customs of only one of the jurisdictions. Rather, the effort to reflect both cultures is important to maintaining business relationships, since people from both places must feel comfortable with the contractual document.

Finally, it is helpful to recognize that, while legal systems abound, there are two principal ones that govern most commercial contracts: the common law and the civil law. While some countries use hybrid legal systems (for example, Oman, Puerto Rico, and Indonesia), most contracts dealing with collaborations and research will be subject to one or the other of these two systems. Usually, common law countries are former colonies of the United Kingdom and follow the English legal system, while civil law countries are generally the former colonies of continental European powers.

Common law and civil law systems are usually similar in result, but there are differences in law and in practice that could ambush the unwary. For example, for a common law contract to be enforceable there must be an exchange of something of value, called consideration. Consideration can be in the form of money, return promises, action, or forbearance. On the other hand, civil law does not require consideration. Therefore, a failure to provide consideration (for example, a license with no payment and no obligation of confidentiality) may not be enforceable in the common law. Another difference between the two legal systems is that the civil law imposes background obligations of good faith as well as more limits on what can be the subject of a contract than does the common law. However, these differences are relatively rare. They are unlikely, in most cases, to affect collaborative or research agreements greatly. The bigger difference is one of style: common law contractual documents tend to be longer and more detailed, while civil law contractual documents tend to be short and refer to the civil code for more detail.

1.2 *Contracting to innovate*

Contractual documents that deal with innovation should follow the general rule of contracts: explain the bargain in simple, straightforward sentences. Clarity and simplicity are, once again, the keys to a successful contractual document. If the contract is well drafted, neither the institutions involved nor judges will misunderstand the responsibilities of the parties involved. Following the rule does not, of course, avoid all conflict, but minimizes it and provides business people and courts a framework within which to resolve disputes.

1.2.1 *The license*

Traditionally, a license is a grant of permission for a party to enter onto the physical property of another, that is, an agreement not to hold the party liable for illegal trespass. With respect to intellectual property (IP), a license is a promise not to sue a party for actions that would otherwise constitute infringement. In other words, a license is permission to make use of another's IP under carefully laid out conditions and terms.

There are a variety of contracts, and associated documents, that relate to intellectual property. A basic license is the simplest of these contracts. The first article of a basic license should describe the rights being licensed (patent rights, copyright, trade secret rights, data-use rights, and so on) and the scope of the license (limitations on geography, users, and time). Article 1 should provide sufficient detail so that the business people and judges understand as clearly as possible both the nature and the limitations on what is being licensed. Article 1 should also discuss any ancillary license (for example, a license back or cross-license).

The second article should deal with payment. Is there, for example, an up-front fee? Are there royalty payments and, if so, how long will royalty payments have to be made? How and when should payments be made? The third article will set out the dispute-resolution mechanism: arbitration, courts, and/or some form of mediation.

One should supplement these articles with an explanation of what brought the parties together and what their goals are. The contract also should either acknowledge or reject relevant local laws regarding liability for problems that may arise (those within the parties' control, such as failure to pay, and outside their control, such as flood or fire). The contract should clearly state which country's (or state's) law applies and so on. The parties should take care in setting out definitions and should include these at the end (or in the introduction, if one prefers). The other issues can be dealt with in a concluding article that would include mundane, but essential topics, such as how the parties are to notify one another.

Other forms of contractual documents dealing with intellectual property expand the license agreement and may, in addition to the basic license, include articles dealing with matters such as information exchange, staff, and IP rights (as in a consortium research agreement).

1.3 *Types of contracts*

Just as there are no real limits to the bargains we can make, there is no limit to the type of contracts we can create. As circumstances change, new technologies are introduced, and business people and lawyers try to identify new niches, we

encounter new ways of contracting. The imagination is the only thing that limits what a contract can be about. Therefore, instead of trying to cover all possible forms of contracting with respect to innovation—an impossible task—we will concentrate on a discussion of the main types and leave it to the reader to imagine different scenarios. Since the key is, as always, to be clear and transparent, one can adapt the basic forms of contractual arrangement covered here to other circumstances.

The remainder of the chapter concentrates on two types of contracts: research contracts and collaborative research or sponsorship agreements. The collaborative research and sponsorship agreements are the more complicated and incorporate most of the basic terms of the research contract.

Heeding the warning against using standard-form agreements, the discussions below will concentrate on some of the principal issues that arise in the various types of contract. However, one must adapt the contractual arrangements to the fundamental underlying relationship and not get overly caught up in presenting minutiae.

2. RESEARCH CONTRACTS

A research contract is one in which a researcher seeks to obtain the rights to use some knowledge (be it patented or protected as a trade secret) to advance his or her research project. That is, the rights obtained are an important ingredient in the carrying out of a research project, whether at a public, not-for-profit, or for-profit institution.

A basic outline of a research contract would include the following:

- Article 1: the license
- Article 2: payment terms and process
- Article 3: problem escalation and dispute resolution
- Article 4: intellectual property emerging from research (where applicable)
- Article 5: confidentiality and publication rights
- Article 6: legal terms, such as what to do in case of an "act of God" or other intervention, timing issues, and notification procedures
- Article 7: definitions

The simplest form of research contract would begin, in Article 1, with a holder of intellectual property granting a license (that is, promising not to sue for infringement) to a researcher in order to allow the latter to make use of a certain technology for a defined research use. Generally, however, research contracts are more complex, and the license forms only one part of the broader research contract. The contract may include a promise to provide a sample of the material.

Material transfer agreements are discussed more fully elsewhere,[3] but it is worth noting that these agreements are not only particularly significant for research, but are also often the most problematic of contracts to negotiate. There are real worries about the sharing of research materials and results in a research environment that is increasingly industry funded, competitive, and focused on commercializing research results. These agreements also give rise to significant practical difficulties, such as the time and labor needed to prepare and transfer research materials, and the need to internationally ship biological material.[4]

The research contract may call for a payment (often nominal, to cover expenses) in cash as well as in-kind (for example, a promise not to do or disclose certain things). The contract may also discuss how to resolve disputes over exactly what was licensed (for example, slight variations on the initial technology), payment amounts (how to handle the production of material that was never used), and so on.

That is the basic bargain. With a clearly written contract, one has already avoided most possible conflicts. There remain, however, a few contentious issues that we cover here in more detail. These include publication rights, confidential information, tricky licensing concerns, payment, and rights to the results of the research performed.

2.1 *Publication rights*

It is seldom the case that a technology is solely protected by patents that are available for review by the public, and it is bad business practice to use only patents if other forms of business protection are also available. Therefore, when a party licenses the use of a certain technology, that party

often must provide associated confidential information. To protect the party against the disclosure of this information, he or she often asks for a right to approve any publications. In addition, if the research may result in new information that may affect the technology owner's interests (the research shows that the technology does not work or works better than expected), the technology owner may wish to have time to prepare for this eventuality prior to any public disclosure. This also would lead the owner to seek the right to approve publications.

Given the interests of technology owners to guard against uncontrolled disclosures, these owners may insist that a clause be added to the research contract providing that the researcher may only publish articles after first getting permission from the technology owner or after first giving the technology owner enough time to prepare itself for the publication. Delays of three to six months for the technology owner to review publications to ensure that no confidential information is disclosed are reasonable, provided that the article's author is permitted to submit the article to the journal for a confidential review during this time. As normal peer-review processes usually take at least this much time, it provides little inconvenience to the author.

If the technology owner also has the right to *new* inventions coming out of the research (usually this only happens in a sponsored-research setting, which will be discussed later), then the owner may also reasonably request a publication delay in order to assess the publication for any disclosure that could threaten the patentability of the new invention.

2.2 *Confidential information*

Patents often represent only a part of a technology, for example, an early prototypical embodiment of an invention. The remainder, such as secrets and know-how, are protected under most legal regimes as trade secrets or as confidential information. In addition, the research conducted under a contract may result in the creation of new confidential information. The person who possesses confidential information can only prevent others from disclosing it, for example, to a competitor, if a confidential relationship exists between the person and the party to whom the information was initially disclosed. One of the best ways of ensuring this protection from disclosure is through a contract.

The obligation to maintain confidentiality will often be reciprocal. The technology owner may seek to include a confidential information clause in the research contract to prevent the researcher from disclosing confidential information initially disclosed by the owner. The researcher may wish to insert this type of clause into the contract to protect the results of his or her research effort.

It is important to pay attention to how broadly one defines the term *confidential information*. A narrow definition can be clear, but may leave out important information. A broad definition may, on the other hand, prevent the parties from getting on with their work. Therefore, both parties to the research contract should review the definition carefully and make sure it is clear to them. There are several mechanisms that can increase clarity. First, one can limit confidential information to material that is clearly identified (because it is marked *confidential*) or limit confidential information to clear and discrete categories of information (for example, business plans or customer lists). Caution should be used in accepting an open definition (for example, "Confidential Information includes but is not limited to … ."), especially where there is no requirement that the confidential information be specifically marked as such. In addition, some courts may strike down an overly broad confidentiality provision. This is because they sometimes see these provisions as contrary to public policy, since they limit competition.

Overall, the scope of what is held to be confidential should not be so broad as to prevent publication of research results and the use of research by others. Moreover, since what should be kept confidential will depend on how the information is to be used, no single definition will apply well in all cases.

The contractual provisions dealing with confidential information should make clear to whom the information may be disclosed (for example,

other researchers, including graduate students in the same and other institutions, and so on). Care should be taken to ensure that the obligations would not prevent doctoral students or post-doctoral fellows from publishing theses and making presentations.

The confidentiality provisions should also include a sunset clause that would end the obligation of confidentiality under a variety of circumstances, including situations where the information is made available to the public through no fault of the receiving party and cases where a court requires that the information be disclosed.

Finally, the contract should set out how much care must be taken by the person receiving the information to keep it confidential. For example, must the receiving party lock away the information in a safe, or can he or she leave it filed in office filing cabinets? This is important, since it establishes the level of precaution the receiving party must undertake to protect the information, and how the party ought to address inadvertent disclosures. The agreement should also specify what information the recipient of information is entitled to keep after the expiration of the contract and what must be returned or destroyed.

2.3 *The license*

The researcher's freedom to carry on research using a patented, or otherwise protected, invention is determined by the scope of the license. A license may be narrow and provide only for a defined field of use, such as use in conjunction with certain vectors, or the license may be broad and cover all research. The broader the scope, the more freedom the researcher has to conduct research.

The researcher needs to recognize the counterintuitive fact that receiving a license to an invention does not guarantee that he or she is entitled to use the invention. The researcher may need, for example, regulatory approval, or may need to license other inventions from the same or different providers. It is therefore critically important for the researcher to determine, normally with the assistance of the licensor, how he or she will be able to legally use the invention.

A license can be a nonexclusive license, a sole license, or an exclusive license. A technology owner who grants a nonexclusive license is permitted to grant the same or a similar license to anyone else (however, the owner may not grant someone else a sole or exclusive license). Unlike a nonexclusive license, an exclusive license incorporates two promises. The first is the license itself, that is, a promise not to sue the researcher for patent infringement. The second is a promise by the technology owner to neither use the invention himself or herself nor grant a license to anyone else. Coexclusive licenses, prevent the owner from granting a license outside of an identified group. A sole license is similar to an exclusive license except that the technology owner retains the right to use the invention herself or himself. Normally, the greater the degree of exclusivity requested, the greater the royalty paid by the researcher, since fewer sources of revenue are available to the technology owner. In an academic setting, researchers usually require only nonexclusive licenses. In the private sector, especially where a technology is key to developing a particular application, a research organization may need an exclusive or co-exclusive license that justifies the investments needed to bring the technology to the market. This is often the case if the research organization faces a significant risk or the market for the technology is expected to be small.

Some inventions in the biotechnology field, such as genetic inventions and platform technology, tend to represent upstream inventions: these are inventions that are needed in a large variety of settings and applications. Granting exclusive or sole licenses over all applications (generally referred to as fields of use, in-license agreements) for these types of inventions is not recommended. Indeed, the Organisation for Economic Co-operation and Development (OECD) has recently issued best practice guidelines for licensing genetic inventions that emphasize the general preference for nonexclusive licensing for genetic technologies.[5] However, we can infer that nonexclusive licensing is more broadly preferred, especially for platform technologies. One study indicated that exclusive licensees often fail to actually invest the necessary funds to move a technology forward.[6] This may happen if the licensee lacks funds or loses interest in developing the

technology. Thus, strong exclusive relationships are generally not the best way to advance research or commercialization.

If an exclusive license is necessary, particularly with respect to very early-stage research, it is best to narrowly define fields of exclusive use for the invention so that the technology owner has the flexibility to permit researchers in other fields with different applications the freedom to conduct research. Where an exclusive license is required, the parties should draft the license to include provisions that enable the technology owner to take back the rights granted in certain circumstances. These circumstances might include the failure of the research organization to develop the invention in the manner described in the license agreement, failure to fully exploit all aspects of development for the invention, or failure to sublicense as appropriate. These take-back provisions should address, for example, the loss of the license, the conversion of the exclusive license into a nonexclusive license, or the reduction in scope of the exclusive license.

To preserve the freedom of researchers, in general, to engage in research for humanitarian purposes, licenses should, whenever possible, explicitly recognize the rights of third parties to conduct humanitarian research. This can be accomplished by having one of the parties retain the right to provide licenses to others who plan to carry on such work. The parties may even go so far as to impose an obligation to do so in specifically defined circumstances. When seeking to include this type of provision, a lawyer should be consulted in the relevant country to make sure that the obligation is enforceable, especially in case of bankruptcy.

One important, but occasionally overlooked, element of a license is a description of the organizations and people that are entitled to benefit from the license. Without such a list, the default is that the license will apply only to the licensee. Where the research is being used by researchers at several institutions, or several locations, or by research teams from multiple corporate entities within the same family of companies, the license must be drafted so as to permit all of the researchers to use the technology. To accomplish this, the license should specifically permit the research organization signing the license with the right to allow others to use the invention through a sublicense. On the other hand, the technology owner will often want to ensure that this group does not become too large. Thus, it is in both parties' interests to specifically define the group to which access to the inventions will be provided. In addition, the license should identify all countries where the researcher requires access to the invention.

2.4 *Payment*

In general, those who receive a license for an invention pay a combination of up-front fees and ongoing royalties for the right to use the invention. Where the technology is a research tool and the market for the technology consists primarily of those conducting research, a market price will be charged. In the case of research agreements, however, it is standard practice to either not demand these fees or to set them at a rate that compensates the technology provider for out-of-pocket expenses. There are other cases where a fee will normally not be requested, such as where the license is provided as part of a cross-license arrangement or where the parties wish to contract for the provision of know-how related to research that falls within existing research exemptions. Where payment is required, the amount of the fees depends on many factors, including the scope and nature of the license, the type of invention, and whether the researcher is sponsored by the private or the public sector. In general, care must be taken in establishing up-front fees, especially where these fees may present a barrier to access.

2.5 *Rights to intellectual property created through research*

Research conducted using licensed innovation may itself result in patentable inventions. Some of these inventions may relate to the licensed-in technology. For example, they may constitute a modified or improved form of the original technology, or they may be substantially different. If the research agreement is silent on the ownership of these new inventions, then the researcher or the researcher's employer, or a combination of

the two, would be entitled to hold a patent over it, depending on the IP policy of the particular research institution. This means that the original technology owner would, in the absence of any agreement to the contrary, normally have no IP right to this new invention and, therefore, no right to use the new invention, let alone control access to it. This situation can be changed through an appropriate assignment, through grant-back clauses, or through license provisions in the research contract.

2.5.1 *Ownership*

In the research setting, ownership of intellectual property developed using licensed-in technology should generally remain with the researcher or the researcher's employer. This is especially true where the research takes place at a university or public research center and where public funds are used to conduct research. Thus, reach-through license agreements, in which the original technology owner claims rights to research resulting from the use of licensed inventions, should generally be avoided.

The situation is different for sponsored research where the researcher is essentially hired to conduct research for the original technology owner. In this case, it is appropriate for the researcher to assign IP rights to the technology owner, since the default rule would leave the intellectual property in the researcher's hands. Where there is an assignment, the researcher should ensure that other researchers, graduate students, and postdoctoral fellows working on the project understand this and agree to transfer intellectual property to the original technology owner.

The contract should also set out whether the researcher or the original technology owner has the responsibility to file and maintain patents for the new inventions. Normally, this would fall on the party who ends up with the patent or who holds an exclusive license to the invention.

2.5.2 *License back*

The research contract would not normally include a license back from the researcher to the original technology owner for inventions made during the course of the research. This is because the risk and responsibility for new inventions rests with the researcher, not the original owner. The situation is slightly different with respect to improvements to licensed-in inventions. In this situation, the original technology owner may wish to have access to those improvements both for his or her own sake but also for the sake of his or her other licensees. It may be appropriate for the researcher to license back improvements on a nonexclusive basis to the original technology owner, to the extent that this is necessary for the owner and his or her other licensees to continue using the (improved) invention. A reasonable royalty may be required. The scope of the license back should not be so large as to prevent the researcher from licensing the improvement to other parties.

2.6 *Alternative structures for research relationships*

Researchers will often require access to many inventions to accomplish their work. Indeed, a researcher may be required to purchase many licenses to carry out a particular research project. The need for multiple licenses, referred to as patent stacking, can lead to problems, because the costs, in terms of both time and money, associated with obtaining those licenses to a large number of patents simply is prohibitive. In order to avoid potential problems, license agreements need to ensure that the total royalty burden faced by the researcher is reasonable. This can be accomplished by setting a maximum total royalty burden that the researcher must pay to all licensors. To the extent that the total royalty burden exceeds that amount, the researcher would pay the technology owner a *pro rata* amount of the total royalty burden. The owner may wish, however, to set minimum royalty rates.

Alternatively, licensors and licensees may wish to contemplate creating patent pools, patent clearinghouses, or other open-source means to ensure that researchers at both public and private institutions have access to basic technology. License agreements would then be standardized and ensure access to a variety of inventions at a reasonable cost.

A patent pool is an arrangement in which "*two or more patent owners agree to license certain*

of their patents to one another and/or third parties."[7] Patent pools bring together patent holders in a specific area of innovation, such as a viral genome, to facilitate the efficient use and development of a technology. The patents are *pooled* because the arrangement allows inventors in the pool to use all their patented inventions under favorable licensing terms. The group then shares any benefits that may materialize from this arrangement. The motion picture industry, aeronautics firms, and those developing new DVD technology have all successfully used patent pools to advance their respective technologies.[8]

There are many challenges to setting up a patent pool. For example, patent pools may trigger anti-competition laws.[9] Second, researchers may choose not to join in the patent pool because, even though these pools reduce research transaction costs and spread risk, they also decrease the potential for large profits. Thus, parties need to strike the right balance between research goals and profit motives.[10]

Open source patent systems share the goal of promoting the free dissemination of research between inventors and the public, in contrast to the creation of marketplace monopolies. Open source systems can be directed at end products or research tools used to develop products. There are several functioning examples of open source patent systems. One such initiative is the Public Patent Foundation (PPF). It facilitates the creation of free zones in which patents are pooled and made freely available to other participants.[11] The PPF accomplishes this by granting nonexclusive and royalty-free licenses to participants. Another example is the Biological Innovation of Open Society (BIOS). It involves technologies that have already been granted patent rights. Focusing on research tools rather than on final products, BIOS (like PPF) has established licensing terms to achieve their specific goals.[12] One final example of an open source patent system is the Tropical Disease Initiative (TDI). With this system, inventions are not necessarily subject to patent rights. TDI's aim is to maintain an accessible Web database to facilitate research and development and to make research information readily accessible to researchers.[13]

3. COLLABORATIVE RESEARCH AND SPONSORSHIP AGREEMENTS

While the research contract normally provides a one-way flow of technology from the technology holder to a researcher, more complex arrangements exist. This section considers two of them: the collaborative research agreement and the sponsorship agreement.

A *collaborative research agreement* involves multiple partners, often a mixture of private and public sector actors, working together on a particular research project. The partners each contribute an amount of money, skilled talent, and technology to a central pot that they then harness to conduct research. Usually, the private sector actor either obtains the intellectual property to the resulting research or, more often, a priority right to license that intellectual property. By adding additional players and providing a more-complex ownership scheme for the resulting technology, collaborative research agreements form a more-complex transaction than the one-way flow of technology in the research contract.

A basic collaborative research agreement would include the following

- Article 1: joint obligations to participate in the collaborative research effort
- Article 2: a high-level description of what each party brings to the research project (money, technology, material, skills) with cross-references to articles 3, 4 and 5. The details of each party's contribution may be attached as an appendix to the agreement.
- Article 3: payment terms and process stipulations
- Article 4: licenses from the various parties to use pre-existing technology (including a mechanism to add additional technology)
- Article 5: a list of materials needed to be transferred to conduct the research
- Article 6: provision for who holds intellectual property emerging from the research
- Article 7: licenses to technology emerging from the research (including who has the right to license-out the technology)
- Article 8: allocation of financial returns from the use or license of emerging technology and payment terms

- Article 9: addition and removal of collaborative team members
- Article 10: management structure that will be used to supervise the research and research results
- Article 11: problem escalation and dispute resolution
- Article 12: confidentiality and publication rights
- Article 13: legal terms, such as what to do in case of an "act of God" or other intervention, timing issues, and notification procedures
- Article 14: definitions

A *sponsorship agreement* is a research contract instigated by an actor, usually in the private sector, for the benefit of that actor. In some ways, it is research for hire. However, when the researcher or research organization being hired is in the public sector, the agreement normally also creates knowledge for that organization or the research community in general. As in the collaborative research agreement, the sponsor will normally, in addition to providing a license to original technology, pay for the research and retain certain IP rights in the outcome of that research.

The basic structure of a sponsorship agreement includes the following:

- Article 1: a description of the research to be conducted by the researcher
- Article 2: payment terms and process stipulations
- Article 3: the license to any technology necessary to conduct the research
- Article 4: any materials needed to be transferred to conduct the research
- Article 5: ownership of intellectual property emerging from the research
- Article 6: any license to use technology resulting from the technology
- Article 7: problem escalation and dispute resolution
- Article 8: confidentiality and publication rights
- Article 9: legal terms, such as what to do in case of an "act of God" or other intervention; payment schedules and other timing issues; and notification procedures
- Article 10: definitions

Both collaborative research and sponsorship relationships are complex and so the nature of these relationships will be context dependent. This means that one should avoid the automatic use of standard-form agreements and ensure that the contract is context specific. The more complex the contract, the greater the need for clarity and structure.

3.1 *Confidential information*

The discussion that follows presumes the reader understands the content of the previous discussion with respect to research contracts, and thus only highlights areas of particular importance and adds provisions not required for the ordinary research contract. The reader is thus advised to read carefully the previous section on research contracts before continuing further.

A research sponsorship or collaborative research relationship is designed to build new knowledge and new inventions. While some of these inventions may be patented, others may be held as trade secrets. In the latter case, the agreement should normally establish how to ensure trade secret protection. In virtually all collaborative research or sponsorship agreements, all parties will be obliged to maintain confidentiality, in order to protect both what was brought into the research project and what is to be produced through the research partnership. Unlike standard research contracts, it is highly likely that, with both collaborative research and sponsorship agreements, information will likely flow back and forth between a number of parties, perhaps in different jurisdictions. The agreement must therefore clearly provide for information sharing and for a mechanism to keep track of who has accessed what information and when. Such provisions will not only help maintain control over the information, but make it easier to identify which party is responsible for any security lapses, should they occur. It is also important, in cross-jurisdictional agreements, to ensure that confidential information provisions are enforceable in all relevant jurisdictions.

The parties should carefully describe what should be done at the end of the project with confidential information that is brought into or created through the project. Thus, the agreement should specify whether, at the end of the research, other participants in the research project are entitled to use the confidential information brought into the project by another party. Similarly, the parties must determine who will be entitled to use information created through the research program and for what purposes.

In order to ensure that confidential information can be licensed to others, it is also important for the agreement to stipulate which of the parties is entitled to make decisions about the licensing of the information. In the absence of such a provision, it will be difficult to transfer confidential information developed through the research program to eventual licensees of the technology.

3.2 *License to contributed patented technologies*

Participants in a research project will likely bring with them not only confidential information, but patented technology for use in the course of the research. Given the evolving nature of complex research projects, the parties are unlikely, at the beginning of the project, to know exactly which technology they will each need to contribute. To handle this problem, the agreement should list the technology and associated patents that need to be included in the project. The parties should establish a mechanism through which additional technology (and associated patents) can be added, for example, a committee that formally approves the addition of new items to the technology and patent list. By establishing such a mechanism, the contract provides transparency to the participants and yet includes flexibility to adjust to new developments.

3.2.1 *License scope and nature*

Unlike a standard research contract, which licenses technology to one party, in the collaborative research agreement and occasionally in the sponsored research agreement, the license will need to extend to all research participants at all institutions. Therefore, the agreement needs to describe the set of persons who are entitled to use the technology, as well as set out a mechanism to add additional researchers and institutions who may later join the project.

Normally, material or information contributed through a sponsorship or collaborative research agreement will be licensed on a nonexclusive basis to those carrying out the research. It is good practice to include these provisions even in countries where a formal research exception exists, given both ambiguities in the law and differences between the legal rules in different countries. The parties should ensure that the scope of the license is sufficiently broad as to accommodate changes in research direction.

Where there are multiple parties to an agreement, the contract should provide a mechanism through which participants can withdraw. This is particularly important for bankruptcy issues that otherwise could plague ongoing research. Such a mechanism can also address any changes in status of one of the participating institutions (for example, a subsidiary company merging with its parent company). These agreements should normally state that the remaining parties are entitled to continue using material or information and should also stipulate the process for adding new parties to the collaboration, subject to national bankruptcy and competition laws as well as other contractual obligations.

Once again, one must recognize that a license by itself does not guarantee that the licensee or other parties named in the agreement can actually use the invention.

3.2.2 *Payment*

As licenses granted to researchers actively contribute to the research effort, they are usually provided either free of charge or at a reasonable rate.

3.3 *Rights to intellectual property created through research*

One of the most important goals of the sponsorship or collaborative research arrangement is to develop a new technology that can be commercialized. Because of this, some of the key IP provisions in these agreements relate to the

intellectual property produced through the research, rather than to existing inventions.

3.3.1 *IP rights associated with the sponsorship agreement*

If a sponsor wishes to alter the default legal provision that the researcher or employer retains IP rights to research results, the agreement ought to clearly specify the respective ownership stake of each of the parties in inventions resulting from the research. The sponsor and researching organization ought also to specify which of them has the power to make decisions about the licensing of these inventions. This need not be the same as the ownership entitlements, although it frequently is. The parties should also specify which of them has the responsibility to file and maintain patents, with respect to the inventions. In normal cases, the sponsor holds the IP rights and the obligation to maintain patents.

3.3.2 *IP rights associated with the collaborative research agreement*

The ownership of intellectual property that results from a research collaboration can be difficult to determine. Often the institutions have different sets of rules governing the ownership of intellectual property. Some institutions may leave intellectual property in the hands of their researchers and students, while others will claim ownership to the intellectual property. In reality the issue of ownership is more complicated, since ownership rules often depend on who funds the research (that is, the government, a philanthropic foundation, or the private sector). Furthermore, on a practical level, it may be difficult to assess which party has the greater claim to inventions made during the course of the research.

In the above circumstances, the parties would be well advised to specifically address the question of which of them will obtain ownership of patents and other IP rights. If the parties fail to address this issue, they risk blocking further development and use of research results arising from the collaboration. Ownership may also be particularly important with respect to avoiding seizure by others, as in the case of bankruptcy. The parties ought also to specify which of them has the responsibility to file and maintain patents over those inventions.

A related issue is which party or parties will have the power to make decisions about the future use of intellectual property, including decisions concerning licensing out technology developed during the course of the research program. What is important here is not actual ownership, but which party has control over the use and further licensing of those inventions.

In general, no matter which party or parties own the technology and associated intellectual property, all of the parties ought to have the right to use the developed technology on a nonexclusive basis for internal use and the use of their subsidiaries. There may, however, be cases where such an arrangement is not practical or effective (for example, when the parties do not plan to work on the technology after the research project and prefer to license it exclusively to a third party).

The power of a party with the right to grant licenses to others should not be unconstrained. For example, the collaboration agreement should normally provide that licenses over research tools or platform technology developed through collaboration should be nonexclusively licensed. If that is impossible, and the collaboration agreement provides that resulting technology can be licensed exclusively, there should be limits. An exclusive license should preserve the right of all collaborating researchers, and preferably all researchers anywhere, to continue conducting research on the technology and using it in a teaching environment. Second, any exclusive license should ensure that further development and use of the technology is not blocked. This can be accomplished through the use of provisions that enable the collaboration to nullify licenses in certain well-defined circumstances (for example, the failure of the future license holder to develop the technology in the manner described in the license agreement, to fully exploit all aspects of development for the technology, or to sublicense as appropriate). The nullification provision can take the form of a loss of the license, the conversion of the exclusive license into a nonexclusive license, and the reduction in scope of the exclusive license.

Just as the issues of technology *ownership* should be separated from *control* of the technology, so should the issue of ownership be separated from that of *revenue allocation*. What is critical is that the agreement clearly states how licensing and other revenue is to be divided among the collaborators.

4. CONCLUSION

The best contractual document is one that, once signed, is never looked at again. This can be the case when the parties have so well described their relationship that it is obvious who is to do what and who bears the risks. In the unfortunate and rare situation where a dispute arises, a clearly drafted contract is essential for assisting both the business people administering the contract and the judges that may be called upon to interpret it to find an appropriate and fair solution.

The basic elements of a bargain between parties, whether with regard to a simple research contract or to more complex sponsored research or collaborative research agreements, determine the structure, language, and length of a contractual document. The goal of the contract drafter is to capture the main components, laying them out in order of importance to the overall relationship between the parties. While legal detail cannot be ignored, it should take second place to clear drafting practices. ■

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3 See, also in this *Handbook*, chapter 7.3 by A Bennett, WD Streitz and FA Gacel.

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