Dealmaking and Marketing Technology to Product-Development Partners

A licensing agreement establishes, in written form, the rules of an ongoing relationship, the success of which will depend on many factors. Mutual trust is one of the factors. Another is the development of a certain dependence based on the value that is being transferred between the parties. As Mahoney explains, one party may have a product that can potentially have a very large market, while the other party has research, manufacturing, or distribution capabilities essential to reaching that market. The key to successful negotiation is having a clear understanding of the value each party brings to the relationship. But value is multifaceted. There is an objective value, represented by, for example, how many units can be sold at a certain price yielding a certain level of profit. There are also qualitative values, for example, the additional value assumed to exist when one company feels that a particular product, owned by a second company, would enhance or complete a particular product line.

Perhaps the most important element in a negotiation is to be clear—internally and in discussions with the negotiating partner—about the benefits that will or could be realized through a license agreement. Only with a clear understanding of the transfer of value can both parties intelligently and fairly negotiate an agreement. Mahoney discusses this along with numerous suggestions for successful licensing negotiations, including the following:

- In general, the public sector organization should consider offering the first draft of a licensing agreement (the draft needs to cover a number of topics of particular concern to public sector organizations that would probably not be addressed by a company).
- The use of a term sheet that lists the major issues expected to arise in the negotiations should be shared ahead of time indicating the outcome that the proposing party hopes to achieve. Such a sheet could also include the needs and wants (in other words, the must-have terms and the desired ones) of each party.

Furthermore, says Mahoney, negotiating such agreements requires talent, expertise, and sound tactics that cover the following areas:

- **business strategy.** The business strategist is usually the lead negotiator with considerable experience in structuring business relationships, assembling the inputs of other experts, and maximizing the benefits to all parties.
- **marketing.** Market analysis is essential to negotiating a good agreement. Failure to carry out such an analysis is dangerous because it can lead either to overestimation or underestimation of the market potential, which, in turn, can lead to a suboptimal agreement or rejection of an agreement that could have been successful.


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• **legal inputs.** A lawyer should be retained at least to review agreements and, more appropriately, to be part of the negotiating team and possess intellectual property (IP) expertise and valuation skills, understand knowledge of freedom to operate issues, and be able to access country-specific legal advice.

• **scientific and regulatory.** A negotiating team must have scientific expertise and detailed knowledge about regulatory issues, product safety, and related matters.

• **production.** Staff members who can contribute their knowledge about required production equipment and good manufacturing processes as well as their understanding of time lines, cost implications of various manufacturing processes, and so forth should be involved in the licensing negotiation.

• **finance.** A careful financial assessment of the project is essential, even before negotiations. The assessment often can help the business strategist determine options for approaching a deal, to decide which new funds will be required to launch and sustain the project, and so forth.

In addition, Mahoney illustrates specific best practices for public sector entities to meet public sector goals. These are summarized in Table 1 and serve as guidelines for public sector organizations striving to widen and improve access to innovation through various licensing strategies. Price is probably the most difficult area for a licensor to get involved in.

Up to this point we have dealt with the overall strategies and best practices used to meet public sector goals. The chapter by Mongeon provides a broad overview of marketing tactics as a way of understanding what buyers need and how to meet those needs. In essence, he invites the reader to think of marketing not as simply a way to push technologies into the market rather than a way of allowing the needs of buyers to pull them in. Indeed, marketing is not merely advertising or selling. Rather, marketing is a multistage process: first, the essential characteristics or benefits of a technology must be quantified; next, people who would find these characteristics or benefits desirable and therefore be willing to pay for them must be identified; and finally, the benefits of the technology must be communicated clearly and compellingly to those potential users. Mongeon offers five basic marketing questions that would-be licensors will need to address:

1. *Who* will buy the technology? Will the purchasers be producers or consumers?
2. *What* does the buyer of the technology want? What characteristics, qualities, or capabilities of the technology are valuable to the buyer, and how valuable are they?
3. *Why* would a party choose to license or purchase a technology? What is particularly compelling about it?
4. *Where* are potential users of the technology located? In which markets? Through which channels can they be reached?
5. *When* can you sell the technology to buyers? Is the technology so new that the market is not yet receptive to it?

The answers to these questions should guide a marketing plan and be supported through market research. Such research may even reveal that a technology can be used in a completely new and unexpected way in a previously unanticipated market. Perhaps the most important advice this chapter has to offer scientists and technology managers is that the “unique selling proposition” of a technology—that is, the features, advantages, or benefits that it offers the user—is rarely the science behind the technology. Good marketing makes a technology understandable and attractive to buyers, then allows their demand to draw the technology into the market.

But how does one “find” potential licensees? And how should one approach them? Marketing workshops tend to suggest a haphazard mix of different tools and strategies that may or may not work. For these reasons, MacWright and Ritter offer a detailed and systematic approach to technology marketing (which is different from product marketing). The chapter contains many models for establishing contacts and prioritizing these according to specific criteria, as well as numerous worksheets that will help plan for different marketing approaches.
### Table 1: Illustrations of Best Practices for Licensing to Meet Public Sector Goals

<table>
<thead>
<tr>
<th>Topic</th>
<th>Basic Concept</th>
<th>Public sector consideration</th>
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<tbody>
<tr>
<td>Areas of use</td>
<td>Specifies limitations on the application of the patent in developing products; simplest approach: grant an exclusive right to all applications, including not only those specified in the patent, but others that may emerge as further research and development proceeds.</td>
<td>The clause could grant an exclusive license only for those products that the licensor actually wishes to pursue. Also, the clause could grant an exclusive license only for those products that were unlikely to have a significant market among the poor in developing countries.</td>
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<tr>
<td>Territory</td>
<td>Specifies the geographic areas in which the licensee has the right to exercise a patent; simplest approach: grant a worldwide exclusive license. (A license is valid only in the countries where a patent has been issued, but rights can be granted, at licensee’s expense, to file for patent protection in additional countries.)</td>
<td>The clause could grant an exclusive right to a set of developed countries and another exclusive license to other developed countries. Both licensees, and perhaps a third one, could receive nonexclusive licenses for an agreed list of developing countries. Then the two (or more) licensees would have to compete for sales to developing countries.</td>
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| Price               | In most licensing agreements, there will be no conditions with respect to price. The licensor assumes that the licensee will determine the best price to ensure the greatest return on investment. | - The price could be specified. This is feasible when the licensor has detailed technical knowledge of the production, marketing, and distribution costs.  
- The price could be set as cost plus (cost of production plus a reasonable markup, say 15%). This is feasible when the licensor has a reasonable expectation of being able to monitor the cost of production.  
- The price could be set at “no higher than the lowest price offered to any private sector buyer.” This may be preferred when there are large bulk purchases by private sector buyers who are good at negotiating the very best price. |
| Labeling            | In most licensing agreements, there will be no conditions about labeling. The licensor assumes that the licensee will prepare labeling in conformity with national drug regulatory agency requirements. | The licensor can help ensure that the product is licensed properly, especially in developing countries in which national regulatory agency requirements for labeling may not be rigorous nor enforced. |
| White knight condition | This concept has been developed by the U.S. National Institutes of Health. It calls for the licensee to undertake some specific actions that will benefit the public sector. | This could include a donation of products for clinical evaluation in public sector research programs, joint efforts to develop markets, free supply under specified conditions to developing countries, and so on. |
| Royalties           | Usually a licensee will negotiate the highest royalty in order to maximize revenue from the license. | The licensor can specify that royalties apply to sales only in developed countries and zero royalties in developing countries. The impact for the licensor would normally be minimal. |

Source: Modified from Mahoney"
In essence, the marketing approach comprises four basic steps:

1. Collect information about the invention from the inventors.
2. Collect information from potential clients.
3. Review and prioritize your prospective client list.
4. Make contact with potential clients.

It is relatively easy to sell a finished product, such as shoes, and more difficult to sell a technology to make better shoes. It is even more difficult to sell (or license) the intellectual property for making better shoes, especially if the intellectual property has not yet been proven in a productive process. For this reason, university technology managers in particular often find it difficult to license individual patents. Burdon thus argues that universities could gain a lot by pursuing a portfolio approach, or rather, an integrated intellectual property management (IPM) approach that blends sophisticated IP data search-and-analysis techniques with continuous product improvement.

At the highest level, an integrated IPM approach is differentiated into strategic and tactical decision-making. Strategic decision-making is a broad analysis; tactical decision-making analyzes specific products or technologies in a known competitive landscape. Each approach to managing IP portfolios requires different types of tools, searches, and analyses, ranging from very broad technology scans to very specific patent infringement or validity searches. Importantly, attention should be paid to how data analysis can be integrated with a product innovation process, how to identify new opportunities or resolve old problems (that may also lead to the amendment of patent applications). Perhaps the most important reason for an IPM approach is that it enhances understanding of the processes in which licensees are engaged and how a licensed technology would support their endeavors, thus reinforcing Mahoney’s earlier points on the importance of integrating business strategy, marketing, scientific and regulatory expertise, and so forth.

Unfortunately, inventions by universities are generally not developed in response to market needs, which presents challenges for technology transfer offices (TTOs). Keiller addresses this challenge and stresses the importance of having a clear sense of the IP goals and IP strengths of one’s own institution. An IP audit is a useful way to improve an institution’s marketing prowess, because it identifies and classifies an institution’s intellectual property, whether it is owned, licensed, or simply possessed. Unless the technologies, their IP status, and their respective levels of development are known, at least to some extent, it will be difficult to persuade others to pursue a license deal. Keiller describes a range of marketing approaches and shares persuasion techniques. In short, marketing packages should be tailored to accommodate customers’ needs, the benefits of the invention should be emphasized, effective time management must be adopted, and above all, contacts must be followed up on.

It is important with any IP management activity to be clear about the context in which it occurs. For example, dealing with a small company will require a fundamentally different approach than would be taken with a large one. Dealing with an agricultural company will require a different approach than would be taken with a pharmaceutical company. Neagley describes in-licensing strategies (and typical terms) as they apply to small agri-biotechnology companies that typically depend on strong IP portfolios. IP portfolios are the foundation for their R&D, encouraging outside investment and making product commercialization possible. In-licensing is especially important as it allows a company to obtain IP rights without having to invest in research.

Neagley discusses the entire range of provisions in a typical license agreement, including:

- exclusive versus nonexclusive
- enabling technologies versus traits versus plant materials
- rights granted to the licensee (covering such topics as sole licenses, coexclusive licenses and territoriality)
- compensation due to the licensor
- liability, diligence terms, and milestones,
- the licensee’s responsibilities vis-à-vis the patent
- license term and termination
- issues of assignability
Importantly, compensation may be a combination of fixed fees, which can be paid up-front and/or periodically, and earned royalty fees. Both the level and timing of compensation are important to the company with respect to its planning and budget. In determining what compensation it is willing to pay, the company will need to estimate the potential value of the licensed technology and assess the potential value of any commercialized products that might be developed under the license. But compensation may also take nonmonetary forms: stock in the licensee company, an exchange of license grants, a cross-license arrangement, or a grant-back to the licensor (grant-back is compensation that involves the licensee granting the licensor rights to future inventions made by the licensee using rights received from the licensor).

Dunn, Lund, and Barbour share the approaches of a multinational agri-biotech company with emphasis on market and policy factors that influence and constrain agricultural companies regarding how to market technologies to them, and on what these companies look for in terms of license agreements.

Early-stage agricultural technologies, whether they are genetically modified technologies or conventional ones, can be risky because they may not have commercial applications or they may fail to receive regulatory approval in the necessary markets. Gaining regulatory approval can be a slow and costly process. In addition, a low marginal revenue is made on agricultural inputs, and there are only a handful of crop species with sufficient acreage to generate the necessary returns to warrant significant investments in regulatory clearances. For these reasons, a few large corporations develop most transgenic technology; only they have the necessary capital and can assume the high risks involved.

For a university to market its technology successfully to a large company, it is useful to have good contacts inside the company, someone who is willing to accept the risk and “sell” the deals internally. Indeed, the value of networking cannot be overstated. For any company, though, the value of a new technological opportunity is determined by the risk involved, the additional investments required to develop the technology (and the corresponding opportunity costs), and the type of technology in question.

These concepts are further explored by Edwards who surveyed deals made by biotechnology and pharmaceutical companies during the last ten or so years and analyzed the types of alliances and their terms. The four characteristics of an alliance that generally defines the allocation of value of a technology between an originator and a commercial partner are:

- the stage of development of the technology
- the role retained by the licensor in product supply or other ongoing activities
- the size of the market opportunity
- the scope of the market granted to the development partner

Because biotechnology companies have become highly specialized, it is no longer necessary, or even possible, for any one company to be involved in every stage of the R&D process. Up to half of the product candidates in pharmaceutical companies’ R&D pipelines originate from elsewhere, and 60 to 80 percent of the leading therapeutics on the market were developed or distributed through some form of alliance.

Edwards shows that universities and research institutes are a significant source of early-stage technology, drug leads, and, occasionally, more mature technologies. A biotechnology company with the appropriate business model is most likely to find early-stage technologies and drug leads attractive. Once smaller biotechnology companies have developed technologies and drugs, they will probably need to enter into alliances with larger pharmaceutical companies in order to conduct clinical trials on, commercialize, and then market these products. A university developing a more mature technology might ally itself directly with larger pharmaceutical companies. Empirical evidence shows that the more mature the technology is when an alliance agreement is assigned, the more profitable that technology is for the technology provider.

Edwards goes on to discuss some of the fundamental terms found in biotechnology alliance agreements such as fixed fees, reimbursement of expenses, development milestones, equity investments, and royalties, as well as the terms for other,
more specialized, types of postcommercialization payments. No matter whether a university wants to join a commercialization alliance itself or license an innovation to a biotechnology company that is allied to other companies, it is essential for university TTOs to understand and influence the terms of the alliance agreements in order to protect the value of their intellectual property.

Finally, Shotwell integrates the ideas of this section in a discussion of a core theme of the *Handbook: how public sector and nonprofit efforts can utilize intellectual property to achieve their goals in serving society.* To illustrate this important point, the chapter focuses on product development partnerships (PDPs) and their innovative IP strategies. PDPs, in essence, facilitate and accelerate the flow of public and philanthropic investment through the innovation pipeline, to a far greater extent than has been typical of universities alone.

With a two-pronged approach of product specialization and taking advantage of the efficiencies of the larger marketplace for technologies, PDPs strategically mobilize intellectual property. Investments are made in a new product technology to advance it through the stages of development. This happens within the overall marketplace through the selective targeting of projects based upon their risk–reward profile. Using this approach, the measure of “reward” is not returns to the organization, but rather the potential impact on social welfare that the new drug or vaccine might have.

There are certain similarities between PDPs and biotechnology companies. Both occupy a similar niche in the innovation pipeline. Both share many IP goals. Both seek to maintain an appropriate mix of access and exclusivity to innovations, in order to have sufficient freedom to operate and sufficient bargaining power to implement the overall strategy of their organizations. There are also similarities between the IP strategies of PDPs and public research institutions. Both PDPs and public research institutions use intellectual property to entice or leverage private investment, enhance access to other intellectual property, build partnerships, and cultivate political goodwill to advance their missions.

Just as there are several business models used by the biotechnology industry, so there are several business models used by PDPs. The business model that a PDP chooses will depend on the technologies it deals with, the stage of development of the technologies, and the nature of the market. One factor that determines which kind of business model a PDP or any other entity will adopt will depend on whether or not the product being developed is potentially profitable and can therefore attract the interest of for-profit companies. Sound IP strategies and product development partnering also will uncover opportunities to use new technologies to benefit those who are traditionally excluded from markets. ■
Given that IP management is heavily context specific, these Key Implications and Best Practices are intended as starting points to be adapted to specific needs and circumstances.

**FOR GOVERNMENT POLICYMAKERS**

- **Technology marketing** is a process by which owners of a technology create relationships, between themselves and potential users that will enable the technology to be developed and made widely available, through commercialization, alliances or other methods.

- Policies that **encourage alliance building between the public and private sector** have been particularly successful in bringing innovation to market.

- **Product development partnerships** (PDPs) facilitate and accelerate the flow of public and philanthropic investment through the innovation pipeline. The ultimate measure of success is not maximum profit but maximum social benefit.

- In addition to the IP legislative and capacity framework, other **determinants of innovation need to be addressed** by governments to ensure a vibrant and innovative technology industry. In agricultural biotechnology in particular, many current **regulatory approaches and frameworks** significantly increase regulatory costs, causing years and years of delays. The result often is that only multinational companies can afford to introduce new technologies, thus stifling national innovation significantly.

- Negotiating between public and private sectors ought not be confrontational and should be seen as an opportunity to forge a long-lasting and mutually beneficial relationship. Put differently, **negotiating a fair licensing agreement** should not be seen just as a process of “bargaining” toward a win-win outcome.

- For the private sector party, a well-tested and successful approach to negotiating an agreement is to **offer initial terms that the public sector organization would be willing to agree to** if it were on the other side of the negotiating table.

- **Negotiation and technology marketing skills** are fundamental for successful licensing and technology transfer. People working in the public sector need to be well qualified and have strong negotiating skills, thereby enabling institutions to take advantage of their own R&D efforts and to realize broad public sector and commercial goals.

- Policies and legislation that are beneficial to **small biotechnology companies and startups**, in general, can be instrumental in accelerating the pace of innovation in a country, particularly when it comes to commercializing public sector-generated inventions.
Given that IP management is heavily context specific, these Key Implications and Best Practices are intended as starting points to be adapted to specific needs and circumstances.

**FOR SENIOR MANAGEMENT**

(UNIVERSITY PRESIDENT, R&D MANAGER, ETC.)

- For private sector companies, the ultimate purpose of IP management is to **enhance competitiveness and reduce risk**. For public sector institutions, the ultimate purpose of IP management is to **serve the greater public interest**. These are not mutually exclusive goals, and they can be reconciled through sound technology marketing and licensing practices.

- The **four characteristics of an alliance** that generally define the allocation of value between an originator and a commercial partner are (1) its stage of development, (2) the role retained by the licensor in product supply or other ongoing activities, (3) the size of the market opportunity, and (4) the scope of the market granted to the development partner under the alliance agreement.

- The key to successful negotiation is having a clear understanding of the value each party brings to a relationship. **Value may be objective and quantitative, or of a more qualitative nature.**

- Perhaps the **most important element in a negotiation** is clear communication—also internally—with the negotiating partner about the benefits that will or could be obtained through a license agreement.

- In general, the **public sector organization should consider offering the first draft of an agreement** to cover a number of topics of particular concern to public sector organizations that would probably not be addressed by a company.

- Negotiating between public and private sectors ought **not be confrontational** and should be seen as an opportunity to forge a long-lasting and mutually beneficial relationship. Put differently, negotiating a fair licensing agreement should not be seen just as a process of “bargaining” toward a win-win outcome.

- For the private sector party, a well-tested and successful approach to negotiating an agreement is to **offer initial terms that the public sector organization would be willing to agree to** if it were on the other side of the negotiating table.

- Specific **best practices and terms that allow public sector entities** to meet public sector goals (ensuring broad access to innovation) include area of use, territory, price, labeling, white-knight conditions, and royalties.

- Senior management can **set a positive tone for negotiation** that will ensure that deals made with others are a vehicle for building strong relations and trust between parties.

- **Integrated IP management** (IPM) considers the critical role of IP management throughout the entire innovation life cycle. IPM allows managers to intervene, change course, amend or enhance patent applications, and in-license useful patents or technologies.

- **Networking** is important, if not essential, for successful technology marketing. Technology transfer officers and scientists particularly should be encouraged to network.
Given that IP management is heavily context specific, these Key Implications and Best Practices are intended as starting points to be adapted to specific needs and circumstances.

**FOR SCIENTISTS**

- The **“unique selling proposition” of your technology**—in other words, the features, advantages, or benefits it offers—is probably not the science behind the technology. The science behind an invention is usually not its selling point.

- **Technology marketing** is a process by which owners of a technology create relationships, between themselves and potential users, that will enable the technology to be developed and made widely available, through commercialization or other methods.

- Negotiating between public and private sectors ought **not be confrontational** and should be seen as an opportunity to forge a long-lasting and mutually beneficial relationship. Put differently, **negotiating a fair licensing agreement** should not be seen just as a process of “bargaining” toward a win-win outcome.

- You should **think about the practical applications of your inventions**. Or dream about them! And share your ideas about what applications you think your invention might have. Good marketing makes a technology understandable and attractive to buyers.

- As much as your science may be interesting and fascinating, when you speak to potential licensees or investors, it is often best not to place emphasis on the science. Rather, in extremely simple language, **stress the potential applications** of your invention.

- Remember to keep an eye on newly **published patents** and patent applications. They can help inform R&D decisions and keep you abreast of the latest technical developments in your field.

- **Collaborations create contacts. Contacts build networks. Networks provide opportunities.**

- **Your contacts and network** can help your technology transfer office’s marketing efforts. For example, private sector colleagues may facilitate licensing deals with their organizations.
FOR TECHNOLOGY TRANSFER OFFICERS

✓ One of your responsibilities will be to bring together individuals with different backgrounds and experiences before negotiating agreements. Ideally, a team should include business strategy, marketing, legal, scientific, regulatory, production, and finance expertise.

✓ Marketing inventions should not simply be a push of technologies; rather, it should be an approach that allows the needs of buyers to pull inventions.

✓ Marketing is not merely advertising or selling but a multistage process that addresses the who, what, why, when and where of an invention.

✓ Marketing inventions should use a systematic approach (which is fundamentally different from product marketing). Particularly useful are portfolio approaches to marketing (also called integrated intellectual property management which blends sophisticated IP data search-and-analysis techniques with continuous product improvement).

✓ Public sector institutions should pay particular attention to the following terms or aspects of a license when negotiating with companies: exclusive versus nonexclusive; enabling technologies versus traits versus plant materials; rights granted to the licensee (covering topics such as sole licenses, coexclusive licenses, territoriality, duration, field of use, and retained rights issues, as well as options or rights of first refusal, and favored-nation clauses); grant-back clauses; compensation due to the licensor; liability, diligence terms, and milestones; licensee’s responsibilities vis-à-vis the patent; license term and termination; and issues of assignability.

✓ Some people believe that licensors should stay away from conditions on final product price because of its complexity; this is one reason why the public sector needs to develop its skills.

✓ You can help ensure that a licensee will fulfill the terms of the agreement if you require milestone payments or certain reporting conditions when milestones are reached, minimum annual royalties, or research funding-level commitments. It is particularly important to ensure diligence for exclusive licenses.

✓ There are three key ways that a license grant, either nonexclusive or exclusive, can be limited or defined: territorial limitations, field-of-use limitations, and limits on duration.

✓ Conduct comprehensive IP audits to determine where your IP assets are, when IP protection is needed, whether there are potential IP liability issues, whether there are licensing needs or opportunities, and whether there are inventions to be harvested.

✓ The key implications and best practices listed for senior management are also pertinent for TTO officers.

Given that IP management is heavily context specific, these Key Implications and Best Practices are intended as starting points to be adapted to specific needs and circumstances.