Evaluation and Valuation of Technologies

Oftentimes, the first question that arises with an invention is whether or not it should be patented. When devising a patent strategy, three questions should be considered:

- Should a patent application be filed or should the invention simply be published?
- Should the invention be marketed to existing companies or be used to develop a spinout company?
- What is the potential value of the invention?

Should a patent application be filed or should the invention simply be published? The answer depends on a number of factors: the needs (and dynamism) of the market, the uniqueness and usefulness of the invention, the likelihood that patent protection can be obtained, the specific mission of an institution, and the "attitude" of the inventor, that is, whether he or she is inclined to assist the technology transfer office (TTO).

This latter point merits discussion. For practical purposes, an invention can be defined according to patent statute: it must be novel, contain an inventive step (be nonobvious), and be useful or have industrial applicability. But often an invention is many years away from "working" in the real world. In other words, an invention is not an innovation until the new knowledge and invention are introduced into and utilized in an economic or social environment. **Determining how to translate an invention into an innovation that makes a difference in people's lives** (economically or socially or both) **is one of the principal reasons for which technology transfer offices exist.**

Should the invention be marketed to existing companies or be used to develop a spinout company? Each approach has advantages and disadvantages. An existing company usually has an established infrastructure, as well as access to financial instruments and distribution networks. Its financial health can be readily assessed. However, connecting with existing companies might be challenging, partly because they already have research agendas, networks, and priorities. The biggest risk with an established company is that it will lose interest in the technology before anything develops. Spinout companies, on the other hand, are focused on their own inventions, but because the companies are nascent, they are also fragile.

According to Nelsen,[1] who has led the M.I.T.'s Licensing Office for the past 20 years, a number of other factors should also be considered when deciding whether or not patenting a new invention is in the public interest. For example:

- Is the technology self-evidently useful as-is? Will it be widely used even if it is not patented but instead released into the public domain?
- Can the patent-holding institution devise a nonexclusive licensing strategy that will bring in revenue without restricting the availability of the technology?

Krattiger A, RT Mahoney, L Nelsen, JA Thomson, AB Bennett, K Satyanarayana, GD Graff, C Fernandez and SP Kowalski. 2007. 9: Evaluation and Valuation of Technologies. In *Executive Guide to Intellectual Property Management in Health and Agricultural Innovation: A Handbook of Best Practices* (Krattiger A, RT Mahoney, L Nelsen et al.). MIHR (Oxford, UK), PIPRA (Davis, USA), Oswaldo Cruz Foundation (Fiocruz, Rio de Janeiro, Brazil), and *bio*Developments-International Institute (Ithaca, USA). Available online at www.ipHandbook.org.

- If the technology will not be useful without substantial high-risk investment, then it will have to be patented and exclusively licensed in a developed country in order to bring in the adequate revenue. However, if this path is taken, then an additional question must be asked: should patents be pursued in developing countries in order to encourage companies to produce competing (lower-cost) generics in those countries?
- Can the patent holder require the licensee to sublicense in order to promote low-cost manufacture and distribution of the technology?
- If the drug (or vaccine) is expected to be used only in developing countries, will the patenting and distribution of a limited number of licenses attract sufficient investment and create a market? Put differently, will such a market be sufficiently profitable that it will encourage further development and testing of the drug or vaccine?
- Should the patent holder reserve for itself the unrestricted use of a patented research tool?

Answers to the above questions will act as guidance for patenting decisions. Above all, **institutions should determine whether or not patenting is the most effective way to ensure global access to their technologies**. Broad licensing strategies should also be considered at this stage, and through licensing only comes in later. In this context, it should be remembered that it can be challenging to negotiate a licensing agreement that is fair to everyone—licensor, licensees, and the public sector. However, Nelsen asserts that it is far better to make an imperfect deal than no deal at all. People do not benefit until technology is developed and brought to market.

What is the potential value of the invention? While many inventors believe that their product is of supreme importance, many fail to see the potential value of the product. Putting a "price tag" on an invention is difficult. In other words, determining the value of an invention and the resulting technology, product, or service will be complicated and at times nearly impossible. Fortunately, **the "full worth" of an invention need not be determined at the time the invention is made, nor even when the invention is transferred or licensed** to a third party through a patent license. Value can be realized through the use of royalties—payments to the inventor based on the specific (negotiated) contribution of the invention to a new product or service that are made when the product or service is sold. Royalties involve a trade-off and add new complications involving decisions about what to base the royalty rate on, how they should be calculated, and so forth. Royalties mean revenues are coming years later, but many institutions prefer payments now.

With respect to specific valuation techniques, Potter[2] reviews five major approaches, provides illustrations based on agricultural technologies, and discusses a hypothetical negotiation between a university and a company.[3] Potter outlines five approaches to valuing technology.

Costs approach. The pricing of a product is based on the cost of developing the product. This approach is rarely used to assign a value to a technology because the *cost* of research is not usually correlated with the *value* of the intellectual property that was the basis for the technology.

Income approach. The value of a technology is determined by a pure income approach, whereby future anticipated revenues (cash flows) are discounted to present value. The big drawback to this approach is that, for a new technology, there are generally no sales, markets, or cost data that can be used to predict future revenues.

Market approach. The value of a technology is determined based on the value of a similar or comparable technology. The inherent weakness of this method is that it is difficult to find a comparable technology if the technology in question is truly novel.

Hybrid approach. The value of a technology is determined by a combination of the income and market approaches. This method will deliver both the benefits and the drawbacks of both methods.

Royalties approach. The value of a technology is calculated based on royalty rates that have been applied to similar technologies. With this method, the inventor would typically receive a return on sales of the final product, with risk being shared between the inventor and the developer.

Regardless of which approach to technology valuation is used, the assessor should have the foresight to see where the new technology could be applied and how useful it might be. The assessor should therefore be familiar with adoption rates of the given technology in a defined market. The value of both formal (statutory, such as patents) and informal (such as know-how) intellectual property (IP) rights should also be known so that negotiation mistakes are avoided. Importantly, **there is no single best method for technology valuation**, and different methods may be used for different technologies within the same organization. Successful technology valuation depends on accurate estimates of how successful a product will be and how much it will sell for. If one can make accurate estimates, one has a good chance of building a trustworthy relationship with licensees, successfully bringing the technology to market, and increasing the chances of making more technology transfer deals in the future.

More specific methods of valuation and **methods to price** technologies are discussed extensively by Razgaitis[4] who also authored several books on the subject. He emphasizes that the *value* of a technology depends on how it is used, how much it costs to develop, how long it will take before its sales generate returns, and the probability that the technology will be commercially successful. *Pricing*, on the other hand, refers to the price a buyer and seller agree upon. This may be in up-front payments (in cash or equity) or deferred royalties, or a combination of both. Razgaitis describes six of these valuation methods.

Method I. The **Use of Industry Standards Method** looks at the range of published royalties (and other forms of payment) from technology licenses within an industry category and uses that information to guide valuation of a technology under consideration.

Method II. The **Rating/Ranking Method** looks at several license agreements for similar technologies, comparing and ranking a technology under consideration against the license agreements with respect to stage of development, scope of IP protection, market size, profit margins, and other factors.

Method III. **Rules of Thumb Methods**, such as the 25% Rule Method, apportion anticipated profits from the commercial use of the technology between the seller and buyer.

Method IV. The **Use of Discounted Cash-Flow Analysis with Risk-Adjusted Hurdle Rates Method** seeks to split expected returns but adjusts basic profit-and-loss accounting terms to account for the timing of investments and returns and the risks borne by the parties. The method introduces a discussion of some possible structures of payments, as they affect both timing and risk.

Method V. The **Advanced Tools Method** applies statistical methods, such as Monte Carlo simulations, to discounted cash-flow models in order to test the influence of various value assumptions and license terms on the possible outcomes of a deal.

Method VI. The **Auctions Method** allows interested parties to bid on a technology, based on their own independent efforts at valuing the technology, thus comparing their respective valuations, identifying the highest valuation, and striking a price based on that highest valuation.

More than one method can be used in any given valuation and, depending on the circumstances, it may be advantageous to use a combination of two or more methods. One should consider the commensurate level of valuation analysis appropriate to the magnitude of the potential licensing opportunity when choosing methods. Razgaitis provides many valuation examples, including typical royalty rates obtained by universities for software, pharmaceuticals, diagnostics, and others (see Table 1). The data illustrate a trend that appears in other examples discussed by Razgaitis: those products and industries with traditionally high operating margins (profits), such as pharmaceuticals and software, tend to exhibit higher royalty rates compared with, say, the materials industry. More specifically, and also for the purpose of establishing reasonable expectations of both licensors and licensees, Table 2 shows typical royalty rates from the medical industry. Note that the context of both tables is well defined: early-stage technologies out of research laboratories. In the second table, however, note that there is an important economic difference between the ends of the royalty ranges given: 1% versus 3% or 2% versus 10%, and so on. Unless the technology transfer manager understands where the institution's

Table 1: Example Table of Royalties Developed through Experience by a University Licensing Office

Product	Royalty (%)	Comments
Materials processes	1–4	0.1%–1% for commodities; 0.2%–2% for processes
Medical equipment/devices	3–5	
Software	5–15	
Semiconductors	1–2	Chip design
Pharmaceuticals	8–10	Composition of materials
	12–20	With clinical testing
Diagnostics	4–5	New entity
	2–4	New method/old entity
Biotechnology	0.25–1.5	Process[a]/nonexclusive
	1–2	Process[a]/exclusive

a Expression systems, cell lines, growth media/conditions

Source: L. Nelsen (M.I.T) as cited by Razgaitis[5]

Table 2: Royalty Rates for the Medical Industry

Technology/Industry	Earned Royalty (%)	Up-front Payments (in US$)	Minimum Payments (in US$)
Reagents/process	1–3	Patent costs	2,000–10,000
Reagents/kits	2–10	Patent costs	2,000–10,000
Diagnostics in vitro	2–6	5,000–20,000	2,000–60,000
Diagnostics in vivo	3–8	5,000–20,000	2,000–60,000
Therapeutics	4–12	20,000–150,000	20,000–150,000
Medical instrumentation	4–10	5,000–150,000	5,000–20,000 (yr. 1) 10,000–25,000 (beyond yr. 1)

Source: Razgaitis[6]

opportunity fits in the range identified, it is difficult to know where to begin. Further, not every opportunity falls within even these broad ranges. Some opportunities will have only negligible value; others could be unusually valuable opportunities.

Many things can be transferred between a licensor and licensee: IP rights, technical data, rights over improvements to a technology, rights to sublicense the technology, costs related to the patenting process, and so on. **The price that the licensee pays to the licensor can consist of any combination of various types of payments**, including running royalties, fixed payments, common stock (equity), R&D funding, lab equipment, consulting services, grant-backs, options, or access to other proprietary resources. The licensing contract should make allowances for the risks that a licensee will have to take in developing and commercializing the technology. **A combination of royalties and equity stakes is a particularly effective way of splitting the risk between two parties.** If a technology does not deliver, then the seller only receives the equity stake and the buyer does not need to pay any future cash. On the other hand, if the technology is highly successful, the buyer will have accessed the technology without forfeiting important cash that may have been crucial in bringing the technology to market, and the seller gains in higher royalties and higher value of the equity.

Another way to distribute the risk fairly is to discount expected returns with an appropriate hurdle (or milestone) rate. Alternatively, the schedule of payments may be adjusted as a function of milestones. Picking appropriate milestone rates or individual payments can be informed by explicitly modeling how different stages or factors in the development process contribute to the overall expected returns and to the risk of not realizing those returns.

Razgaitis provides many illustrations and offers the following broad conclusions, which are supported with examples. **There is no "right" price for a technology with each licensing transaction being unique**. To assess the future sources of value, the innate economic benefit that can be captured by using the technology in *some* market must be identified. That value is dependent upon many factors, all of which may change at any moment. But **there is often only a small window of time in which a technology can turn a profit**. Being cognizant of all information regarding the possible market value of and possible risks associated with a technology, makes it easier to arrive at an accurate valuation. This information may be difficult to collect, but it will be necessary. In fact, in order for pricing to be done properly, all of the relevant information must be gathered, preferably ahead of negotiations.

Early stage technologies may end up having little or no commercial value, but there are rare cases of immense value. As the technology ages and patents approach expiration, the bargaining position of the licensor weakens. This results in an inevitable shift in bargaining power from the licensor to the licensee, resulting in prices or royalties being renegotiated downward, not upward. Regardless of where one is in the process, there are methods practiced by technology transfer and business development professionals that can be used to guide the pricing process.

Pricing is never completely objective and always carries risk, while risk itself is subjective and each party will perceive it differently. Certain events, such as additional testing of a technology by the licensor, or by a government R&D grant awarded to the licensee, or a collaborative venture between the licensee and other R&D institutions may reduce the risk as perceived by the licensee. The important thing is to **find a price that is acceptable to both parties and that encourages the licensee to invest in the development of the technology**.

Concluding this section, Lesser and Krattiger[7] use bioprospecting examples to examine how different valuation methods have different policy implications for developing countries. For instance, a bioprospecting deal can provide a developing country the incentive to preserve its natural resources if the money it receives from the developed country institution for the right to bioprospect inside the country is greater than what the country would receive by allowing destructive activities such as logging.

The trade-offs described earlier between up-front payments and royalties are particularly relevant from a policy perspective in the context of bioprospecting. The authors show that the principal factors used in negotiating price are the uncertainty of attributing value and the uncertainty of finding marketable products.

Negotiations in bioprospecting deals strive for an appropriate balance between collection (initial) fees and royalty (delayed) payments. Lesser and Krattiger demonstrate with examples and calculations how changes in assumptions lead to different outcomes. For example, collection fees will reduce total payments except when national interest rates are very high. In-country screening, including the use of indigenous knowledge, is a potentially valuable strategy as it shifts the rise of failure to the licensee. The authors outline issues for contract negotiators and discuss the implications for biodiversity conservation.

A discount rate is what is used to adjust future income to present net value. It is often akin to an interest rate. Receiving, say, $100 today would be $110 in one year's time if an interest rate were 10%. Conversely, receiving $100 in one year's time would be worth $90.90 today if a 10% discount rate were applied. Typically, personal and corporate discount rates are greater than social rates, although the determination of the social rate is open to different interpretations. As anyone who has paid off a loan over a 10 or 20-year period recognizes, small changes in the discount rate have major implications on the outcome. Further, the concept of personal discount rate (that is, what the person on the other side of the table has internalized about risk), political and economic instability, immediate need for money, and so forth, could play a large role in the choice between collection payments and royalties.

Importantly for developing countries, when fees are "shifted forward" by increasing the collection fee and reducing royalty payments, more risk is transferred to the collecting company that develops a product, since it will have to pay the same amount of money regardless of whether successful commercial products are developed from the collected material. Shifting fees forward have particularly interesting possibilities in countries where interest rates are high (since the discount value of future payments is lower with higher interest rates). This leads to important policy considerations for national governments, nongovernmental organizations (NGOs), and development agencies. The chapter reviews these policy considerations and concludes that providing grants/loans and training/equipment for in-country screening should be given a high priority because in-country screening may be productive in the long term. With regard to national policy, Lesser and Krattiger discuss several policy considerations[8] involving both in-country screening and the allocation of payments between collection fees and royalties.

With adequate in-country funds lacking, international donors should seriously consider loans or grants for training and equipment purchases. This coupled with a series of other initiatives[8] will bring many closer to realizing the promise of bioprospecting. ■

All chapters refer to: *Intellectual Property Management in Health and Agricultural Innovation: A Handbook of Best Practices*. 2007. A Krattiger, RT Mahoney, L Nelsen, JA Thomson, AB Bennett, K Satyanarayana, GD Graff, C Fernandez, and SP Kowalski (eds.). MIHR: Oxford, U.K., and PIPRA: Davis, U.S.A. Available online at www.ipHandbook.org. The online version contains for each chapter a detailed Editor's Summary, Implications, and Best Practices.

1 Chapter 9.1 by L Nelsen titled Evaluating Inventions from Research Institutions, p. 795.

2 Chapter 9.2 by RH Potter titled Technology Valuation: An Introduction, p. 805.

3 The online version of the *Handbook* provides a spreadsheet (in Microsoft® Excel®) for the user to see how various results are obtained depending on different inputs and assumptions.

4 Chapter 9.3 by R Razgaitis titled Pricing the Intellectual Property of Early-Stage Technologies: A Primer of Basic Valuation Tools and Considerations, p. 813.

5 *Ibid.*

6 See *supra* note 4, with data adapted from an article published by Corey G and E Kahn. 1991. How to Negotiate Reasonable Royalty Rates for Licensing Novel Biomedical Products. *Genetic Engineering News* July–August 1991. p.4.

7 Chapter 9.4 by WH Lesser and A Krattiger titled Valuation of Bioprospecting Samples: Approaches, Calculations, and Implications for Policymakers, p. 861.

8 Cabrera Medaglia J. 2004. Bioprospecting Partnerships in Practice: A Decade of Experiences at INBio in Costa Rica. *IP Strategy Today* No. 11 (2004): pp. 27–40. www.bioDevelopments.org/ip lists a number of important policy conclusions stemming from experiences at INBio in Costa Rica.

FOR GOVERNMENT POLICYMAKERS

- ✔ **Determining how to translate an invention into an innovation that makes a difference in people's lives (economically or socially or both) is one of the principal reasons technology transfer offices exist.**

- ✔ Government policies ought to be **flexible and enable research institutions to customize technology transfer strategies** that align with the institutions' missions. Different approaches will serve different types of research and academic organizations working within various disciplines and cultures.

- ✔ It can be challenging to negotiate licensing agreements that are fair to everyone and conducive to making inventions become innovations. **It is often better to make an imperfect deal than no deal at all.** People do not benefit until technology is developed and distributed.

- ✔ **Public sector institutions should therefore be supported in their overall deal making efforts** rather than using individual deals as particularly good or bad examples.

- ✔ A government can **make technology transfer less risky** and more attractive for licensees by applying such policies as government R&D grants, subsidies, encouragement of clusters, financing of business incubators, and offering complementary R&D inputs or regulatory requirements that are conducive to the emergence of new technologies.

- ✔ Bioprospecting and related activities raise important issues with respect to pricing. Importantly for developing countries, when fees are "shifted forward" by increasing the collection fee and reducing royalty payments, more risk is transferred to the collecting company, which is developing the product, since the company will have to pay the same amount of money regardless of whether successful commercial products are developed from the collected material. **Shifting fees forward may have particularly interesting possibilities, as doing so allows countries to invest resources early on to capture additional value in bioprospecting activities.**

- ✔ It is important to adopt national policies that **facilitate access to biological resources under fair and equitable terms with prior informed consent**. Access mechanisms should be transparent, predictable, and managed by experts.

- ✔ There is a strong interaction between bioprospecting activity and national scientific capabilities. In countries with strong scientific capability, bioprospecting is robust. Moreover, such **capacity increases the negotiating strengths and benefit sharing** stipulated in contract agreements.

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.)

- ✔ **Determining how to translate an invention into an innovation that makes a difference in people's lives (economically or socially or both) is one of the principal reasons technology transfer offices exist.**

- ✔ It can be challenging to negotiate licensing agreements that are fair to everyone and conducive to "moving" inventions to innovations. **It is far better generally to make an imperfect deal than no deal at all.** People do not benefit until technology is developed and distributed.

- ✔ **Institutions need to assess whether or not patenting is the most effective way to ensure high economic and/or humanitarian impact of their technologies**.

- ✔ A public institution's **decision with regard to patenting** should depend on (1) whether such patenting would be socially responsible, (2) whether there is public interest in the technology, and (3) whether patenting would help the local economy (where applicable).

- ✔ Putting a "price tag" on an invention early on is difficult, if not impossible. Fortunately, **the full value of an invention need not be determined when the invention is transferred or licensed,** as value can be realized later through the use of running royalties, fixed payments, common stock (equity), R&D funding, lab equipment, consulting services, grant backs, or access to other proprietary resources. For public sector organizations, in-kind contributions may sometimes be particularly appealing.

- ✔ **Evaluating a new technology is difficult and the evaluation will necessarily be imprecise.** It is better to encourage a TTO to make deals creatively and expeditiously, without the imposition of minimum royalties and other restrictive terms. The important thing is to **find a price that is acceptable to both parties and that encourages the licensee to invest in the development of the technology**.

- ✔ Senior management should be **supportive of the overall deal making of its technology transfer officers** rather than be critical of individual deals. Naturally, TTO officers need to follow procedures, apply policies, and be well trained and experienced in deal making.

- ✔ **Putting pressure on TTO officers to break even or to generate revenues can constitute a perverse incentive**, almost forcing a TTO to go with up-front payments. This may drain a startup of critical financial resources and thus reduce the level of investment that is allocated to making the invention work.

- ✔ Probabilistic modeling software can aid pricing efforts. The most effective software is expensive and may not be a good investment if fewer than 100 deals are made per year. Quite **often the best approach is to get as many licenses as possible completed in a short period of time, even if an individual license does not provide the maximum possible income**. The more licenses, the higher the probability that one, or a few, will generate returns.

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 best approach by your TTO is usually to **disclose inventions early and disclose often**.

- ✔ You should even consider disclosing what you think might not yet be a full invention. Experience shows that **scientists are, in fact, not very good at determining when they have an invention**. In many cases, they have a dozen when they themselves think they have none!

- ✔ If your TTO officers decide not to file for patents, you shouldn't be discouraged. This is not a critique on your research, its importance, or its relevance. **The TTO has many priorities to balance, including financial.**

- ✔ It can be challenging to negotiate licensing agreements that are fair to everyone and conducive to "moving" inventions to innovations. **It is generally far better to make an imperfect deal than no deal at all.** People do not benefit until technology is developed and distributed.

- ✔ Some of the key questions TTOs address early on when an invention has been made is whether a patent application should be filed at all, how the invention would be marketed, and what value the invention might add to existing processes or products or what value might come out of a new product or process. **Determining how to translate an invention into an innovation that makes a difference in people's lives (economically or socially or both) is one of the principal reasons technology transfer offices exist.**

- ✔ Scientists must insist that the TTO **have transparent procedures for reviewing invention disclosures and making decisions**. You should not only be informed of the basis and rationale for a decision, but also, in most cases, be fully involved in the process.

- ✔ It is important to keep a detailed **record of your research procedures**. Your records may help determine inventorship and may provide clues as to the value of your inventions.

- ✔ Once your TTO patents your invention, don't expect a big revenue flow. For a TTO, quite **often the best approach is to get as many licenses as possible completed in a short period of time, even if an individual license does not provide the maximum possible income**. The more licenses, the higher the probability that one, or a few, will generate returns. Both you and senior management should be **supportive of the overall deal making of the TTO** rather than criticizing individual deals. Naturally, TTO officers need to follow procedures, apply policies, and be well trained in deal making.

- ✔ **Additional research by yourself or your group often increases both the likelihood of finding a licensee and the economic value of the license**. But this is only true if the research is specifically aimed at reducing the risks of commercializing the technology. Basic research may do little to reduce these risks. Discuss this issue with your TTO officer. Especially in an academic environment, he or she will be reluctant to provide unsolicited advice regarding this issue.

- ✔ Remember that licensing incomes reward the commercial value, and not the scientific value, of your invention. **Technology licenses may provide you with follow-on grants and other intangible incentives** to conduct further research.

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.

KEY IMPLICATIONS AND BEST PRACTICES: SECTION 9

FOR TECHNOLOGY TRANSFER OFFICERS

- ✔ A **combination of royalties and equity stakes** is a particularly effective way of splitting risk between two parties. If a technology does not deliver, then the seller receives only the equity stake, and the buyer does not need to pay any future cash. Another way to distribute the risk fairly is to **discount expected returns with an appropriate milestone rate**.
- ✔ **Many valuation approaches exist. None is perfect.** Considering that each deal is highly context specific, each technology transfer office should be able to select the best approach and adapt it to the specific circumstances.
- ✔ Licensing is always risky and no deal will be perfect. **It is often better to make an imperfect deal than none at all.**
- ✔ When devising a **patenting strategy**, you will need to make three decisions: First, should you seek patent protection? Second, what is the best patent-marketing approach? Third, what license fees or royalties ought to be levied?
- ✔ Since there is no single best way to assess the value of a technology, **all parties should agree on the valuation method to be used**.
- ✔ Probabilistic modeling software can aid pricing efforts. The most effective software is expensive and may not be a good investment if fewer than 100 deals are made per year. Quite **often the best approach is to get as many licenses as possible completed in a short period of time, even if an individual license does not provide the maximum possible income**. The more licenses, the higher the probability that one, or a few, will generate returns.
- ✔ Putting a "price tag" on an invention early on is difficult, if not impossible. Fortunately, **the full value of an invention need not be determined when the invention is transferred or licensed,** as value can be realized later through the use of running royalties, fixed payments, common stock (equity), R&D funding, lab equipment, consulting services, grant backs, or access to other proprietary resources. For public sector organizations, in-kind contributions may sometimes be particularly appealing.

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.