Intellectual Property Management for Small Research Offices

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Overview

Approaches to management of intellectual property at colleges and universities is an increasingly important issue—particularly at smaller, less research-intensive, institutions. The legal framework created by the passage of the Bayh-Dole Act, combined with the growth in related federal regulations, makes the development of a cohesive, strategy-based policy for managing intellectual property essential. Without a policy that faculty can access and understand, an institution not only runs the risk not complying with Bayh-Dole directives and thus hampering its ability to pursue federal grants, but also of limiting its potential for using university-led innovation as a tool for regional community and economic engagement. This chapter will explore how several smaller institutions have approached intellectual-property management, on their own and through their larger state systems and resources. Brief case studies of issues and solutions are presented from the University of Wisconsin System, the University of Southern Maine, Elizabethtown College, and Plymouth State University (N.H.) as a way of identifying some common needs and potentially replicable solutions for managing intellectual property.

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Plymouth State University (N.H.) and Elizabethtown College (Pa.) both faced a similar problem—a need for clear guidelines and increased engagement with faculty on issues related to managing intellectual property, combined with a lack of resources to address the problem on their own. Both institutions looked for help from a third party—in the case of Plymouth State University, an outside technology-transfer consulting firm, and in the case of Elizabethtown College, a unique negotiated relationship with a patent attorney.

Examples from the University of Southern Maine and the University of Wisconsin System also demonstrate approaches that have made creative use of connections and resources broadly available within their respective systems. The University of Southern Maine was able to take advantage of resources provided by the University of Maine Center for Law and Innovation's Intellectual Property Clinic. The University of Wisconsin System, inspired by a successful approach taken by the University of Wisconsin, Madison, created the WiSys (Wisconsin System) Technology Foundation, which supports research and commercialization for 11 four-year institutions, 13 two-year colleges, and the University of Wisconsin Extension.

Bayh-Dole Framework

The modern university is no longer just an ivory tower. Universities are important places for innovation and collaboration. They have become more connected to their communities in supporting local, regional, and national businesses through innovation and technology development. Classroom and laboratory activities generate ideas, advance knowledge, and lead to new technologies. These innovations and technologies can be transferred from the university to the private sector to form the basis of new products, services, companies, and even industries.

A key component enabling this process of "technology transfer" is securing rights to intellectual property in the form of patents, copyrights, and trademarks to name a few avenues. These intangible pieces of property can then be transferred to private entities through license agreements that allow the private entity to invest in the innovation, commercialize the technology, and get new products and services out to the public. The licensing agreement is the vehicle for getting the innovation into the hands of a commercial entity that can ultimately turn it into useful products and services for the public. The license can also return revenues to the university and its inventors and other stakeholders to continue a self-perpetuating cycle of innovation.

In 1980, the Bayh-Dole Act unleashed the potential for spurring innovation through universities by transferring ownership of rights to intellectual property developed in federally funded research projects from the federal government to

the universities receiving the federal funds. This act provided universities with the rights and incentives to commercialize intellectual property they had generated and freed them to invest in protecting intellectual property (e.g., patents) knowing that they could benefit financially if the inventions were successfully commercialized. The law created a reinvestment cycle as royalties returned to the universities were shared with inventors but also re-invested in research, leading to more innovation. As a result, not only are universities involved directly in technology-transfer activities, but programs and centers also have sprung up to support entrepreneurs and to accelerate the development of new companies.

Responsibility and Possibility

While successful management of intellectual property can play a key role in creating opportunities in and outside of a university, it is important not to overlook the fact that it is also a requirement to remain in compliance with government guidelines. The Bayh-Dole Act and its surrounding legislation requires a university to identify and disclose inventions created as a result of federal funding. Bayh-Dole allows the university ownership of the inventions (with the federal government holding rarely invoked "walk-in" rights) but, in return, the university must make an effort to protect (e.g., patent) and commercialize the invention. If a university fails to report an invention to the government, it risks being out of compliance with the terms of Bayh-Dole, potentially resulting in severe repercussions to a university's ability to continue receiving federal funding. This philosophy of information sharing and distribution encouraged under the Bayh-Dole framework has spread and expanded among many large private funders, which are increasingly requiring grantees to release products developed in funded research through permissive open licenses. It is important for universities to have a system in place to identify these inventions and copyrightable products, protect them, and find the best way to distribute them in accordance with the university's mission. However, an effective system for managing intellectual property requires specialized expertise, financial support for the process of protecting the intellectual property, and policies that are clear and can be understood by university faculty members and administrators.

Public colleges and universities have traditionally embraced a threefold mission—education, research, and service. These goals are approached and emphasized in varying ways depending on the values of the institutional leadership and available resources. Mark Crowell, former president of the Association of University Technology Mangers (AUTM), notes that many universities have been expanding their traditional mission by embracing economic development as a fourth goal. When looking at the role of state colleges and universities as "stewards of place," economic development can be seen as a natural complement to the traditional core pursuits of a university.

With the elevation of economic development in the university mission, the role (and expectations) for intellectual property have increased dramatically. The transfer of a university's intellectual property through licensing of technology and through sharing innovations developed in research is an important tool in efforts to engage in economic development. But what's the best approach? Crowell notes that most strategies for technology transfer and intellectual property are reactive, responding to an outside driver. Ideally, though, just as an overall institutional strategy must be developed to pursue the university's mission, an institution should actively develop a cohesive strategy for its intellectual property, one that reflects and complements the overall institutional mission. Whether an intellectual-property policy is developed prospectively or in reaction to a need, a system for managing intellectual property provides checks for compliance with government regulations and can allow intellectual property to be used as an effective tool in a university's mission, helping it address not just economic development in the surrounding community but also education, research, and service.

Economic Impact and Benefits

Intellectual property produced by colleges and universities historically has had a profound economic impact on the U.S. as a whole and potentially can have a similar impact on a university's surrounding region and community. The 2013 AUTM annual licensing survey of approximately 200 academic institutions reports that close to10,000 patented products currently being sold originated in academic research laboratories.

University-licensed technologies make a significant contribution to the national economy, accounting for $22.8 billion in net product sales. Of the 818 start-up companies formed through the work of the survey's respondents in FY 2013, 611 of them had their primary place of business in the licensing institution's home state. And these start-ups have been increasingly successful. More than 4,206 start-ups based on university technology were still in operation as of the end of that fiscal year, a 5.1 percent increase from the previous year. According to an April 2010 Science Coalition report, "Sparking Economic Growth," companies spun out of university research tend to locate in the university's home state and have a greater success rate than other companies, creating good jobs and spurring economic activity. Of the 100 companies highlighted in the report, only 16 originally located in a state other than that of the university that developed the innovation.

However, technology transfer is not an instant way to make money for the institution. According to researchers, over half of university technology transfer programs bring in less money than the costs of operating the programs, and only 16 percent are self-sustaining after distributions to inventors and costs are factored in. Most universities do not make much money from their licensed intellectual property, especially not in the short term. But a clear, understandable policy combined with continued faculty engagement efforts can save an institution money by keeping it in compliance with federal requirements and helping avoid disagreements and potential lawsuits over contracts with conflicting or untenable obligations (often signed without the knowledge or understanding of university administration). A good intellectual property policy with faculty buy-in can result in deals done with the administration's knowledge and agreements that are advantageous to all parties, while supporting the university's mission. A good policy can also create an attractive environment that encourages businesses to contact colleges and universities with their own initiatives, and it can serve as an enticement to attract and retain entrepreneurial and innovative faculty members. Successfully managed intellectual property can lead to the creation of local businesses with an affinity for the university and surrounding community. It can lead to partnerships with industry that provide research or business experiences for students. Effective approaches to the transfer and management of intellectual property can be used as the foundation for programs that encourage students to apply their research, as well as to patent and commercialize their own inventions.

Approaches to Managing Intellectual Property

An institution's strategy for managing intellectual property will depend on its goals for intellectual property, as well as on its unique set of available resources. Some institutions have a long history of guiding technology transfer, while others have only recently adopted or revised policies in a more strategic way. To be successful, intellectual-property management requires expertise in contract law, government and state regulations, marketing, and business negotiations—not to mention an understanding of the invention itself, including its possible uses and financial potential. For many universities it is difficult to find all of these abilities in two or three people and, even then, to find the resources to compensate them directly.

Elizabethtown College and Plymouth State University are both teaching-oriented institutions without a history of focused attention on intellectual property. Both were in need of a clear, uncomplicated policy that would protect faculty members while giving them the incentive and confidence to identify and pursue commercially viable inventions. Unfortunately, neither had the resources to hire the staff who could handle the responsibilities of a full-time technology-transfer office. Both came up with solutions that, in the long run, enabled them to save money, remain in federal compliance, and encourage faculty members to share the products of their research with the surrounding communities.

Elizabethtown College. From its inception in 1899, Elizabethtown College was primarily a teaching institution at which faculty members conducted research when they could manage it in their spare time. Accordingly, intellectual property was not being managed in a systematic way that clearly outlined the responsibilities and outcomes for each stakeholder. Faculty had a relatively free rein with their research and resulting inventions. There was a danger that an absence of oversight and institutional guidance would lead to non-compliance with grant requirements. It was apparent that Elizabethtown College needed a cohesive policy for managing intellectual property in place to remain competitive for research grants and, importantly, to insure compliance with any grant agreements. To solve the problem and satisfy the university's lawyers, an intellectual property policy was codified in a long and complex document.

This first attempt at formulating a policy was based on policies used by larger, more research-intensive programs. Unfortunately, though well-meaning, this policy risked alienating faculty members who were used to a much more informal and personal relationship with their administration. Recognizing the need to have a more user-friendly policy, the college sought help from an outside patent attorney in revising the policy and making it better fit the culture of the institution. Elizabethtown College then started a process to revise the policy by holding meetings with its personnel council, ensuring faculty feedback. The administration reviewed the revised policy and then presented it to the entire faculty assembly.

With the help of the patent attorney serving as a consultant, and with input from the faculty through the personnel council, the college managed to take a complicated, lengthy, and confusing document and reshape it into an accessible policy of less than a page in the faculty handbook. Under the new policy, the faculty inventors assigned control of their inventions to the college but received a 50/50 split of any eventual revenue after expenses. Similar to intellectual property policies at most educational institutions, traditional works of scholarship are owned by the creator(s) and are an exception to the policy. The new policy clarified ownership of inventions and provided support for securing intellectual property. Though faculty members originally had more of a free hand with their inventions, they now see development of intellectual property as a mutually beneficial partnership with the college because they are free to continue focusing on teaching and research while the financial, marketing, and regulatory burdens are assumed by the university.

The revision of the first policy began in 2011 and concluded in less than two years. Because Elizabethtown College does not have the resources to run its own technology transfer office, it works with a private patent law firm using a specially negotiated relationship avoiding hourly rates and using set fees for services. The negotiated price list includes set fees for services such as invention reviews, provisional patents, full patent applications, and so forth. The college's sponsored programs office evaluates which inventions are sent to the firm for review and decides how to proceed based on the resulting recommendations. Knowing what they know now, college staff members would have found it more effective to directly engage with faculty members earlier in the process of developing the

policy on intellectual property. Having learned more about policy development from the revision process, Elizabethtown College is developing a policy for dealing with research misconduct that includes greater faculty engagement, allowing faculty members to help shape the policy as it develops, instead of getting feedback after the fact.

Plymouth State University (PSU). Located in central New Hampshire, PSU successfully solved the problem of providing intellectual property management and technology transfer services to a campus with limited resources. Prior to this initiative, PSU had not adopted a policy on intellectual property that was agreeable to the entire university community. With a strong commitment to regional engagement, PSU's administration sought to devise an intellectual property policy and system for supporting technology transfer that would provide incentives for faculty members to develop their innovations and focus them on public benefits. Within the context of their strong system of shared governance, the faculty had a lot of questions and concerns about intellectual property that made them cautious about endorsing a policy. PSU's vice provost for research and engagement said that the situation the faculty faced was analogous to signing boilerplate contracts to buy their first houses: They were faced with a stack of documents that had to be signed, but realized it was impractical to read them all first. The uncertainty about the future implications of the policy was intimidating to faculty members, and they wanted to be sure their interests would be served and not be subject to unintended consequences.

The faculty presented an alternative intellectual property policy to the administration, which felt it was not workable for the administration or for federal compliance, resulting in an impasse and ambiguity about how best to pursue commercialization of faculty innovations. As a result, the university was not able to do all it could to promote an ecosystem of innovation. As with Elizabethtown, Plymouth State was also concerned that the lack of a coherent intellectual property policy and management system would limit its capacity to sustain compliance with federal requirements and competitiveness when applying for federal funds. Plymouth State wanted to expand its capacity for technology transfer, encourage innovation on campus, and use intellectual property as a way to connect with the broader community and local businesses. Officials needed a policy and a

management system capable of engaging in this outreach, but found it was too costly to hire a technology transfer officer and set up a small office.

Coincidentally, Keene State College, a sister institution in the University System of New Hampshire, was also looking to revise its policy on intellectual property and build its capacity for managing intellectual assets. It too could not afford to create its own technology transfer office. As a result the two universities decided that a cost-effective way to solve the problem would be to work together to hire a third party to support a cohesive policy on their respective campuses and handle most of their management needs. The two institutions issued a joint request for proposals (RFP) for a technology transfer practitioner to help develop policy and establish procedures for disclosing technologies, filing for protection of intellectual property, licensing technologies, enforcing agreements, and bringing products to market.

The two institutions received 15 proposals. One-third came from each of the following types of organizations or individuals: large technology transfer firms, law firms, and solo practitioners/consultants. It was initially thought that a solo practitioner might be best for their needs as this would allow them to develop a relationship with a local individual who would understand them and their unique circumstances. However, upon reviewing the proposals, none of the solo practitioners or consultants demonstrated that he or she could effectively meet all of PSU's needs.

In addition, the law firms' proposals were too focused on filing for patents and were too quick to apply legal solutions to most of the institutions' needs, ignoring the RFP's request for consideration of interdisciplinary solutions. In addition, staff members at the institutions were most impressed with the applications from the larger technology transfer firms, finding them superior to the other RFP respondents.

Ultimately, Plymouth State and Keene State partnered in signing an agreement with a technology transfer firm that met all of their management needs for less money than it would cost to hire their own staff or build an office. The agreement called for the firm to support the administrations and faculties as they developed

suitable policies for managing their intellectual property. It also employed the firm to give presentations on intellectual property to faculty and administrators on campus and over the web, connect the two institutions with other campuses, handle commercialization, assess inventions, and help find corporate partnerships. As the campuses developed the policies, the firm held a series of workshops with faculty members, conducted surveys, and shared templates of workable policies. The transparent and intensive engagement with faculty and administration during the review process led to a nearly unanimous vote to approve the fully developed policy. Plymouth State University now splits revenue from licensed inventions with its faculty and, as with Elizabethtown College, a clear intellectual property policy has led to an increase in faculty confidence and in invention disclosures.

For the first time, the university is receiving a small amount of revenue from licensing. The new arrangement also gives the institution access to more services across more disciplines than it would be able to provide on its own. The combination of an increase in capability, a clear policy, and an increasingly involved and informed faculty is now a viable starting point from which Plymouth State hopes to achieve its broader goal of cultivating a more innovative campus culture that can engage with the economic-development needs of the surrounding community. The ongoing cost-effective support from the firm has proven to be a flexible and effective alternative to building an in-house technology transfer office.

University of Southern Maine (USM). This institution tried a unique approach to technology transfer by engaging the law clinic at the University of Maine's School of Law in Portland. The law school hosted an intellectual property clinic and the Maine Patent Program within its Center for Law and Innovation, which helped institutions within the University of Maine System until both entities in the law school were discontinued due to reduced enrollment and state budget cuts. USM had a relatively small amount of technology transfer compared with its flagship campus, but it was able to take advantage of the clinic prior to its demise.

The University of Maine School of Law was one of only a handful of law schools emphasizing patent and trademark law, where students could get practical experience working on actual intellectual property matters. The student law clinic was an innovative solution for campuses within the Maine system that did not have

the volume of work or resources to justify their own technology transfer offices. Additionally, the clinic served the needs of the greater community.

The clinic started out as an offshoot of the University of Maine Patent Program and, in the beginning, was sponsored by the state. Student externs saw clients, which included universities within the system and other campuses in Maine, in return for college credit. The clinic allowed students to file and prosecute patents under the supervision of a patent attorney, giving them valuable real-world patent experience as they completed their academic work. Aside from helping the law school educate students, the clinic contributed to the broader university goals of service and regional economic development and engagement. The clinic handled most aspects of technology transfer for the USM: receiving invention disclosures, evaluating the commercial prospects of the invention, reviewing the disclosure with university administrators, filing for intellectual property protection (e.g., patents), and licensing the technology. The clinic worked on an informal contract basis with university campuses and provided clients with free representation with the goal of promoting local commercialization. The law school provided most of the salary support, which was supplemented by university departments using the clinic's services.

As a free resource, the clinic faced some challenges. First, its popularity was a double-edged sword as it was difficult to provide adequate service to a long line of customers. Accordingly, the clinic had to delineate what it would provide. All clients would, at a minimum, get feedback about their invention in the form of a patent search and analysis. The clinic would then triage the caseload based on circumstances to determine which cases merited filing for protection of the intellectual property. A second challenge came from the flexibility required when engaging students. Clinic staff had to be committed to completing a project when service gaps occurred because of the transient nature of students. Finally, because the work was generally under-resourced as well as education-focused and service-oriented, generating measurements of its success or impact was not a priority. It's possible that a robust record of success stories, combined with long-term data on its regional impact, might have helped the program when its funding was eventually threatened. Unfortunately, though the program was very useful to the surrounding community and to the university system as a whole, the program

was ended, as noted above, as a result of reduced enrollments and state budget reductions.

University of Wisconsin System. The Wisconsin system's example, while larger and somewhat more complicated than the situation in Maine, also focuses system resources in a way that benefits larger and smaller campuses, giving them capability beyond what they could cost-effectively do on their own. The University of Wisconsin System needed to provide services for managing intellectual property to faculty members at comprehensive institutions to help them advance their research and commercialize their inventions. The UW System also wanted to help the comprehensive institutions transition from exclusively teaching institutions to partners with their communities by supporting research that could lead to collaborations with local industry. The solution was to expand an approach that was already successful at one institution so that it would serve the broader state higher-education system.

In Wisconsin, the process of university-based technology transfer dates back to biochemist Harry Steenbock's discovery in the 1920s of a technique to increase the vitamin D content in food and other substances, a discovery with the potential to eliminate rickets. Steenbock worked with several colleagues to create the Wisconsin Alumni Research Foundation or "WARF" as a not-for-profit foundation to patent and commercialize his invention and use any proceeds to support research and discovery at the University of Wisconsin-Madison.

In the 1990s, professors from comprehensive universities (other than UW-Madison) in the UW System occasionally came forward with inventions, unsuccessfully seeking assistance for commercialization. While WARF had been a huge success for UW-Madison inventors, the foundation's charter directed support only to the Madison campus. In 2000, the Wisconsin System Technology Foundation (WiSys) was founded with the support of WARF and the system's administration to assist campuses other than UW-Madison. As noted above, WiSys now supports research and commercialization for 11 four-year comprehensive institutions, 13 two-year colleges, and the University of Wisconsin Extension, the outreach arm of the UW system. Although founded as a subsidiary of WARF, WiSys is now an independent 501(c)(3) supporting organization of the University of Wisconsin System.

At its core, WiSys protects intellectual property through patents, copyrights, and trademarks and seeks to license that intellectual property to new or established companies. WiSys has the internal expertise to evaluate invention disclosures, and if WiSys determines that an invention has merit, it has the resources to protect the intellectual property (through patents, copyrights, or trademarks) and to invest in the development of that intellectual property (through grant programs) to advance the technology and attract investment and licensing. WiSys also supports applied research by administering a grant program on behalf of the UW System.

WiSys supports economic development in Wisconsin by partnering with small companies through its Wisconsin Small Company Advancement Program, working through UW faculty and staff members and students. Through funds provided by the state, WiSys provides grants to small companies incorporated in Wisconsin that are willing to partner with UW personnel or students to develop technologies with commercial potential. Finally, WiSys is engaging students to enhance their experience through undergraduate research, internships, and the WiSys Student Ambassador program. As a relatively new foundation, WiSys gets annual operational support from the University of Wisconsin institutions it serves, as well as from the system.

Because WiSys is asked to play a broad role on behalf of a number of institutions within the university system, the structure of WiSys is necessarily more complicated than that of a college or university working on its own. WiSys has a self-perpetuating governing board of trustees, which includes leadership from the UW System, WARF, and external members representing regional constituents. WiSys also has an advisory committee that includes chancellors from the UW System, a regent, system administrators, and external members. While the structure is larger and more complicated than the approaches previously examined in this chapter, there is a clear organization and a leadership make-up designed to ensure the entire system is served and that the broader regional mission of the university system is addressed. WiSys is an example of pooling resources to take advantage of economies of scale to deliver technology-transfer services.

Overcoming Common Challenges

Colleges and universities face a number of internal challenges when shaping and implementing policies for managing intellectual property: maintaining compliance with governmental dictates; educating and motivating faculty and administrators; creating and maintaining an ecosystem of innovation; managing the expectations of internal and external stakeholders; and balancing the need to protect intellectual property while taking full advantage of its potential to engage and support the surrounding community.

Any approach to managing intellectual property requires a clear policy as well as the buy-in and understanding of its key stakeholders—university researchers and administrators and community and business partners. Faculty and administrative advisory councils should be consulted and involved in the creation or revision of the policy, as well as its dissemination and implementation. A common management problem with intellectual property is that faculty members and administrators are not aware of the policy or of exactly who to talk to about an invention. They also may not be aware of an invention's potential uses or prospects for commercialization. Without clear guidance and engagement or with a policy that is too complicated to understand, faculty members can remain unaware of their rights and responsibilities and take it upon themselves to enter into agreements without proper authority or sign off. They may enter into agreements that are disadvantageous, causing financial and legal headaches to the institution, the faculty member, and outside businesses. These types of negative outcomes can hamper future efforts at collaboration with local business and industry and can discourage entrepreneurial researchers from going to an institution. Another danger is that research with the potential for creating opportunities for business, the community, and students goes unrecognized because disclosure is too complicated or ignored.

Elizabethtown College and Plymouth State University were both teaching-focused schools looking to expand research capabilities and utilize the resulting inventions to further their missions. But a simple, coherent policy was required before any expansion of intellectual property efforts could be contemplated. Clear policies combined with faculty outreach and engagement led to an increase in trust and

comfort among faculty members regarding intellectual property and disclosure of inventions. A partnership between the faculty and administration needed to be created and, for it to be effective, the terms needed to be understandable, mutually beneficial, and agreed upon.

Involving faculty and administrative representatives in the process from the ground up invests them in the outcome. The rules are known, mutually beneficial, and easy to understand because representatives of the faculty and administration were heavily involved in making them and ensuring that their interests were served. Throughout the process, as well as during and following its implementation, stakeholder education is necessary—not only regarding regulations and available types of licensing and commercialization, but also regarding how to recognize opportunities for using intellectual property to engage with the surrounding community and advance the university's regional mission.

In addition to a clear understanding of the rules, faculty members and administrators need incentives and resources to engage in the process and develop their intellectual property. In most of the examples presented above, revenue is shared equally, after expenses, between the faculty member and the institution. The institution maintains ownership of the invention, but relieves the faculty member of many of the administrative and regulatory burdens of disclosing an invention to the government and applying for patents. Revenue sharing and easing the administrative burden and responsibilities provide some incentive for faculty members to take part in the intellectual property system. Additional incentives include course release (which also gives the faculty member a key resource—time), funding for departments, and recognition and awards at events honoring faculty researchers.

WiSys addresses course release with a program in which a faculty member could apply for funds to buy out teaching a course in order to write a grant. This type of program helps alleviate the issue that many faculty members face of not having time to apply for grants that would allow them a course release and time to conduct research and apply for more funding. The program favored proposals in STEM (science, technology, engineering, and mathematics) fields but also had a humanities component. To be eligible, the faculty member needed to be applying

for a grant of $50,000 or more. If accepted, the UW System, the institution, and WiSys shared the cost of the buyout. Awards recognizing inventors have also played a key role as incentives for WiSys.

Advice for University/College Leadership

In summary, university administrators of comprehensive universities should consider important lessons learned from these innovative programs as they consider setting up their own programs. They include:

- Faculty, administration, and external stakeholders should be included in the development of policies to ensure that they are clear, understandable, and beneficial to all parties.
- Any policy should include a reasonable and transparent basis for sharing revenues that might accrue from licensing.
- Research support and compliance should be promoted as key reasons for developing intellectual property policy and procedures.
- Institutions should avoid raising expectations of short-term revenue as a benefit from licensing and patent activity.
- Colleges should reward and acknowledge persons who participate in research, innovation transfer, and entrepreneurship activities.
- A college or university should develop a strategy for managing its intellectual property that fits the strategic plan of the institution.
- A strategy for managing intellectual property should include the development of an innovation and entrepreneurial ecosystem that benefits the institution and the surrounding region.

- During and after the development of a policy, institutions should work to educate the campus community and the regional business community about the value of the intellectual property policy and requirements.

- Colleges and universities should be aware of and use opportunities provided by their innovation activity to benefit curriculum development and applied student learning.

Measuring Success

How do we evaluate the success or failure of the management of an institution's intellectual property once a clear and understandable system has been implemented? As former AUTM President Mark Crowell writes, "…it is especially important to align the metrics used to evaluate technology transfer effectiveness in a way that reflects the objectives and values enunciated for the function." Revenue generated by licensing, while worth pursuing, is not the ultimate goal for institutions that see themselves as "stewards of place," and the metrics used to evaluate success need to reflect this.

Colleges and universities may not experience immediate benefit from the licensing of inventions. That's not to say that fair market value for university-created research shouldn't be pursued and protected. But the more important measurements of success are the connections that carefully managed intellectual property (and its transfer) can make between the college or university and its region—(1) the creation of new companies and the resulting jobs; (2) mutually beneficial agreements with industry and businesses that create opportunities for student research and growth; (3) the enabling of programs that encourage and engage students to create, apply, and commercialize ideas; (4) the development of innovations in public health or service that benefit the community; (5) participation in an ecosystem of innovation that uses management of intellectual property to encourage creation within and outside the institution. Each of these outcomes is quantifiable and can be used to measure an institution's positive impact on its surrounding community and region. A less quantifiable measure of success, but no less important, is the collection of outcomes for individuals—the

human stories behind the numbers—of students and community members affected and empowered by the creation and application of research-and-development projects.

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