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Starting a Company with TTC

Texas A&M System Technology Commercialization (TTC), an agency of The Texas A&M University System, supports the commercial development of research results to enhance the A&M System’s education, research and public service missions, as well as to protect the academic freedom of faculty pursuing research. TTC fosters an entrepreneurial environment, encouraging the creation and development of faculty-led companies to facilitate technology transfer from the laboratory to the marketplace.

To do this, TTC forms companies through its New Ventures Division. We can provide initial seed capital, hire a CEO, sit on the boards of directors, and create a corporation that allows private capital investment to continue future development of the technology toward commercialization. TTC doesn’t start companies because we want to; we start companies because, in some cases, we have to. In order to commercialize A&M System research innovations, sometimes a spin-off company is the only option.

Given the breadth of research at Texas A&M, New Ventures fosters ideas across all business sectors, from biotechnology to agriculture to the oil industry. A&M System start-ups enter the private sector with a little help. The A&M System might elect to provide a modest amount of start-up capital to help a new spin-out company. This seed capital helps the company secure much more substantial private funding, which often quickly returns to the A&M System in the form of research dollars aimed at further developing the discovery.

The research of Dr. Mark Holtzapple in the Department of Chemical Engineering has resulted in two spin-off companies, Terrabon Corporation and StarRotor Corporation. Here he is showing the results of the process he developed to convert biomass — trees, grass, manure, sewage sludge, garbage, agricultural residues and non-food energy crops — into fuels.
Why start a company?

“A researcher within the A&M System can only take his or her discovery so far in the laboratory,” explains Saurabh Biswas, new ventures director in TTC’s New Ventures Division. “But that may not be far enough for a corporation to license it because it may not yet be ready for the market.”

Sometimes called the “valley of death,” this phase between discovery and commercialization can be the most dangerous for innovations with real market potential. TTC’s New Ventures Division works with A&M System researchers to create (or spin out) companies around new ideas or technologies. The new company then seeks funding from private investors to help build the bridge between the researcher’s laboratory and a corporation’s willingness to adopt a product for the marketplace.

The spin-out company may become a sponsor for new research and development within the A&M System, which can receive an immediate return on its seed investment. And the company and its private investors enjoy the benefits of further developing the technology within a world-class research institution, typically by the very research team that created it in the first place. Work by New Ventures can also positively impact the Bryan/College Station community when private-sector partners choose to locate near the birthplace of the innovation, as has been the case with more than 20 A&M System start-ups.

In his lab, Dr. George C.Y. Chiou emphasizes research and clinical applications, including the development of drug therapies, to improve ocular health. He founded MacuCLEAR to further his continuing work on treatments for age-related macular degeneration.
TC evaluates each invention for its commercial potential. We conduct this evaluation in collaboration with inventors and leaders within the research program that supported the development of the innovation. This process results in some technologies being closed, due to limited commercial potential and/or limitations on the ability to obtain meaningful intellectual property protection. In cases where we pursue commercialization, TTC develops a plan to advance the interests of all stakeholders. TTC then executes this plan, with participation as appropriate from inventors. To help us determine if your invention is right for commercialization, consider these top 10 questions for commercialization.

In some cases, you might not be able to answer these questions alone. Feel free to contact TTC’s New Ventures Division, and we can help you decide if commercialization is right for your invention.

**Question 1: Is there a commercial application for your invention/technology?**

This might sound like a silly question, but we start with the basics. Not all inventions or discoveries are right for commercialization. Some help to advance their field of research but don’t have commercial potential themselves. Consider this question seriously before moving forward with your evaluation.

**Question 2: What applications can benefit from your invention/technology?**

The answer might be obvious. You might have invented a new strain of wheat that can solve the world’s hunger problems. But might an offshoot of your discovery benefit the biofuel industry as well? Cast the net wide as you answer this question: let New Ventures help you focus later on what’s truly commercializable from your discovery.
Question 3: How long will it take to commercialize your discovery?

Are human trials needed? Federal approval can take years to secure. Is your discovery an enhancement to an existing invention or something totally new? Framing the timeline for getting your discovery to market can help determine if a company is needed to help it reach its potential.

Question 4: What is the risk associated with commercializing your invention/technology?

Some industries are extremely competitive. Others are averse to risk that might cost them market share. TTC’s New Ventures Division can help you classify your invention as “risky” or not. This helps guide the kind of company we create to get your discovery into the world.

Question 5: What is the market (or markets) for your discovery?

This is a different question from questions 1 and 2. What specific consumers will benefit (and, therefore, be motivated to purchase) your discovery or the product it’s based on? What specific commercial entities would be interested in your innovation and why?

Question 6: Who owns the intellectual property (IP) related to your discovery?

TTC can help you establish patents and licensing agreements for new discoveries. Before a technology can be licensed or commercialized, who owns the intellectual rights to it first must be established. Our Licensing and Intellectual Property Management Division can help you do that. Thinking about freedom to operate is critical as well.

Question 7: What level of participation do you wish to have in the company?

Do you wish to be a paid employee, a member of the advisory board, or the CEO? Before answering, we recommend an honest self-assessment: excellent researchers don’t always make effective CEOs. What do you do well, and how can that benefit the company? Those are good questions to start with.

TTC facilitates relationships between academic innovation and industrial implementation. One such relationship involves the Texas A&M Transportation Institute (TTI) and Trinity Highway Products, LLC. This partnership makes our nation’s roadways safer by helping Trinity produce new roadside safety devices following rigorous testing at TTI.
Question 8: What, in your opinion, should the company strive to accomplish?

Is the company simply to generate research funding to carry the innovation through to commercialization? Should the company position itself as a buy-out for a larger company? Should a long-term goal be taking the company public, in addition to commercializing your innovation? Having a clear goal for your company can help keep it strategically focused for the long term.

Question 9: Do you need capital from private investors for the company?

If the answer is “yes,” your answers to question 8 are extremely important to potential private investors. For example, their primary interest is to secure a return on their investment. If the company’s long-term goal is to go public, investors will want to know what their options are (e.g., exercising an exit strategy to take their profits out prior to the public offering or, perhaps, converting their capital investment into public shares).

Question 10: How much is the company going to be worth initially?

Determine the initial value of the company. The company’s value can impact everything from your personal income tax returns to how likely private investors are to provide capital to encourage ongoing research. TTC can help you establish this figure.

Jason Ornstein, executive director of framergy, which is commercializing materials to help, for example, produce clean energy more efficiently and cost-effectively.
**How Do I Get Started?**

We have developed a generalized chronology for academic entrepreneurs to familiarize themselves with the steps needed to create a spin-off based on their research work at the A&M System. A start-up company requires numerous steps in its formation. There is no specific sequence in which different tasks should be accomplished because every new company has its own unique circumstances and needs. Please note the steps below are provided in a sequence in which many new ventures are created, but these steps might vary in their sequence or occur in parallel depending on the urgency and needs of the new venture. This table gives you a quick list of steps for working with TTC to launch a company to commercialize your idea or innovation. Following the table are more details on each step.

<table>
<thead>
<tr>
<th>Phase</th>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1: Disclose Your Idea with an Invention Disclosure</td>
<td>Contact TTC. We’ll work with you to fill out a disclosure form and verify that your idea or innovation is ready and legally eligible for the next step.</td>
<td></td>
</tr>
<tr>
<td>Step 2: Map a Path to Commercialization</td>
<td>TTC will work with you to determine the next steps of commercialization, like determining IP protection or whether a spin-off company should be a joint venture with TTC or your own.</td>
<td></td>
</tr>
<tr>
<td>Step 3: Identify a CEO or Advisor</td>
<td>TTC will help you find the right CEO or advisory team for your company.</td>
<td></td>
</tr>
<tr>
<td>Step 4: Develop a Business Model and Business Plan</td>
<td>Work with your CEO to develop a business plan to include market analysis, marketing and sales activities, a product development plan, organization and personnel, and financial strategies.</td>
<td></td>
</tr>
<tr>
<td>Step 5: Incorporate</td>
<td>Establish the company as a fully licensed corporation and legal entity.</td>
<td></td>
</tr>
<tr>
<td>Step 6: Negotiate the Option or License Agreement</td>
<td>Should you option or license your idea? Decide which agreement type works to your discovery’s best advantage. TTC can help you analyze the pros and cons of each approach.</td>
<td></td>
</tr>
<tr>
<td>Step 7: Sign a Conflict of Interest Disclosure</td>
<td>A&amp;M System employees must exercise due diligence to ensure there is no potential or actual conflict of interest or lack of commitment to comply with the law. You will work with your department on this step, but TTC can facilitate the process for you.</td>
<td></td>
</tr>
<tr>
<td>Step 8: Secure Board of Regents Approval</td>
<td>Work with your department to develop the initial Board of Regents approval memo, required for those within the A&amp;M System to be part of a business venture involving the A&amp;M System. TTC can help facilitate the process for you.</td>
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</table>
**Phase 1**

**Step 1: Disclose Your Idea with an Invention Disclosure**

Disclosing your fully conceived invention or work to TTC initiates the commercialization process. (In general, an invention or work is fully conceived when you can describe how to reduce it to practice without any further innovation.)

Once you’ve conceived or developed a new idea/technology, you should submit a disclosure form to TTC for all the inventions and copyrightable works you feel may solve a significant problem and/or have significant commercial value. The disclosure form documents the circumstances under which your invention occurred or the details of the completion of your copyrightable work, and provides the information necessary to evaluate patentability, inventor/authorship issues, commercial potential and any obligations to research sponsors.

If government funds were used for the research, you must file a prompt disclosure so the A&M System can meet its reporting requirements to the sponsoring agency. Similar requirements might exist for other sponsored projects.

We encourage faculty members to contact TTC early in the process with questions regarding their commercialization plans to avoid hiccups later in the incorporation process.

**Step 2: Map a Path to Commercialization**

Following submittal of the invention disclosure, TTC staff work with you to determine the next steps for commercialization. These vary depending on the discovery. For example, IP protection might be in order, or perhaps identifying potential licensees is called for.

At this stage, you can also decide to form your own spin-off company or make plans with TTC for a new venture corporation as described in this guide. In the latter case, you would continue the process outlined here (step 3). If TTC decides not to pursue IP protection, the A&M System may release the invention to you, and you are then free to pursue its commercialization on your own.
Phase 2

Step 3: Identify a CEO or Advisor

TTC will work with you to find the right CEO (or committed early-stage team). In our experience, this is the most important decision at this early stage of development.

The CEO is key to the success of a new venture company. He or she provides vital know-how when it comes to license negotiation, IP issues, fundraising, business plan writing, negotiation of leases for facilities, management of employees, purchasing, financial management, regulatory affairs issues, manufacturing, and sales and marketing functions. This person should also be skilled at raising capital to build start-ups from an early stage.

These areas of expertise are not generally found within the skill set of academic innovators. Thus, it’s critical that you find the right CEO who knows the market you’ve targeted your innovation to. They will, in a very real way, be your liaison between your laboratory and marketplace. The CEO will be your partner for years to come in making your discovery a success in the commercial market, so choose wisely. TTC can help you do that.

Three founding members of Rescue Therapeutics (left to right): Dr. James Sacchettini, Mr. Richard Scruggs and Dr. Theresa Fossum. Rescue Therapeutics works to lessen cancer’s resistance to chemotherapy. Chemotherapy resistance accounts for approximately one-half of cancer deaths. Texas A&M researchers designed a drug candidate that, added to a chemotherapy regimen, has a positive effect in a range of cancers and for a number of chemotherapy agents without impacting the cancer itself. Preclinical toxicology studies are under way in preparation for filing an investigational new drug application in 2013.
Phase 2 (continued)

Step 4: Develop a Business Model and Business Plan

Once a business team or CEO is identified, you and the team/CEO will develop a basic business plan to address the following aspects of the new company. This will help define the strategies to advance the IP to be licensed to the company. These strategies will address the following areas:

- **Market analysis**: The characteristics of the target market (demographic, geographic, etc.) and existing competition in the product area.
- **The company**: The needs your company will satisfy and the specific products/services your company will offer to satisfy those needs.
- **Marketing and sales activities**: Marketing and sales strategies, which will be key to success in your competitive environment.
- **Product development plan**: Major commercialization milestones and timeline, ongoing efforts, and IP strategy.
- **Organization and personnel**: Key managers, owners and operations employees.
- **Financial planning**: Funds required and their use.
- **Exit strategy**: Long-term goals of the company (publicly held or bought out) and options for venture capitalists to recover their investment.

Step 5: Incorporate

To proceed with licensing, your new company needs to become a legal entity as a limited liability corporation (LLC), C corporation (C-Corp) or S corporation (S-Corp). At this stage, you should designate a business person (the manager, team or CEO defined in step 3) to initiate licensing negotiations with TTC on your behalf.
Phase 2 (continued)

Step 6: Negotiate the Option or License Agreement

The new company will need to license the technology from the A&M System to gain the rights to develop and commercialize it. Once incorporation occurs, the designated company’s representative or CEO will work with TTC to negotiate an IP licensing agreement. This can happen in two principal ways.

Option agreements give a company the right to review a technology for a period of time to determine its viability and value to the company. During the option period, Texas A&M maintains the technology’s availability, should the company wish to exercise its option to license the technology. Typically a one-time fee is charged for such rights.

License agreements vary in terms and conditions, depending on the technology being licensed, but there are similarities in structure. The following table gives an idea of the terms in a typical license agreement.

<table>
<thead>
<tr>
<th>Type of Fee</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial License Fee</td>
<td>Paid after the license agreement is signed. The amount of the fee depends on the market value of the technology.</td>
</tr>
<tr>
<td>Annual License Fee</td>
<td>A recurring annual fee occasionally used when it’s difficult to determine a basis for royalties.</td>
</tr>
<tr>
<td>Patent Expenses Reimbursement</td>
<td>These fees reflect the direct cost associated with seeking national and/or international legal protection for the technology.</td>
</tr>
<tr>
<td>Developmental Milestones</td>
<td>Developmental milestones help to define what’s expected of the new company as it takes the technology forward.</td>
</tr>
<tr>
<td>Royalties</td>
<td>These fees are paid on sales of the licensed technology. They can be calculated as a percentage of sales or on a per-unit basis.</td>
</tr>
<tr>
<td>Minimum Annual Consideration</td>
<td>At the end of each year, Texas A&amp;M expects a minimum royalty payment for a technology. Any actual royalties paid count toward the minimum annual payment. These minimums are designed to encourage the continued development and marketing of the technology by the licensee, with the expectation that true royalties will far exceed the minimum annual consideration.</td>
</tr>
<tr>
<td>Sublicense Fees</td>
<td>When an exclusive licensee sublicenses a Texas A&amp;M technology, the A&amp;M System requires financial consideration in the form of sublicense fees. These are normally based on sales, as with royalties described above.</td>
</tr>
</tbody>
</table>
Phase 3

Step 7: Sign a Conflict of Interest Disclosure

In all activities related to new companies, A&M System employees must disclose/manage potential and actual conflicts of interest and conflicts of commitment in compliance with federal and state requirements and applicable system policies and regulations. Example policies include System Policies 07.01; 07.03; 07.04, Benefits, Gifts and Honoraria; 31.05; 33.03, Nepotism; and 33.04, Use of System Resources; and System Regulations 15.01.03; 31.05.01; and 33.04.01, Use of System Resources for External Employment.

Inventors should consult with their department head to lay out plans and receive feedback as soon as they’re ready to get serious about forming a new company. A conflict of interest exists when an individual’s personal interests (e.g., equity holdings in a start-up company) are perceived to influence that person’s judgment when exercising his or her academic or employment duties. TTC will assist you in identifying the appropriate contact within your college for conducting this disclosure process.

Step 8: Secure Board of Regents Approval

In accordance with Texas Education Code Section 51.912, a creator of intellectual property who wishes to participate as an employee, officer, or member of the governing board or authority of a business entity that has agreements with the A&M System relating to the research, development, licensing or exploitation of the creator’s intellectual property must obtain approval from the A&M System Board of Regents.

You can initiate this approval process by submitting a Board of Regents approval memo, which is initiated at the department level. The process moves up through the component CEO to the Board of Regents for approval. TTC will assist you in identifying the appropriate contact within your college for beginning the approval process.

Inventors should consult with their department head to lay out plans and receive feedback as soon as they’re ready to get serious about forming a new company.

Material sample of a single molecule trap, a metal organic framework used for advanced carbon capture. This technology is being licensed by framergy.
### Funding Sources and Resources

<table>
<thead>
<tr>
<th>Name</th>
<th>URL</th>
<th>Source Type</th>
</tr>
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<tbody>
<tr>
<td><strong>Local/Texas A&amp;M System</strong></td>
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<td>Brazos Valley Small Business Development Center</td>
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<td>The Research Valley Partnership</td>
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<td>Texas A&amp;M Engineering Experiment Station</td>
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<td>TTC Office</td>
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<td><strong>State</strong></td>
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<td>Alliance of Texas Angel Networks</td>
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<td>Research Valley Funds, LLC</td>
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<td>Texas Emerging Technology Fund</td>
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<td>Texas Wide Open for Business</td>
<td><a href="http://www.texaswideopenforbusiness.com/">http://www.texaswideopenforbusiness.com/</a></td>
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</tbody>
</table>

The Star Rotor engine developed by Dr. Mark Holtzapple is a more efficient car engine.

Three-dimensional visualization of Golgi-stained cell. 3Scan is licensing technology which enables high-throughput imaging of large volume biological specimens.
## Funding Sources and Resources (continued)

<table>
<thead>
<tr>
<th>Name</th>
<th>URL</th>
<th>Source Type</th>
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<td>Association of University Technology Managers</td>
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<td>Community of Science</td>
<td><a href="http://pivot.cos.com/funding_main">http://pivot.cos.com/funding_main</a></td>
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<td>Free Patents Online</td>
<td><a href="http://www.freepatentsonline.com/">http://www.freepatentsonline.com/</a></td>
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<td>Licensing Executives Society</td>
<td><a href="http://www.lesusacanada.org/">http://www.lesusacanada.org/</a></td>
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<td>National Venture Capital Association</td>
<td><a href="http://www.nvca.org/">http://www.nvca.org/</a></td>
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<td>National Science Foundation Innovation Corps</td>
<td><a href="http://www.nsf.gov/news/special_reports/i-corps/index.jsp">http://www.nsf.gov/news/special_reports/i-corps/index.jsp</a></td>
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<td>U.S. Small Business Administration</td>
<td><a href="http://www.sba.gov/">http://www.sba.gov/</a></td>
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<td>Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR)</td>
<td><a href="http://www.sbir.gov/">http://www.sbir.gov/</a></td>
<td>Funding</td>
</tr>
<tr>
<td>U.S. Copyright Office</td>
<td><a href="http://www.copyright.gov/">http://www.copyright.gov/</a></td>
<td>Information</td>
</tr>
</tbody>
</table>

The Freight Shuttle System consists of electrically powered vehicles that travel on a specialized, derailment-proof guideway similar to the “people movers” operating at some major airports and cities. The major benefits include the low operational costs and the promise of congestion relief. Freight Shuttle International is licensing this technology from the A&M System.
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