



**TTO Operating in the Red?
Now What?**



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Since Bayh-Dole in 1980, few TTOs avoid losses. Why?

- Academic inventions are early stage and risky
- Low hit rate and delayed payoffs
- Med/biomed inventions are the big hits
- Cost of overhead (salaries) and speculative investments (patents)
- Only a % of licensees have successful new products or services
- Only a % of startups are financially successful in reasonable time period



Why is it an issue now? Things that exacerbated problem:

- Reduced federal funding and state appropriations
- Patent law reform increased costs
- Broader set of TTO roles and responsibilities that make no \$
- Increased focus on startups and equity
- Changes in school leadership & some see \$\$\$\$
- How licensing revenue is counted by organizations
- Other factors?



Conclusion:

- External factors are pressuring universities and teaching hospitals & evolution of profession adds to the problem
- Most TTOs lose money after calculating fully-loaded costs and distributing licensing revenue
- AUTM ALAS 2017: <0.5% of academic licenses make >\$1MM
- No big winner? You're in the red.
- Now what?



Results of recent 8Q AUTM Directors survey:

- Results and findings from 61 responses
- Main category responses
- Useful comments



Q1: Does your institution continue to support your revenue-negative TTO? Yes- 60 No- 1

- Key categories: TT is a priority; aligned with the university's mission of innovation and economic development
- TT is part of institutional and faculty service
- Important for recruitment and retention of faculty
- Ensures the impact of university innovations for society and patients
- Builds relationships with industry partners
- If federal \$, need to comply with Bayh-Dole



Q1: Does your institution continue to support your revenue-negative TTO? Comments

- "All of past years have been top-line revenue positive. But after distributions, we have been revenue-negative in 3-4 of past 10 years. So highly regarded for our work, but still get budget pressure/grief regularly."
- "The university understands the dynamics and financials of a TTO (particularly of a land grant) and the 'return' it brings beyond dollars."
- "We are subsidized 37% & expected to make up the rest. We are in debt on patents. Even if we have a sizeable license upfront, they use it to offset historical patent debt as opposed to operations. So we don't grow at all."
- "In the hopes that it becomes revenue positive."
- "But extreme pressure to be revenue positive. Fired one director who didn't show revenue positive office."



Q2 In spite of this support, has your administration asked you to make changes/efforts aimed at cost savings? Yes- 38 No-22

- Key categories: Be selective or reduce patent and legal expenses; get licensees/optionees or other units to pay
- Keeping personnel expenses down
- Proper management of budget and performance
- Administration pushes for cost savings but TTO not singled out- all units are expected to cut
- Improve ROI
- Avoid grants which require a match



Q2 In spite of this support, has your administration asked you to make changes or efforts aimed at cost savings? Comments

- “Yes. The COO/CFO wants the department and deans to share in the patent risk. We intend to present something to those groups to determine their buy-in.”
- “The University has made a significant investment in building enhanced commercialization capacity over the past 2 years, so the expected 'cost savings' are in the form of improved processes and decision making, improved monitoring of licensees, and increased capacity to serve faculty, students, the community, and alumni.”
- “No but I did so preemptively when I took over from the prior Director.”
- “Patent budget is solely funded out of royalties which has made us focus very carefully on financial ROI.”
- “We do not file non-provisional patent applications unless we have a company that has signed an option or licensing agreement with terms that include patent reimbursement.”



Q3 In spite of this support, has your administration asked you to make efforts or changes aimed at increasing revenue? Yes-34 No- 27

- Key categories: Do more licensing deals, startups and SRAs.
- Pursue grant opportunities for gap funding, travel or payroll.
- Review agreements to confirm a good deal or demand higher royalties or upfront fees.
- Explore new approaches/initiatives to increase revenue
- University-wide expectation, not singling out TTO



Q3 In spite of this support, has your administration asked you to make efforts or changes aimed at increasing revenue?

- “We are already heavily focused on revenue increasing efforts (but not at all costs -- e.g. we don't ask for unreasonable deal terms). The administration occasionally has unrealistic expectations. There are unrealistic expectations on ROI on startups.”
- “They always want more revenue. Truth is that most administrations are life long academics as opposed to having worked in a for-profit world. They don't get it. They think time of patent to time of revenue = 1 to 2 years instead of reality which is 7-10.”
- “No but I have indicated that we have the potential to create more revenue than historic. Having said that I've worked to manage expectations to reasonable levels.”
- “Always. Dreams of sugar plums dance in their heads w/o supporting the plum tree.”
- “Not really, however there is definitely a perception that, if done correctly and professionally, revenues will go up over time...just not "focus" on revenues.”
- “Do more deals.”



Q4 Has your administration hinted at the possibility of reducing or restructuring your TTO operations? Yes- 23 No-37

- Key categories: If yes, looking at or have already done restructuring, revising metrics, goals & financing strategy.
- If no, focusing on budget management and relationships with internal & external stakeholders.
- Exploring centralization of the TT function in a university system to reduce costs.



Q4 Has your administration hinted at the possibility of reducing or restructuring your TTO operations? Comments

- “There is interest in containing/reducing patent/legal budget. And interest in containing average salary (hire less experienced) and not growing staff to at least partially cover increased throughput.”
- “Not yet. We have huge buy in from the internal stakeholders and a very good relationship with our local and beyond stakeholders.”
- “This questions is in the present tense - so NO, not at this time. But, we have been through several re-organizations in the past.”
- “Restructuring it seems is always on the horizon. No one can decide which is the best model.”
- “TTO at my institution was, in fact, dissolved a few years ago, with only 1 administrative person kept to continue the operation. I was then hired from industry to rebuild it with a more profit-minded structure.”



Q5 Is your administration aware of other duties & responsibilities shouldered by TTOs that contribute to institutional enhancement? Yes- 48 No-13

- Key categories: Providing advice and guidance to the external community in the form of professional development.
- Assisting internal stakeholders such as researchers, student entrepreneurs and other units like sponsored programs and communications.
- Enhancing reputation of the university and its researchers and startup programs.
- Policy support and thought leadership; B-D compliance.
- Supporting industry partnerships, business development and local community employment.



Q5 Is your administration aware of other duties & responsibilities shouldered by TTOs that contribute to institutional enhancement? Comments

- “We do lots of “free business development consulting” and “free legal consulting” for faculty and departments. We are very involved in selling sponsored research opportunities, which is related but not directly attributable to TTO. We often host University visits by outsiders who will not contribute to TTO metrics but might be good for University enhancement.”
- “Recent APLU documents and other similar communications have helped to further educate administration.”
- “Really they aren’t. Once explained to them, they acknowledge and say “track it” but it never figures to our bottom line.”
- “The administration is somewhat aware and if our performance of these additional duties lapses, they are quick to complain. But it is not clear they really appreciate all the time and effort that is required.”



Q6 Are these contributions valued? Yes-43 No- 17

- Key categories: Value support for almost all contracts on campus. Support faculty that want/expect IP protection and partnering.
- If yes, hard to quantify the cost (to TTO) and benefit (to university).
- Value reputation, service to mission, contribution to economic growth.
- Industry engagement and de-risking inventions valued.
- Positive PR stories.



Q6 Are these contributions valued? Comments.

- “We brought in a SRA valued at \$3M to the PI. Nothing to us. No credit for it.”
- “Especially support for Industry SRA, Alliance Management, finding solutions/ways forward in apparent confounding situations. Our staff has a unique mix of technical, legal, and business acumen that is unique at the university and very helpful at times.”
- “Sponsored research and impact on student learning opportunities are recognized as direct benefits. Impact on the regional economy is recognized as an indirect benefit and a legitimate element of the institution's mission.”
- “Industrial Sponsored Research is greatly valued. MTAs, not so much.”
- “Helping negotiate IP clauses in SRAs is viewed as important.”
- “Yes but not as much as any revenue-producing activities.”
- “They provide higher administration with some good talking points.”



Q7 Do these recognized contributions take pressure off you given that your TTO operates "in the red"? Yes- 33 No- 19

- Comment: "Yes but such good will only goes so far. There is considerable pressure to show forward progress on licensing, startup creation, meaningful engagement with alumni and the community, local/regional impact, and, ultimately, a greater financial return than we've seen in the past."



Q8 Any other comments you'd like to share?

- "I'd love to speak with you to determine how you intend to solve it. I've been speaking with others. Basically 85% of us have failed business models, because we function in the non-profit space."
- "TTOs around the world vary in their remits and the government influence so it might be hard to compare like with like."
- "The key is (a) alignment between President, VP for Research and TTO director on mission and appropriate use of university resources; (b) frequent, consistent communication between the VPR and TTO director on agreed-upon metrics for those goals (e.g., the appropriate balance between faculty service vs. patent budget) and (c) lots of patience and understanding."
- "Building strong support with research intensive faculty has been critical in holding off challenges. Nothing speaks louder in our world than a researcher with major grant funding telling the chancellor they would not have received the award without the support of the TTO."



Q8 Any other comments you'd like to share?

- Equity in start-ups doesn't get counted and this ensures the "red" is there. Also, the Administration supports giving IP away for an option fee. The cost of our outside counsel is too high. The IP office lacks the capacity to effectively market the IP we have; resulting in a full [negative] cycle. Start-ups don't pay off very quickly. Our administration has such patience and hopes for the 'home run', trading modest "red ink" for a time. That may change."
- "As part of doing US government research, the TTO must exist just to take care of reporting and iEdison/Bayh Dole compliance. Such funding is not available out of the research budget; the university must, by definition suck it up and pay out of their own pocket."
- "I consider myself very lucky. This institution has had home runs, and know that they are hard, but important to try and achieve again. They also know that they can't be effective if they decrease staff."



Q8 Any other comments you'd like to share?

- "Help university leadership understand that pressures of having many duties and that not all technologies are large revenue producers."
- "It is difficult to explain to academics that TTO cannot be operated like a business because it lives in an environment completely unlike a business, with layers of constraint imposed by the institution. If I were to run TTO like a business, I would discard most of the technologies and only focus on the few with high potential, and I would charge for all the auxiliary services we provide to the campus (which consume the majority of our time). None of these would be remotely acceptable politically. Yet the expectation for running an administrative and service organization for profit remains."



Results of UMass campuses discussion: additional ideas and perspectives not cited in Directors' survey

- Meeting the requirements under Federal regulations including Bayh-Dole: invention reporting, acquiring title, government rights statements, confirmatory licenses, and utilization reports. Measurable? Could be a negative measure if not done, e.g. loss of funding or ownership of IP.
- Managing requirements in industry arrangements (e.g., invention reporting, negotiating IP agreements and managing joint inventions.) Measurable? Could be a negative measure if not done.
- Negotiating MTAs and NDAs to allow sharing between academic and industry researchers of proprietary material and information. Measurable? Could be a positive indirect measure. Value could be estimated based on what a third party would charge.



Results of UMass campuses discussion: ideas and perspectives not cited in Directors' survey

- Creating opportunities for federal, foundation or third party research funding that occur because of past, current or future strategic filing of commercially-relevant patent rights. Measurable? Yes, and in \$\$.
- Industry funding and liaison efforts facilitated by TTO as a result of past or future inventions. Measurable in \$\$.
- Generating funding from local, state, or federal government entities or foundations to support local economic development, including gap funds. Measurable in \$\$.



Results of UMass campuses discussion: ideas and perspectives not cited in Directors' survey

- Avoiding litigation, e.g., disputes involving: a faculty member and grad student; external university or industry collaborators; licensees; recipients and providers of proprietary materials or information. Measurable? Not easily except in the absence of such litigation.
- Helping the Development Office by introductions, nurturing relationships with alumni, and opportunities for future major gifts by successful entrepreneurs. Measurable? Only very indirectly.
- Enriching student learning through TTO work study, internships, and entrepreneurial guidance. Measurable? Yes, by number of students assisted.



Results of UMass campuses discussion: ideas and perspectives not cited in Directors' survey

- Activities that enhance an innovation ecosystem supporting local ED including startup incubators and accelerators, in particular when entrepreneurial efforts are based on university IP. Hard to measure.
- Reputational value of university's gap and seed funds and major commercialization successes which began as a result an academic discovery. Important but hard to measure directly.
- Reviewing, interpreting, responding, and educating stakeholders re: new federal regulations and laws. Hard to measure value.
- Freeing up personnel in other units by taking on some of the above roles. Critical in terms of cost saving but hard to measure.



Takeaways

- Most institutions support their money-losing TTOs but many want decreased costs or increased revenue
- Best course is to show current contributions justify the cost vs. being compelled to cut operating expenses
- No magic bullet; each TTO needs a unique strategy based on organizational mission, resources etc.
- Routinely inform & educate leadership re range of TTO contributions and positive effect on institution
- See the 2009 AUTM Transactions Survey detailing non-monetary TTO contributions. Still relevant today.



Takeaways

- Activities and outcomes that benefit students are compelling
- Tying TTO efforts to sponsored research dollars is effective
- Faculty support is best offense and defense
- Show how TTO assists other units
- Startups are time consuming and costly but generate great press and kudos for TTO efforts; manage expectations!



Takeaways

- Increase probability of revenue by efficient practices & doing as many sound deals as possible
- It is more feasible to cut costs than increase revenue
- Cost-effective use of patent budget can help; but losing staff is death spiral
- Cost sharing with other units can help but brings problems
- Merging with other units; holistic & integrated approach with costs and revenues less visible
- External grant support for gap funding or entrepreneurship



Thank you.
Feedback? Questions?

