Computing Research Association

Best Practices Memo

Commercialization Oversight for Computer Research Departments

Summary
The relentless pressure to innovate in the information technology (IT) industry has drawn university researchers and graduate students into entrepreneurial situations to an increasing degree. The trend affects the academic enterprise in diverse ways, both favorable and unfavorable. The risks and rewards are so great that the concept of a Commercialization Oversight Committee is described as a mechanism that can facilitate the best outcomes when interests conflict.

Background
The dramatic proliferation of information technologies and the rapid rate at which IT research is being commercialized have recently put pressures on computer science and allied departments as their faculties and graduate students ponder the opportunities presented by entrepreneurship. Commercialization is an outcome of research that society values and is one of the justifications for research funding; hence, it is important to facilitate it. But it is clear that the traditional standards of collegiality, scholarly respect, and peer governance that are typical of academic departments can be jeopardized by commercialization opportunities.

The problem is not new. Commercialization opportunities have been available since the inception of ENIAC. And, as observed in the ENIAC experience, commercial potential can engender conflicts and disputes. The current problem, however, differs in magnitude and appears to have been precipitated by two recent departures from past experience. First, the scale and speed of the startup opportunities seem to be greater than in the past. These changes seem to be propelled by the recent business concepts of “time to market” and “winner take all” that are critical to IT commercialization. Second, federal legislation, known as the Bayh-Dole Act, requires universities to assess the commercialization potential of any intellectual property (IP) created with federal funding. Obligated by statute to set up technology transfer offices and motivated by the possibility of helping the institution in the event of a commercialization success, universities, like faculty and students, are torn between the altruism of a scholarly paradise and the essentials of a commercial enterprise.

Some issues to be considered include:
• Should a faculty member starting a company take a leave of absence, or is starting a company compatible with a full-time faculty position? How long can a leave be? How often can a leave be taken?
• Can a graduate student work for a company founded by a faculty member and also be advised by that person? Who decides what is best for the student’s academic career vs. what is best for the university?
• If a company is started, will everyone who participated in the ideas and work be credited for their contributions?
• If a project at the university is related to the company, how does information flow between the two?
• Will the number or content of publications or the distribution of software be restricted to preserve commercial advantage?

Some of these issues should be discussed within the department and guidelines should be established for faculty. Other issues are complex and situation-specific, eliminating any possibility of simple or universal solutions.

One component of a solution that can address a few critical aspects of commercialization and is widely applicable is the concept of a departmental Commercialization Oversight (CO) Committee. This memo describes the CO concept and a typical charter.

Principles of Commercialization Oversight
A commercialization oversight activity is founded on two basic principles. Although these principles have been adopted at a number of universities, they are perhaps articulated best in the University of California’s documentation.

1. Primacy of the University. The University of California states this principle clearly in its Guidelines on University-Industry Relationships: “First consideration must be given to the University’s mission of teaching, research and public service. In pursuing relationships with industry, the University must keep the public trust and maintain institutional independence and integrity to permit faculty and students to pursue learning and research freely.”

2. Responsible Behavior. The academic participants in a commercialization activity are typically the creators of the IP, the faculty and graduate student and the administrators of the department and institution. They are governed by guidelines, policies, and laws designed to circumcribe and define acceptable behavior. The burden of acting legally, ethically, and responsibly relatively to these constraints falls to the inventors and the university. Integrity is essential to the process if the institution is to preserve academic freedom. As the University of California’s Statement On Conflicts of Interest points out, “A codification of the complex ethical questions involved, even if possible, would be unduly restrictive.”

In addition to these two principles, the commercial oversight concept is founded on the premise that it is an internal—that is, a departmental—responsibility. The inventors are members of the department, and any ill effects of commercialization will have an impact on the students and faculty. Further, situations in which a graduate student is exploited or a faculty member carries the load for a moonlighting colleague are evident at the departmental level. They are invisible at the school, college, or university levels. So oversight is a departmental responsibility.

Role of Commercialization Oversight
From the two principles outlined above, it is evident that the role of the CO Committee is not to enforce regulations, but to facilitate high standards in order to preserve collegiality. Although there are many ways to do this, the CO activity will likely fulfill four basic functions:

1. Serving as a focal point for commercialization information.
2. Vigilance on behalf of the student-faculty relationship.
3. Vigilance on behalf of the faculty-faculty relationship.
4. Periodic review of commercialization activity.

These functions can be fulfilled by groups of one to several people, but a committee of two neutral senior faculty offers the advantage of providing multiple points of view and, possibly, some wisdom. In this case, “neutral” means that the faculty are not themselves involved in commercialization activities that would be of concern to the committee. (Consulting is not typically an issue for this committee.) It is appropriate, and possibly advantageous, if the members have had previous commercialization experience. The goal is to ensure independent judgment, both in appearance and in fact.

Focal Point. It is likely that many faculty members proceed through their careers, oblivious to university policies on commercialization and unaware of their obligations under federal law such as the Bayh-Dole Act. Graduate students are even less well informed. Then one day they realize their research efforts have produced IP of commercial value. The CO Committee can serve as a neutral source of information or, more typically, can direct inventors to campus resources related to technology transfer.

The existence of the CO Committee is perhaps most critical to graduate students whose closest academic confidant may be their advisor, a person who will have a concrete interest if the IP has been developed jointly. (See Vigilance.) By making the committee visible within the unit and emphasizing its role as an unbiased facilitator, students can be confident of receiving independent and unbiased advice about commercialization. Note that the student doesn’t have to have commercial interests to meet with the committee. A student whose advisor is too busy with a commercialization activity to fulfill his or her role as advisor might seek input from the committee as well.

Another focal point of the CO Committee, especially if it maintains some continuity from year to year, is its role as the repository of corporate knowledge regarding past commercialization activities. Although commercialization situations are generally very different from one another—which is why the process cannot be so easily codified—experience always teaches lessons. Mistakes should not be repeated, and successes should be.

Vigilance on Behalf of the Student-Faculty Relationship. There are several aspects of the student-faculty relationship° with which the CO Committee should be concerned:

1. The advisor/advisee role.
2. The faculty/student economic standing.
3. The faculty/student job performance.

Advisor/Advisee. Although faculty and graduate students may be equals in the creation of knowledge in their roles as “academic individuals,” they are not equals in their academic relationships. The graduate student is typically subordinate in the following contexts:

• As a research assistant on a grant, which is likely the source of the student’s livelihood.
• As a thesis student, who needs the approval and signature of the faculty advisor to receive his or her degree.
• As a candidate for employment, grants, awards, etc., after graduation when the advisor may be asked to provide letters of recommendation.

In addition, the faculty member may have considerable stature and influence in the scholarly community into which the student is likely to enter.

° This sentiment is based on comments made by Tom Landgraf of Stanford University and Debi Doggett of the University of Washington at the recent NSF-sponsored Commercialization Oversight workshop in San Jose, CA.

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which constitutes additional, if less direct, authority over the student's future.

The existence of the above relationships affects other faculty–graduate student
interactions and can create a conflict of interest. In particular, the faculty committee
must ensure that they adopt and follow appropriate guidelines to prevent
conflicts of interest. Conflict of interest can lead to
misunderstandings and consequences for both the student and faculty.

1. Conflicts of interest connected with the Promotion and Tenure process.
   - Decisions about professional advancement should be made without
     undue influence by commercial interests. Faculty and graduate
     students involved in commercialization activities should disclose
     their involvement to ensure fairness in the decision-making process.

2. This arrangement, where the university licenses to a company formed by anyone, is
   intended to facilitate commercialization activity.

3. For example, students often assume that, if a faculty member
   founds a company based on IP to which they have both substantially
   contributed, they will also both be founders.

4. Because the Bayh-Dole Act requires that the university
   retain any rights to inventions, the faculty member’s interest
   in the IP must be managed, as has been described. Rather, the conclusion
   is that commercialization activity is just beginning, there is an ongoing
   relationship of concern is principally the one between faculty and their graduate
   students and faculty at universities, and were disseminated through the formation
   of new companies. Commericalization, despite the potential concerns outlined
   in this memo, is an effective means of transferring the accomplishments of the
   research community into practice for the benefit of society.

Conclusion

Although this memo necessarily raises problems that can occur in the
process of commercialization, it is not intended to denigrate the process.
Indeed, significant technologies—processors, servers, operating systems, data-
bases, search engines, and so on—that we use every day were invented by stu-
dents and faculty at universities, and were disseminated through the formation
of new companies. Commercialization, despite the potential concerns outlined
in this memo, is an effective means of transferring the accomplishments of the
research community into practice for the benefit of society.

The conclusion, therefore, is not that commercialization carries with it too
many risks for the universities to be worth pursuing. The risks, though real, can
be managed, as has been described. Rather, the conclusion is that commercial-
ization carries too many opportunities and benefits to let these manageable
risks stand in the way of transferring university-produced knowledge
into practice.

End Notes

1. The relationship of concern is principally the one between faculty and their graduate
   students. The relationship with undergraduate students is also important; however,
   when the intellectual property is created, undergraduates are often unaware of
   their rights, and the university may not be aware of the potential rights
   that they have.

2. This arrangement, where the university licenses to a company formed by anyone,
   is based on the university’s ownership of the IP stipulated in Bayh-Dole for federally
   funded research. Other IP may or may not be owned by the university, depending on
   university policy. If graduate student and faculty inventor owns and control the IP
   themselves, their interactions become even more complex.

Approved by the
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