

Processes to Formalize Sponsored Educational Activity Agreements between Industry and Universities Related to Capstone Design Projects

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Capstone programs have evolved over the years from small, mostly internally sourced projects with paper-based outcomes to externally funded, industry sponsored projects delivering fully functional prototypes or test fixtures. This increased level of project sophistication and expanded cast of stakeholders has motivated academia and industry to more carefully evaluate the risks and rewards of capstone design programs. This paper examines a handful of institutions across the country with posted policies and procedures to manage legal as well as contractual issues associated with capstone projects. Special emphasis is given to efforts over the last five years to develop and implement such processes at the University of Idaho. There has been a delicate balance between satisfying perceived needs by the University Counsel and by promoting exemplary service learning outcomes. Issues considered in the resulting templates for both industry and student agreements include intellectual property rights, handling confidential or sensitive information, budgeting, overhead rates, billing, indemnification, turnover of project deliverables, timing of project legal documentation, and sign-off by an authorized representative. This paper contains a first draft of a survey which the authors would like to circulate to as many engineering capstone programs as possible through activities of the 2014 Capstone Design Conference. The ultimate goal of this investigation is definition and shared understanding of best practices associated with capstone project agreements.

Keywords: Intellectual property, confidential information, contracts, capstone design project deliverables

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Introduction

Outreach and engagement programs have evolved over the years, especially capstone, experiential learning programs. Originally, capstone programs consisted of small student teams working directly with faculty to advance or create a design. They were largely unfunded and the deliverable was a paper design or feasibility study. As capstone programs have evolved, they have become an integral part of an institution's service learning mission and a valuable connection for the institution and the student with regional industry. Over the last twenty years, many programs feature an array of projects which are externally funded and which build on previously existing technological know-how by the sponsoring organization.

Academic stakeholders are now interested in what technologies are being developed, who owns those technologies, what liabilities may exist, and what risks can be minimized. On the other hand industry stakeholders are concerned about risks associated with revealing proprietary technologies, processes, or know-how to public institutions. Additionally, most capstone projects do not justify the typical institutional overhead rates consistent with a large basic or applied research

grant. Furthermore, capstone instructors need administrative flexibility in securing an adequate selection of projects in short timeframes before the start of the semester. Once project teams are assigned, rapid start-up is needed even though it typically takes a month or longer to process necessary paperwork.

Senior capstone programs lead to better learning¹, increased interaction with industry, student interaction with potential employers, and the opportunity to advance and apply new technologies for greater economic prosperity for the region and state. Institutions pride themselves on the amount and nature of service learning embedded in their academic programs. Alumni often serve as project mentors/clients, which is a catalyst for sustained involvement in annual giving programs. Capstone project work is a natural nexus for industry involvement in program design and program assessment. Challenges in formalizing sponsored educational activity agreements should not detract from these missions.

Outreach and Engagement at University of Idaho

Land grant universities across the nation are wrestling with how to strengthen and leverage outreach to

increase student learning and to disseminate knowledge. The University of Idaho is no exception. Our strategic plan identifies outreach and engagement as one of four overarching goals. For this reason, a cross-campus task force was selected to examine best practices at other Universities, conduct focus group sessions, and make recommendations to the President and Provost about how best to structure outreach and engagement at the University of Idaho. After meetings that spanned two years and included two university-wide workshops that involved over 170 people, the task force delivered their report². The report drew distinctions and supplied definitions for some of the terminology surrounding outreach and engagement (i.e. outreach, engagement, scholarship of engagement, distance education, professional development, service learning, cooperative education, extension, technology transfer, professional service). The task force discovered and documented many promising strategies for strengthening outreach and engagement. These included university-wide councils; senior positions responsible for relationship building and advocacy; engaged student learning centers, mini-campuses around the state; and focused learning/demonstration projects. The report also made recommendations for expanding and elevating university-wide outreach and engagement:

Structure: Create an Outreach and Engagement Council (OEC) to champion and coordinate both within and outside the university, including regional centers and the UI Extension program. Two of the authors have served as representatives on this body since its inception in 2009. Create an Office of Community Partnerships to advocate for service learning, extension activities, and scholarship of engagement. The director of this office should have equal voice within the President's Cabinet and Provost's Council as the Vice President of Research.

Reward Systems: Change position descriptions, annual evaluation criteria and forms, and tenure and promotion criteria, to reflect an elevated role for outreach and engagement.

Administrative Barriers: Identify and streamline administrative processes (i.e. travel, overhead rates, contract language, approvals, and invoicing) that discourage pursuit of outreach and engagement activity.

Marketing and Communications: Make stakeholders within and outside the University more aware of outreach and engagement activities, accomplishments, and opportunities. This includes a prominent web presence, campus-wide awareness about service learning, and visibility in national classifications/award programs.

The transparent, bottom-up process that was used to propose these recommendations has paid dividends in bringing about a number of positive changes with respect to outreach and engagement at the University of Idaho. Categories in position descriptions and annual evaluations were reduced and simplified from 10 to 4, corresponding to the four areas specified in the institution's strategic plan (teaching/learning, scholarship and creative activity, outreach/engagement, and culture/climate). OEC members have collaborated with the Center for Service Learning to collect annual project vignettes and compile assessment data from student outreach for an annual service learning report that is used as the basis for successful submissions to the President's Higher Education Community Service Honor Roll. Three different outreach programs have won regional and national McGrath/Kellogg Awards given by the Association of Public Land-Grant University. The University is currently working with capstone design faculty to prepare a submission for the 2014 competition.

Reconciling perspectives of the University Counsel, the Office of Sponsored programs, Risk Management, and faculty involved in overseeing service learning projects has been difficult. A need to distinguish between course projects that receive funds from sponsors and those that only receive in-kind support was recognized early on. This distinction has avoided campus-wide confusion. Processes designed to allow capstone projects while mitigating risk to the University are still in a pilot phase. This distinction has focused attention on capstone programs in the College of Engineering and the College of Business where funds are received to enable the programs. After a half-dozen iterations and more than two years of negotiation with two of our largest corporate benefactors/sponsors, we now have a draft Sponsored Education Activity (SEA) agreement with mutually acceptable language and with many fewer pages than was envisioned by the University Counsel. This draft which includes a 5% overhead rate is being used with 2013-14 capstone design projects.

There is also a separate Student Activity Participation Agreement (SAPA) that holds students accountable for confidential information and that surrenders rights to any intellectual property created to the project sponsor. Prior to signing the SAPA, students are required to review and pass an online quiz related to an 8 minute training video. The student is responsible for submitting intellectual property disclosures and not infringing on any intellectual property held by or licensed to the sponsor. Students are not assigned to projects for which they are unwilling to transfer the potential intellectual property generated during the project. Other internally-sponsored alternatives are always available. In practice, this restriction has not been a problem. In fact, students

are often eager to work on projects that might involve intellectual property development, and they understand and appreciate the fact that they can be inventors on intellectual property but not owners.

A number of issues have arisen in attempting to use the SEA and SAPA with current capstone sponsors. As part of our effort to bring about further SEA revision we decided to take a closer look at how other institutions are handling capstone project agreements. The next section describes a trial survey that probes practices by several programs that have sent representatives to past Capstone Design Conferences.

Pilot Survey

The following data was gathered through a search of the institution's or program's website. The institutions were identified solely based on the authors' familiarity with the programs. The focus of this investigation was on the existence and terms of any agreements required to participate in a capstone program. The following data was compiled.

- Sponsor agreement: between institution and project sponsor.
- Student agreement: between student and project sponsor (largely related to confidentiality and non-disclosure).
- Other agreements: beyond sponsor and student forms
- Sponsor Assigned IP: transfer of intellectual property rights developed during the project life-cycle.
- Indemnity: Institution and project sponsor explicitly held harmless for any claims arising from project implementation or design.
- Warranties/Guarantees: Institution explicitly warranties or guarantees project outcomes or explicitly delivers project as-is.
- External Sponsors: Externally or internally funded sponsor.
- Budget: Negotiable budget or fixed budget, itemized or flat fee.
- Multidisciplinary: Teams members from different departments and/or colleges.
- Export/ITAR: Projects with export restrictions are allowed or not allowed.

Table 1 shows the response rates for the ten schools according to the categories investigated. The numbers in parenthesis represent the number of organizations whose policy was typical in that category. The abbreviation "Unk" indicates that no information was found. "NDA" indicates that the student agreement consists of a non-disclosure agreement. The budget category identifies that budgets are either fixed or negotiated based on the size and scope of the project.

Table 1 Survey Results

Sponsor Agreement	(3) Yes	(3) No	(4) Unk
Student Agreement	(5) Yes NDA	(1) No NDA	(4) Unk
Other Agreement	(3) Yes	(7) No	--
Sponsor Assigned IP	(7) Yes	(0) No	(3) Unk
Indemnity	(2) Yes	(1) No	(7) Unk
Warranties/ Guarantees	(0) Yes	(2) No	(8) Unk
External Sponsors	(9) Yes	(0) No	(1) Unk
Budget	(3) Fixed Donation	(4) Negotiated	(3) Unk
Multidisciplinary	(6) Yes	(1) No	(3) Unk
Export/ITAR	(0) Yes	(3) No	(7) Unk

Discussion of Results

The results from the pilot survey underscore issues that have grown from being less relevant in the early years of capstone programs to becoming significant hurdles for modern programs.

Intellectual property rights are rightfully a concern of all parties. A sponsoring entity especially one that shares its internal needs and existing technology wants to own any intellectual property that it commissions. Some institutions, like the University of Idaho are governed by an educational board or similar public entity that has mandates that any intellectual property developed at the institution should be owned by the institution. While it took significant efforts to present to the Idaho State Board of Education the nature of capstone projects, where student learning is the desired outcome and not the creation of intellectual property, eventually, the intellectual property rights were allowed to be signed over to the sponsoring entity.

Another source of potential conflict is confidentiality. Most educational institutions value sharing knowledge and publishing methods and results, whereas private industry does not value public disclosure. Private industry goes to great lengths to secure and protect its proprietary intellectual property. This property could be in the form of trade secrets, copyrights, know-how, patents, and trademarks, among other assets. Convincing a private sector sponsor that their intellectual property is safe within an educational institution requires additional processes and protection.

A major show-stopper in capstone project funding is securing a reasonable overhead rate. Funding levels for capstone projects are typically less than \$5,000^{3,4}. Traditionally, an educational institution levies an overhead rate on any externally funded research project or grant. This levy ensures sufficient funds for overhead and the administration and management of all grants

and contracts as well as provides the necessary support staff and equipment to operate all the ancillary equipment and facilities for a broad array institutional research program. In many cases, the overhead rate is on the order of 40% on any dollar coming to the institution. This cost structure is in contrast to private industry that generally operates on leaner principles and meticulously drives down overhead and G&A rates.

Another issue that can arise in administering service learning programs is the assignment of time dedicated to a capstone project by faculty and how much of a faculty's wages are paid for by the project. Most grants and contracts that are administered by the University are research oriented where the amount of time allocated for these projects must fit into a faculty's position description of aggregate research time. If the time allocated is greater than the total time in the position description, then the grant or contract has to cover that portion of a faculty's wage over the specified amount. At the University of Idaho, the minimum time allowed on a research contract is two percent. However, if a faculty member had 20 capstone projects, then a minimum of 40% of their time would have to be allocated to these projects and a minimum of 15% of their salary would have to be covered by those contracts. Sponsors will not pay that amount on a relatively small capstone project. Since the purpose of these small contracts is student learning, the University of Idaho VP of research was able to convince the Idaho State Board of Education to change the policy and allow capstone projects to fall under a faculty members' teaching time allocation rather than funded research.

These relatively small budgets pose additional problems for the faculty and staff overseeing capstone projects. With limited funds, the timing of when the funds are available does not often coincide with when the work needs to begin or when equipment must be purchased. Waiting on signatures and funds to transfer in order to make a small purchase limits project effectiveness and gets in the way of project learning and student development. While the money that comes in to the institution is external and since the amount of money is relatively small, the procurement process should be more transparent and easier to navigate than traditional research grants.

Finally, the management and administration of capstone projects needs to be nimble. Many projects are vetted and coordinated by faculty, however students do not get involved until part way through a semester. And, in some cases, funds are not made available until an agreement is executed by institutional administrators and sponsoring management. Prior to executing the agreement, a list of action items or tasks often must be agreed upon with an estimate of the budget. This process can be lengthy and without a signed agreement, work cannot commence. Greater flexibility in the

management of the contract and defining project scope can help get students involved early.

Concluding Thoughts

Focusing on the positive aspects of capstone design programs in particular, and service learning programs in general, is a wonderful source of university/industry and university/community partnership. These are desired talking points by Chairs, Deans, and Presidents. Concerns of institutional legal offices should be taken seriously, but they should be questioned to insure that revisionist interpretations do not make them overly taxing or complicated. The administrative paperwork associated with pursuing external projects should be as transparent and effective as possible and should help faculty recruit potential projects (by alleviating natural concerns of prospective sponsors). At the 2014 Conference we intend to do a broader survey about administrative issues related to capstone design. We will give special emphasis to process steps at different institutions and the timeline required for completing each step. Our goal is to identify administrative practices that are not only robust, but which are also as lean as possible.

References

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