REE USA 2004
Session F: Technology Commercialization and Faculty Entrepreneurship
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Krisztina Holly starts out by asking: **What are the reasons that we ought to encourage faculty entrepreneurship?**

Different people from the audience answer:
- For economic benefits: Faculty entrepreneurship can generate revenue.
- Faculty can through entrepreneurship have an impact on world/society
- It is a funding mechanism for universities
- There are obligations to commercialize due to the Bayh-Dole act
- They have to promote entrepreneurship to retain research funding, for the sustainability of their research projects.
- Faculty can learn things in the commercialization process that might benefit their scientific endeavor. People who have commercial relations early on can make you a better academic. This is shown in a study by Darby and Zucker at UCLA. The experience with industry can actually make you do better science.
- Commercialization is a way of retaining the association with both alumni of the university and also with the surrounding community.

Krizstina Holly: There is a study that shows that even though there were no relationship between having a lot of patents and having a lot of papers, then the people that had patents were the ones who's papers were more cited………..As we can see then there are many reasons that we would want faculty to engage in entrepreneurship. It is not just because entrepreneurs give money back to the school, but all the reasons that you have listed above are good, and shows that there is not just a simple story to why we should encourage faculty entrepreneurship.

Krizstina Holly: Why should we encourage students to become entrepreneurs?

Person from the audience: "Getting the marketing input early in the development process is a challenge. And you can nearly not start soon enough. It is good if the students are conscious about how their research can be commercialized".

Krizstina Holly: How many have faculty members that are interested in entrepreneurship?

Over half of the audience raises their hands.

Krizstina Holly: How many think that between 0-10% of the faculty members at your university are interested in entrepreneurship?
Over half of the audience raise their hands.

Krizstina Holly: How many think that between 10-15% of the faculty members at your university are interested in entrepreneurship?

About 7 people from the audience raise their hands.

Krizstina Holly: How many think that more than 15% of the faculty members at your university are interested in entrepreneurship?

About 3 people from the audience raise their hands.

A person from the audience says: "What about: We do not know yet, because nobody had asked".

There is laughter in the room.

Krizstina Holly: There is also a problem with the definition of faculty entrepreneurship. How do we define it? Does it mean that faculty members leave the university? Or does it mean that the faculty stays at the university and has a business on the side? I think that a lot of faculty likes to have something on the side, but that it is not their main commitment.

Person from the audience: "At our medical school we have a rule that you are not allowed to have more than a day of the week where you are committed to things outside of the university".

Kriastina Holly: There can easily arise conflicts of interests between the faculty role and the entrepreneurship role. If we want to look for rolemodels then there has been some great examples at MIT where the faculty stayed at MIT, but that they still were able to start ventures. For example EG&G, Bob Lager, and Bose. At MIT we have a faculty member that has started about 15 companies, but still stays at the university.

Person from the audience: "I have calculated that if you take weekends, spring breaks, summers etc, then faculty has 200 days to start his venture. People can do both at the same time – they can both be faculty members and start a new venture."

Krizstina Holly: I know that when VC donate money they would like to have a great faculty member in the company, but they want that person to be dedicated to the company. This can easily create a conflict for the faculty member between staying at the university and going into industry to try to start a new venture.

Person from the audience: "One of the roles of faculty can also be that they encourage their students to become entrepreneurs. In this model faculty are able to spin out a lot of companies through their students, but they do not have to leave the university. They can retain a relationship to the company through the R&D unit for example as an external consultant, as long as they do not get too involved with the company they are able to do both - and maybe even get synergies between their two engagements.

Person from the audience: "In the universities that are many hundred years old then there are specific reward systems, like publications in peer reward journals, and getting grant money. If you want to change that: Good luck!"

(There is laughter among the audience).

Person from the audience: "But we can try to change that. We have tried to encourage entrepreneurship. So that instead of working against you then entrepreneurship could work for you. You would actually be rewarded for trying to create a new venture."

Person from the audience: "But at the university there are many faculty in many different areas and there are people in English etc that wants one metric that is good for all. Since it is only some areas

Krizstina Holly: How many of you have experienced that entrepreneurship was perceived as something negative at your university?

Person from the audience: "At MIT we evaluate faculty members based on their "impact". If entrepreneurship has positively contributed to the "impact" that a faculty member has had on society than entrepreneurship is counted as something positive, but it can also work negatively. In general it is neutral. But I have found that in reviewing a faculty members record that the discussion about "impact" has actually broadened the discussion so that the person is not only being evaluated on academic papers, but other things that he or she has done is being taken into consideration too".

Person from the audience: "In Australia we have had a situation where a project that a student was working on was competing with a venture that a faculty was the CEO of. That was a very difficult situation. So we also have to think about what are the consequences for students when faculty members start to have several roles".

Person from the audience: "In clinical research there is a panel on conflict of interests. We really need to be aware of conflicts of interest, especially when there are students involved. It is okay that a student works in a faculty member's university lab, but the student cannot work in the faculty member's venture lab, because there might be situations where the faculty member is taking advantage of the student's cheap labor".

Person from the audience: "Involvement in a venture requires a lot of "development". And development is not part of the way that faculty is evaluated. If it was then we would see an explosion in faculty consulting and faculty entrepreneurship".

Person from the audience: "Most Technology Transfer Offices will tell you that conflict of interest mostly occurs due to a faculty member's consulting activities or because he or she is involved with ventures. We have a great rolemodel at our university who does it right. He is involved with start-ups, but he does not collect a salary from them. He also

has a meeting with the Technology Transfer Office every month to be sure that he is doing things right"

Krizstina Holly: How do you build a team? Most faculty members do not make good CEO? So how do you find that CEO?

Person from the audience: "The entrepreneurship center can be the place where technologists and business people can meet each other. We try to encourage that at our university".

Person from the audience: "I want to follow up on that, because often the experienced CEO comes in too late. You often need more than the technology to attract the CEO, you need a proven business model and a technology that works, but it is very difficult for the scientists to get to that point, because they have often never been involved in business before".

Person from the audience: "We have tried to make seed grants to our faculty through a solicitation process. And it is true what you say that often the faculty member is not the good person to be the CEO. We have tried to get entrepreneurs from the community, VCs and Angel investors interested in the faculty members. We hope to be able to match people to bring the business experience into the science teams. After you bring in the people with business experience the faculty member can still stay in the company if she or she wants to and maybe become a technical advisor."

Krizstina Holly: "There is a Scott Shane article, which shows that people see different opportunities in the same patents. It is a case study of a MIT patent that was licensed to a host of different entrepreneurs. The business opportunities that people saw in the patent were shaped by their past experiences".

Krizstina Holly: Now I would like you to spread into four groups and brainstom about the two biggest challenges of the following four options:
   1) Getting the marketing input eary
   2) How do you do teambuilding
   3) The faculty role
   4) Conflict of interest

The participant move into four groups of about 8-10 people in each. The following notes are only from one of the group discussions.
Person from the audience: "Conflict of interest: I think that you can never avoid the conflict of interest. If you make it legitimate that faculty members do a lot of commercial activities on the side then they might be tempted to spend a lot of time on for example consulting. That is not to say that consulting does not happen now anyway. In Ireland, where I come from this is mostly handled by just ignoring it."

Person from the audience: "It is also handled that way in the United States too".

Person from the audience: "Many faculty members do not realize that they are actually getting quite a good deal through the universities. When you join a company you sign an agreement, so that the company owns everything that you produce while you are there. In universities you actually get a monetary reward for patenting. I think that a lot of faculty members do not really realize that".

Person from the audience: "That is what I try to tell our faculty. Disclose your invention and you might get 20-25%. It is a good deal. You would not get that much in industry".

Person form the audience: "I just had to design a company where a faculty member is involved in discovering markers for different cancers. First we where thinking about duplicating their lab outside. But it did not make sense that first we did all of the research inside and then we would go outside and do all of the development".

Richard Schultz: "We are talking a lot about entrepreneurship here. But we are not talking about when a university licenses a patent to an existing company. That is entrepreneurship too. You are generating revenue for the university. Those that are able to build those relationships should do it. That is probably the best solution for all partners, because the conflict of interest is not there".

(Krizstina Holly comes by the group and asks a couple of questions.

Krizstina Holly: "What is your solution?"

Person from the audience: "When you are focusing on research, then the university owns. When it is in the development stage that is when industry should take over".

Krizstina Holly: What is the biggest challenge?

Person from the audience: "I think that it is teambuilding. Designing the organization. There needs to be three people: One needs to design the product, one needs to make the prodct, and one needs to sell the product. The faculty can take one of those roles. Most faculty members will probably be best at designing the product".

Person from the audience: "There needs to be a CEO that respects the founders, and then getting a good scientific advisory board is very important for the development of the company".

Person from the audience: "But an advisory board cannot fire the CEO if he is not doing a good job".

Person from the audience: "But a good advisory board is able to bring in the right information. We are working with a group from Philly called Pine (?) Capital. They will come in as an early stage CEO. They are trying to build the team not the CEO. They will work with you until you have the money to recruit a CEO. I think that what they are doing is really important, because they engage with the company early".

Person from the audience: "Most entrepreneurship courses tell you that you need a CEO that keeps his view on the market".

Person from the audience: "….maybe we are jumping ahead here, because we are talking about the team that is going to start the company. But what about the team within the faculty that is actually going to ignite the idea? We need interdisciplinary teams within the universities that are specialized in the commercialization procedure. If a faculty member wants to commercialize an invention there ought to be a clear path that he or she can follow. There is no need to reinvent the wheel."

Person from the audience: "The problem is that within universities there is no agreement about the value of entrepreneurship. The dean might like it, but the head of the department might hate it".

Person from the audience: "I started 30 years ago and I always give the students who come through my venture course 5 years of free advise. If they want to pay me later that is fine. We really have to take care of the graduate students. They can easily become abused. There might be situations where a graduate student has worked on a project in 2-3 years, but when the company is created based on that work then they do not have a stake in it".

Krizstina Holly calls to say that we should break up the small groups, and all assemble together. All of the groups distribute evenly across the room again, and the group has a discussion in plenary. The groups take turns telling the rest of the audience about the main points of their group discussion.

Group 1
Person from the audience: "Our group talked about a lot of things. One of the main things that we talked about is that there are a different ways of talking about entrepreneurship across campuses. We need to find ways to promote entrepreneurship in a way that suits the university. We need leaders like Bob Dotton (?) who spoke here today".

Group 2
Person from the audience: "How do we get people to collaborate across campus so that they can learn from each other's experiences? A good example would be grant writing. We need to educate them. For example the other day the Technology Transfer Office make a presentation in front of several faculty members. Their reaction was: " Ohh really that is what you do?!! It is a design problem, a project management problem".

Group 3 (my group)

Person from the audience: "We thought that team building was the biggest problem. You need at least three different people, and it can often be problematic to find people to fit all of the roles". When the company is spun out of the university you also need external

people on the team. For example some of your students might graduate and become external people in the company. We also talked about the role of graduate students, and the conflict of interest related to how the graduate students might benefit or get hurt when a company that is spun out".

Group 4

Person from the audience: "We thought that conflict of interest was the biggest problem. Moreover we thought about the following three themes:
1) Tenure faculty ought to have flexibility with regards to their time commitment. For example they need to be able to take time off from being a faculty and come back later.
2) It is very important to think about the structural organization of Technology Licensing Office. To make sure that the TLO actually communicates with the rest of the university, one could for example make the TLO report to the school of engineering.
3) We need to make sure that everybody is educated with regard to the conflict of interest".

Krizstina Holly: "The groups have highlighted four challenges"
• Make sure that you have marketing input early – it is key to commercialization.
• Legitimacy of entrepreneurship - How does entrepreneurship impact the tenure evoluation?
• Conflict of interest
• Team building"

Krizstina Holly: What do you think is the biggest challenge?

Most people raise their hands to indicate that team building is the biggest challenge.

Krizstina Holly: How many companies were spun out of your universities last year?

Responses from the audience: "About 15….", "..about 10", "..about 4", "I think that 3 companies were spun out", "In my university 0 companies were spun out last year, and they are proud of it!".

Krizstina Holly: "We have to think about what our measure of success is? Should we spin out more companies? Or are there other ways of measuring successful faculty entrepreneurship?".

Suggestions from the audience include:
• Objectives metrics
• WYMWYG
• Spinouts
• Licensing agreements
• Grants

- We need to have some measures that are long term – that encompass the complete product life cycle.
- Economic impact → jobs, average pay
- We need to ask start-ups how many came out of a university, because else we get biased results.

Person from the audience: "In Germany there was a study where they asked 20.000 companies – "where did you come from?" And there were 10 times as many companies that came from universities than the universities knew off".

Person from the audience: "The big money is centered around sponsored research".

Krizstina Holly: I would like to do one more round of questions before we end the session: How many are at universities that think that entrepreneurship is a bad thing?

(One person raised a hand)

Krizstina Holly: How many universities think that entrepreneurship is a good think?

(Most people raised their hand)

Krizstina Holly: How many universities think that entrepreneurship is in the middle?

(About 5 people raised their hands).

Krizstina Holly: "Great that is it for this session. Thanks for a good discussion".