

PRESENTATION:

**THE UNIVERSITY OFFICE
OF TECHNOLOGY TRANSFER:
THE INDUSTRY VIEW**

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Good afternoon. I hope I have a less controversial subject to talk about, but I am not sure. I note that there are several representatives of universities talking about licensing programs here, but only one representative of industry. I hope it does not come across that way, but it may be like "Crossfire" or "Counterpoint." I am going to try to remove any patent industry bias from anything I talk about, but I cannot help but observe the mentality that we've observed with some universities that still appears to be present. It reminds me of negotiations that I had a few years ago with a colleague. We put the issues on the table and his position was this: "what's mine is mine and what's yours, we'll negotiate about." I worry that a little bit of that mentality still exists. I worry some that this mentality may be used somewhat as negotiating leverage in often stating things as absolutes; "We universities are required by law to do this, we can't compromise"—when none of this is found in legislation at all.

I have been involved in negotiations and licensing for almost 30 years and I have seen a very dramatic change in the way that universities are involved with industries. Particularly in today's environment, with industries like the semiconductor industry, where Texas Instruments (TI) is involved there is much more focus placed on what I call applied research. When I first came to work for TI, we had a separate organization doing just basic research. We do not have that anymore, and that is not unusual today. With such a premium placed upon competitive advantage and getting the product out the door quicker, you cannot afford to make the investment in long-range research, and that leaves a gap. Fortunately for the universities, they are best suited to fill that gap. We are seeing more and more collaboration between industry and universities, and I think that is going to continue into the next century.

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However, there are potential areas of conflict, and one of the areas that was brought up a little while ago really is an area of conflict. If the university is unable to grant future rights to a business, that is a major problem because business organizations, particularly in competitive industries, very much want to control their future and are rewarded on being able to do so. In order to do that they have to have within their control the technology that they will use. If they license that technology from a university and find that three years from now they have no rights to a critical improvement, in fact that it is licensed to a competitor, that is very difficult for a manager to live with.

This passion for competitive advantage that industry has requires that a company has control of proprietary information. Historically, that has been viewed as inconsistent with the university requirement of early publication, the goal of free dissemination of knowledge. As a result we have seen that many of the engagements that industry makes with universities have to be more in line with gifts. Industry has not really expected anything in return other than goodwill. That is changing, however, and I think we need to change in industry.

I think that some of the concepts of universities need to change as well. I can certainly appreciate the notion that oftentimes when a company makes a grant to a university, that research project really involves much more money than the research grant itself. Why then should the company be asking for favored rights based on a fiduciary duty that the university owes? That is true, but the university must be able to comprehend the other side of coin. For example, this year TI will spend over \$1 billion on research, building up basic technology. We cannot do all of the research ourselves, but if we make a grant to a university and they obtain IP rights that interferes w/our ability to exploit the technology that we've spent billions of dollars developing, that is a problem. But there are ways around it. I think that if the universities and industry both keep in mind what their objectives are and have some flexibility in working out arrangements for governing intellectual property rights, we can have increased collaboration, and I think we have to.

There are a number of examples that I can point to—and this certainly is not an exhaustive list at all. One example of increased collaboration between university and industry is the Pittsburgh Digital Greenhouse. You have Carnegie Mellon and Penn State working with Oki, Sony, and Cadence on some digital technology. At Texas Instruments, we have university funds that we donate to universities, and we donate to sponsored research. We have another thing called DSPS Leadership University (which stands for

digital signal processing solution); it is our core business right now. I will talk about that a little later because it is a special type of relationship we have with some universities. It also shows that flexible arrangements are possible and that it can be a win-win situation for the university and for industry. You have consortia, Semi-Conductor Research Corporation, Sematech, and SIA (Semi-Conductor Industry Association) now sponsoring some university programs for doing research in the area of semiconductor technology.

Within TI, our relationships with universities have changed considerably. We currently have, I would say, three levels of participation. First, we have the historical gift situation, which is primarily matching gifts where we work with over a thousand universities. If an employee makes a gift to the university the company will match, no strings attached, just a gift to the university. In a similar vein, we donate a lot of equipment, again with very little expectation back.

There is a second level of interaction with universities that is more specific to technology and a situation where we as industry would expect something back—that is where we make research grants. There are not a whole lot of strings attached in the typical research grant, other than that it is to a specific area of technology and requires for us to have the opportunity of fair access to any of the intellectual property that results. That is what we would be primarily interested in with that situation. We are working with a hundred universities, about 20 of them being outside the US, and that is working successfully.

The third area is where we would expect to get some competitive advantage. This is an area where it is very difficult to work with universities. This is our DSPS leadership university. We currently are working with three universities with which we have been able to work out agreements. However, in these situation we do have sensitive information that we are concerned about our competitors getting. It takes a lot of flexibility with the university and with the company to address issues such as who owns that technology, who can license it, what are the geographical rights of the license arrangement, and something that is very important to us, who files and prosecutes the patent applications. Our experience has been that oftentimes it is difficult for universities to obtain patents that we would consider to be the easiest to enforce—let's put it that way.

That is coupled with the next aspect: who has the right to litigate. If the technology is something that gives a company a competitive advantage, and if you want to litigate it, to enforce your rights, you also want to have some control over the patent acquisition and the patent prosecution, to make sure

the claims are right—everything of that nature. I think that in some areas industry can do a better job than universities, and I think that often universities have limitations on what they can do with respect to litigation. There is flexibility within Bayh-Dole that permits arrangements of this kind, where a company's interests can be addressed as well as the university's interests.

There is a different area that I have not really addressed, which is a source of a lot of problems, and that is consulting agreements. The closer you get to real-time products, from a company's perspective, the more control you've got to have over intellectual property. It typically is not very effective to work with a university—to give a research grant or this sort of thing—because you just cannot get sufficient protection. However, it is common to have consulting agreements with professors. Sometimes they have their own separate little company. You have all kinds of issues coming up: you have conflicts, you have nondisclosure issues, who owns the IP—it takes a lot of time to work out the intellectual property rights if you're going to enter into that kind of a situation. We have done that on a limited number of occasions, but it is very difficult, and I think it is really beyond what I would typically think about of doing with collaborative research with the university.

So, a question: if we are going to do collaborative research, what are the areas that are most productive? Well, it is no surprise that if it is near-term, product-specific it is very difficult for the company. Again, the business manager, who is being graded or judged on how well his business does, wants control over the technology used for his business. It is hard to get the business manager away from this mindset because he is looking at this as an investment. He has a product line and it is near term. He may have a problem that he needs solved. He goes and spends money to have someone help solve that problem, and even if it is a research grant he has paid the money. It is unthinkable for him to also pay continuing royalties to use it. It hurts him competitively, particularly if his competitors do not have to pay that. For the short term, it is just very difficult to have collaborative research with the university.

For longer-term business plans, the manager is interested in improving the level of technology. He is just looking for better technology that he can then utilize to make even better products. As long as he has fair access, it is something that can be worked out—and that can be really fruitful ground for collaborative research.

Universities, in dealing with companies, really need to consider the businessman's needs. I suggest that for a large company like TI or any other large company, the concerns are much different than for a start-up company,

or for a specific product where you are licensing to start a completely new product. If you're talking with a multinational company in a highly competitive industry, there are some really big concerns about what the company can do, and what restrictions are placed on the technology or that company's ability to utilize the technology. In those areas, universities need to take a step back and try to put themselves in the business manager's shoes and ask: "How does this affect my future performance? Do I have in my control the ability to determine my future to make a successful product?"

In dealing with companies, large companies, universities need to understand that the company is not a monolith. There are a lot of different groups within that company with different goals and needs, and you just need to learn to work with the industry people. You need to understand the peculiarities of budget cycles—things will move along very slow, and then all of the sudden you must make a decision within a day or two. You need to be sensitive to the fact that, if it is a large company, you will probably have significant intellectual property rights issues that will not be solvable overnight, and to just allow time for that.

I do not really need to say much more about Bayh-Dole. I think the concern, if you want to call it a concern, that industry might have with that, is that it distorts the objectives a little bit. We used to be able to look at universities as being sort of a pure area, where their objectives and mission was clear: to do research, to publish, to advance technology. However, now there is this mandate—or opportunity—that they take ownership of IPR. Where IPR is becoming very valuable and the university starts seeing royalty income, there is a question of how pure are the motives of the university. What are the opportunities for conflict? I think that there are many. I think that this a real challenge for universities, to manage and to be able to work with these situations without getting into unmanageable conflicts. I do not think that we need to change Bayh-Dole. I just think that we, both industry and universities, need to be flexible and to recognize that the other party does have needs that must be resolved. We have seen it, where we have worked out good arrangements, so we know that it is possible.

Perhaps one of big problems that we have seen, in working with universities and in ownership issues, is the mixed relationship. By "mixed relationship," I mean that it is not a pure relationship; there might be government rights involved; there might be some other company's rights involved; the professor may have his own start-up company; the graduate student may be under an NDA with some other company. It gets to be very complicated, and the rights of the individual parties can become

blurred. We have some specific situations where that has caused us significant problems.

Going ahead, what can industry do to improve this relationship? I think one of the biggest things industry needs to have is a reasonable expectation, to know what we are getting into. We can't expect that we are going to be able to get from the university total rights of intellectual property. This will cause problems if it is a short-term, immediate-product situation. So, we must focus on the long term. Focus on situations where research will help the industry as a whole, and we can take advantage of that. Consider multi-year funding. I am sure many of the university people will like that, because you cannot just live from year to year; if it is long-range research, it will take multiple years. So industry should be realistic about it, and recognize that the university does need to publish, that is one of the objectives. We should be sure that we can structure our arrangements so that we have protected ourselves—and that is possible.

I think this one is very important: avoid joint ownership of IP if you can. Several years ago it just seemed to be a given. If you were in a joint development program and had joint inventors, then you would simply expect joint ownership. What could be more fair? What we have found, in reality, is that it makes it more difficult, if not impossible, to get licensing value out of jointly-owned patents. Litigation by one partner may call for joinder of a co-owner. We have some direct experience in that. We had a patent that was in litigation. We had found out, after we were getting ready to go to trial, that this had come out of a university program and one of the inventors was a university employee. The agreement that we had then said that they were co-owners. Well, what are the options in that kind of situation? You can join the university in a lawsuit, and they were willing to do that, except that they wanted to pay no costs and they wanted to share any damages that we got, 50-50. Well, that was not acceptable to us. Since this is a university environment here, I will not say it was extortion, but getting out of that fix was very expensive. Therefore, even if it is joint inventors, figure out a way to have one party or the other own it and you will avoid problems in the future.

Sometimes it is not always the industry partner who is best equipped to be the licensing agent, particularly in an environment where the industry partner may have a number of portfolio cross licenses. That is typical in our industry where you can use our entire portfolio for stated royalty. Getting additional patent rights does not help you at all. However, if the university owns it, they can go out and license that and get revenue from it. That is something to keep in mind.

Just a brief statement about what is going to happen in the future. Particularly in this era of the knowledge-based economy, we are seeing worldwide markets. We are seeing a requirement of uniformity, and the idea of standards has become not only popular but in many cases essential. Universities participate in those, as do industry members. What it typically does is to form a big patent pool. To a large measure that basically negates the patent system. If you become a member of this patent pool, you agree to license your patents for a reasonable royalty, or royalty-free, and you cannot really enforce them if someone is willing to pay the royalty. Anyone, who wants to join, can. It's really like insurance and really negates the ability to enforce any patents. A couple of examples in that, video compression and voice compression, are showing where these are standards. I think that may be the wave of the future, but I think it still remains open as to whether that is good for intellectual property. In any case, universities and their research will be involved in it. We have seen examples of university patents being put into these pools, so I am sure that is something you are thinking about. It is certainly something that is a concern to us in industry.

In closing, there has been a big increase in university funding. There are many models. I think that the important thing, at least from the perspective of the semiconductor industry, is to focus on long-range research and to understand what reasonable expectations are. From the university point of view, recognize what some of the concerns of industry are, particularly in highly competitive industries where any royalty obligation can make or break you in the competitive market. Figure out ways to work with industry where both parties can come out winners. Finally, just keep the agreements as simple as possible and avoid joint ownership. Thank you very much.