Unit 14

TITLE: CONFLICT ISSUES

PURPOSE: The purpose of this unit is to explore the issues related to potential conflicts of interest and conflicts of commitment. Most of the issues have been raised within the context of the different value systems that exist in universities and industrial firms. It has been felt that potential conflicts could emerge as interactions between industry and university researchers are strengthened. The underlying value system is similar in universities and Federal laboratories. The university's experience in forging relationships with industry presents some parallels for discussion of these issues within the Federal laboratory environment.

OBJECTIVES: Upon completion of this unit, participants will:

- Understand the evolution of technology transfer efforts at universities
- Have reviewed the benefits of cooperative activity to industrial participants and to the university
- Have participated in a discussion of the values that underlie potential conflict situations
- Have become aware of mechanisms and guidelines used to resolve potential conflicts within the university community
- Have compared the university and Federal laboratory environments influencing technology transfer activities with respect to potential conflicts.

MATERIALS:

Transparency 14-1: Conflict Issues

Transparency 14-2: Montaigne

Transparency 14-3: Objectives

Transparency 14-4: Benefits--Industry

Transparency 14-5: Benefits--University

Transparency 14-6: Societal Values

Transparency 14-6A: Societal Values

Transparency 14-7: Conflict Resolution

Transparency 14-7A: Conflict Resolution

Transparency 14-8: Science and Technology Policy Committee Members

REQUIRED READING:

Issue Paper V--Cooperative Research: The University Experience.

OPTIONAL READING:

1. National Science Board, University-Industry Research Relationships, National Science Foundation, 1983, pages 112-119.

2. Bernard D. Reams, University-Industry Partnerships: The Major Legal Issues in Research and Development Agreements, Quorum Books, Westport Connecticut, 1986, pages 66-72.

SUPPLEMENTAL READING:

1. Association of American Universities, University Policies on Conflict of Interest and Delay of Publication: Report of the Clearinghouse on University-Industry Relations, Washington, D.C., February 1985.

2. University of California, Interim Guidelines on University-Industry Relations, Office of the President, November 3, 1982.

NOTES TO INSTRUCTOR:

1. There has not been any empirical research conducted with respect to conflicts of interest or commitment in Federal laboratories. Therefore, the university experience is presented in this unit because of the similarities in the value systems in the university and Federal laboratory environments.

2. Although there are similarities, there are also differences that should be brought out by the instructor within the context of the particular Federal laboratory and its agency. For example, universities are encouraged to participate in technology transfer activities, whereas Federal laboratories are granted specific legislative authority. Additionally, the management structure in universities and Federal laboratories is different and will influence perceptions of technology transfer activities.

3. The optional reading by the National Science Board contains the results of a national survey of university scientists and administrators and industrial sponsors on issues of research interactions. The optional reading by Reams covers the legal aspects of these issues. The

supplemental reading by the Association of American Universities reviews policy statements of 22 universities. The supplemental reading by the University of California provides an example of how a university resolves conflict issues.

4. Laboratory and/or agency policies and guidelines that have been developed should be presented as part of this unit.

ESTIMATED TIME:

30 minutes for presentation
60 minutes with discussion

Unit 14

CONFLICT ISSUES

Transparency 14-1: Conflict Issues

INTEREST AND COMMITMENT

Cooperative research agreements and licensing activities give rise to some important questions about the proper role of a publicly funded institution and public employees in commercialization efforts. The issues can be broadly grouped into two categories: (1) conflict of interest; and (2) conflict of commitment. Conflicts of interest are legal questions concerning the participation of personnel in financial transactions. The requirements for Federal employees are set forth in the U.S. Code, Title V and must be adhered to in structuring cooperative research and licensing agreements.

Conflicts relating to the performance of mission responsibilities are referred to as conflict of commitment issues. Under the authorities set forth in the Technology Transfer Act of 1986 and several Executive Orders, the potential for conflict between technology transfer activities and mission responsibilities has been greatly reduced. With legal authority and a mandate to engage in technology transfer efforts, questions concerning the proper allocation of research personnel time have become part of the management decision-making activities for Federal laboratories. Rather than presenting a potential conflict of commitment situation, technology transfer activities have now become personnel management decisions. These decisions should be based on the overall needs of the laboratory and its agency within the context of Congressional mandates.

NOTE: READ THE PURPOSE AND OBJECTIVES FOR THIS UNIT.

Perhaps it will be beneficial to begin with a quotation by Montaigne:

Transparency 14-2: Montaigne

NOTE: READ QUOTATION.

All of the issues that have emerged in this area are grounded in an acknowledgment that the prospect of financial reward presents temptations from which researchers, like others, are not immune. The major concern is one of values; that is, that the temptation for personal gain will conflict with the traditional value system underlying publicly funded research. Montaigne suggests that there are differences in action that are grounded in the motives of the individual.

Donald Kennedy, president of Stanford, has remarked that he doubts that institutional regulation will be effective or even very influential in establishing the limits or guidelines on these matters. What is thought to be proper by one's community of peers will eventually set the standard. The best that institutions can hope for is to reinforce those social norms and perhaps to play some useful role in helping to shape them.

EVOLUTION OF UNIVERSITY TECHNOLOGY TRANSFER

Some universities such as MIT, Stanford, and others have been in the technology transfer business for many years. However, most universities had a policy that was essentially laissez faire. By and large, if a professor came up with a good idea, it was basically his to pursue, if there were no overriding contractual obligations. The university would direct the professor to the Research Corporation, a nonprofit patenting organization. The individual could proceed through them or seek his own agent. In some unusual cases where it was felt that there might be a possibility of some significant contribution to society, the university might have become involved.

In the late 1970s, Japanese and European products based on U.S. technology were very successful in international markets, thus affecting U.S. industrial competitiveness. National attention focused on the need for increased action by the government, universities, and industries in enhancing the linkages between these groups in an effort

to strenghten the connection between research and commercial product development.

Transparency 14-3: Objectives

NOTE: READ OBJECTIVES.

Secondly, universities were also feeling the pinch as government support for basic and applied research came under question. In the universities, the effects were not only felt in support of research projects, but also in support for facilities, equipment, and educational training grants.

Finally, it was recognized that industry needed to fill the gap. Industrial firms, particularly large firms that are heavily dependent on basic research, have been willing to fund university research if it is in areas that are of fundamental importance to their business interests.

Basically, the needs of all these entities converged and put many of the nation's finest research universities into the technology transfer business. It was generally felt that there was a national need, a university need, and an industry need. By more cooperation the needs of each of the parties could be met and each would receive benefits.

INDUSTRIAL BENEFITS

Transparency 14-4: Benefits--Industry

There are several expected benefits underlying industrial needs and objectives. Here are some of the benefits that industry hopes to derive from increased cooperation and technology transfer initiatives:

- Early Exposure to New Technologies: This early exposure gives an opportunity not only to gain some lead time over competition, but it is necessary to capture new technology. The alternative is to be left to invent around it, or to pay a high price to sublicense it.

- Recruiting Talent: Manpower needs are always of concern to industry, and in the high-tech field it seems to be

very pressing. Skilled people are more mobile and are in high demand. There is also pressure on professors, since consultants are needed more and more as the projects require interdisciplinary efforts.

- Consultants: The use of outside research consultants can bring new insights to research problems, thus strengthening the firm's internal R&D capabilities. It is costly and inefficient for firms to maintain an array of scientific and engineering talent to cover all necessary fields in depth. Opportunities for students to find future employment and for faculity consultants is a major outcome of increased university-industry interaction.

- Access to Scientific Equipment: This is probably a lesser factor today. In fact, it seems to have turned in the other direction. Universities are falling behind industry as equipment becomes more expensive, complex, and specialized.

- Intangible Benefits: No one pays any attention to these until they are lost. They derive from some of the activity in 2 and 3 above.

UNIVERSITY BENEFITS

Transparency 14-5: Benefits--University

The university also derives benefits from increased interaction.

- It can be a significant financial benefit if firms and the university really make technology transfer work. These benefits will accrue to members of each party--academics, academic institutions, industry, and society at large.

- Cooperation broadens the financial base upon which the university has drawn in the past. It provides direct compensation for the flow of the university's intellectual property to the commercial sector.

- Working with industry makes the university less susceptible to shifts in government priority setting (e.g., cancer and AIDS). Of course, it also brings about great risk if projects are not considered commercially attractive and get cut off. However, the diversification hedges the bet.

- The relationship exposes scientists to new problems and gives them the opportunity to be a part of the whole

innovation process. Part of this process is individual financial gain.

- It also gives professors some experiences to better educate and train their students for future roles in industry.

POTENTIAL CONFLICTS

With the needs recognized and the benefits outlined, many universities began to implement the technology transfer process. However, university faculty and administrators were concerned about potential conflicts that might threaten the university. To best understand the conflicts, it is best to know who is involved and to look at what is likely to motivate them as they approach the interface of two very different cultures. There is a great difference between chemists, engineers, and physicists; private and public institutions; small and large institutions; and liberal arts and technology institutions. As we look at the values of each society, we can define the various conflicts of concern.

Transparency 14-6: Societal Values

These are some of the values of the academic and industry societies. We will look at these and discuss some guidelines on how some universities have handled technology transfer to avoid some of the potential conflicts.

Knowledge vs. Applications

A university may receive several million dollars in research contracts and royalties from industrial firms during a year. It was feared that increased industrial support would reorient faculty research from the traditional goal of knowledge for its own sake to knowledge for the benefit of industry. However, most of the income universities are receiving from industry is for research, not from royalties. Most cooperative research efforts consist of basic research projects focused in broad areas of interest to the firm(s). Industries generally prefer to do applications work in-house.

In structuring cooperative research agreements, many universities approach the negotiating table with their basic knowledge and projects,

not with the intent to do contract research in the applications area. The company may wish to propose directed applied research, but typically this work is conducted within the industrial firm. These agreements require a very clear definition of the scope of the research work expected. A professor usually draws the line well at what he wants to do, and that is usually basic research. The general practice is to license any technology that may result. If all parties wish to, this is followed by research projects and consulting agreements.

Open vs. Controlled Dissemination of Knowledge

The second element could be stated as publish or perish vs. publish and persist in academia and industry respectively. Almost all university research contracts with industry call for the review of publications to determine if there is some patentable idea within the publication, or if it contains some confidential information.

Some guidelines have been developed to help resolve this issue. Most universities attempt to discourage a company from passing any confidential information to the university researchers. Contracts will contain a provision to this effect.

Time is allowed for the company to review publications for patentable material. It should be observed that this conflict of holding on to key information prior to publishing occurs within the university community itself, independently of the influence of outside commercial interests. Pressure to publish first is extremely great.

Freedom of Inquiry vs. Directed-Restricted Areas of Inquiry

With respect to freedom of inquiry, universities tend to avoid the fact that so-called "grantsmanship" is effective only as it conforms to the direction favored by the government and various review bodies. Thus, a great deal of university research is in a sense directed basic research. However, there is still a much greater individual freedom to initiate research projects than exists in industry.

Freedom of Mode of Inquiry vs. Directed Mode

Freedom of mode refers to the self-discipline associated with inquiry. One can go in any direction that one wishes. Of course, there are blind alleys, but university researchers vigorously defend the right to pursue them. Many universities structure research agreements with industry to indicate multiple paths toward objectives. A rigid time schedule and promise of results is avoided and kept very loose and open ended. Initial discussions with industry focus on what the researchers do, hoping that it satisfies industrial needs. If appropriate, an agreement can be tied to ongoing research, and a research/licensing agreement can be structured.

Intellectual Rewards vs. Material Rewards

The academic attitude towards rewards is reflected in statements such as: "I don't know who knows or cares about what I have, because I know and my peers know that I know. That in itself is my reward." "It is the internal self satisfaction of knowing." This is not to say that material rewards do not follow, such as tenure, chairs, etc. In industry, the situation is obviously different.

Most universities attempt to maintain their standards by exercising tight policy review and by following an enlightened approach that recognizes that in technology transfer, material rewards need to flow, but not at the expense of institutional values.

Transparency 6A: Societal Values

Freedom of Schedule vs. Controlled Schedule

Schedule freedom is easy to understand. Academic researchers have very little pressure to produce research results within a schedule. In basic research cooperative R&D situtations, schedule is not as important as in the development stage. In licensing situations, the universities have tended to put schedules on industry. By law, march-in rights should be exercised. A schedule of bench marks has to be met by industry. A very loose schedule to be met by the university may be included, but universities avoid these situations as much as possible.

Fulfillment of Self vs. Fulfillment of Task

Fulfillment is the heart of the professional drive for the university scientist. Self-fulfillment accounts for the obsession, focus, and total commitment of time and energy to the achievement of personal scientific goals. The personal goal in industry is usually promotion, bonus, and salary as a result of the achievement of the objectives. Thus, the drive is to that end. In situations that require specific research tasks and objectives, a researcher's temperament must be taken into consideration in selecting the project team.

Non-profit vs. Profit Orientation

There is little need to cover profit orientation. However, there is no question that universities are becoming more aggressive in seeking fair compensation for their contributions to commercialization efforts. Many favor nonexclusive license arrangements, but recognize the need by industry for exclusive arrangements. Universities negotiate at prevailing rates within the applicable industry. Income in excess of costs generally flows back into research support.

Basic/Fundamental vs. Applied/Commercial Education

There is always some mix of educational objectives in both communities. By and large, it is big R (research) and small d (development) in academia and small r (research) and big D (development) in industry. The university standard typically is that all work that is done must be worthy of publication in reputable scientific journals.

RESOLUTION OF CONFLICTS

By examining the values of the societies that interact with respect to technology transfer, the areas of conflict can be ascertained. The Twentieth Century Fund, an independent research foundation that undertakes policy studies of economic, political, and social institutions, formed a task force on commercialization of scientific research. Their list of potential conflicts and their recommendations for resolution provide a point of departure for discussion.

Transparency 14-7: Conflict Resolution

NOTE: READ LIST. ASK PARTICIPANTS TO CONSIDER PARALLELS TO THE FEDERAL LABORATORY.

Transparency 14-7A: Conflict Resolution

NOTE: CONTINUE THE DISCUSSION WITH THE ITEMS ON THIS LIST.

Most universities have established procedures for dealing with potential conflicts. The first step is to determine a policy and formulate guidelines. After passing through proper collegial bodies (e.g., faculty senate), the information is then disseminated.

Transparency 14-8: Science and Technology Policy Committee Members

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Typically, the creation of a policy committee is included in the policy statement. This committee, which usually consists of members of many disciplines, oversees the university's technology transfer operations and is the central mechanism for resolving conflicts.

A transfer office is set up to ensure growth and operational flexibility. Successful operations hire business managers who have industrial experience. The interpretation of the policy and guidelines is determined on a case-by-case basis. The policy states that all matters related to policy come to the committee for recommendation to the President. They function as the court of last resort.

CONCLUSION

Universities have had experiences with respect to negotiating research and licensing agreements and combining with big companies, small companies, startup companies, startup research companies, and limited partnerships. Each situation typically requires some resolution of particular issues. Universities are expanding their activities to include creation of industrial parks near campuses and incubation centers for new businesses spawned from university

technology. The potential conflicts associated with the university's relationship with new businesses, the financial participation of the university, and participation by students and professors promises to keep the pot boiling in even more complex patterns.

It is important to learn from others, and the academic community shares these experiences openly. It is also important to realize that, in general, none of the issues have proved insurmountable. By focusing on the goal of transfer efforts--to contribute to innovation and U.S. industrial competitiveness--and by entering into discussions with the values and objectives of all the parties in mind, successful transfer activities can be accomplished with minimal disruption to existing operations and values.

NOTE: INITIATE A DISCUSSION OF THE VALUE SYSTEM IN THE LABORATORY AND WHAT STEPS MIGHT BE TAKEN TO ENCOURAGE TECHNOLOGY TRANSFER ACTIVITIES. PROVIDE ANY AGENCY OR LABORATORY GUIDELINES THAT HAVE BEEN DEVELOPED.
