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**Partnership Opportunities Between Academia and the Private Sector:
Examples from The Texas A&M University System**

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Abstract: Partnerships can be effective tools for engaging universities with their communities. Examples from the Texas A&M University System Agriculture Program are used to discuss the use of partnerships and the use of university-industry partnerships in particular. The characteristics of successful partnerships and impediments to be overcome are discussed, along with the special challenges facing public-private arrangements. Potential partners should ask themselves: Why do we want this arrangement, do we have the commitment, and what will we learn?

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Partnership Opportunities Between Academia and the Private Sector: Examples from The Texas A&M University System

A. Gene Nelson

Partnerships are becoming a commonly used tool for the **engagement** of universities following the admonition of C. Peter Magrath, President of the National Association of State Universities and Land-Grant Colleges (NASULGC). Engagement refers to the redesign of “teaching, research, and extension and service functions to become even more sympathetically and productively involved with their communities, however community may be defined” (Kellogg Commission, 1999). Traditionally we have emphasized a one-way process in which the university transfers its expertise to key constituents. The engaged university pursues partnerships, two-way streets defined by mutual respect among the partners for what each can contribute to the problem-solving process.

Partnerships include a range of organizational structures from informal unwritten agreements to more formal arrangements codified with memoranda of understanding. The basic idea of a partnership, however, involves two or more entities working together and doing so because they can accomplish more by working together than they can by working independently. The parties involved in the partnership share the benefits and profits, as well as the risks and costs of the arrangement.

Partnerships are not a new idea in academia. The land grant university system itself is a partnership involving federal, state, and county governments. This partnership engages the state universities with federal and county governments and works through an array of cooperative relationships. Some examples of partnerships in academia include exchange programs between U.S. universities and universities in other countries, university and industry partnerships to carry out joint research interests, and relationships where extension services partner with trade associations to deliver educational programs.

Vice Chancellor Edward A. Hiler has been emphasizing the use of partnerships as a device to **engage** The Texas A&M University System (TAMUS) Agriculture Program.¹

¹ The Texas A&M University System Agriculture Program, includes the College of Agriculture and Life Sciences, the Texas Agricultural Experiment, Station, Texas Agricultural Extension Service, Texas Forest Service, Texas Veterinary Medical Diagnostic Laboratory, Texas Wildlife Damage Management Service, the College of Veterinary Medicine, and teaching programs at five other universities in the System: Prairie View A&M University, Tarleton State University, Texas A&M University-Commerce, Texas A&M University-Kingsville, and West Texas A&M University. See <http://agprogram.tamu.edu/>.

To demonstrate his commitment, a Vice Chancellor's Excellence Award was established to "recognize an individual or team for their efforts in extending the mission of the Agriculture Program through the promotion, development, and support of partnership efforts." According to the Award's criteria, this includes the development of programs, partnerships, or alliances with communities, industry, professional associations, other state/federal agencies, and universities that have demonstrated benefits for all partners. Leadership for maintaining these strong, viable external partnerships should come from faculty within the Agriculture Program. The benefits realized through these partnerships might include products, patents, copyrights, and programs with industry and other groups.

Examples from The TAMUS Agriculture Program will be used to discuss the effective use of partnerships in institutions of higher education. The factors that make the difference between the success and failure of these partnerships also will be reviewed.

Partnerships: A Preponderance of Possibilities

The possibilities for partnering within academia are numerous, and The TAMUS Agriculture Program has probably tried most of them at one time or another. A 1997 report lists more than 60 examples of such partnerships (The TAMUS Agriculture Program, 1997). Before discussing some of the unique aspects of partnerships between academia and private industry, here are some examples of various types of partnerships in which the Agriculture Program is engaged.

- **Partnerships with Other Universities**
Three types of arrangements are involved: (1) Partnerships with universities in other countries usually involve MOUs to establish student and faculty exchange programs, research collaboration, and technology transfer. (2) Partnerships with universities in other states usually involve the coordination of research and extension programs. These arrangements are becoming more common. As subject matter becomes more specialized, individual states can no longer afford to maintain a full stable of specialists. (3) Partnerships with other universities within the same state include research collaboration and joint degree programs. With distance education, these types of university partnerships to offer degree programs will become more common.
- **Community Partnerships**
Examples within The TAMUS include volunteer programs such as AgriFood Masters and Master Marketers. AgriFood Masters is an extension program to train volunteers to educate the public about the food system and related issues. The Master Marketers program trains agricultural producers in marketing skills so that they can lead local marketing clubs.

- **Government and Agency Partnerships**
TAMUS examples include an MOU with the USDA Natural Resource Conservation Service to improve water conservation and quality and research collaboration with the USDA Agriculture Research Service (ARS) through the location of ARS scientists in TAMUS facilities.
- **Partnerships with Schools and Youth Organizations**
Examples include 4-H school enrichment where students learn about production cycles for major agricultural commodities and the Pizza Ranch, a circular display of living plants and animals showing the origins of pizza ingredients.

Academia-Industry Partnerships

These public-private partnerships are among the most recent organizational innovations in higher education. They also may be the most problematic. What are the motivations for these partnerships? What are the reasons for forming these public-private, academia-industry partnerships?

- University-industry partnerships can be used to bring together the different pieces of the research puzzle. This might include different areas of expertise, pieces of knowledge, or even research equipment. The partnership brings together these components that neither party could assemble on its own.
- University-industry partnerships can facilitate the transfer of technology from the laboratory to the marketplace.
- University-industry partnerships foster experiential learning opportunities for students and access to prospective employees for industry. Internships, co-op work-study programs, and professor-for-a-day programs are examples.
- University-industry partnerships are used to deliver extension education programs where the extension specialist develops the training materials and a trade association delivers the program to the trainees (adult learners).

A Food Industry Partnership Example

This 13-year partnership involves the Frito-Lay, Inc. product development group and the Department of Agricultural Engineering (The TAMUS Agriculture Program, 1997). Through the partnership, Agriculture Program faculty contribute expertise to Frito-Lay in areas such as advanced process control, raw material understanding, low fat products and non-invasive sensing. As a result, Frito-Lay has improved the quality consistency of snack products, developed new low-fat products (Sunchips), and enhanced the understanding of frying, baking, and extrusion processes. Two senior scientists at Frito-Lay are adjunct faculty members at Texas A&M University. The partnership has received almost \$1 million in funding from the Texas Higher Education Coordinating Board's Advanced Technology Program. The Agriculture Program has benefitted through internships and co-op work-study programs for undergraduates, support for graduate assistantships, and the placement of graduates as scientists, engineers, and production managers with Frito-Lay. Communications are emphasized with monthly technical meetings.

A Partnership to Build Partnerships

The Institute of Food Science and Engineering was formed to build partnership arrangements between The TAMUS and industry. The Institute itself is based on a partnership involving the Agriculture Program, the College of Veterinary Medicine, and the Engineering Program. Furthermore, the Institute includes four centers that partner to provide a research and programmatic focus to food science activities related to food safety, food processing, nutrition, and consumer demand. The Institute's mission is to strengthen and expand research, education, and outreach programs related to all aspects of food by utilizing dynamic initiatives to establish priorities that meet present and future challenges through interdisciplinary efforts of The TAMUS, the citizens of Texas, the nation, and the world.²

A Unique Partnership with Texas Stakeholders

The Agriculture and Natural Resource Summit Initiative is a partnership between the Agriculture Program and Texas agriculture and natural resource stakeholders. Its purpose is to serve as an apolitical forum based on the principle that Texans can find workable solutions to any challenge. The Summit Initiative held its eighth summit dealing with biotechnology in September 18, 1999. Previous summits have dealt with issues relating to food, federal farm programs, natural resources, rice, forestry, and agricultural finance.³

² For more information, refer to the IFSE website at <http://ifse.tamu.edu/>.

³ For more information on the Biotechnology Summit, which emphasized partnerships to build centers of research excellence and to facilitate technology transfer, see the web site at <http://agsummit.tamu.edu/biotech/>.

The Summit Executive Committee (SEC) serves as the “board of directors” for the process representing the stakeholders, who are the “owners” of the Initiative. Members of the SEC represent diverse stakeholder groups. The SEC provides the organizational structure for continuing the work, identifies the high-priority issues for future summits and conferences, and recommends action plans and implementation procedures.

What Makes Partnerships Work?

This was the topic of a 1998 symposium sponsored by the Council on Food, Agriculture, and Resource Economics (C-FARE) in Washington, D.C. Proliferating agricultural and environmental issues, tighter budgets, and pressure for accountability emphasize the vital role of partnerships involving land grant universities and the U.S. Department of Agriculture. The symposium identified the following characteristics of successful partnerships (C-FARE, 1999):

1. Successful partnerships involve talented people performing different roles. In other words, the partners each bring different resources or capabilities that when combined allow for a productive joint venture.
2. Successful partnerships have clearly-defined goals and each partner is committed to these goals.
3. Successful partnerships have effective leadership to facilitate communications and to build trust among the partners.
4. Successful partnerships provide for rewarding and recognizing the individual partners according to their contributions to the partnership.

The first two points are important for successfully initiating a partnership; the latter two are crucial for sustaining the partnership. Developing a reward system is particularly challenging. Rational individuals will continue to participate in the partnership so long as they feel they are receiving back as much or more as they are putting into the partnership. If they start to worry about slackers or free riders, however, the trust that is so vital to sustaining the partnership may be eroded.

Impediments to Partnerships

Several organizational and behavioral factors within our institutions must be overcome to improve the prospects for developing partnerships. Four of these general factors were identified during the Symposium as significant impediments (C-FARE, 1999):

1. Traditional **incentive and reward systems** in academia are designed to reward individual productivity, creativity, scholarly capacity and intellectual effort, and thus, often do not support partnering activities. These incentive and reward systems are disciplinary-based, reflecting the substantial role of peer review by professional societies in journal publication, scholarly recognition, and other activities. To overcome this impediment, we must be more creative in developing incentive systems that reward multidimensional accomplishments, with less reliance on peer review and publications.
2. The **professional culture**, especially in academia, favors independent scholarship over multidimensional collaboration. An example of the influence of this culture is that graduate students receive little or no experience working on teams or opportunities to develop interpersonal skills. To overcome this impediment, we should place greater emphasis on developing teamwork and interpersonal skills in graduate training and professional development programs.
3. The administrators of **disciplinary-based units**, tend to undervalue multidimensional partnering activities. Consequently, meeting facilities, communication mechanisms, and support systems needed to sustain partnering are often lacking. The old adage is that people have problems, but universities have departments. To overcome this organizational impediment, partnering entities, such as institutes, centers, and consortia, should be provided with additional authority, resources (e.g., seed money), and incentives based on outcome- and issue-based approaches. We also should streamline approval processes for partnerships to maintain trust, credibility, initiative and enthusiasm among participants.
4. The lack of **accountability**, i.e., clearly-defined goals and effective, measurable performance criteria, and concerns about **intellectual property rights**, especially involving public and private sector initiatives, results in partnership failures. To overcome these impediments, we need better criteria for evaluating multidimensional performance of partnerships and for allocating funding. Also needed are equitable ways to resolve intellectual property rights disputes.

Special Challenges for Public-Private Partnerships

A recent report to Congress provides some important guidelines for public-private partnerships involving research and scientific discovery (U.S. House of Representatives, 1998). These include:

- Maximizing success through research partnerships. Partnerships can be valuable tools for leveraging the public's research investment and are being encouraged by state and federal agencies. These partnerships can take on many different forms including university and industry laboratories.

- Trust and communication between university and industry partners is crucial and must be cultivated. This starts with common goals and complementary skills.
- The independence of the university and industry partners must be protected and their differing missions respected.
- Universities must not lose sight of their missions of teaching students and performing basic scientific and engineering inquiry. They should work synergistically with industry but must not become industry.
- University researchers, who benefit from public funding, should not be constrained from publishing or otherwise disseminating any research results due to proprietary claims of industry partners.
- Industry should not substitute university partnerships for their own “in-house” research programs.

What If the Partnership Is Not Working?

Ineffectual partnerships are often left to flounder. In bureaucratic organizations, they may be carried on the books for years with no action. This becomes an embarrassment for the parties involved and can be a deterrent to the building of new partnerships. Hold a funeral. Have a ceremony to celebrate what was accomplished. Try to learn why it failed. Then move on.

Checklist for Institutions Considering Partnerships

To summarize these factors affecting partnership successes and failures, here is a checklist of key questions to ask when considering the formation of a partnership.

- Why do we want this partnership? Will the outcomes be consistent with institutional goals? Do the goals of the prospective partners overlap?
- Do we have the commitment of resources, time, talent, and leadership to make it work and to sustain the relationship?
- What will we learn? Will the participants learn new approaches and methods that will improve long-term performance?

Conclusion: Partnerships as Learning Experiences

Too often in universities, we do not take time to learn. This is particularly true when it comes to the building, nurturing, and terminating of partnerships. We need to take time to identify what

contributed to the success, or resulted in the failure, and then develop systems for passing this knowledge along to new partnership participants. Building the partnering skills of our faculty should be a goal of continuing professional development programs. We have much to learn about building responsive, productive, and sustainable partnerships. Universities can build better partnerships by becoming more like learning organizations, using partnerships as learning opportunities (Senge, 1990).

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